GEO Health Community of Practice
Annual Meeting 2022

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Unit B4 - Environmental Observations and Innovative Governance

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Mandated by the European Commission to support the EU Research and Innovation policy, the European Research Executive Agency (REA), funds high-quality research and innovation projects that generate knowledge for the benefit of society. The REA also manages promotion measures concerning agricultural products.

Accordingly, the REA’s responsibilities are to:

- Manage research projects supported under [Horizon Europe](#), the world’s [largest framework programme](#) for research and innovation to date, running from 2021 to 2027.

- Manage research projects supported under [Horizon 2020](#), the previous framework programme for research and innovation (2014-2020).
Environmental Observations projects are under Horizon Europe Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment.

**Six targeted long-term impacts**

- Climate neutrality and adaptation to climate change
- Preservation and restoration of biodiversity and ecosystems
- Governance models enabling sustainability
- Sustainable and circular management and use of natural resources as well as prevention and removal of pollution
- Rural, coastal, peri-urban and urban areas developed in a sustainable, balanced and inclusive manner
- Food and nutrition security for all within planetary boundaries
Project E4Warning

**Topic (call title):** Environmental observations solutions contributing to meeting “One Health” challenges

- **Full title:** Eco-Epidemiological Intelligence for early Warning and response to mosquito-borne disease risk in Endemic and Emergence settings; [https://cordis.europa.eu/project/id/101086640](https://cordis.europa.eu/project/id/101086640)

- **Start date:** 01/01/2023, 48 months duration (end 31/12/2026);

- **Coordinator:** Spanish National Research Council (CSIC) - (8 beneficiaries);

- **Main objectives:**
  - focus on mosquito-borne diseases, increasing health crises and poverty;
  - building better disease intelligence to identify, monitor and anticipate eco-epidemiological risks;
  - performing a complex system analysis of factors driving disease circulation, emergence and spread, including interactions between humans, pathogen-carrying mosquitoes, pathogen reservoirs and climate change;
  - conceiving innovative eco-epidemiological modelling tools and intelligent digital solutions;
  - contributing to the next-level One Health Early Warning Systems.
The E4Warning consortium brings together interdisciplinary, innovative, and open science to contribute to the One Health paradigm shift that is required to tackle the spread of zoonotic pathogens and the emergence of zoonotic disease transmission. It will improve understanding of the interplay between humans, mosquitoes, reservoir species and the environment, and harness this to nowcast and forecast MBD risk in a constantly changing and globally connected environment. Mosquito-borne diseases place a heavy burden on society, causing widespread suffering and driving poverty. They are increasing in prevalence, geographical distribution and severity, representing a growing threat worldwide. Hence, there is a need for better disease intelligence, capable of anticipating and identifying eco-epidemiological risks leading to explosive epidemics and emergence in previously unaffected areas. The basis of such intelligence stems from a deep understanding of the factors that drive disease circulation, emergence and spread. This requires insights into the complex interplay between humans, pathogen-carrying mosquitoes, pathogen reservoirs (e.g. birds), and a changing environment. The E4Warning consortium brings together interdisciplinary, innovative, and open science to contribute to the One Health paradigm shift that is required to tackle the spread and transmission of zoonotic deadly pathogens, and harness this shift to nowcast and forecast mosquito-borne disease risk in a constantly changing and globally connected environment. Our work aims to disrupt disease transmission pathways connecting humans, mosquitoes, and birds through innovative eco-epidemiological modelling tools and intelligent digital solutions, co-designed and implemented by public health administrations. Open innovation strategies and big data tools are the cornerstone of the next-level One Health Early Warning Systems required in the face of mounting mosquito-borne disease threats.
Project OneAquaHealth

**Topic (call title):** Environmental observations solutions contributing to meeting “One Health” challenges

- **Full title:** Protecting urban aquatic ecosystems to promote One Health; [https://cordis.europa.eu/project/id/101086521](https://cordis.europa.eu/project/id/101086521)
- **Start date:** 01/01/2023, 48 months duration (end 31/12/2026);
- **Coordinator:** University of Coimbra, Portugal - (12 beneficiaries);
- **Main objectives:**
  - focus on aquatic urban ecosystems;
  - they are affected by lack of space, cuts of riparian vegetation, artificialization of the channels, impervious areas in the margins, water pollution, noise, excessive lights; their degradation can lead to numerous disservices to human populations, and increase the probability of the emergence of pathogens, lower disease resistance of wildlife and humans, increasing the probability of disease;
  - development of an AI-based Environmental Surveillance System able to support adequate and timely decisions and providing effective recovery measures of aquatic ecosystems health to support policy-makers analyzing different scenarios, including climate changes.
Aquatic urban ecosystems are extremely relevant connectors between people, animals and plants and provide a valuable resource to liaise health and environmental observations with a potential impact on prediction and prevention. In urbanized areas, aquatic ecosystems constitute ecological corridors between fragmented natural areas supporting a wide biodiversity and variety of ecosystem services, improving the sustainability of cities. Yet, these ecosystems are often degraded by lack of space, cuts of riparian vegetation, artificialization of the channels, impervious areas in the margins, water pollution, noise, excessive lights, among others. This degradation can lead to numerous disservices to human populations, and increase the probability of the emergence of pathogens, lower disease resistance of wildlife and humans, increasing the probability of disease severity and diseases associated with reduced physical activity and permanence in stressful environments found in cities. In view of this, OneAquaHealth aims to demonstrate that the health of freshwater ecosystems and human health and wellbeing in urban contexts are highly interconnected as improving one results in the improvement of the other, reestablishing the balance between nature and humans. To this aim, OneAquaHealth will promote environmental monitoring of early warning indicators that can assess that balance. It will provide decision-makers with a AI-based Environmental Surveillance System able to support adequate and timely decisions and providing effective recovery measures of aquatic ecosystems health (and consequently human health) adequate for different scenarios, including climate changes. OneAquaHealth will involve all relevant stakeholders in the process raising their awareness to the importance of urban streams and rivers and supporting them with adequate digital tools to guarantee environmental monitoring beyond the project duration.
Thank you!

ANY
QUESTIONS?