

REMINDER OF THE I-SITE “MONTPELLIER UNIVERSITÉ d’EXCELLENCE” PROJECT GOALS

The vision of a Planet with seemingly unlimited resources is coming to an end, and the world needs to sustainably manage limited and finite natural resources. Continuing human population growth increases the need for goods and services, resulting in substantial alteration of most ecosystems on Earth and food safety difficulties for the most fragile populations. At the same time, populations face novel health problems that may be linked to environmental issues or lifestyles (infectious diseases, chronic pathologies). Resulting factors - such as biodiversity loss, climate change, disturbance of the water cycle, changes in land use (urbanization, deforestation, intensive farming), food and nutrition insecurity, increasing number of toxic agents - bring the world to face unprecedented challenges and rely on scientific research for providing sustainable solutions to a series of issues that include: emerging diseases in man, plants, and animals, human health alterations, increasing pressure on ecosystems and the environment, non-sustainable management of natural resources such as those derived from agriculture, forestry, fisheries and aquaculture systems, and more.

I-SITE “Montpellier Université d’Excellence” (MUSE) intends to address three intertwined challenges, consistent with the U.N. 2030 Agenda for Sustainable Development and the Paris Agreement on climate change: **(1) promoting an innovative agriculture to contribute to food security and environmental quality; (2) fostering a transition towards a sustainable-management oriented and environmentally-friendly society; (3) improving human health in changing environments.** These three challenges concern the whole planet and most particularly developing countries in Africa, Asia, South America, especially in inter-tropical areas, and around the Mediterranean Sea,.

Agriculture, environment, biodiversity, biology and health sciences are at the core of this project. For each of these disciplines, and in addition to research support in the mentioned fields, MUSE will dramatically transform the way we work and will lead to building bridges between: agriculture and environmental sciences to address concepts and prospects in agro-ecology; environment and health sciences to cover the new area of ecology of health; and, between health and agriculture to establish a link between nutrition and well-being conditions.

To reach these goals, MUSE connects **above-mentioned core sectors to chemical, social, natural, formal or engineering sciences.** Indeed, chemical sciences and chemical engineering are essential to our project, not only because they are linked naturally with pharmacy, bio-health or biochemistry of plants, but also because they will open new horizons for bio-sourced materials, soil remediation, material recycling or energy storage.

MUSE encourages the stronger integration of **social sciences** by leveraging the excellence of its partners in this vast scientific. Such expertise will strengthen the core domains by addressing issues such as the legal and ethical aspects of risk prevention, the equilibrium between development and preservation of rights, or even the economic component of health systems. This knowledge will be instrumental in the transformation of scientific innovation into societal innovations by developing entrepreneurship and appropriate management approaches.



Bioinformatics, biomathematics, and biophysics are instrumental as well, as the needs for modelling and data processing are crucial for agriculture, environment and health sciences or for creating tools available for societies to develop a smart governance of resources and ecosystems. Moreover, expectations are growing for new ways of collecting information (**electronics**) or assistive means to physically interact with the environment and with Humans (**robotics**).

Through these approaches, we will achieve scientific breakthroughs *and* drive industrial and societal innovations in agriculture, human health, and environmental sectors. Hence, MUSE will create a **transformative effect by opening the University to new partnership opportunities** with the public sector (guiding public policies) and the private sector (from startups to major companies, NGOs and foundations)

