

**SEADRION**



**FOSTERING DIFFUSION OF  
HEATING & COOLING  
TECHNOLOGIES USING THE  
SEAWATER PUMP IN THE  
ADRIATIC-IONIAN REGION**

**NEWSLETTER n.3**

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## About SEADRION project

The main objective of the SEADRION is to identify the benefits and barriers associated with the use of seawater heat pumps. Seawater heat pumps are considered ideal for heating and cooling buildings in coastal areas due to their attractive advantages of high efficiency, low carbon emission, and renewable energy sources. The exploitation of the seawater as an alternative energy source represents a strategic potential for all Adriatic countries regardless of political boundaries in becoming more independent in terms of energy supply. The project aims to continue the activities already carried out and supported by the MED Programme with the Enercoast project.

## Project deliverables – implemented and ongoing activities

### Blue growth strategy



#### Blue Growth Strategy

Within the frame of the project, a deliverable D.T3.4.2 Blue Growth Strategy for Ionian Adriatic Region was elaborated. The document's purpose is the update of the Ionian Adriatic Macro-regional Strategy incorporating the most important results and recommendations linked to Blue Growth through seawater heat pumps.

The main focus of the study is the improvement of the existing EU strategy for the Adriatic and Ionian Region, including the Blue Growth pillar, mainly through identifying reasons and possible interventions to implement seawater heat pumps into the Blue Growth Strategy.

Recommendations and information from all partner countries (Slovenia, Greece, Albania, Croatia) were taken into account during the writing of the study.



#### R&I recommendations to accelerate the development of seawater heat pump sector (D.T3.3.1)

The deliverable D.T3.3.1, which focuses on Research and Innovation activities to ensure the acceleration of incorporating heat pump technology in the building sector for heating and cooling, was successfully finalised. The document includes: an overview of the seawater heat pump technology, ongoing R&I projects related to the seawater heat pump sector, research and Innovation activities to promote the implementation of seawater heat pump technology, seawater heat pump biggest flaws and possible solutions. The document presents that the potential for the implementation of seawater heat pumps in the Adriatic-Ionian region is very large since a large number of public buildings, and especially hotel facilities, are located in the coastal area as well as on the islands and points out that the most important and most demanding part of the seawater heat pump system is the seawater intake system, where the most operational problems occur, such as lower system efficiency due to corrosion and biological fouling.

### PREFEASIBILITY STUDIES SEADRION

#### Prefeasibility studies

Six feasibility studies of potential seawater pilot plant installation were carried out for six buildings in MED area. The locations were identified by partners on a basis of selection criteria and the technology installation feasibility. Within the studies the economic, energy and environmental aspects were presented.

##### *Slovenia:*

Pre-feasibility study for the municipal building in Izola, pre-feasibility study for Sports hall in Kraška street

##### *Croatia:*

Pre-feasibility study for City administration building in Kaštel Sućurac

##### *Greece:*

Pre-feasibility study for Public indoor swimming pool in Kavala

##### *Albania:*

Pre-feasibility study for Elementary School Gjergj Kastrioti, pre-feasibility study for University Building Durrës

#### SEADRION platform

The main objective of the SEADRION network is to establish a network between SMEs, Research Organisations and Business Support Organisations from different regions of Adriatic – Ionian Area.

SEADRION platform will realise concrete support to networks thanks to project partners that will facilitate the management and the growth of the heat pump sector, focusing on the seawater heat pumps.

More information about SEADRION platform stakeholders can find on the following link:

<https://seadrion.fsb.hr>

# Project deliverables - implemented and ongoing activities



## Pilot plant installation in Alexandroupolis, Greece

Coherently with the project activities CERTH prepared a tender for the pilot plant, along with an agreement, to define the responsibilities between CERTH and the Municipality of Alexandroupolis, where the pilot plant is installed.

In November 2019, the contract has been awarded and signed by all involved parties. The pilot plant installation of a seawater heat pump was successfully completed in March 2020. The geothermal system was put into operation at the Fotis Kosmas stadium in Alexandroupolis to cover heating and cooling needs of the Stadium.

Technical characteristics of the installation: geothermal heat pump thermal power is 96 kW, open type of earthmoving, with two boreholes (one pumping and one re-injection, 50m deep each), the temperature of pumped water is 20°C, a telemetry and remote monitoring system was installed for collecting and recording data (temperatures, pressures, consumables, yields, etc.).

[More info](#)



## Policy Roadmap for the enhancement of H&C technologies through innovative seawater technologies (D.T3.4.1)

Project partners successfully elaborated the D.T3.4.1 deliverable which purpose is the enhancement of H&C technologies through innovative SWHP technologies.

The roadmap is providing guidance to regional governments, industry and other elements on the potential of seawater heat pumps and applications in ADRION area focusing on technology, markets and institutional issues.

A methodology for the enhancement of H&C technologies through innovative SWHP technologies was elaborated for each partner country of the SEADRION project.

The main focus of the study are the obstacles that investors and designers face in the implementation of seawater heat pumps and the measures and activities for each partner country that would contribute to increasing the application of such systems.



## Seadrion Memorandum of Understanding

Project partners signed no. 30 Memorandums of Understanding - The purpose of this agreement is to promote cooperation in engineering education and scientific research between the involved parties, to raise awareness about heat pumps, to share information that will be used to create business opportunities for manufacturers, distributors and dealers and create better climate for the utilization of heat pumps in the Adriatic-Ionian Region.

The agreement arose from the SEADRION project and the need to identify the benefits and barriers associated with the use of seawater heat pumps.

Exploitation of the seawater as an alternative energy source represents a strategic potential in becoming more independent in terms of energy supply regardless of political boundaries.



## 2nd Pilot plant installation in Croatia

UNIZAG FSB proposed a special hospital Thalassotherapy in the City of Crikvenica, which is located a few meters from the sea. The pilot project involves the installation of a high-temperature seawater heat pump to meet thermal needs in the summer and winter period in the Thalassotherapy, Crikvenica.

The heat pump will have two circles, the seawater circle and glycol circle used for heating pool and thermal baths in the building. For this reason, well depth 3m built previously in the mull for the pool needs will be used for seawater intake in order to have enough quantity of the water and to have an easy collection point for the seawater. Equipment for the pilot plant was delivered in several phases and last delivery was set of buffer tanks, which will be used for the balancing of the whole system and integration of different technologies in several phases.



**Thematic Heat Pump Day, Zagreb, Croatia**

On 30<sup>th</sup> September 2020 project SEADRION and Croatian Heat Pump Association organized a workshop called „Thematic Heat Pump Day“. Around sixty participants (60) joined the workshop from research institutions, private bodies, public authorities, small and medium, enterprises and energy agencies. UNIZAG FSB held a presentation “Potential of seawater exploitation in heat pump systems“.

The main goal of the workshop was to bring closer good examples of using heat pump technology and discuss the potential and possibilities of using heat pumps.

Regional Open Day's idea in the scope of Themed heat pump day and SEADRION project held at the Hotel national in Zagreb was to start the communication about projects, seawater heat pumps, present the pilot plants and share the experience between participants. An interesting discussion followed all lectures, and the participants got answers to a wide variety of questions. With that, it can be concluded that the workshop Regional Open Day was very successful.



**14<sup>th</sup> SDEWES 2019 Conference, Croatia**

SEADRION participated at 14th SDEWES conference that was held between 1<sup>st</sup> and 6<sup>th</sup> October, 2019 in the city of Dubrovnik, Croatia and it has brought together around 570 scientists, researchers, and experts in the field of sustainable development from 55 countries. SEADRION was presented by the project lead partner - University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture.

The 14th SDEWES Conference was dedicated to the advancement and dissemination of knowledge on methods, policies and technologies for increasing the sustainability of development by de-coupling growth from the use of natural resources and by a transition to a knowledge-based economy. All taking into account the economic, environmental and social pillars of sustainable development.



**Workshop "Projects Days", Croatia**

The SEADRION project team was one of the organizers of the workshop "Projects Days" and the second „SEADRION Open Days“ at the Faculty of Mechanical Engineering and Naval Architecture that took place on 14<sup>th</sup> November 2019 in Zagreb, Croatia.

The event Regional Open Day of SEADRION project took place in Zagreb, Croatia, on the 14th of November 2019, at the University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture. Around one hundred participants (100) joined the workshop from research institutions, private bodies, public authorities, small and medium enterprises and energy agencies. In the scope of the workshop, 9 lectures were held with the goal to inform the participants about their projects, main goals and to share the experience in their work area. In the end, the match-making event was organised in order to start a discussion between researchers and industry and to increase innovation level in the seawater heat pump sector.

[More info](#)



### **National workshop in Koper, Slovenia**

On 28th of November 2019, the national workshop was organized in Technical high school of Koper, Slovenia. The workshop was part of the open day for students – presentation of the school and its activities and also a presentation of various companies i.e. potential employers of students from the school. During this event, students had a possibility to visit classrooms where different presentations were held. One classroom was reserved for the presentation of SEADRION project were the main goals and aims of the project were presented as well as some concrete project results that were achieved (with focus on the feasibility study for the municipal building in Izola, pilot plants in Croatia and Greece). Students were also given SEADRION brochures and leaflets.



### **Open day and n.2 stakeholders meetings in Alexandroupolis, Greece**

On Tuesday, 13th of October 2020, CERTH started the operation of the pilot plant for the heating period of season 2020/2021. The open-air press conference was attended by local press and the Local Authority to whom the information on the project and specifics on the pilot plant were provided (due to the extreme weather conditions and Covid-19 situation the attendance of the civil society was limited).

Two stakeholder meetings took place on the same day - the 1st stakeholder meeting was organized in the Municipality of Alexandroupolis (to share installation experience, to identify possibilities of future collaboration and attraction of new investments), while the second meeting was organised at the offices of the Energy Hive Cluster in Alexandroupolis (a discussion was opened to the issues related to shallow geothermal energy in combination with energy saving interventions and energy upgrading of buildings).



### **Regional Open Day in Dubrovnik, Croatia**

The Open day (organised as lecture by DURA and City of Dubrovnik) took place at the Libertas University on 13th of March 2020. The lecture was attended by 32 students as part of the course Development and Project Management, and Ecology in Tourism.

The aim of the lecture was to show to students the implemented Seadrion activities, to present them the ADRION program as a funding tool, activities in relation to project management, encountered challenges during the implementation of the project, operation of the pilot plant installed in the Rector's Palace as well as the seawater intake located in old City Port.

# Seadrion and Corona pandemic



Although the Corona pandemic affected travelling, project meetings and workshops, partners struggled to maintain good communication and cooperation level in order to follow the implementation of project objectives and project schedule. The limitations were overcome by organising videoconferences, while free online platforms enabled the possibility to share and exchange documents and data.

## Next events



### Last SEADRION project meeting and final conference

Due to Coronavirus travel restrictions the organisation of the last project meeting in Dubrovnik (Croatia) was cancelled and replaced with the organisation of an online meeting and final conference.

This meeting will also be a final one where partners will present all accomplished activities and deliverables and dissemination activities of project results as well. On the final conference partners presented project results and Three main outputs: SEADRION pilot plant installation and operation experience, SEADRION transnational cooperation network for development of seawater heat pump sector in the ADRIANIC region and Common strategy to enhance the use of seawater heat pumps for heating and cooling in ADRIANIC region



### Next EU workshops/meetings/conferences

During the Coronavirus pandemic period project partners did not organise conferences and workshops or took participation at external events.

As the pandemic situation is not recovering and seems to last at least several more months globally, several organizing committees postponed energy conferences in 2021.



**Thank you for following SEADRION newsletter!**  
**SEADRION PROJECT PARTNERS**

<https://seadrion.adrioninterreg.eu>

## *Our contact/additional information:*



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