

II. PRIORITY AREAS

The Centers must be in line with one of the priority areas that address relevant issues for the country, as defined by FONDECYT's Superior Councils.

- 1. Sustainable Agriculture:** In order to attain a better compatibility between the production of quality food and the conservation of natural resources, environmental protection and economic profitability, scientific research and the development of technological applications in the design of sustainable agricultural systems are required. The Center's research must be aimed at the development of non-pollutant production technologies that will increase biodiversity, favor recycling of nutrients and make an efficient use of resources (water, nutrients and energy). Another line to be addressed is the development of genetic resources adapted to sustainable agricultural systems and to the new challenges imposed by global change.
- 2. Antarctic and Sub-Antarctic Science:** It is necessary to take advantage of the proximity to the Antarctic Continent in order to establish a science and logistics node on global Antarctic research in Chile, and particularly in the Magallanes Region, thus attracting research of excellence. The competition seeks to apply integrating and interdisciplinary approaches to solve fundamental issues in areas such as earth, atmospheric and ocean sciences, glaciology, biology and environmental aspects related to the Antarctic and Sub-Antarctic region. The proposal must integrate leading centers and groups on Antarctic research, demonstrate past collaboration actions with researchers of excellence and document how the Center will maintain an international cooperation with world-class institutions and programs. The proposals submitted in this area must attach a logistics feasibility letter from the Chilean Antarctic Institute (INACH by its Spanish acronym) (see section 5.h of these guidelines).
- 3. Atmosphere Pollution:** Atmosphere pollution has been recently acknowledged as the main environmental problem in the country. It is necessary to understand this phenomenon, considering its multiple origins, the interaction between its effects and the unique geographical features of our country's and of the types of pollutants. Therefore, it is expected that research proposals be inter- and multidisciplinary. Some possible aspects to be addressed are: Determinant factors of atmosphere pollution problems; characterization and modelling of pollution (emission sources, composition of emissions); its effects in terms of environmental quality, economy, health, etc.; and the design of public policies to address the issue. It is expected for the Center to cover these aspects and collaborate with the State in the task of characterizing and facing this issue with a holistic approach.
- 4. Aging Processes and Factors Associated to Adult Health and Well-Being:** Chile's population is aging at an accelerated rate. This demographic change affects the quality of life of people and imposes pressing demands on the social security and health systems. It is necessary to generate knowledge from multiple disciplines (including demographics, psychology, sociology, genetics, neurosciences and medicine) that will allow understanding the genetic, environmental, and cultural determinants as well as the biological and psychosocial mechanisms of the aging process. Other aspects of interest include factors that favor or delay the decline of abilities and competencies in older adults. It is expected for the project to involve world-class foreign centers and to propose the generation of effective collaboration networks.