

## **PARTNERS AND THEIR ROLE IN THE PROJECT**

### **Partner No. 1a – Consiglio Nazionale delle Ricerche (CNR), Istituto di Scienze dell'Atmosfera e del Clima (ISAC)**

#### **Brief description of the organization**

The research activities of the Institute of Atmospheric Sciences and Climate (ISAC) within the National Research Council (CNR) are mainly concerned with atmospheric physics, chemistry and biology. The unit has been in operation for 30 years, since 1984 it participated or coordinated several research programmes and projects at national and European level, focusing on: the impact that climate and microclimate produce on cultural heritage and cultural landscape, identification of environmental technology for the damage assessment of cultural assets both indoor and outdoor, definition of sustainable conservation strategies, management of the microclimate also connected with energy control and comfort of people. The unit collaborates with various research institutes in Italy and Europe, with public organisations responsible for the conservation of cultural heritage and with local authorities for indoor and outdoor damage assessments of cultural assets and it is involved in university teaching and professional training courses in the fields of Atmospheric Physics, Climate Change, Durability of Building Materials and Sustainable Protection of Cultural Heritage.

#### **Role and tasks in the project**

Due to its experience in European projects, CNR-ISAC will be responsible for the overall coordination of the project (WP10). CNR-ISAC is expert in environmental/climatic aspects indoor and outdoor and on those related to the Energy efficiency applied to Cultural/Historical Buildings. It is expert also in normative field (active in CEN). Related to her experience of clustering and platform activities CNR-ISAC will create the working group, cluster of the projects financed in LCE 3 – 2014/2015 call (see Task 8.7). Leader also of the Tasks 1.3- 7.3- 8.4- 8.7- 10.1- 10.2- 10.3

### **Partner No. 1b – Consiglio Nazionale delle Ricerche (CNR), Istituto per le Tecnologie della Costruzione (ITC)**

#### **Brief description of the organization**

The Institute of Construction Technologies (ITC) of the National Research Council (CNR) has its principal location in San Giuliano Milanese (MI) and different branches in Padova, Bari, Roma and Milano. All its activities are within the field of construction, its mission being the improvement of the built environment, as the study of new methods in construction, environmental well-being, sustainable building, quality and performance evaluation of building systems and different heating, ventilating, air conditioning and refrigeration (HVACR) applications. The Institute is a reference in the building sector, thanks to the different skills available in the Institute offices.

#### **Role and tasks in the project**

CNR-ITC has a high experience in the field of Energy Efficiency from different point of view and equipped scientific laboratory to perform physical analyses. In Cheap GSHPs it will be devoted to the particular aspects linked to use of nanotechnologies to rise the thermodynamic and thermo-physical properties of the fluid in the innovative system using nanofluids and to perform scientific analysis. Task leader of 3.6.

### **Partner No. 2a – Università degli Studi Di Padova (UNIPD), Dipartimento di Geoscienze (DG)**

#### **Brief description of the organization**

The University of Padova is one of Europe's oldest and most prestigious seats of learning: it is a multidisciplinary university which aims to provide its students with both professional training and a solid cultural background. The University stands out particularly for the excellence of its research and allocates substantial funding research as investment for the future. The University of Padova is member of T.I.M.E. (Top Industrial Managers for Europe), a network gathering 55 of the world's leading Technical Universities

and Engineering Schools and offering, through a system of voluntary bilateral agreements between its members, promotion and recognition of academic excellence and relevance to the international labour market in the form of Double Degrees in Engineering and related fields.

The Department of Geosciences covers a wide range of disciplines in basic and applied geosciences (palaeontology and palaeoclimatology, sedimentology and stratigraphy, structure and tectonics, physical geography and geomorphology, applied geology, mineralogy, petrology, geophysics). The mission of the Department is to increase knowledge of the Earth and to prepare students at all levels to succeed in industry, government, business and academe. Current research projects at the DG can be grouped into four main Programs concerning (i) *deep earth*, disclosing the secrets of the Earth's interior; (ii) *sediment systems, past life and deep time*, a key to unravel the history of our planet and the origins of life as we know it; (iii) *applied mineralogy, petrography and geophysics* probing deep into the very structure of ancient artifacts and modern cements; (iv) *geological and hydrogeological hazards* getting human development and natural environment to balance in an ever-changing world.

#### **Role and tasks in the project**

UNIPD-DG with UNIPD-IE will be the co-coordinator of the project helping CNR-ISAC in the scientific part, being the 2 parts complementary for the management of the different aspects. In particular the department UNIPD-DG is leader of WP1 where the expertises and skills acquired in the specific theme of thermal properties characterization, shallow geo-exchange potential mapping and environmental impact are an added value for the project activities. UNIPD-DG is also Task leader 1.2.

### **Partner No. 2b – Università degli Studi Di Padova (UNIPD), Dipartimento di Ingegneria Industriale (IE)**

#### **Brief description of the organization**

The Department of Industrial Engineering promotes and manages scientific and technological research projects in all fields of industrial engineering, including aerospace engineering, chemical and process engineering, electrical engineering, energy engineering, and materials and mechanical engineering, as well as industrial technology transfer initiatives. All the Department's activities aim at reaching international levels of research excellence by an interdisciplinary approach. International cooperation with top universities and research centres is actively fostered. An interdisciplinary approach and constant cooperation with leading foreign Universities and Research Centres grant high international standards in its activities. Academic Co-operation and Research Agreements are stated both at National, European (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Norway, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, Switzerland, U.K) and International level (China, India Tunisia U.S.A., Brazil, Mexico). Among the research activities in DII, the "Energy and Buildings" group is looking at the IEQ (Indoor Environmental Quality), the energy performance of buildings and components, HVAC systems, low and medium temperature geothermal energy, district heating and cooling.

#### **Role and tasks in the project**

UNIPD-IE with UNIPD-DG will be the co-coordinator of the project helping CNR-ISAC in the scientific part, being the 2 parts complementary for the management of the different aspects. IE has a high knowledge and expertise in modelling and development heat pump systems, patent development, standards and regulation knowledge and buildings' energy balance evaluation so it will play a key role for Cheap GSHPs. IE will leader of Tasks 1.4- 3.4- 4.1– 4.2.

### **Partner No. 3 - Fundación Tecnalia Research and Innovation (TECNALIA)**

### **Brief description of the organization**

TECNALIA RESEARCH & INNOVATION is a private, independent, non-profit research organisation. Legally a non-profit Foundation, TECNALIA is the leading private and independent research and technology organisation in Spain and one of the largest in Europe, employing 1,419 people (164 PhDs) and income of 110 Million € in 2012.

TECNALIA operates in the following market sectors: Sustainable Construction, Energy and Environment, Innovation and Societies, Industry and Transport, ICT and Health and Quality of Life.

TECNALIA is very active in FP7, participating up to June-2013 in 353 projects and coordinating 76 of them. TECNALIA has a strong market orientation aiming at achieving major impacts in economic terms, by means of innovation and technological development.

The University of the Basque Country (EHU/UPV), TECNALIA and Donostia International Physics Center (DISC) are the founding members of Euskampus (2010, <http://euskampus.ehu.es>), a project with attained the qualification of International Campus of Excellence from the Spanish Ministry of Education (2010). Euskampus partners with the PRES of the Universities of Bordeaux in the Euskampus-Bordeaux Transborder Campus. TECNALIA is an equal opportunity employer. Current ratio of female/male employees is 40/60. The current proposal will be carried out by the Sustainable Construction and the Energy and Environment Divisions.

**The Sustainable Construction Division** covers the whole value chain of the construction sector, from materials building and products to the buildings themselves, the city and the civil infrastructures. The division's activity focuses on efficient use of resources (biobased materials, recovery materials from Construction and Demolition Wastes (CDW), high performance materials, energy efficiency, building industrialization and automation...), upgrading and life extension of buildings and infrastructures and urban regeneration, paying special attention to cultural heritage. According to its commitment with the European industry, TECNALIA is an active member of the main European technological platforms, as the European Construction Technology Platform (ECTP) – member of the High Level Group – and its Research for Future Infrastructure Networks in Europe (reFINE) initiative, Energy Efficient Building European Initiative (E2B EI) – member of the Steering Committee and the Scientific Council -, European Steel Technology Platform (ESTEP) – Spanish Delegate in the Construction Group -, JPI Cultural Heritage and Global Change: A New Challenge for Europe – Member of the Advisory Board -, The Future Rail Joint Technology Initiative (SHIFT2RAIL).

**The Energy and Environment Division** experts have a large experience on strategic actions for an integral Energy sustainable development of regions, covering environmental, economic and social aspects. It has established different lines of research covering new materials, industrial sectors, energy efficiency in buildings and districts, renewable energy, Smart-Grids, Life Cycle Assessment & Ecodesign, having a large experience on training and engaging policy makers on the adoption of innovative policies. Now, Tecnalía leads a new proposal for the European ENERGY Research Alliance (EERA) to strengthen the European Strategic Energy Plan (SET-Plan strategies). The initiative for a new Joint Programme focuses on the economic, environmental and social impacts of the energy policies and technologies evaluated from a Life Cycle perspective.

### **Role and tasks in the project**

TECNALIA will lead WP5, developing the information data models and the Decision Support System.

TECNALIA will also contribute in the development of the user interfaces with the 3D visualization of the information. Besides, TECNALIA will also perform as leader of Task 7.4 regarding the LCA analysis of the developed technologies in WP7. It will also take part in dissemination, awareness and exploitation strategies. Task leader also of 5.1 – 5.2 – 5.3.

### **Partner No. 4 Energesis Group S.L. (ENERGESIS)**

#### **Brief description of the organization**

Energesis is an SME which, from its origin in 2004 was specially committed to research, which is in our DNA, because our company started as a spin-off from the Universitat Politècnica de València (UPV) and because its first product – geothermal heat pump systems especially suited for the Mediterranean climate - was developed within an EU research effort. Since its origin, the company has participated in several shallow geothermal developments in Spain, mainly in the Mediterranean, being in this regard one of the pioneering and leading companies in Spain.

Another of the key activities of the company has been its participation in many R&D projects around geothermal technologies. In particular, the development of geoactive structures (in form of geothermal piles or geothermal diaphragm walls), the construction of novel Transient Response Test systems and the research on the combination of geothermal energy with other sources like air source Heat Pumps, has been the focus of such activities. In the last years, our Company has turned its attention to other areas in the Energy Efficiency sector such as Energy Auditing and Monitoring and the implementation of efficient lighting systems based on LED sources.

#### **Role and tasks in the project**

As SME Energesis will be leader of WP8 and Tasks 6.1- 8.1- 8.2- 8.5 dealing with the business and market oriented aspects related with the introduction of the technology to be developed in Cheap GSHPs.

Energesis will be also in charge of one of the demo sites (WP6), to be installed at UPV to take advantage of some existing infrastructure.

### **Partner No. 5 - Research and Environmental Devices S.r.l. (RED)**

#### **Brief description of the organization**

R.E.D. Srl, founded in January 2006, is a research SME with the CNR of Italy as minority shareholder. Its core activity is on one hand the development of sensors, purpose built sensing devices and monitoring systems; on the other hand energy efficiency improvements in buildings, diagnosis and surveying, renewable energy installations, low enthalpy geothermal systems in particular. Based on the industrial experience and the academic education of its staff additional competences are business modelling, investment planning, project management, life cycle and life cycle cost analysis. The SME is partner in several FP7 collaborative research projects.

#### **Role and tasks in the project**

RED, linked to its experience in the application of coaxial sondes it will lead WP3 “Coaxial GSHE and installation machine”. RED will be one of the key person in the development of Coaxial GSHE and will follow strictly also the WP2: “Helicoidal GSHE and drilling machine” where leads task 2.5. RED will be also active in the heat pumps adaptations (Task 4.3) and in the performance assessment of case studies (WP6). As SME it will contribute in the definition of business strategies and requirements (WP8), as well as in dissemination, awareness and exploitation strategies. Task leader of 3.3-6.3-8.6

### **Partner No. 6 – Galletti NV (GALLETTI)**

#### **Brief description of the organization**

Galletti Belgium is a subsidiary of the Galletti Group that take active part in the development process of the products. The Galletti Group is a European Company (the leader is Galletti S.p.A. founded in 1906) that includes a complete offer of products and services in the HVACR market: Chillers, Free-Cooling Chillers, Heat Pumps and Multifunction Units for Air Conditioning, Complete Geothermal Solutions, Hydraulic Terminals as Fancoils, Fan heaters, Cassettes etc., Precision Air Conditioning for Data Centers, Air Conditioning for Telecom Applications, Dehumidifier for domestic and industrial application (especially for swimming pools), Commercial Refrigeration systems for LT and NT, Air Handling units and Rooftops, After Sales Services. The “vertical” concept of the productions organization as a Galletti Group philosophy let the group to be independent in the production and development of: Finned coil heat exchangers, Sheet

metal parts, Copper and Iron Piping, Electrical panels, Electronic Hardware (controls and inverters), Customized Software for units and plants managements.

#### **Role and tasks in the project**

GALLETTI will lead WP4 where the developing and supplying the innovative Heat pumps where it is the main actor and Tasks leader of 4.4. They will actively participate as well in the demonstration of the technologies within the WP6. Finally, as big industry it will also take part in dissemination, awareness and exploitation strategies with higher possibilities of introduction of the new technologies inside the market.

### **Partner No. 7 – Romanian Geoexchange Society (RGS)**

#### **Brief description of the organization**

The Romanian Geoexchange Society (acronym RGS) was created in 2003, at the initiative of several companies and specialists active in the field of geothermal heat pumps. RGS is a non-government organization (NGO). The objective of RGS is to promote on the Romanian market the heating and cooling systems with geothermal heat pumps (HVAC GSHP), to create a national regulatory frame including a coherent training and certification system for the Romanian specialists in our domain, to direct the end-users to renewable sources of energy, to interface the Romanian GSHP specialists with international partners and authorities, to contribute at the European training and certification frame, to cooperate in international projects. RGS individual members are the best Romanian specialists. They are also members of REHVA and of ASHRAE – Danube Chapter, authorized by IGSHPA and by other international and Romanian authorities. Many of them are certified energy, quality or environment auditors, recognized technical and scientific authorities in HVAC GSHP. All RGS members worked many times pro-bono for this organization. The RGS budget is mainly supplied by members' subscriptions and payments for participation in specialized projects and the amounts are mainly used to maintain the webpage, to prepare folders and presentation materials, to organize seminars, to participate at international contacts a.s.o. In the last years RGS elaborated, transmitted and supported a lot of initiatives, documents, studies, communications and events in partnership with central, national and local authorities, in order to promote RES, geothermal, environmental approach on the Romanian HVAC market. **RGS** is member of European Geothermal Energy Council since 2005 and RGS Executive Manager was member of EGEC Board in 2008-2010.

#### **Role and tasks in the project**

The activity profile of the Romanian Geoexchange Society is devoted to "Training, Education and Dissemination" WP9 where it is the leader. RGS will thus coordinate all activities related to WP9, namely training courses, workshops, realisation of dissemination and training material.. For these reason it will be the leader of all tasks in WP9 (Tasks 9.1 – 9.2 – 9.3 – 9.4).

### **Partner No. 8 – Aner Servicios Informaticos (ANER)**

#### **Brief description of the organization**

ANER Sistemas Informaticos S.L. is a company that offers an integral solution for the needs of an organization. It is a global technology partner for the companies, it continuously incorporates the improvements our clients suggest, and provides the conversion of information into value for their companies in a collaborative way. ANER is a company with over 25 years' experience in the field of IT with 34 employees, and its activity is divided into development of standard and custom software, installation and maintenance of hardware, consulting, and especially the development and commercialization of SaaS software. It primarily operates in the Spanish market and now is involved in a process of internationalization towards the Hispano-American market. It is a UNE-ISO/IEC 20000-1:2011 in Information Technology certified company and in 2009 received the prize to the best service company by the Chamber of Commerce.

#### **Role and tasks in the project**

Aner will be in particular devoted to develop the freeware software platform for low enthalpy geothermal systems and heat pump developments, and the platform for user assessment in new geothermal installations. This GUI/web infrastructure will be developed in order to have fluid and friendly user experience. Its activity will be mainly in WP5, as leader of Task 5.4, and in the dissemination activity of WP9.

#### **Partner No. 9 - REHAU AG&Co (REHAU)**

##### **Brief description of the organization**

REHAU delivers “Unlimited Polymer Solutions,” and is the premium worldwide brand for polymer-based innovations and systems in construction, automotive and industry. The company generates continuous growth through its expertise and innovative capabilities in materials development, systems design and surface technology. More than 14,000 employees at more than 170 locations in more than 50 countries around the world ensure the success of the independent, privately held company.

REHAU conducts business throughout the world, tailoring its products and services to the demands of each region. The know-how that is necessary for the development and implementation of new products and processes is transferred from the corporate technique – which is concentrated at the location of company foundation Rehau – into the different regions. REHAU AG+Co is an experienced manufacturer of geothermal pipe systems. The solutions offered by Rehau are innovative and world leading. REHAU AG+Co is also a supporting consultant in designing of geothermal installations. Rehau is specialised on shallow geothermal energy systems.

##### **Role and tasks in the project**

REHAU has a lot of experience in developing of new geothermal systems and to find a solution for special geothermal systems. REHAU is a premium worldwide brand for polymer-based innovations and systems. It will be leader of Task 2.2 and as SME it will also take part actively in the demonstration and also in dissemination, awareness and in particular in exploitation strategies and market introduction of the new products.

#### **Partner No. 10 – Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)**

##### **Brief description of the organization**

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) comprises five faculties with 337 teaching chairs and all together over 13 000 employees. Therefore, FAU is the second largest university in Bavaria and a significant factor in scientific research and teaching far beyond the region. By its broad scientific potential FAU represents an important and efficient partner to industry and commerce as well as to cultural organizations. The budget of about 800 Million Euro means an essential economic factor in the region. At this time about 38 000 students are registered. The Geozentrum Nordbayern (Geocenter of Northern Bavaria GZN) as part of FAU comprises 11 professorships plus academic and technical staff organized in three research teams: (I) Crustal dynamics (geodynamics, geochemistry, petrology, resources geology, sedimentology & reservoir geology), (II) Applied Geology (hydrogeology, engineering geology, Mineralogy) and (III) Palaeoenvironmental analysis (palaeobiology, carbonate sedimentology & microfacies). There is a well-established cooperation with the Institute of Geography, in particular the professorships for Physical Geography, Soil Science and Remote Sensing/GIS. Within the GZN the Crustal Dynamics team, a working group of specialist for soil science and treatment of waste disposals, exists since 2009. Previous research included compilation and management of large data sets within a GIS environment and data visualisation by maps e.g. of the ecological functions of soils. These documents are already practically used by federal planning authorities e.g. for environmental protection programs. Current research is focussed on (I) flood protection, (II) shallow geothermal and (III) deep geothermal

energy use. Based on the integration of soil, botanical and hydrological data, GIS based guidelines for the optimization of natural drain-regulations in low mountain ranges, filter effects of soils in water protection areas and transfer processes of pollutants from soil to plant are currently under development. Research on shallow geothermal energy use aims at standardization and optimization of decision making processes in the implementation of shallow geothermal energy applications. Research on deep geothermal reservoirs involves both projects on hydrothermal and petrothermal (EGS) systems. We are particularly interested in constraining geothermal reservoir properties from macro- to microscale. This involves analysis of 2D and 3D seismic data sets, integrated interpretation of well log data, reservoir petrology as well as core and reservoir analog measurements of hydraulic and thermophysical properties (rock density, porosity, permeability, thermal conductivity, heat capacity, P-/S-wave velocities etc.).

#### **Role and tasks in the project**

Leader of WP2 (new technologies) and tasks 1.1-2.1-6.4. Thanks to its equipping laboratory, it will be able to perform measures on soil/rock material properties, providing information on relevant geothermal properties for creating the DSS. FAU will provide a case study sites in Germany and it will participate in the activity of dissemination, awareness and exploitation.

### **Partner No. 11 – Centre For Renewable Energy Sources And Saving (CRES)**

#### **Brief description of the organization**

CRES according to Laws 2244/94, 2702/99 and 3734/09 is the national coordination centre of Greece on renewable energy and energy saving technologies, including geothermal energy and the official Greek government consultant in national policy, strategy and planning. In addition, CRES carries out applied research and works as promoter, organiser and advisor on all aspects of planning and implementation of renewable energies. CRES is one of the National Coordinators for the Covenant of Mayors in Greece. CRES employees 180 persons, the majority of them being experienced scientists and engineers experts in the fields of renewable energy and energy efficiency. It has participated in more than 1000 European, national and international projects, acting also as coordinator in many of them. They include applied research and technological development projects, demonstration and/or commercial application projects, energy policy studies, development of energy information systems and energy modelling, investment feasibility studies, techno-economic feasibility studies, environmental impact assessments, market research as well as activities for the promotion and dissemination of RES/RUE and ES. Through these projects, CRES has developed co-operation with many public and private organisations, at a national, European and international level.

#### **Role and tasks in the project**

Due to this experience in GROUNDMED project CRESS will be leader of all WP6 particularly dedicated to follow the Demonstration activity. In real and virtual cases. CRESS will lead also Tasks 6.2 – 6.8 – 7.5 - 8.3 and actively participate in training and dissemination. CRESS will provide a case study sites in Greece.

### **Partner No. 12 – Scuola Universitaria Professionale della Svizzera Italiana (SUPSI)**

#### **Brief description of the organization**

SUPSI is a professional university offering more than 30 Bachelor's Degree and Master's Degree courses. It has four fields of activity: First-level University Degree Courses, Continuing Education, Research and Services. Is characterised by cutting edge education which unites classical theoretical-scientific instruction with a professional orientation. Great care is given to research, carried out in key sectors on competitively acquired projects with European and national agencies or mandated by organisations and institutions. It is composed by 5 main departments: Department of Environment, Construction and Design (DECD),

Department of Innovative Technologies, Department of Business and Social Sciences, Department of Health Sciences, Department of Formation and Learning .

**Role and tasks in the project**

SUPSI in collaboration with UNIPD-DG is strongly involved as contributor to WP1 in geological mapping, collaborating with the partners climatic data and energy requirements for building typologies, providing samples for representative cases for both geological conditions and buildings. In WP1 SUPSI will coordinate the creation of multi parameter geothermal maps. SUPSI will contribute to the development of regulations and best practices for environmentally sound development of the technology foreseen in WP7, and to workshops and development of training material in WP9. Task leader 1.5.

**Partner No. 13 - SLR Environmental Consulting Ireland Limited (SLR)**

**Brief description of the organization**

SLR is an environmental consultancy of geologists, engineers, planners and environmental scientists with longstanding experience in the resources exploration industry at both operational and senior management levels. SLR staff has combined professional skills and experience of the geothermal sector in Ireland and in Europe. SLR offers an extensive range of geothermal and renewable energy related services to governments and international private companies and institutions.

SLR is part of the SLR Group, an international environmental consultancy with a network of offices in Australia, Canada, Ireland, New Zealand, Southern Africa, UK and USA. It provides advice and support on a wide range of strategic and site specific environmental issues to a diverse and growing base of business, regulatory and governmental clients. SLR specialises in the energy, waste management, planning & development, industrial, mining & minerals, acoustics & air quality and infrastructure sectors. The company employs over 1,000 professionals and had a turnover in 2012 of over UK £ 100m.

**Role and tasks in the project**

SLR will lead WP7 based on their previous experience in the REGEOCITIES project and other projects on the shallow geothermal market in Ireland as well as the Regulatory and legislative aspects. They will be responsible for providing the real and virtual case study sites in Ireland as part of WP6 and will assist the WP leaders for WP1 in providing data and facilitating the compilation of the geological environments for Ireland and the other countries where SLR is active. SLR will make a similar contribution to WP8 where they will provide market information and facilitate the deployment of the GSHP technology overviewed. Finally it will also take part in dissemination, awareness and exploitation strategies. Task leader 6.5-7.1-7.2- 7.6.

**Partner No. 14 – Hydrahammer (HYDRA)**

**Brief description of the organization**

Hydra S.r.l. is a company specialized in hydraulic equipment, highly skilled in the designing and manufacturing process. It has developed among the decades breakthrough innovations in the following products: excavator drills, solar drilling equipment, auger bits and rods, manual demolition hammers, submerged pumps, boring slides, boring machines, core lifter, pile hammers and pile drivers, tie rod machines, special drilling machines.

**Role and tasks in the project**

The main role regards the construction of innovative machines where is very active in a national and international levels and owner of a lot of patents. Hydra will design and manufacture different solutions in order to reduce the cost of drilling in geothermal installation, improve the quality of boring in order to increase the heat transfer efficiency, reduce the time of drilling using new technology developed by the company. Its principal activity is in WP2, WP3 and WP6. As SME Hydra will contribute also to the market and dissemination aspects. Task leader 2.3- 2.4-3.1- 3.2- 3.5

**Partner No. 15 – GEO-GREEN s.p.r.l. (GEOGREEN)****Brief description of the organization**

Geo-Green is a contractor company specialized in: placement of GSHE's in Belgium (only coaxial inox GSHE); execution of Thermal Response Test (TRT) and interpretation; feasibility studies of geothermic project; placement of well in Belgium; execution of soil and groundwater remediation projects.

**Role and tasks in the project**

As company specialised in drilling activities GEO-Green will be involved in the definition of methodology and activity in the drilling operations. Geo-green will work very strictly with Hydra and also REHAU. It will contribute also to the activity of market and dissemination as SME in the project. It will strictly follow the case study in Belgium where it is responsible.

**Partner No. 16 – UNESCO Regional Bureau for Science and Culture in Europe (France) (UNESCO)****Brief description of the organization**

UNESCO has been entrusted by the international community to promote education and international cooperation on renewable energy since the establishment of the World Solar Commission in 1995. Recently, UNESCO launched its overarching Climate Change Initiative RENFORUS (Renewable Energy Futures for UNESCO Sites) which aims to enhance and apply the climate change knowledge base to building green societies, involving the sustainable use of renewable energy sources in Biosphere Reserves and World Heritage Sites. The environmental preservation of UNESCO Sites requires an increased use of locally available renewable energy sources.

RENFORUS plays a catalytic role in building a knowledge base and associated policies and disseminating related best practices on the use of environmentally sound energy technologies and their adaptation to specific contexts and needs.

UNESCO has been pursuing these goals worldwide in collaboration with the international Sustainable Energy Development Centre (ISED), UNESCO Chairs on Renewable Energy (RE) and through the support of its Field Offices, including the UNESCO Regional Bureau for Science and Culture in Europe. Lately Res have become increasingly intertwined with climate change due to a broader recognition of the growing role of energy in achieving the Millennium Development Goals (MDGs) and in climate change mitigation policies, facing a global trend of continuing growth in energy consumption.

**Role and tasks in the project**

The role of UNESCO is strictly linked to the activity in the field of application of the geothermal system in Cultural Heritage construction. The activity is done with a strict collaboration with the coordinator (CNRISAC) to demonstrate the applicability in the field of Historical buildings and districts as storage possibility where the applicability of these technologies is actually absent and need to be disseminated with high potentialities. It will provide a real case study in Albania where the Minister of the Culture gave his agreement and also other virtual case studies from World Heritage of UNESCO that will be defined during the project. It will be very active in regulation and dissemination activities with its enormous network. Task leader 1.6- 6.6

**Partner No. 17 – PIETRE****Brief description of the organization**

Pietre Edil SRL is a global engineering, architecture, energy saving, design and planning company's solutions. Since our founding in 2005, we have used project and engineering solutions to enrich people's lives and help organizations succeed. Our company has completed numerous projects, collaborated with major companies on national and international markets (Italo Romena, World Bank, ECOSUNTEK SPA,

Bioenergy Green Podari, etc.) and has continuously improved team working and interaction ways with customers and partners. Pietre Edil's mission is to deliver intelligent solutions for our clients through the creative blending of human need, environmental stewardship, value creation, science and art. Our **engineering** and project solutions result from a collaborative process that encourages multidisciplinary professional teams to research alternatives, share knowledge and imagine new ways to solve the challenges of the built environment.

**Role and tasks in the project**

Pietre has in the project the main role to bring the requests and need of the end users. In fact it is a global engineering, architecture, energy saving, design and planning company that look for the solutions to the demand of owners of all kind of buildings historical and not. It will furnish all the data necessary to develop the modelling of a virtual case in Romania and will help in the dissemination in the Romanian market of the new technologies of Cheap GSHP's