INRAE

Leadership
Eric Sauquet (AQUA)
Sylvain Pellerin (AgroEcoSystem)

Project manager
Barbara Lacor (ECODIV)

Scientific Advisory Director
Thierry Caquet (DS Environnement)

Steering Committee
Olivier Barreteau (AQUA)
Richard Berthomé (SPE)
Gabrielle Bouleau (EcoSocio)
Karine Chalvet-Monfray (SA)
Marie-Christine Champomier-Vergès (MICA)
Stéphane De Cara (EcoSocio)
Iñaki Garcia de Cortazar-Atauri (AgroEcoSystem)
Hélène Gilbert (GA)
Romain Girault (TRANSFORM)
Emmanuelle Kesse-Guyot (AlimH)
Thomas Opitz (MathNum)
David Renaudeau (PHASE)
Norbert Rolland (BAP)
Jean-Marc Touzard (ACT)
Patrick Vallet (ECODIV)

CLIMAE *Metaprogramme*

Agriculture and forestry in the face of climate change: adaptation and mitigation

Agriculture, forestry and related activities (collection, processing, distribution, consumption) are among the sectors most exposed to climate change. The agri-food and forestry sectors are not only impacted by climate change: they also contribute to greenhouse gas emissions, just like other industries. These sectors must both adapt to climate change by anticipating associated risks and opportunities, and contribute to its mitigation.

The ambition of the "**Agriculture and forestry in the face of climate change: adaptation and mitigation**" Metaprogramme, which was set up in 2021, is to support and develop multidisciplinary research within INRAE with a view to:

• **combining adaptation to climate change and mitigation**,

• **covering the entire value chain**, from resources and habitats to consumption,

• **preparing** and **supporting the transformations required** to meet the climate challenge, with the territorial level as a pivot of spatial integration, and 2050 as the preferred deadline among the possible time horizons.

The CLIMAE metaprogramme goes beyond the study of the impact of climate change and the incremental adaptation of existing systems. Its priority is **to explore systemic and disruptive transformations that combine several levers simultaneously**. It jointly considers the technical transformation of systems, the economic, social and environmental consequences of the pathways explored, their legitimacy and social perception, and deals with the scientific frontiers linked to these integrated approaches.

INRAe

These systemic transformations require the **joint and articulated mobilisation of approaches and knowledge from several disciplinary fields** and INRAE divisions (diets, product processing and distribution, waste management, animal feed, fertilisation, crop rotation, genetic selection strategies, water management, land use, etc.).

The analysis of the legitimacy of transformations (spontaneous, proposed or co-constructed), the identification of obstacles and opportunities (technical, economic, social) and the choice of suitable tools to accompany the changes require **the strong involvement of economic, social and political disciplines**. **Transdisciplinary and participatory approaches** will be used.

Work axes

Axis 1: Design and assessment of sustainable agri-food and forestry systems that combine the objectives of climate change adaptation, and of the contribution to mitigation, within the context of an agroecological transition
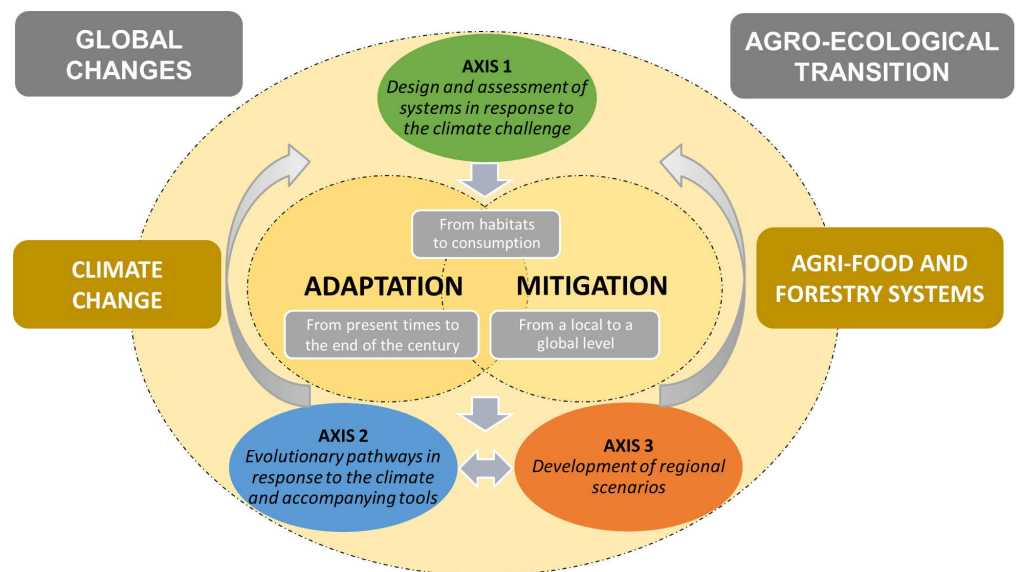
Axis 2: Evolutionary pathways of agri-food and forestry systems in response to climate change, and accompanying tools

Axis 3: Development of regional scenarios

Foresight for French agriculture and forestry and associated processing industries

GLOBAL CHANGES

AGRO-ECOLOGICAL TRANSITION

CLIMATE CHANGE

AGRI-FOOD AND FORESTRY SYSTEMS

AXIS 1
Design and assessment of systems in response to the climate challenge

From habitats to consumption

ADAPTATION   MITIGATION

From present times to the end of the century

From a local to a global level

AXIS 2
Evolutionary pathways in response to the climate and accompanying tools

AXIS 3
Development of regional scenarios

Changes in the agri-food and forestry system and associated value chains will be considered within the general context of global changes and an agro-ecological transition, thus promoting the articulation between adaptation and mitigation and other issues (pesticide-free farming, saving water, fertilisers and energy, etc.). The deliverables envisaged by the Metaprogramme include **proposals for scenarios**, **innovative pathways**, **tools and operational recommendations** for mitigation and adaptation.

CLIMAE was launched in 2021. If you wish to take up these themes by joining the metaprogramme community, please contact us to co-construct and develop these research questions, participate in events and respond to expressions of interest (thesis topics, call for research proposals, support with networking, etc.).