

## 3<sup>rd</sup> Newsletter

JUNE 2022

**Demonstration of an advanced technique for eliminating coal mine wastewater (brines) combined with resource recovery**

### Achievement of a milestone



#### Installation of the demo plant in Poland

In March and April 2022 the most important LIFE Brine-Mining project milestone was achieved: Various technologies comprising the LIFE Brine-Mining desalination plant were assembled in Poland's Ziemowit mine. The installation of the innovative pilot system begun and its operation is expected to start the following months.



Photos from LIFE Brine-Mining pilot system site

#### Coordinating Beneficiary



GREECE



NATIONAL  
TECHNICAL  
UNIVERSITY OF  
ATHENS (NTUA)

#### Associated Beneficiaries



POLAND



Silesian University  
of Technology

SILESIAN  
UNIVERSITY  
OF TECHNOLOGY



POLSKA GRUPA  
GÓRNICZA

POLSKA GRUPA  
GÓRNICZA S.A.  
(PGG)



Research  
Institute

GŁÓWNY INTYTUT  
GÓRNICZWA (GIG)



THE NETHERLANDS



LENNTECH



SEALEAU B.V.



TITAN SALT B.V.



TITAN PROJECTS



GREECE



NEVIS - NOVEL  
ENVIRONMENTAL  
SOLUTIONS S.A.



THERMOSSOL  
STEAMBOILERS S.A.



## Assembling of the pilot system units in the Ziemowit mine



### October 2021 & February 2022

#### Arrival of containers and other equipment

Placement of fence, gate, gravel and concrete slabs in LIFE Brine-Mining site



Photo No 1:  
Placement of gravel

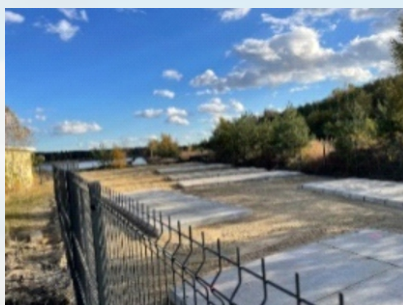


Photo No 2:  
Placement of concrete  
slabs for the leveling  
of the containers



Photo No 3:  
Placement of extra gravel  
between some of the slabs

### March 2022

#### Arrival of containers and other equipment

Placement of the containers and IBC tanks in the Brine-Mining site by a crane within the first days of arrival

### May 2022

#### Towards an operational plant

The technology providers companies engineers are working on the connection of the units. A few more steps and the desalination plant will start operating!!!



Photo No 4:  
Placement of IBC tanks  
in the site by a crane



Photo 5,6,7:  
Placement of the containerized technologies  
in LIFE Brine-Mining site by a crane





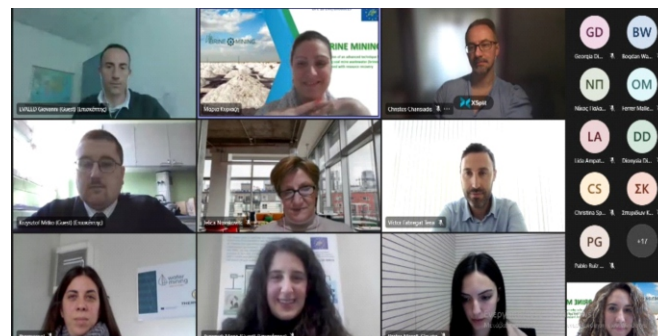
## LIFE Brine-Mining Workshop



The LIFE Brine-Mining Workshop was successfully held on March 10, 2022, with the participation of established scientists and highly qualified professionals working in the field of evaporators technology!

In total, 33 people attended the workshop. Among the participants were members of the LIFE Brine-Mining consortium and students from the **National Technical University of Athens**.

The conclusions that came up from the workshop were that the evaporators and/or crystallizers are necessary units for a Zero Liquid Discharge Desalination system. However, their use is linked to some difficulties. The most important challenge is their high energy consumption, even though significant progress has been achieved in the heat exchange technologies. Some of the proposed solutions are the coupling of evaporators with renewable energy sources and waste heat.



Inspiring European projects like the **LIFE Remine Water**, **LIFE Desirows**, and **Water Mining HORIZON project**, the **Silesian University of Technology** in Poland, **Veolia**, a transnational company with activities in water management and waste management, and **THERMOSSOL**, a company with expertise in constructing steam boilers, were represented in the workshop by their members, who showed their works on the evaporation technologies for wastewater minimization!



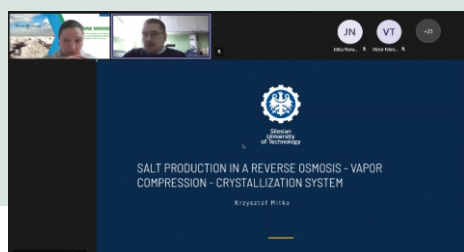
Mrs. Claudia Pastor Morell (CETAQUA), representative of the LIFE REMINE-WATER project.



Mr. Fabregat Tena (Regenera Levante), representative of the LIFE DESIROWS project.



Miss Maria Avramidi (NTUA), representative of the LIFE Brine-Mining project presented the design of a MED evaporator.



Dr. Krzysztof Mitko, representative of the Silesian University of Technology in Poland, and Mrs. Maria Kyriazi, member of NTUA.



Mr. Giovanni Silvestri, representative of EVALED company, presented the selection criteria and case studies in the mining industry.



Miss Christina Xenogianni (THERMOSSOL), representative of the WATER MINING HORIZON project.

## Events



### Participation in the Aquatech exhibition - November 2021

From the LIFE Brine-Mining project consortium, SEALEAU participated in the Aquatech exhibition held in November 2021 in Amsterdam. On November 2<sup>nd</sup>, the SEALEAU team had the possibility to share with the exhibition participants the project results, especially with regards to the Policy brief prepared, and currently being updated, by SEALEAU.



The team of SEALEAU B.V. in the Aquatech exhibition in Amsterdam.

## Upcoming Events



### 2<sup>nd</sup> Stakeholder Consultation Event - June 2022

Keeping in pace with the 1st Stakeholder Consultation Event, which took place in the premises of the Central Mining Institute (GIG), in Poland, the 2nd Stakeholder Event will be conducted 9 months later, in the premises of the Ziemowit mine, where the demo plant is located.

The project consortium will re-invite members from the political, scientific, industrial, and the commercial sector in Poland, to inform them about the project progress: the placement and connection of the pilot system units in the area of the mine, the system's first results on the coal mine wastewater treatment and the potential of transferability in other sectors and geographical areas.



Photo from the 1st Stakeholder Consultation Event

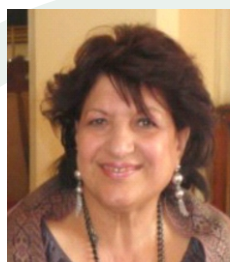
### 3<sup>rd</sup> monitoring visit - June 2022

On June, 2022 the 3rd monitoring visit of the LIFE Brine-Mining project will take place in the premises of PGG, Poland. The project's monitoring expert, Mr. Elias Demian will visit onsite the Brine-Mining demo system to inspect the units combined for the desalination of the saline effluent and the recovery of clean water and marketable salts. Representatives from the project consortium will then present to the monitoring expert the project progress since the last monitoring visit, which was held online in June 2021.



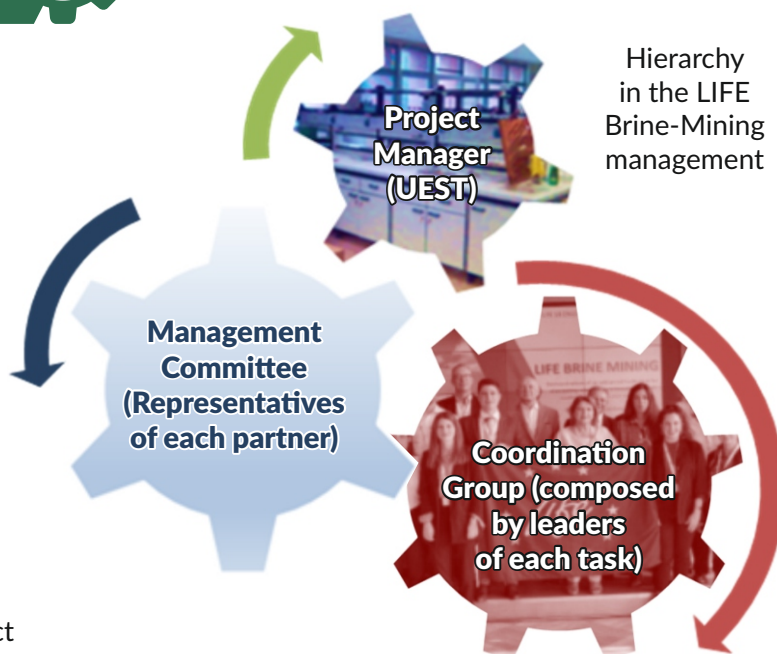


## Meet the LIFE Brine-Mining Management Committee



### NTUA

**Prof. Maria Loizidou** (PhD in Chemical Engineering – University of London) - Professor at National Technical University of Athens in the School of Chemical Engineering and Head of Unit of Environmental Science & Technology ([www.uest.gr](http://www.uest.gr)). Supervisor of over 175 environmental projects and over 600 publications in international scientific journals. In 2017, Prof. Loizidou was awarded the first Green AWARD for LIFE SOL-BRINE project, voted the best LIFE ENVIRONMENT project for the period 1992-2017 among more than 4,000 LIFE projects.



### Główny Instytut Górnictwa (GIG)

**Dr. Grzegorz Gzyl** (PhD Eng.) – Assistant Professor at GIG, a specialist in the field of hydrogeology, geology and water protection. Coordinator and project manager in several completed and ongoing international projects focusing on groundwater contamination assessment and treatment, mine water assessment, management and treatment, and recovery of energy and chemicals from mine water.



### Lenntech

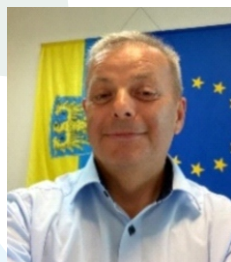
**Mr. David van Lennep** (MSc. Mechanical Engineering) – Managing Director with Master in Business Administration, more than 30 years of experience in engineering, speaking five languages: Dutch, English, German, French and Italian.



### Nevis

**Mrs. Lida Ampatzi** (Bsc, MSc University of London-QMC) - Senior EU Funded projects expert having lengthy experience in EU funded proposal submission and implementation. She has been consulting to SME's, Local Authorities, Research Institution and NGO's having successfully managed over 20 projects the last 15 years. She currently manages LIFE Brine-Mining project implementation of dissemination activities that NEVIS is lead beneficiary.

## Meet the LIFE Brine-Mining Management Committee



### PGG

**Mr. Bogdan Wawro** is a graduate of AGH University of Science and Technology in Krakow. Since the beginning of his professional career, he has been associated with the mining industry. For several years he worked in the field of IT and new technologies. He has rich and extensive experience in creating, managing, supervising, and monitoring vast, multi-platform IT environments. He also dealt with security issues in the field of IT and OT. Currently, he deals with organization and implementation of research in cooperation with technical universities, scientific and research entities.



### PGG

**Mr. Bartłomiej Bezak** is Project Manager and Head of the Team of Innovation and New Technologies at Polska Grupa Górnicza S.A. MSc Eng. Degree in Technical Physics at the Silesian University of Technology (SUT), Poland. Expertise in environmental physics. Coordinator of research and development projects of RFCS funds and the Polish National Center for Research and Development.



### SEALEAU

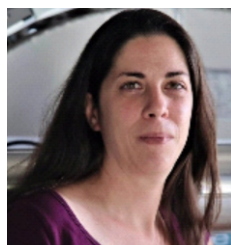
**Dr. Dimitris Xevgenos** (Mechanical Engineer, MSc at Electrical Engineering, PhD at Chemical Engineering, Post Doc at Civil Engineering) - Senior Scientific Coordinator at TU Delft. Principal investigator in the SOL-BRINE project, coordinating the design of the innovative SOL-BRINE system. Scientific Coordinator of GReen Desalination project, the Innovation Manager of ZERO BRINE project and the Executive Project Coordinator and Innovation Manager of WATER-MINING project. He is the Innovation Manager of the LIFE Brine-Mining project.



### Silesian University of Technology

**Dr. Krzysztof Mitko** - lecturer at the Silesian University of Technology. His research interests include membrane technologies and electro-membrane processes (electrodialysis, electrodeionization, membrane capacitive deionization); removal of metal ions from waste waters; seawater, coal mine water and industrial wastewater desalination.

## Meet the LIFE Brine-Mining Management Committee



### Thermossol

**Mrs. Christina Xenogianni** – Designer / Managing Director. Degree in Physics from National and Kapodistrian University of Athens with specialization in Solid State Physics in 2003. MSc in micro-optoelectronics from Materials Science and Technology Department (MSTD) of the University of Crete. Work experience in research for construction and properties of quantum microcavities at MSTD and IESL-Forth. She joined the Designing Department of THERMOSSOL in 2005 and is currently the managing director of THERMOSSOL.



### Titansalt

**Mr. Robert van Voorst**, Managing Director of Titan Salt has over 25 years of experience constructing and installing salt plants and his expertise in metallurgy is critical to determining the best installation strategy, developing cost estimates, and finding the optimal replacement strategy. Mr. van Voorst holds a Bachelor's Degree in Mechanical Engineering and a Master's Degree in Business Administration, with advanced expertise in Metallurgy; Welding technology; Stress Analysis; Site and installation management; Equipment Fabrication; and Brown Field projects. His in-depth expertise in value engineering combined with his extensive field experience make him ideal for a wide range of complex and demanding design validations and installations.



### Titansalt

**Mr. Hans de Boer** Project Manager at Titan Salt has over 10 years of experience in EPC contract management in the chemical industry, especially in the field of salt crystallization plants. Mr. de Boer holds a Bachelor's Degree in Mechanical Engineering and a Master's Degree in Business Administration, with advanced expertise in Contract Management; Project Management; Quality Assurance; Site and installation management; Plant Commissioning; Plant Operation and Operator Training. His in-depth expertise in contract development and value engineering, combined with his extensive field experience, make him ideal for a wide range of complex and demanding design validations and installations.

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