

AnaEE-ERIC



Analysis and Experimentation on Ecosystems - European Research Infrastructure Consortium

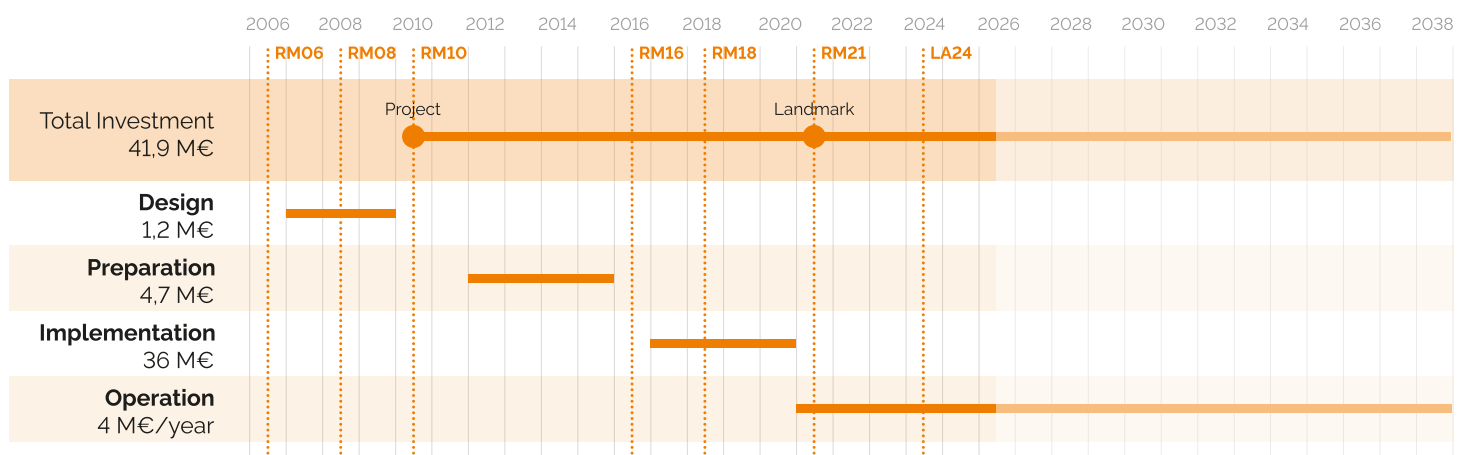
Website	Headquarters	Legal Status	Type	Access
https://anaee.eu	Analysis and Experimentation on Ecosystems - European Research Infrastructure Consortium 1 avenue de la Terrasse, 91190 Gif sur Yvette, France	Established (ERIC, AISBL, GmbH, Others)	distributed	remote, physical, virtual

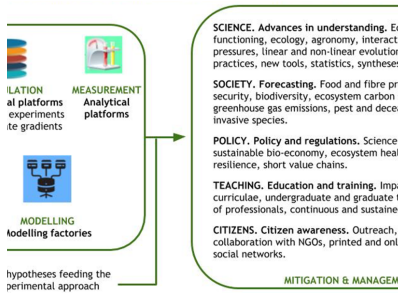
DESCRIPTION

Keeping agricultural, forest and aquatic ecosystems functions and services productive is a key issue for the future of the planet. AnaEE (Analysis and Experimentation on Ecosystems) aims to advance our understanding of the environmental impacts of ongoing global change and foster adaptation and mitigation strategies to safeguard ecosystem services and their concomitant economic and societal benefits. AnaEE brings together a series of state-of-the-art experimental and analytical installations for ecosystem research throughout Europe. AnaEE's experimental approach combines Manipulation, Measurements, Modelling, and Management for Mitigation to study continental ecosystems. At the core is a network of distributed experimental facilities, where ecosystems are exposed to controlled, and manipulated, conditions. The results produced from our platforms inform predictive models and deliver realistic simulations of global change impacts. In AnaEE, the experimental approach is integrated with modelling to quantify and predict the impact of those current and future global change drivers on ecosystem functioning, to help unravel mechanisms and feedbacks involved in ecosystems' responses, and to test mitigation and adaptation measure. The originality and added value compared to other international RIs rest with AnaEE's versatile facilities that can simulate changes in environmental drivers ranging from land-use change, agricultural

management practices and systems, pollution, biological invasions, rising atmospheric greenhouse gas concentrations, to climatic changes, including extreme events such as droughts and heat waves. AnaEE has the potential to look into the future, thanks to the integrative and coordinated usage of its experimental, analytical and modelling facilities. AnaEE-ERIC provide services through four main types of installations: Open-air ecosystem platforms comprise the predominant land use types of European continental ecosystems spanning from managed agricultural to 'unmanaged', natural ecosystems including terrestrial aquatic ecosystems transecting Europe's climatic zones from the subarctic to Mediterranean; Enclosed ecosystem platforms, complement open-air platforms by enabling a much higher level of environmental control and measurements on ecosystem processes. Analytical platforms offer advanced biological, physical and chemical and socio-economical analyses for a deeper insight into processes. Modelling platforms give access to existing, state of the art, numerical models and to advanced software facilities for model development (model factories) that will improve data analysis and synthesis and allow predictions of the responses of ecosystems to global changes. AnaEE accommodates experiments from users coming mostly from the academia (environmental and life sciences), as well as the industry (agriculture, forestry, management).

TIMELINE & ESTIMATED COSTS





POLITICAL SUPPORT

Lead

FR

Member

BG, CZ, DK, IT, CIHEAM IAMB

Observer

BE

Prospective member

FI



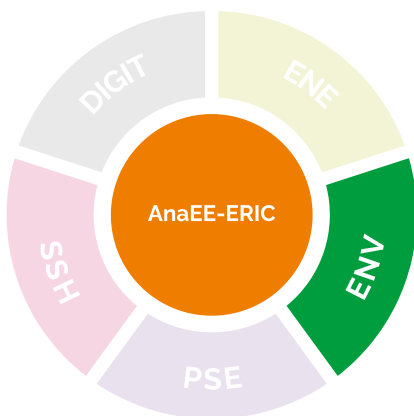
IMPACTS

The impact of AnaEE lies in its capacity to simulate the environmental conditions that ecosystems are and will face in the future. Moreover, AnaEE studies remediation and adaptation methods to preserve these eco-systemic services, and even contribute to the fight against climate change and loss of biodiversity, by testing management and nature-based solutions under realistic conditions and checking for possible tipping points. This differentiates AnaEE with other environmental RIs based on observation, places it at the intersection of the environmental and life science domains, with major contributions for the EU Green deal and 1Health approach. Through its services and facilities AnaEE has a strong impact on agriculture, such as the agroecological transitions, freshwater management, including aquaculture, land management, etc. AnaEE provide a unique way to elaborate and test the efficiency of policies in real conditions. Moreover, AnaEE can provide expertise for the socio-economic behaviour of territories, e.g. in contributing to the smart specialization strategies in the domain of agriculture, land, and water management. In the domain of emerging risks due to the anthropic induced environmental changes, AnaEE can study the vulnerability of ecosystems and territories to changes, including to extreme events, and contribute to the development of mitigation and adaptation measures. AnaEE can also help in the development of solutions for carbon storage, e.g. testing carbon farming, adaptation of forests, use of solar panels on lakes and land, in conjunction with practices such as aquaculture or agriculture, etc.

SERVICES

AnaEE-ERIC can accommodate user experiments and measurement across its network of experimental installations. The user is referred to the web site anaee.eu for a full catalogue. The services comprise the predominant land use types of European continental ecosystems spanning from managed agricultural to 'unmanaged', natural ecosystems including terrestrial aquatic ecosystems transecting Europe's climatic zones from the subarctic to Mediterranean. Enclosed ecosystem platforms, such as ecotrons complement open-air platforms by enabling a much higher level of environmental control and measurements on ecosystem processes. The Mesodrome simulates tides and flow for ecosystems in rivers and deltas. The terrestrial and aquatic metatron allows to study migration of species under changing conditions. Analytical platforms offer advanced biological, physical and chemical analyses for a deeper insight into processes. Modelling platforms give access to existing, state of the art, numerical models and to advanced software facilities for model development (model factories) that improve data analysis and synthesis and allow predictions of the responses of ecosystems to global changes.

INTERCONNECTIONS



COOPERATION WITH OTHER RIS

AnaEE-ERIC participates to both the Life science RI and the environmental clusters of infrastructures. Main collaborations are with RIs such as EMPHASIS, MIRRI, ELIXIR, METROFOOD, Lifewatch, OpenScreen, IBISBA, EMBRC, in the domain of agriculture, agroecological transitions soil health, 1Health approach and green deal. AnaEE-ERIC collaborates also with environmental infrastructures such as ICOS, ACTRIS and eLTER for the impact of the environment and climate on ecosystems, vulnerabilities, and connections between observation and experimentation. AnaEE collaborates also with EMBRC for the interface regions, as well as aquaculture on land waters and the sea. Finally a collaboration has been initiated between INSTRUCT, METROFOOD, EIRENE and AnaEE on the impact of artificial material on life, plants, and health.