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## INTERVIEW WITH STAVROULA THRAVALOU, THE CYPRUS INSTITUTE

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### Full Name

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### Position and organisation

Researcher at  
the Cyprus Institute  
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CYPRUS

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*“Through the BEEP project, Building Information Modelling (BIM) technology and energy performance simulation tools are further promoted among professionals working in the field of building energy retrofit”.*

*Dr. Stavroula Thravalou*

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### What is the main role of your organisation in the BEEP project?

The Cyprus Institute is particularly focused on building performance simulations, the development of the Energy Efficient Heritage Building Information Model (EE-HBIM) and the implementation of 4D, 5D and 6D of the three scenarios analysed for the energy renovation of each pilot building.



### Which pilot building has been chosen as a case study in Cyprus and why?

The selected pilot building was used to host the club of the British Cavalry, later serving as the barracks of the Danish Canadian military detachment in Cyprus. The building was abandoned after the Danish Canadian military force left the island, and since the war of 1974, part of the building has been occupied by a citizens' initiative (the Association of Unified Free Karpasia). It is a listed building and represents a unique example of heritage for Cyprus by combining attributes of colonial style and Cypriot town house architecture.



*Main façade of the pilot case study building.*

The building is located just outside of the Venetian walls and the moat of the historic centre of Nicosia. The area where the building is located is particularly important due to its proximity to the buffer zone (established between the north and the south parts of the island and controlled by the UN since 1974). The building is near the iconic city landmark of “Ledra Palace” and the community centre “Home for Cooperation”, arguably the most recognised bi-communal NGO/space on the island. Given its architectural, historic, and social value, the building has been chosen by its owner, the Municipality of Nicosia, to house the new Folk-Art Museum. This adaptive reuse and renovation process is ongoing, and thus the building, even though it is in a state of ruin, offers an excellent case for the pilot application of the BEEP objectives.



### What retrofitting scenarios are envisaged for the case study?

In consideration of the current state of the building's condition (ruin), the proposed by the owner design intervention involves the restoration of the existing building, as well as the construction of additional spaces. In the base-case scenario of the pilot building, double-glazing windows, roof insulation and efficient Heating, Ventilation, and Air Conditioning systems (HVAC) will be implemented. Thus, a single energy retrofit scenario is drafted, opting for incorporating renewable energy and reducing the environmental footprint.

This intervention suggests the installation of 140 m<sup>2</sup> of Photovoltaic Panels, above the parking area of the building plot. The Photovoltaic system is estimated to produce approximately 42 MWh of electric power, which corresponds to 54% of the building's electricity needs (annual primary energy consumption 157 KWh/m<sup>2</sup>), leading to an annual CO<sub>2</sub> reduction of 33 tons.



*North-East façade of the pilot case study building.*

### What opportunities does the BEEP project offer to your region?

Through the BEEP project, BIM” technology and energy performance simulation tools are further promoted among professionals working in the field of building energy retrofit. Knowledge is transferred through examples and good practices, which is highly appreciated in the case of Cyprus, where the “Energy Performance Contracting (EPC)” practice is in its initial steps. The BEEP project can exemplify and promote the implementation of EPC, as well as motivate public authorities, banks, or other investors.





### What results of the BEEP project would you highlight?

Through this project, the implementation of BIM tools will be conducted, as well as a series of software interoperability issues will be raised, providing practical guidelines for engineers and public authorities to update their practices. Also, bringing closer “Energy Service Companies (ESCOs)”, public authorities and financial institutions is expected to bridge the existing gap in the EPC process and have a real impact to society and economy. In this way, awareness is raised regarding the need for reuse and energy retrofit of heritage buildings.

### How will your organisation exploit the results of BEEP after the end of the project?

Firstly, the Cyprus Institute will capitalise results in the development of new proposals for research to pursue new funding opportunities. The results will be disseminated with local stakeholders including both the private and public sector, and specifically will be promoted to city authorities for implementation in the rehabilitation of the abundance of built heritage they have under their custodianship. Furthermore, training, hands-on workshops for engineers will be organised.

## THE TEAM

### Cyprus Institute, Energy, Environment & Water Research Centre: BEEP partner

The [Cyprus Institute \(Cyl\)](#) is a non-profit research and educational institution of international composition, governed by a Board of Trustees comprising world-renown scientists and prominent political and entrepreneurial opinion-leaders. The Institute thus possesses a novel philosophy on interdisciplinary research and education, and cutting-edge infrastructure to materialize it, which support a scientific, technological and innovative orientation aiming at world-class standards of excellence.



*The Cyprus Institute (Cyl) premises in Nicosia.*



The Sustainable Built Environment Group at the Energy Division of the CYI promotes a human-centric vision of the built environment by developing approaches and solutions supporting the transition towards a resilient and sustainable built environment.



*The Virtual Environments Lab at the Science and Technology in Archaeology and Culture Research Center.*

In collaboration with the Virtual Environments Lab at the Science and Technology in Archaeology and Culture Research Center (STARC) of the Cyl, a cross-disciplinary approach in the study and protection of urban and architectural heritage in Cyprus, Southern Europe and the Eastern Mediterranean is promoted. The Virtual Environments Lab is developing research applications for Smartening up building stock, in collaboration with EU partners; City planning purposes & neighbourhood co-development, in collaboration with local authorities and governmental bodies; and Education purposes, in collaboration with museums and international organisations.



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## COLOPHON

### About the BEEP project:

BEEP project aims at strengthening the use of Building Information Modelling (BIM) to enhance energy efficiency in buildings. The testing of this emerging technology on built heritage will be performed to demonstrate its scalability to the entire building stock. The project will provide public administrations with a powerful method for the energy rehabilitation of public buildings to be supported with private funds through the Energy Performance Contracting (EPC). The project main outcome will be an innovative methodology based on the integration of emerging technologies tested on 9 heritage public buildings located in Italy, Spain, Cyprus, Jordan, Palestine, Lebanon, and Egypt.

The BEEP project, which started in September 2019, has a duration of three years, and counts with a total budget of € 1,934,184.51 of which 90% is funded by the EU under the ENI CBC Med Programme.

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