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Cyprus asserts itself as regional hub for climate-change research

Proposed science institute will focus on the Mediterranean and Middle East, regions that will be hard hit by global warming.

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Water scarcity is expected to become a growing problem in Cyprus and the surrounding region with climate change. Credit: Petros Karadjias/AP/REX/Shutterstock

The tiny island of Cyprus is reshaping itself into a regional hub for climate-change research. The country lies at the meeting point of the Mediterranean, the Middle East and North Africa — areas where climate change is expected to take a heavy toll in the coming decades, but where research capacity to address the issue is limited.

Cyprus's president, Nicos Anastasiades, announced plans on 5 June to create a government initiative that will coordinate action against global warming across the Mediterranean and support the creation of a €30-million (US$35-million) climate-change research centre at the Cyprus Institute in Nicosia, the nation's leading multidisciplinary research institution. "This is a priority issue for the government," says Theodoulos Mesimeris, head of the climate-change division of the Cypriot environment ministry. The initiative will also create a comprehensive plan to reduce Cyprus's greenhouse-gas emissions in line with the 2015 Paris climate accord.

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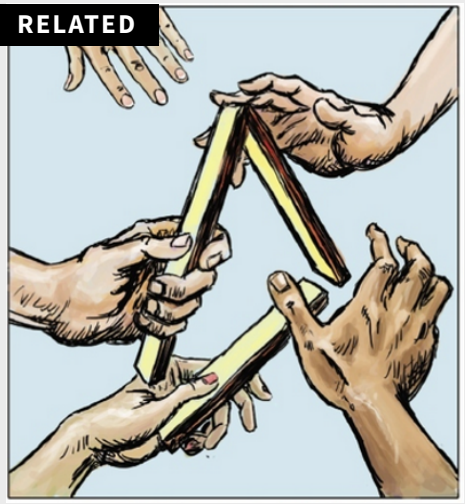

The 25-year quest for a climate treaty

Resources for climate research in the region are "disproportionately small to even scope the challenges, let alone the solutions", says Costas Papanicolas, president of the Cyprus Institute, who helped to plan the initiative with government ministers and President Anastasiades.

Rising challenges

Climate models suggest[1] that the Mediterranean and Middle East are getting warmer and drier at a faster rate than the global average; precipitation in the Mediterranean is expected to drop, especially in summer, by as much as 30–40% by the end of the century if no mitigation efforts are made, according to Filippo Giorgi, an Earth-systems physicist at the International Centre for Theoretical Physics in Trieste, Italy. Rains — when they come — will be more intense. Crop failures, forest fires and freshwater shortages[2] are just some of the issues that threaten economies, lifestyle and tourism. Parts of the region are set to become uninhabitable — in the Middle East, for instance, average maximum temperatures could increase from 43 °C to almost 50 °C by the end of this century without mitigation[3].

“There is warming, and there is no mechanism to counteract the warming,” says Jos Lelieveld, an atmospheric chemist at the Max Planck Institute for Chemistry in Mainz, Germany, who also works at the Cyprus Institute.

Few monitoring systems exist in the Eastern Mediterranean and Middle East to systematically measure variables such as temperature, humidity and desertification. The monitoring that does exist is inconsistent, and the data are too poor to feed into climate-change models, which would help to understand local impacts and refine policy options. Climate scientists working the Mediterranean don’t have the capacity to do a proper analysis of the mitigation options, says Wolfgang Cramer, who studies ecosystem modelling and biodiversity dynamics at the Mediterranean Institute for Biodiversity and Ecology and is based in Aix-en-Provence, France.

Regional impact

At the core of the proposed hub — the Eastern Mediterranean Middle East Climate and Atmosphere Research Centre — will be a high-quality observatory for monitoring concentrations of greenhouse-gas emissions and atmospheric contaminants, which will take advantage of Cyprus’s geographic location to establish regional contributions.

The centre will absorb the existing climate-research activities of the Cyprus Institute. The institute, launched in 2007 as a private, high-quality research institution for the Middle East, has already garnered wide support for its role in climate-change action, and its work has helped to raise awareness of the issue in the region, says Khaled Toukan, chairman of the Jordan Atomic Energy Commission and the country’s former energy minister. Jordan and other countries in the Middle East are moving towards clean energy, he says, but purely from an economic perspective . “We lost Egyptian gas and we lost Iraqi oil,” he says.

Papanicolas says that the institute capitalizes on Cyprus’s position as the only European Union country in the Middle East. Foundations for the new climate centre have already been laid: it won €400,000 in EU research money to develop a plan for the facility, and it is now preparing a bid for €15 million in EU funding, which would be matched by the Cypriot government and bankroll the centre for the next decade.

Last month in Nicosia, the institute also convened an international conference on climate-change in the Mediterranean and Middle East that was attended by 300 scientists from 35 countries. There, economist Jeffrey Sachs, director of the Earth Institute at Columbia University in New York City, proposed a pathway for the Mediterranean to create strategies that would help countries transition to low-carbon energy by 2050. It would also aim to improve agriculture resilience, anti-pollution measures, disaster preparedness and water sustainability.

Sachs also announced plans to launch a Cyprus chapter of the United Nations Sustainable Development Solutions Network — which he directs — in the autumn. The network promotes education, research and policies to achieve the UN's sustainable development goals, which include meeting Paris targets.

The Mediterranean pathway drew praise from a high-profile backer: Laurent Fabius, a former French prime minister who was a key negotiator of the Paris agreement. At the conference, both Sachs and Fabius praised the Cyprus Institute's leadership and scientific strength. It has completely understood the scale of the problem, said Fabius.

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