What is the CLIMOS project, and what is the need behind it

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The CLIMOS (full title: Climate Monitoring and Decision Support Framework for Sand Fly-borne Diseases Detection and Mitigation) project is a transdisciplinary and multisectoral collaboration that aims at providing new knowledge, tools and solutions for mitigation and adaptation of human and veterinary health sectors to challenges of climate change, cantered around the model of how climate affects the spread of the sand fly-borne diseases, their vectors, and pathogens. The proposal for this project was conceived out of the need to tackle several complex issues that even such a relatively well focused climate and health problem poses at this stage of health and climate research and innovation.

The first is a scientific issue related to our need for a better understanding of linkages between climate and environmental changes and the incidence and spread of vector-borne diseases (sand flies included) in Europe and beyond. This is a general requirement in the researches of climate and health today. It calls for an integrated effort of a number of scientific disciplines. In the range of natural sciences, this primarily means a close collaboration of what is usually referred to as OneHealth approaches, which in reality encompasses a large number of expertise, from biology, entomology and parasitology to medical and veterinary sciences, with, in the first place, data, environmental and climate sciences. This is to allow for better modelling and prediction of the spread of vector-borne diseases in the future.

The second is technological, for there is a need to visualize and communicate those findings in a way that is useful to primarily public health and veterinary services, to assist their timely and effective responses, but also to every other interested institution or individual. This calls for skilful utilization of the so-called 'big data', such as the data from the Earth-observing satellites,

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ground-level vector (sand flies) surveillance, or large amounts of environmental and climate records, to map the locations of these disease-carrying insects and provide information and services that can keep the communities safe. In CLIMOS this challenge will also include utilization of artificial intelligence and machine learning to ease, and where possible automatize this endeavour.

Finally, the obtained scientific knowledge and developed digital tools (including smartphone applications for general use) should be conceived in a process of co-creation, so that those are developed in a way that addresses the real needs of their users. To do that, CLIMOS scientific and technical partners will work hard to continually seek opinions and advice from the most affected communities and individuals, on one side, and public health authorities, governmental health ministries included, on the other. Only in that way we can be sure that our results will be useful to the society.

CLIMOS is an effort of 29 partners from 16 countries. We will carry out large sand fly and related pathogens (parasites and viruses they carry) surveillance synchronously in 10 EU and neighbouring countries (Turkey and Israel), over two seasons. We will do accompanying analysis and modelling work and produce technological and digital tools offered for general use. We are proud that we have representatives of health ministries of Italy, Israel and Turkey as our partners, to help us in our efforts to efficiently assist health systems preparedness for the health effects of climate change.

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