



# Research, innovation and higher education in New Caledonia

## CRESICA

Consortium pour la Recherche, l'Enseignement Supérieur et l'Innovation  
en Nouvelle-Calédonie

### Members



### Partners



# NEW CALEDONIA, LAND OF SCIENCE

From the mountain peaks to the deep sea, through the cultural societies that populate it, New Caledonia is an exciting land for research. Traditional knowledge keepers, explorers, and scientists of the modern era have always made it a land of knowledge and science.

Today, the archipelago faces many challenges: climate change, food security, shared governance, preservation of cultural heritage, biodiversity, and natural resources... Thus, the local scientific community is committed to better organizing itself to understand the underlying dynamics and provide appropriate feedback to public policy, the industry, and citizens.

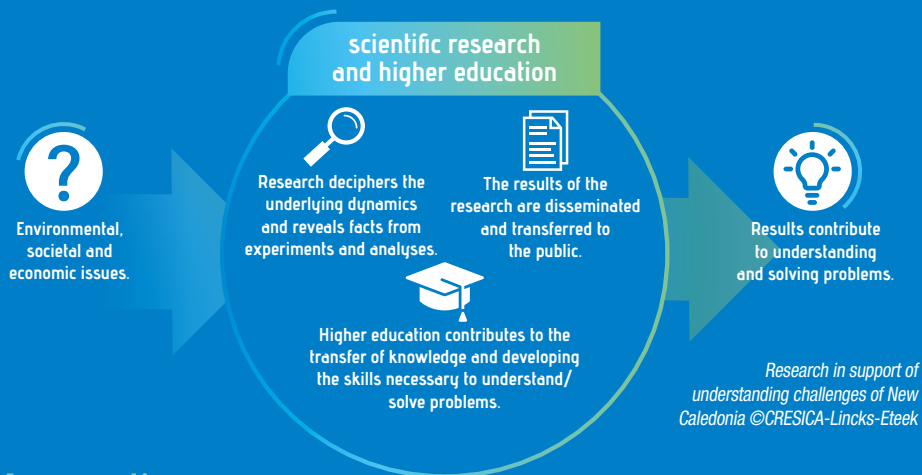
In this context, CRESICA, Consortium for Research, Higher Education and Innovation in New Caledonia, was created in 2014, and the founding members signed a partnership agreement.



Sampling of a water column ©Ifremer-H. Lemonnier



Signature on September 25, 2014, of the consortium agreement at the Maison de la Nouvelle-Calédonie in Paris with (from left to right) the President of the CNRS, the President of the IRD, the President of the IAC, the President of the UNC, and the President of the Ifremer ©MNNC



## ► A consortium to federate and optimize research activities

CRESICA is a consortium of 9 research and higher education organizations: BRGM, CHT, CIRAD, CNRS, IAC, Ifremer, IPNC, IRD, and UNC (details on pages 6 and 7). It is a framework for cooperation, sharing, and optimization of resources and equipment.

### Strategic Objectives

- Strengthen local and regional scientific cooperation on projects of interest to New Caledonia and the South Pacific.
- Strengthen partnerships between members and interdisciplinarity.
- Contribute to providing the country with the scientific expertise it needs.
- Share selected human and technical resources.
- Contribute to the dissemination of research results.



*Research of traditional food plants in Lifou ©IAC-N. Robert*

## Key Figures

**9** members

**2557** full-time equivalent jobs



*Study of plant extracts in the laboratory ©IRD-T. Vergoz*

source: [www.indigo.fr](http://www.indigo.fr)



# A SHARED SCIENTIFIC PROJECT

The activities of CRESICA are also part of an ambitious and shared scientific project. It revolves around three themes of interest for the country and the region and two transversal themes.

## ► thematic 1

### Natural capital: biodiversity, mining, and environment

CRESICA contributes to improving the knowledge and use of natural resources (mineral, living, and water), assess the impacts of human activities and preserve the terrestrial and marine environments: conservation, mitigation, and restoration.



*Transect for the study of coral reefs ©IRD-S. Andréfouet*

## ► thematic 2

### Improvement of human health

CRESICA contributes to improving the knowledge and prevention of diseases affecting the New Caledonian population, particularly non-contagious pathologies linked to the western lifestyle (diabetes, cardiovascular diseases, ...) and infectious diseases epidemics (leptospirosis, dengue fever, chikungunya) prevalent in tropical environments. These diseases have a significant impact on society and a very high cost.

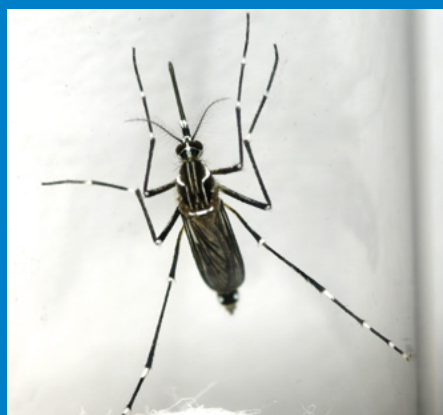
## ► thematic 3

### Analysis and support of the social and institutional evolution

CRESICA's activities also aim to better understand societal and institutional restructuring processes, support society, understand resource governance, and reflect on data production. Today's society is in full mutation and animated by the journey towards a shared destiny, while the agreements of Matignon (1988) and Nouméa (1998) have been guiding the emancipation process of the country for 30 years.

## ► 2 transversal themes

- Insularity and globalization
- Climate change



*The tiger mosquito, Aedes aegypti, is the vector that transmits dengue fever ©IPNC*

# SCIENCE IN ACTIONS

Since its creation in 2014, CRESICA has committed numerous human and technical resources shared and made available for research. These resources allow scientists to collaborate better, benefit from tools of excellence, and promote their work.



*Observation with a transmission electron microscope (CRESICA equipment) ©UNC-E. Aubry*

## ► Coordination Unit

A unit to coordinate CRESICA projects was established in 2018. It supports researchers in the field and the laboratory and facilitates the implementation of the “Along the River” program. The unit also organizes events to promote networking among researchers and disseminate research results to the public (Science Festival, seminars, etc.).

## ► High-tech equipment

CRESICA has acquired about fifty high-tech tools set up in the member organization’s laboratories: spectrometers, electron microscopy, chromatography, etc. These tools allow the analysis of living organisms and matter from the macroscopic to the molecular scale.

They also help secure specific high-level skills on the territory and establish some of the complex laboratory analyses locally.

## ► Flagship projects

- CRESICA coordinates the Science Festival in partnership with the territorial delegation for research and technology since 2019. This event aims to make science accessible to all.
- CRESICA’s “Along the River” program brings together various research teams around projects dedicated to integrated water management, water uses, and governance. It addresses a need for communities to understand their public policies. It is funded as part of the State-Community Development Contract.

# CRESICA MEMBERS ORGANIZATIONS



## BRGM – Bureau of Geological and Mining Research

BRGM is the leading specialist in soil and sub-soil, present in New Caledonia since the 1950s, it provides expertise in various fields, particularly in mining and geosciences.

**Fields of activity:** geological mapping, protection of mineral resources, groundwater and the environment, natural risks.

- 1 staff member

## CHT – Territorial Hospital Center

The CHT Gaston-Bourret is the public hospital of reference in New Caledonia. It has a unique technical platform (Emergency / Resuscitation / Operating room). At the Médipôle of Koutio, its new building benefits from the most advanced technologies in terms of hospital equipment.

The CHT also has a teaching and research mission in human health.

**Fields of activity:** infectious diseases, toxicology, and addictions, neoplastic and cardiovascular diseases.

- over 2 000 staff members

## Cirad – Center for International Cooperation in Agronomic Research for Development

Cirad produces and disseminates new knowledge to support innovation and agricultural development. Present in New Caledonia since the 1950s, it became a founding member of the IAC in 1999.

**Fields of activity:** life sciences, social sciences, and engineering sciences applied to agriculture, food, the environment, and land management.

- 3 staff members

## CNRS – National Center for Scientific Research

Present in all the French overseas departments and territories, the CNRS has been in New Caledonia since 1980. The Institutes of Chemistry (INC), Ecology and Environment (INEE), and Sciences of the Universe (INSU) are represented there. The CNRS also contributes to varying degrees

through 8 UMR (joint research units) located on the IRD and UNC campuses.

**Fields of activity:** chemistry of natural substances, green chemistry, ecology, environment, remediation, technologies, and society.

- 4 staff members

## IAC – New Caledonian Institute of Agronomy

IAC is a research institution with local governance, and almost all employees meet local employment criteria. As a targeted research institution, created in 1999, IAC supports communities on issues related to food security and rural and sustainable development.

**Fields of activity:** sustainable agriculture, environmental conservation, rural dynamics.

- 80 staff members

## Ifremer – French Research Institute for Exploitation of the Sea

Ifremer has been present in New Caledonia since 1973. Its expertise is in the marine environment, where it works in close collaboration with local authorities on priority themes for local development.

**Fields of activity:** valorization of marine biological resources, marine aquaculture and shrimp farming, tools to support the management of coastal areas and lagoons, exploration of deep and semi-deep environments.

- 30 staff members

## IPNC – Pasteur Institute of New Caledonia

A private foundation of public utility, the Pasteur Institute's mission is to fight against diseases through research and public health and training support. The Pasteur Institute of Noumea was created in 1955. It became the Pasteur Institute of New Caledonia in 1989. Its research focuses on selected vector-borne

diseases (leptospirosis, dengue fever, zika, etc.) and non-contagious diseases (obesity, diabetes).

**Fields of activity:** disease control, public health support.

- 35 staff members

## IRD – Research Institute for Development

The IRD deploys scientific research in more than 40 overseas countries and territories. Its most important representation is in New Caledonia, where it has been present since 1946. Its research focuses on marine and terrestrial ecosystems, climate change,

mining, environmental law, and human dynamics in the environment.

**Fields of activity:** environment and resources, societies and territories, health and environment.

- 93 staff members

## UNC – University of New Caledonia

The UNC, established in 1999 as a full-fledged university, is an institution of higher education and research with more than 3500 students. The UNC has 5 research teams: LARJE (law, economics & management), ISEA (exact applied sciences), and LIRE (education and health).

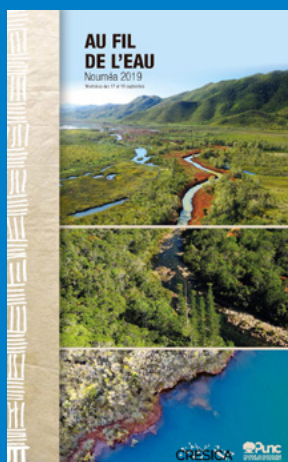
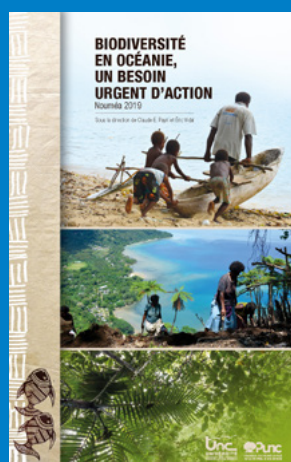
Two other teams are emerging: ERALE (Kanak languages and culture) and TROCA (SHS).

**Fields of activity:** law-economy-management, literature-languages-humanities, sciences, and techniques.

- 262 staff members

# SCIENCE IN PUBLICATIONS

The local scientists publish many publications every year, including in the most prestigious international journals (Nature, Science, etc.). The research team's productions are accessible free of charge in the university library and via online document management tools (IRD's Horizon database, IAC's Gaiac archives, etc.). Since 2019, the University Press of New Caledonia (PUNC) publishes a CRESICA collection dedicated to shared projects.



## MORE INFORMATION AND CONTACTS

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