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Deliverable D8.6

Report on the planning of the National Training Courses and Workshops

WP8 – T8.2

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Document History

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This document was verified by the project Coordinator and was not submitted to an internal review because:

- (a) its format and content were subject of a preliminary / initial debate in the Consortium with the occasion of the approval of the TED Strategy and the TED Plan already reported to EC in M6,
- (b) its content is a synthesis of all partners inputs (courses and workshops planning) realized in the period covering M63 – M64.

The revision uploaded in EU – EASME in the REV 2 FINAL file exactly includes all the corrections, observations and suggestions made by the Coordinator.

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Publishable summary

The **GEO4CIVHIC D8.6 Report on planning of the national training courses and workshops** is a public document delivered in the context of **WP8, Task 8.2 – Training program** due in M64 (July 31st, 2021).

This document has the purpose to inform about the planning of the training events meant to disseminate the research results obtained on the project duration, the know-how regarding the shallow geothermal application in civil and historical buildings and to inform the stakeholders and the civil society about the use of the scientific results of the project.

At the basis of the scientific dissemination events planned in this document is the package of training tools developed in the project and which includes all the research results from the project but, to the same extent, integrates a larger volume of scientific information obtained in projects with similar / related themes carried out in the last few years. The TTP includes the Training Manual formed by 7 Volumes, 2 Technical Brochures (a HB oriented brochure and a general one), 2 User Manual (DSS and APP), all these 11 products being created in English language and their translation into 6 national languages (Italian, French, German, Spanish, Romanian and Greek), meaning a total of 77 products / files / training tools as presented in D8.7. All these products can be find in the GEO4CIVHIC project website geo4civhic.eu.

The planning deliverable includes mainly the training courses and workshops that will be implemented in M65-M68 meaning up to the project finalization (30th of November 2023).

of the deliverable D8.6, apart of the planning information, an important part of the content presents the rules that must be respected by the course and workshop organizers in order to implement efficient training events. These rules were also discussed in the consortium in the preliminary management meeting M60 – Athens.

A brief chapter including the **main conclusions** of the D8.6 presented at the end of this deliverable summarizes the steps in implementing this plan and monitoring the results.

Abbreviations

APP user manual	Application on field user manual
DSS user manual	Decision support system user manual
ECoE	European Centres of Excellence in shallow geothermal application in civil and historical buildings
GA	Grant Agreement
GEO4CIVHIC	Most Easy, Efficient and Low Cost Geothermal Systems for Retrofitting Civil and Historical Buildings
HB brochure	Historical building brochure
H&C	Heating and Cooling
M[nn]	Month [nn]
RGS	Romanian Geoexchange Society
T[n.n]	Task [n.n]
TTP	Training Tool Package
TED	Training, Education and Dissemination
TTP	Training Tools Package
WP	Work Package

1. Introduction

The lead partner of WP8, T8.1, T8.2 and T8.3 is **Romanian Geoexchange Society RGS**. The T8.2 Training program is a result of all the consortium partners contribution.

The elaboration of the **D8.6 Report on planning of the national Training Courses and Workshops** is included in the task **T8.2 – Training Program** that formally should start in M35 according to the initial project Gant Graph. However, due to the pandemic situation that increased the project duration with 20 months, delaying the work on demo sites and delaying the elaboration of the TTP accordingly, the final period of time allocated to courses and workshops was set to be M64 – M68, In addition, the start of the Training Program had to be preceded by the finalization of the Training Tools Package that was accomplished and reported also in M64 (D8.7).

In fact, the first debates / decisions on all the conceptual aspects of the training system / events / methodology started in the first 6 months when the TED strategy was drafted / debated / approved by the consortium.

In the last management meeting before the initiation of the effective training program, in M60 – Athens, the partners debated / approved the draft content of this deliverable D8.6 according GA provisions.

2. Synthesis table of planned national Training Courses and Workshops

In M64 the responsible partners sent their own planning information. The synthesis of their inputs is presented in the following planning table.

COUNTRY / RESPONSIBLE PARTNER for training events	TRAINING EVENT TYPE / P – in presence O – online H - hybrid	Nr Participants	Target stakeholders	LOCATION / DURATION (hours)	DATE (month / day)	MAIN TOPICS and Training tools	TRAINERS / LECTURERS
1. SPAIN / UPV, SOLINTEL, TECNALIA	Course specialists / H	25	Installer, drillers, designers	Valencia, Bilbao, Madrid / 2 h	October 23	Volumes 1, 2, 3, 4, 5, 6, 7 in synthesis, DSS demonstration	TECNALIA, UPV, SOLINTEL specialists
	Workshop non specialists / H	25	Public deciders, investors, builders, architects	Valencia, Bilbao, Madrid / 2 h	October 24	Volumes 1, 2, 3, 4, 5, 6, 7 in synthesis, DSS law level, business models	TECNALIA, UPV, SOLINTEL specialists
2. GERMANY - FAU	Course specialists / O	20	Deciders, researchers	Online / 3 h	October 5	Volume 2, 3, 6, 7, GEO4CIVHIC synthesis, News in Germany	FAU, UBeG, Terra-Infrastructure
	Workshop non specialists / O	20	Master and PhD students	Online / 3 h	July 26	Volume 2, 3, 6, 7, GEO4CIVHIC synthesis, News in Germany	FAU, UBeG, Terra-Infrastructure
3. ROMANIA / RGS, PIETRE EDIL	Workshop specialists / H	20	Architects	Bucharest / 2 h	July 14th	Volume 5, 6, 7, GSHP fundamentals	RGS & PIETRE
	Workshop non specialists / H	10	Public deciders	Bucharest / 2 h	July 17th	Volume 1, 2, 3, 4, 5, 6, 7 in synthesis, GSHP fundamentals	RGS & PIETRE
	Course specialists / P	35	Engineers	Oradea / 3 h	October 27	Volume 1, 2, 3, 4, 5, 6, 7 in synthesis, DSS demonstration	RGS
4. GREECE - CRES	Course for specialists / O	50	Geologists	Zoom / 2 h	November	Volume 2, 3, 5, 6, 7, geological aspects in demo cases	CRES
	Workshop non specialists / O	50	Engineers	Zoom / 2 h	November	Volume 1, 2, 3, 4, 5, 6, 7, demo cases, DSS demonstration	CRES
5. BELGIUM – Wallonia – GEOGREEN*	Course for specialists / H	25*	Geologists	Namur / 2 h	November	Volume 2-3-4-5-7 + demo cases	GEOGREEN, GALLETTI
	Workshop non specialists / H	25**	Decision makers	Namur / 2 h	November	Volume 2-3-4-5-7 + demo cases	GEOGREEN, GALLETTI
6. BELGIUM – Flanders – GALLETTI**	Course for specialists / H	25*	Geologists	Namur / 2 h	November	Volume 2-3-4-5-7 + demo cases	GEOGREEN, GALLETTI
	Workshop non specialists / H	25**	Decision makers	Namur / 2 h	November	Volume 2-3-4-5-7 + demo cases	GEOGREEN, GALLETTI
7. IRELAND - GEOSERV	Course for specialists – H	15	Drillers, Installers, Designers, Architects	Hybrid / 3 h	End Oct.	Volumes 1 to 5, Summary of volumes 6 & 7	GEOSERV, UNESCO, Galletti / RED (TBC)
	Workshop non specialists – H	15	Decision makers, local authorities, Gov. departments	Hybrid / 3 h	End Oct.	Summary of Volumes 1 to 5, Focus on volumes 6 & 7	GEOSERV, UNESCO, Galletti / RED (TBC)
8. SWITZERLAND - SUPSI	Course for specialists / Presence	20	Engineers, Drillers, Installers, Designers, Architects	Gordola / 2h	November 23	Summary of all Volumes, Focus on volumes 5 & 6	SUPSI, (UNIPD material)
	Workshop non specialists / Presence	15	Engineers, Public deciders, investors, builders, architects	Mendrisio / 1h	8 Sept. or November	Summary of all Volumes, Focus on volumes 4 & 5	SUPSI, (UNIPD material)
9. ITALY - UNIPD	Course for specialists	30	Geologists, Engineers	Padova / 2 h	Early Nov.	Volume 1, 2, 3, 4, 5, 6, 7, demo cases, DSS demonstration	UNIPD
	Workshop non specialists	50	Journalists, politics	Lignano (Venice) / 2 h	End Oct.	Volume 1, 2, 3, 4, 5, 6, 7 in synthesis, GSHP fundamentals and APP	UNIPD
16 training events		500					

* / ** The training events in Belgium will be simultaneously organized in Wallonia and Flanders with bilingual presentations provided by GEOGREEN and GALLETTI. The physical presence will be ensured at Namur and both events will be organized hybrid. There will be 50 participants/event, 25 from each language area.

3. General approach on the national workshops and courses

3.1 Pre-courses activities

Debate / approvals / training the trainers in the last but one management meeting M60 - Athens

In April 2023 in the **M60 – Athens Management Meeting**, the consortium management included in the agenda an internal meeting with the name “**Training the trainers**” with all the actors involved in the training activities: the partners involved in the training events organization AND the partners involved in the elaboration of the TTP – Training Tool Package (Training Manual, User Manuals, Technical Brochures), all of them being directly or indirectly involved in the project training activity. This special meeting debated and approved the main aspects of the training events (content, structure, teams, timing and methodology and this D8.6 deliverable draft structure and content) according GA provisions.

In the respective meeting were defined the **training teams** for each training event: partners and specialists involved in other countries courses; partnerships, collaboration, split agenda for each course / workshop; possibility to teach from a different country in online courses, the differentiation between the approach of training events for specialists and for non-specialists, the use of the know-how from different EU projects. Each organizer and co-organizer partner were involved in at least one national training course and one national workshop.

The agenda of each type of event (for specialists or for non-specialists) was envisaged according the scientific project results as they were presented in the 7 volumes of the Training Manual, the 2 User Manuals and the 2 Brochures, in WPs results and in the project deliverables and obviously, adapted at the knowledge level of the participants in the event.

Each partner responsible for the training courses under T8.2 planned minimum 1 training course and 1 workshop / country, meaning for Italy, Spain, Germany, Belgium (French / Dutch language separately), Swiss, Romania, Ireland, Greece.

All the training events have to also focus on civil and historical buildings. The responsible partners had the possibility to decide the most suitable addressed stakeholders, optimum number of participants, the type of presence (“P” - in person in a location set by the responsible partner, “O” - online or “H” – hybrid) and event duration according the concrete situation / level of knowledge of the addressed stakeholders. The training events could also include demonstrations, demo site visits, debates with stakeholders participations, networking activities that could maximize the events impact and efficiency.

The **period of time allocated for training courses is set** at the end of the research activity and the elaboration of the Training Tool Package.

All the Training Tools Package in English language and in the participants’ languages is freely available in all the training events. They are uploaded in / downloadable from the GEO4CIVHIC website.

The training activity organized by the network of 4 **European Centres of Excellences for shallow geothermal application in civil and historical buildings** in Spain – UPV, Italy – UNIPD, Germany – FAU and Romania – RGS **is not included in this T8.2 training activity but in T8.6.**

The planned training events are to be disseminated through GEO4CIVHIC website and by social media. The implemented training actions and results will be also disseminated through the same communicating channels.

3.2 Target stakeholders

The stakeholders taken into consideration for all the training events (courses, workshops, demonstrations, site visits etc.) were identified from the beginning of the project as being the following:

- Shallow geothermal specialists: Geologists, Manufacturers for GSHP Equipment, GSHP applications designers, GSHP Researchers
- Constructors, architects, building, structural and H&C engineers, technicians, installers
- Energy and Environment Agencies
- Historical buildings and Monument protection specialists
- Regulatory authorities in energy and H&C
- Local authorities and energy decision makers at local, regional and national level
- Real estate investors and funding institutions
- Lawyers (specialised in environment, construction)
- Ecologists, opinion formers, media
- Building owners representatives, general public interested in energy savings and ecology
- Undergraduate and PhD students (especially in ECoE training system but not only).

The training events planned by the responsible partners tried to put together in a single training event stakeholders with compatible interests and level and knowledge.

3.3 Training Tool Package used in training events

Since the first debates at the beginning of the project, the consortium decided the TTP components and up to the M64 a comprehensive package of training tools integrally finalized.

The TTP were elaborated in **English language** by large teams of scientific researchers from all the partners in the consortium and, after being edited, they were translated in 6 national languages.

All the TTP components in English and translated languages (a total of 77 documents) are uploaded / accessible in the project website. The TTP consists in:

The Training Manual - 7 VOLUMES. Each volume focuses on a different aspect of the domain of shallow geothermal technology. They were largely described in D8.7 – Production of Training Manual and Technical Brochure.

The 7 volumes are:

- VOLUME 1 – Building energy loads
- VOLUME 2 – Geology and mapping
- VOLUME 3 – Drilling methodology, machines and heat exchanges
- VOLUME 4 – Geothermal heat pumps
- VOLUME 5 – Sizing GSHP and hybrid technologies
- VOLUME 6 – Environment and standards
- VOLUME 7 – Historical and world heritage buildings

The Technical Brochure and the Historical Building Brochure

The 2 **Brochures** are concise training tools being intended for the training / workshops for beginners / stakeholders with an incipient level of knowledge in the field of H&C shallow geothermal energy as potential users / public deciders / students etc.

The User Manuals – DSS and APP

The two **User Manuals** were elaborated respectively by **TECNALIA** and **RED** and are meant to be used as support in the decision process both in the design and in the work on site.

Specifically, the DSS User Manual aims to provide with a rapid pre-project assessment, to perform a pre-engineering cost and impact analysis to convince building owners to install GSHP systems. The final purpose of the DSS is to facilitate pre-design discussion around the installation of a GSHP in a retrofit project in an urban environment. This decision support tool serves on one side, for decision makers to understand the benefit of investing in GSHP and, on the other hand, for GSHP experts to contract projects with this technology. The DSS will also have an educative value for other stakeholders of energy renovation. The user of the DSS tool is not expected to have expert knowledge in geothermal energy.

The Support on field for workers **User Manual** elaborated by **RED** is linked to the activity developed in GEO4CIVHIC project – the task “Development of an Application for support in situ workers on Geothermal field”, whose aim is to simplify and encourage the work of designers and GSHE installers.

The detail information regarding the TTP responsibilities and elaboration steps are presented in D8.7 – Production of Training Manual and Technical Brochure.

3.4 Post – training events activities: feedback collecting, evaluation criteria and event reporting

The **self - monitoring** and the evaluation of the success of training events are essential for the improvement of the management and of the content of the following training activity especially in the ECoE courses activity. For this purpose, each partner that organizes a training event within T8.2 is responsible for the monitoring the event effectiveness. The most simple and efficient mechanism to collect the feedback of the participant stakeholders in order to demonstrate the immediate impact of the event on the trainees is represented by the questionnaire.

For a homogeneous approach the organizers were trained to use a questionnaire (in the Annex) distributed during the course / workshop and collected from the participants at the end of the event. The questionnaire is meant to collect the feedback valuable information from stakeholders about the event quality but, at the same time, to learn possible issues related to the implementation of the newly developed technologies for GSHPs in their country / region.

The self-evaluation of the effectiveness of the training event (quantitative / qualitative) is based on some clear evaluation criteria:

- **Quantitative** criteria: number of participants / auditors / trainees, number of presentations, course duration, distributed training materials, number of received feedbacks,

- **Qualitative** criteria: diversity and representativity of target stakeholders, consistency of feedback received from the participants, interest expressed, ideas transmitted, proposals, requests for further information / documents / project results etc.

The detailed presentation of the event must be compiled / elaborated by the organizing partner and sent to WP and Task leader in 10 days after the event's day in the format of an **Event Report** that must include:

1. ORGANIZATIONAL ASPECTS

Organizing partners

Type of event (course / workshop // in presence, online, hybrid // duration)

Target participant stakeholders (type, number)

Event agenda (subject / trainers)

Distributed training materials

Venue (country / city / name of organization)

Central / Local authorities involved (if any)

Event promotion / dissemination (mass media, websites, online, platforms, social media)

Budget aspects (if representative)

2. CONCLUSIONS

Questionnaire feedbacks, conclusion according the quantitative and qualitative criteria. Barriers / suggestions / questions / improvements

3. ANNEXES

Detailed Course Agenda: subjects / trainers / cooperations / duration (I)

List of participants: names, contact phone number and email address / signatures (II)

Representative Pictures from the event (III)

ANNEX - QUESTIONNAIRE FOR COLLECTING THE FEEDBACK OF THE PARTICIPANTS

GEO4CIVHIC - Training Course / Workshop on the research results

Course place / date _____

*Dear Stakeholder / Course participant,
GEO4CIVHIC training courses focused on GSHP specialists and non-specialists and aim to transfer know-how and to enhance the understanding of the new technologies and relevant technical aspects and implications of shallow geothermal systems. The following questionnaire filled in with your opinions is a feedback tool that will allow us to improve the training activity and to obtain valuable information about the possible issues related to the implementation of GSHP.
All information and personal data will remain confidential. Thank you in advance for your cooperation and contribution to GEO4CIVHIC project!*

Course participant data

Name and Surname ¹	
Organization	
Address (country)	
Function	
Email / Phone	

Please fill out with marks from 1 to 5 (1 for minimum, 5 for maximum)

	Mark
<i>Technical and scientific content of the training course</i>	
<i>The novelty of the information received</i>	
<i>Quality of the presentation</i>	
<i>Suitable duration of the training course</i>	
<i>Received didactic document</i>	
...	

What are, in your opinion, the issues that should be add to this course or supplementary deepen or detailed. Please refer to content and quality of the course, the knowledge acquired, the didactic materials received and any other relevant aspect:

-

¹ **Privacy information:** we guarantee that the processing of personal data received in this questionnaire is in accordance with the regulations on the confidentiality of the information and it will be used exclusively for the elaboration of internal statistics to the project. In no case, your data will be used for purposes different than those determined in the GEO4CIVHIC project. If you have any concerns or questions, please contact us.