

GEB NEWSLETTER

Issue 3: January 2023

About GEB:

The GEB Project is supported by the Erasmus + Programme Key Action 2, Capacity Building in Higher Education, CBHE, to help reduce the lack of skilled engineers in geothermal engineering in Egypt, to unlock the potential of this clean and sustainable energy resource.

GEB Activities February 2022 to January 2023:

The project has seen different activities from meetings to workshops to international trainings. The month of June saw great training programs for our project. These trainings, along with several planned future trainings, are designed to equip the Egyptian staff from the partner Egyptian Universities with the skills and expertise that are needed to dive into the world of Geothermal Engineering. Each training is focused on an aspect that each university is renowned for, to all work together and nourish this multi-disciplinary field of Geothermal Engineering, giving it a chance to grow in Egypt.

EGYPS 2022 Technical Conference - Feb 2022

During February 2022 Eng. Nancy Azazy's Session About Geothermal Energy & GEB Project & at EGYPS 2022 Technical Conference. Nancy Azazy's Session title was "**Dynamic Modeling & Allocation of Controlled Geothermal Power Plant on The Distribution Network Using Artificial Intelligence**" which is a technical paper from her master's degree research, about The Geothermal Energy and Artificial intelligence. During the Session Nancy presented the "Geothermal Energy Capacity Building in Egypt" (GEB). **Nancy Mentioned that The main objectives of the GEB project are;** Constructing the Egyptian-European collaboration in the field of geothermal energy, Technical capacity building by establishing **the first geothermal Pilot Plant** (heating and

cooling system) in Cairo University to exploit geothermal energy, Capacity building in the field of economic evaluation and returns of the geothermal projects and Establishing center & new graduate engineering program in the Egyptian higher education institutions (HEIS) for geothermal based on the European standards. Nancy added that GEB Project is a Co-funded by the Erasmus+ program of the European, coordinated by Cairo University and has ten partners: Ganope Co., New and Renewable Energy Authority "NREA", Ain shams University "ASU", Suez Canal University "SCU", Aswan University "ASWU", Egypt Japan University of Science and Technology "E-JUST", three European Universities (University of Bologna "UNIBO", Universidad de Valladolid "UVa" & University of Zagreb "UNIZG")



26th Job Fair in Faculty of Engineering- Cairo University - May 2022

At the 26th Job Fair in Faculty of Engineering- Cairo University, the Rock Engineering and NDT Research Group (Faculty of Engineering-Cairo University) presented the GEB project activities and objectives to students, graduates, and companies of different disciplines. Students and graduates showed interest in the new geothermal energy postgraduate program, whilst companies discussed with the GEB project team

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future possibilities and technical needs for investment in geothermal energy. The GEB project team had a discussion with Prof. Mohamed Samy (Vice President of Cairo University for Community Service and Environmental Development), Prof. Mohamed ElAttar (Vice President of Cairo University for Graduate Studies and Research), Prof. Hossam ElDin Abdel Fattah (Dean of Faculty of Engineering-Cairo University), Prof. Randa Abdel Karim (Vice Dean of Faculty of Engineering-Cairo University for Community Service and Environmental Development).



Daily News Press Release May 2022

Promoting the project in the daily national newspaper. Daily news (Egypt) published an article discussing the project objectives and goals. ([14 entities participate in project to build capacity of geothermal energy in Egypt - Daily News Egypt](#))

Participation in “Inauguration Ceremony of the Energy Technology and Climate Change Laboratory” - May 2022

Dr Amr Elbanhawey presented project GEB at the inauguration ceremony of the Energy Technology and Climate Change Laboratory, at Ain Shams University. The project activities and target outcomes were presented via a Power Point slides to an audience of 60 attendees, including the President of Ain Shams University,

and the Deans of the Schools of Engineering at both Ain Shams and Cairo Universities.

Workshop “Climate Change Adaptation Strategies for Buildings and Horticulture” May 2022

Eng. Ehab Farouk participated in a workshop entitled “Climate Change Adaptation Strategies for Buildings and Horticulture” organized by the National Research Institute of Astronomy & Geophysics, in cooperation with the British University of Brunel, and sponsored by Minister of Higher Education and Scientific Research. He presented the goals and objectives of the Geothermal Energy Capacity Building in Egypt (GEB) project as it contributes to climate change. The workshop is part of the activities of an Egyptian -British project participating between National Research Institute of Astronomy & Geophysics and the University of Brunel British; to coordinate the joint efforts and research between the two sides, as a kind of scientific participation of the renewable energy resources in Egypt.



Online Workshop “UNIBO with Africa” - November 2022

Dr. Mohamed Elkarmoty discussing GEB Project in online webinar titled “UNIBO with Africa: education & research to practice” organized by University of Bologna. Dr. Elkarmoty presented GEB project objectives and main outcomes emphasizing on the advantages of blending

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African and European teaching/learning methodologies and cultures in the designing of postgraduate programs. He also discussed the benefits of the academic staff and students' mobility programs from Egypt to Europe and from Europe to Africa.

The Energy Economics Winter School- American University in Egypt - November 2022

Dr Amr Elbanhawy presented project GEB at the Energy Economics Winter School at the American University in Cairo. The project activities and target outcomes were presented via a Power Point slides to an audience of 20 attendees, including graduate students from the American University in Cairo; Ain Shams University; Cairo University; and the British University in Egypt. ([Winter School 2022 - BaSEF \(basef-network.com\)](https://www.winterschool2022.com))

University of Valladolid & ecoFOREST Training - June 2022

On June 2023, the training was held at the University of Valladolid and ecoFOREST, Spain. The training involved technical sessions and site visits. It covered geological aspects and design concepts in shallow geothermal systems, boreholes and boreholes design, concept of thermal response test and many more topics about Spanish technology and innovation in geothermal field.



Pilot Plant Training & Exploration at Cairo University & Ain Shams University in Egypt – October 2022

September 12-14 saw an interesting training at Ain Shams & Cairo Universities, Egypt. The training featured several informative lectures, as well as visits, delivered by EU university professors. The first training day kicked off, at Ain Shams university, with lectures regarding practical aspects of shallow geothermal designs followed with several case studies, from professors Marija Macenic and Tomislav Kurevija from University of Zagreb.

The second and third training days were at Faculty of Engineering-Cairo University, featuring more sessions and discussions regarding design of pilot plants & characteristics of potential heat pumps offered by professors Cesar Chamorro from University of Valladolid & Professor Francesco Tinti from University of Bologna. These two days also included a visit to the pilot plant site at Faculty of Engineering-Cairo University, where we carried out several preliminary design and investigation tests and recorded results. Practical training on the thermal response test was also carried out on the same site, where we recorded some results. All tests' results were later discussed at Rock Engineering Laboratory, Faculty of Engineering-Cairo University.

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Pilot Plant at Cairo University – October 2022

A pilot geothermal HPAC system is to be constructed at Cairo University campus according to the work program of project GEB. In October 2022 the boreholes of the pilot system were ready for the thermal response of the geothermal ground resource. Initial test of TRT were undertaken by a group of experts from University of Bologna and Cairo University at Cairo University campus. The tests were presented in training course that took place in October 2022 where all the project partners attended and examined the pilot systems.



Develop Postgraduate Course

Postgraduate courses on geothermal energy had been developed and reviewed by GEB project partners. These courses are ready to be part of the educational system in fall 2023.



Training in Italy 2023

On 30 January, [Geothermal Energy Egypt - Project GEB](https://geb-project.info/) enjoyed a productive site visit to The Lardarello geothermal site, hosting the world's first ever geothermal power plant. Over three days of technical training, participants were able to appreciate the careful geological engineering that ENEL (a renowned Italian green power utility developer) is undertaking, as well as the innovative reservoir regeneration and gaseous effluent management at this unique site mid-West of Italy. The participants enjoyed visiting the power plant Nuova Sasso II, and Valle Secolo, in addition to the infamous Lardarello's own Geothermal Museum!



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Participants were also able to learn about the district heating applications that ENEL provides to the local residents and businesses by utilising hot geothermal steam. Space and process heating for food production and green-houses applications were arranged with lots of lessons being learnt.

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Advertising GEB

The project members have been keen on advertising the project to attract potential students, and to attract partners from the industry that are willing to adopt this technology and apply it commercially. This has been through the regular posts on the Facebook page (<https://www.facebook.com/gebproject>) that aim to increase people's knowledge and interest in Geothermal Energy and its potential as a clean and sustainable source of energy. Additionally, the participating institutions have mentioned the project and its potential on their respective websites, links to these websites can be found on the project website (<https://www.geb-project.info/pages/Partners>). The tools being developed for the project, such as the pilot plant and the lab-scale model, will also be a powerful tool in showing the potential stakeholders the power of Geothermal Energy.

Disclaimer

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