



Topics for the 1st ERANet-LAC JOINT CALL

About ERANet-LAC:

ERANet-LAC is funded by the European Commission within the 7th Framework Programme for Research and Technology Development (FP7). The project supports the implementation of the **Joint Initiative for Research and Innovation (JIRI)** and strengthens the bi-regional partnership in Science, Technology and Innovation by planning and implementing concrete joint activities and by establishing an innovative and sustainable framework for future bi-regional joint activities. The joint activities initiated by the consortium will be open for all interested research funding organisations in both regions. The specific initiatives will be demand-driven through a bottom-up approach, guaranteeing a real interest from both sides. This means that researchers from both regions will have the opportunity to actively participate in bi-regional R&I projects initiated by ERANet-LAC. The consortium brings together 18 partners from 16 countries, of which 10 are EU and associated countries and 8 Latin American and Caribbean countries.

ERANet-LAC Joint Calls

ERANet-LAC implements two **Joint Calls**. The topic recommendations for the joint calls were prepared by the five thematic SOM¹ working groups for Biodiversity and Climate Change, Bioeconomy, Energy, Information & Communication Technology and Health and endorsed by the EU-CELAC Senior Officials Meeting. In the development of the area and topic recommendations, the SOM working groups were supported by the projects EU-LAC Health and ALCUE NET - Latin America, Caribbean and European Union Network on Research and Innovation.

For the FIRST JOINT CALL, out of the 45 topics recommended by the SOM WGs, the participating funding agencies selected the following:

¹ EU-CELAC Senior Officials Meeting (SOM) constituted five thematic working groups (WGs) on the subjects mentioned above. The WGs elaborated concrete proposals to implement the EU-CELAC JIRI (Joint Initiative for Research and Innovation) and recommended the call topics.

1st ERANet-LAC Call topics in the thematic fields of Biodiversity/Climate Change, Bioeconomy, Energy and Health

Biodiversity assessment and monitoring - Improving baseline distribution data and compatibility with climate datasets

Specific challenge:

High quality biodiversity data are a pre-requisite for a better understanding of the interactions between biodiversity and climate change, which is a key issue for human well-being. This requires strong investment in collecting solid data on the spatial distribution of Biodiversity, which are currently highly deficient. There is an urgent need for the development and improvement of taxonomy, databases, technical platforms and, the development of innovative approaches, as for modelling of species and habitat distributions. Long-term research in biodiversity and climate monitoring should be strengthened with capacity building and knowledge transfer from communities to academics and vice versa.

Scope:

The following sub-topics are envisaged, pooling both regions' capacities, means and priorities:

First, innovation for biodiversity inventorying (from DNA to remote sensing) will improve primary data on species distributions. Then, sentinel species and communities can be identified from these data. Additionally, the urgent issue of exotic and alien species can be considered within an ecosystem framework. Finally, biodiversity values and ecosystem services can be better defined among academics, politicians and stakeholders.

Expected impact:

Biodiversity must be preserved in Latin America and the Caribbean (LAC) where there is an urgent need for high quality and extensive raw data. Furthermore exchanges of experts and knowledge will allow mitigating taxonomic impediments, improve data exchange and compatibility, thereby strengthening scientific expertise in EU and LAC.

Screening for new bioactive metabolites and enzymes from terrestrial and marine microorganisms for industrial use, based on market demand

Specific challenge:

Microorganisms are the most prolific producers of enzymes and secondary metabolites. Microbial diversity inhabiting terrestrial and marine environments can expand the frontiers of biomass sources, contributing with new bioactive compounds having biotechnological, pharmaceutical and other industrial applications.

Scope:

The proposals should specifically address the identification and characterization of enzymes and new natural bioactive compounds from microbial diversity in CELAC and EU. The proposals should include the industrial applications, on the basis of previous diagnosis and identification of market needs.

Expected impact:

- Contribute to expand the frontiers of biological resources.
- Facilitate the identification/targeting of promising new products to satisfy market demands.
- New enzymes can contribute to reduce unwanted by-products in industrial processes.
- Promote the creation of biotechnology-based companies through the production of value-added products with applications in many sectors (pharmaceutical, agricultural, health, etc).

Small-scale self-sustainable biorefineries for multi-feedstock processing of agro-industrial and urban wastes for advanced biofuels, biobased chemicals and biomaterials

Specific Challenge:

A sustainable use of biomass sources requires re-thinking the current biomass processing chain in a more efficient manner including not only energy production but also other added-value products. The development of self-sustainable biorefinery plants with minimum production of residues and minimum consumption of fossil energy is an important challenge from an economical and environmental point of view. The development of small-scale units for the treatment of mixed or flexible biomasses/wastes from different sources (agro-industrial, urban wastes or food-processing wastes) will contribute to the debottlenecking of biorefineries development.

Scope:

Proposals should aim at assessing lignocellulosic agro-industrial or urban organic wastes at current biomass processing and consumption sites, characterizing and evaluating the potential uses of bio-based residues. The call shall focus on technological process intensification and contribute to the establishment of self-sustainable biomass processing sites for biofuels, bio-based chemicals and biomaterials. The development of small scale units to be integrated to current agro-industrial or agro-food processing sites is expected. The units should have flexibility to treat similar residues from different sources.

Expected impact:

This topic shall enhance innovations on decentralised small-scale biorefineries using as far as possible feedstock flexibility. At least two of the below issues must be addressed in each proposal:

- Valorization of agro-industrial and urban residues
- Energy intensification through efficient integration in a single site
- Environmental benefits at current biomass processing sites
- Assessment of losses in the feed and industrial chain, to help establishing regulatory frameworks
- Development of new technology-based business

Towards Zero Carbon Energy Systems for heating and cooling in industrial processes by means of solar technologies including the envelopes of the buildings

Specific Challenge:

Three complementary approaches towards reliable and competitive energy systems reduce carbon consumption considering the whole life cycle and economic and social impacts:

The first is related to medium solar thermal temperature for heat production coupled to industrial processes; the second implies heat pumps or cold/ice production for refrigeration; the third concerns industrial buildings and offices design to integrate solar technologies for climate control (HVAC) or even self-energy production..

1. Industrial process heat represents 20% of the world's primary energy, mainly with fossil origin, that can be significantly replaced by solar thermal heated fluids 60 to 250° C, coupled to food chain processes, pasteurization, drying processes or mining and textile industries.
2. The high energy needs for cooling industrial processes and air-conditioning can be supplied by solar refrigeration or electric cooling. Additionally, process design is required to assure energy efficiency, where PV grid connected systems fitting between the hourly generation curve and the demand curve could be a cost effective solution for HVAC.
3. Electricity is a main cost factor in the production chain and affects industry competitiveness. Novel industrial or urban construction elements based on photovoltaic/hybrid systems' technology for distributed energy generation, will increase energy efficiency for appliances and passive solutions for building areas, minimize the power consumption from fossil fuels thanks to the coupling with industrial processes.

Scope:

Innovative solutions to integrate different solar technologies in the same value chain to obtain.

For heating processes to optimize thermal efficiency and thus costs and to adapt solar thermal devices such as solar flat plate collectors, evacuated tubes or cylindrical parabolic concentrators to the requirements of industries in different regions of the EU and LAC.

Introducing energy efficient technologies and the self-generation concept into the industry by using Renewable Energy Technologies, specifically PV, will foster the achievement of global certificates and standards. The EU-experiences will reinforce the actions carried out in LAC.

An added value is the expertise of the EU countries in architectural projects in which some passive design solutions have been already applied to approach to zero-energy buildings. For instance, the chateau concept in winery has moved to architectonical impact, where energy efficiency dimension is part of this new concept that can be extended to other industries or even to urban areas. Exploring new materials and designs to obtain maximum performance or at least to reduce the energy demand in order to increase comfort inside industries and their buildings, and to support a better integration of solar energy technology on architectures with different climates, geography, built environment and socio economic conditions.

Expected impact:

The results of the projects will contribute to the design of sustainable and competitive energy systems considering the whole life cycle and economic and social impacts. The idea of having industrial sectors based on zero carbon consumption has been tested in the tourist sector. That means that it can be used in manufacturing or in urban areas, as well.

Both regions will count with new highly efficient technologies and engineering methodologies for coupling industrial processes to solar energy sources available and innovative constructive systems based on solar technology integrated in buildings and in urban areas. New standards and policies both in Latin America and Europe are pushing the construction and the real estate sector towards more green and energy-efficient economy.

The importance and possibilities of low carbon technologies and introduction of DG Technologies in the Small and Medium Size Industry, in the Net Metering and in the self-generation concept will be disseminated.

Evaluation of low-threshold interventions to tackle chronic metabolic disorders and their associated cardiovascular diseases in EU and LAC countries

Specific challenge:

The prevalence of chronic diseases has raised sharply in both EU and LAC countries during the last decades and they are by far the leading cause of mortality representing 60% of all deaths worldwide. Furthermore, 70% to 80% of health care costs are spent on chronic diseases.

Evidence-based interventions that can be provided at little cost – so-called low-threshold interventions – need to be established and evaluated to tackle the chronic diseases epidemic and keep treatment costs under control.

Scope:

Proposals should focus on the evaluation of innovative treatment strategies (face-to-face visits with non-health care workers, telephone counselling, e-health and m-health initiatives, design and validation of decision support tools, among others) for chronic metabolic disorders and their associated cardiovascular diseases.

Clinical trials are excluded.

Expected impact:

Projects should demonstrate the potential health and/or efficiency impact as well as the added-value of biregional collaboration taking into account variables such as cultural context, type of health care system, etc.

Results should provide:

- Evaluation of innovative health care strategies based on e-Health technologies
- Deeper knowledge on successful models of social support and design of health care adapted to chronic diseases.
- Development of novel low-threshold interventions tools to detect chronic diseases in at-risk populations.
- Instruments to improve the interoperability among organizations in the field of chronic metabolic disorders.

Research in prevention of infectious diseases and promotion of well-being

Specific challenge:

Despite the spectacular progress of modern medicine, infectious diseases remain a global threat for public health, especially in poor countries. Moreover, due to the lack of enough interest from the industry and limited market potentials other diseases have been neglected. Since poverty-related and neglected diseases are of high relevance to the present call due to their high burden in the LAC region, the present call will aim at fostering high quality research in the field.

Scope:

Project proposals shall address inter/multidisciplinary research in type II (e.g. malaria, TB, HIV/AIDS) and type III (neglected) infectious diseases of zoonotic and non-zoonotic origin corresponding to the classification used by the Consultative Expert Working Group (CEWG)². Each project proposal must seek the translation from basic scientific findings to intervention and/or implementation.

Research should focus on one or more of:

- early detection, including both screening and diagnosis tools
- facilitating new therapeutic strategies led to decrease antimicrobial resistance or other complications related to infectious diseases
- molecular epidemiological studies leading to clinical trials or prediction and prevention tools/strategies
- observational studies

Vaccine studies and clinical trials are excluded.

Expected impact:

Project proposals must clearly demonstrate the potential health and/or economic impact as well as the added-value of transnational and regional collaboration by e.g. gathering a critical mass of patients/biological material, sharing of resources (models, databases, diagnosis etc.), comparison and harmonization of data and clinical practice, sharing of specific know-how and facilities and/or innovative technologies, etc.

Projects should deliver:

- New insights of scientific evidences for better diseases prevention, diagnosis and care of the persons and population affected
- Knowledge related to regional differences in prevalence, molecular epidemiology and antimicrobial resistance in order to develop better control programs
- Early warning systems and methods for rapid control of community effectiveness
- Solid evidences of effectiveness as best-value-for-money interventions

² These categories were created by the Commission on Macroeconomics and Health of the World Health Organization and were accepted by the CEWG in its 2012 report