

SCIENTIFIC COOPERATION AND INNOVATION

Contributing to research and development in the Indo-Pacific



The Indo-Pacific region is home to some of the world's most innovative countries. According to the OECD, South Korea (4.8 percent) and Taiwan (3.6 percent) were second and third globally in terms of R&D expenditure relative to GDP in 2020, well ahead of France (2.3 percent)¹. According to the Global Innovation Index 2022, four of the Top 15 countries are in the region, including South Korea (6th), Singapore (7th), China (11th) and Japan (13th). And among middle-income countries, India and Vietnam lead the way².

Among the twelve priority countries in 2023 for strengthening strategic dialogue on scientific cooperation, six are in the Indo-Pacific (South Africa, Australia, South Korea, India, Japan and Singapore). More broadly, partnerships are varied and cover many fields, as in the case of the 19 Hubert Curien Partnerships in 17 countries. A network of players, including renowned research institutions such as the CNRS, which has six offices in the region, works to strengthen France's scientific influence.

DYNAMIC COOPERATION

France's influence is further strengthened by scientific cooperation with strategic partners such as Australia, Indonesia and Japan. This cooperation is coordinated by the science and technology services (SST) and the cooperation and cultural action services (SCAC) within certain embassies (see *Fact sheet No.3 – Diplomatic network and official visits*). Scientific attachés play an intermediary role in the creation of partnerships, but they are few in number.

As early as 1987, the Franco-Indian Center for the Promotion of Advanced Research (CEFIPRA) was conceived as a model for international research collaboration. In Singapore, the French Lab brings together a community of academics and industrialists with strong ties to France. It is supported by the French Embassy, the Chamber of Commerce and the CNRS. In South Africa, the Franco-South African Institute of Agriculture (F'SAGRI) was created in 2015 to strengthen the capacities of three universities.

HUBERT CURIEN PARTNERSHIPS

Partenariats Hubert Curien (PHC) support research projects set up jointly by two research teams, one French, the other foreign, and aim to develop scientific and technological exchanges of excellence. They are implemented and financed by the Ministry of Europe and Foreign Affairs (MEAE), with the support of the Ministry of Higher Education and Research and managed by Campus France.

There are 19 CHPs in the Indo-Pacific, spanning 17 countries. These include the Franco-New Zealander PHC Dumont d'Urville, the Franco-Malaysian PHC Hibiscus, the Franco-Mauritian PHC Le Réduit, the Franco-Vietnamese PHC Lotus, the Franco-Pakistani PHC Péridot and the Franco-South African PHC Protea. The PHC STAR, implemented, on the South Korean side, by the National Research Foundation of Korea, covers a wide range of disciplines, including environmental sciences and low-carbon energies, as well as life and health sciences.

THE CNRS, A KEY PLAYER

The National Center for Scientific Research (CNRS), France's largest public research organization, plays a key role. Six of its ten representative offices abroad are in the region: Australia, China, Japan, Singapore, South Africa and South Korea. Research programs are also conducted in overseas territories, such as French Polynesia, with which a framework agreement was signed in 2021 (see *Fact sheet No.1 – Overseas Territories*). The Center for Insular Research and Environmental Observatory (CRIOBE), a world-renowned player in coral research, has had a branch on Moorea since 1971.

Almost half of the CNRS's nearly 80 international research laboratories (IRLs) are in the region, including five in China, four in Singapore and three in South Africa. Japan has seven IRLs, the largest number in a foreign country, ahead of even the USA. The most recent one, ILANCE, was created in partnership with the University of Tokyo; it studies the infinitely small and the infinitely large. Crossing was the first IRL to be created in Australia, in 2021; it is dedicated to artificial

¹ <https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>

² https://www.wipo.int/global_innovation_index/en/2022/



intelligence. It is the product of collaboration with, among others, the University of Adelaide, Flinders University and the University of South Australia³.

The French National Center for Scientific Research (CNRS), under joint supervision with the Ministry of Foreign Affairs (MEAE), manages joint research units abroad (UMIFRE) in humanities and social sciences. Seven are located in the region, including the Center for French Studies on Contemporary China (CEFC) with offices in Hong Kong, Taipei and Beijing, the Institute for Research on Contemporary Southeast Asia (IRASEC), based in Bangkok, and the Center for Human Sciences (CSH), based in New Delhi. None are in the Pacific Islands.

NETWORK OF RESEARCH INSTITUTES

A large number of specialised research institutes contribute to scientific cooperation. Ifremer has numerous partners in the region (see *Fact sheet No.10 – Education and human rights*), including the Japan Agency for Marine–Earth Science and Technology (JAMSTEC), the University of Tasmania in Australia (UTAS) and the University of Cape Town in South Africa (UCT). In the southwest Indian Ocean, the institute has been co-piloting the PEPR BRIDGES since 2021, a priority research program to increase resilience to climate change, food insecurity and emerging conflicts.

With its 18 offices, including one in the Pacific Islands, the Center for International Cooperation in Agricultural Research for Development (CIRAD) is a key player. The Research Institute for Development (IRD) has offices in eight countries, as well as on Réunion Island and in New Caledonia (see *Fact sheet No. 6 – Development aid and the environment*).

The first Institut Pasteur located abroad was founded in Saigon in 1891. Vietnam hosts two more, namely those in Nha Trang (founded in 1895) and Hanoi (founded in 1924), known as the Institut National d'Hygiène et d'Epidémiologie (National Institute of Hygiene and Epidemiology). Overall, there are institutes in six countries (Cambodia, China, South Korea, Japan, Laos, Madagascar and Vietnam), plus the Institut Pasteur in Nouméa. The one in Shanghai, China, closed in 2023. The most recent one was inaugurated in Vientiane in 2007. The French National Institute for Health and Medical Research (INSERM) is

present in three countries in the region (Australia, India and Vietnam), as well as in La Réunion (see *Fact sheet No.7 – Humanitarian aid, crises and natural Disasters*).

CO-PUBLICATIONS AND SCIENTIFIC AWARDS

In 2021, France was ranked as the ninth most important contributor to international scientific publications, behind Canada and ahead of Australia. Its co-publication rate with foreign institutions was 65 percent. In the Indo-Pacific region, only China appeared in the top 10 of countries with which France co-published the most, accounting for 11.1 percent of co-publications in 2021.

Scientific awards celebrate scientific cooperation with the region. In 2022-2023, the Tremplin ASEAN prize rewarded cooperation between French and local researchers, including a project between the University of Montpellier and Bangkok's Kasetsart University. The Grand Prix Scientifique Franco-Taiwanais is awarded annually by the Academy of Sciences and the Ministry of Science and Technology of Taiwan. Other prizes are awarded by private organisations, such as the Innovation Prizes for Franco-Chinese teams awarded by the MEDEF France-China Committee.

IMPORTANCE OF PRIVATE ACTORS

French multinational corporations have set up numerous research and innovation centres in the region (see *Fact sheet No.8 – Economic cooperation and business*). In 2016, Air Liquide inaugurated its Shanghai Research and Technology Center (SRTC) and, in 2019, its Tokyo Innovation Campus in Yokosuka, which includes eight laboratories. L'Oréal Group has seven of its 21 research centres abroad in the Indo-Pacific region, in Bangalore, Johannesburg, Mumbai, Pudong, Seoul, Singapore and Tokyo.

At VivaTech, the global gathering of startups and leaders in Paris to celebrate innovation, the region's startups are well represented, from Kenya to New Zealand. India and South Korea were even named "Country of the Year" in 2022 and 2023 respectively.

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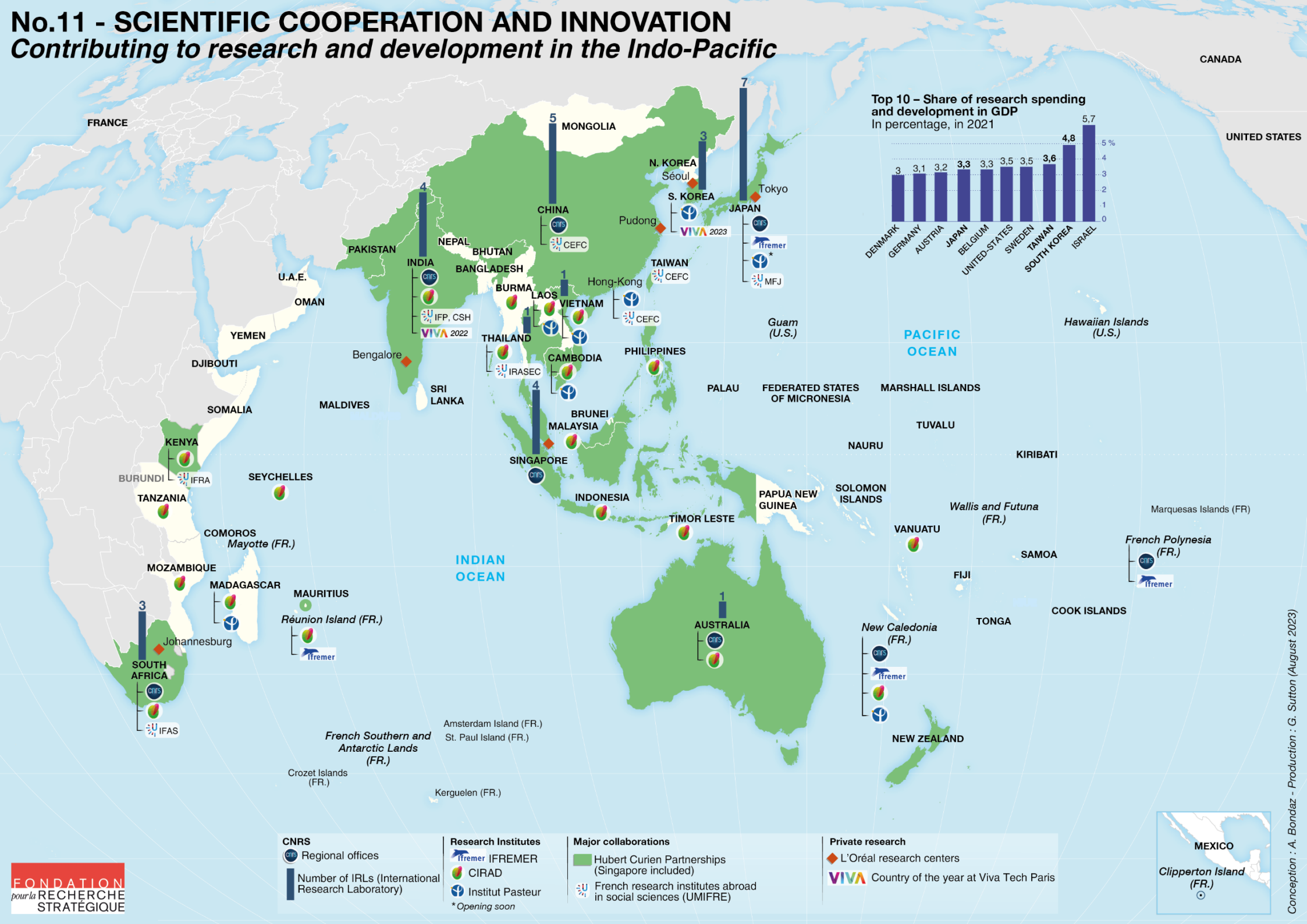
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³ https://www.cnrs.fr/sites/default/files/news/2022-06/RA_CNRS2021.pdf

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No.11 - SCIENTIFIC COOPERATION AND INNOVATION

Contributing to research and development in the Indo-Pacific



CNRS
 Regional offices
 Number of IRLs (International Research Laboratory)

Research Institutes
 IFREMER
 CIRAD
 Institut Pasteur
** Opening soon*

Major collaborations
 Hubert Curien Partnerships (Singapore included)
 French research institutes abroad in social sciences (UMIFRE)

Private research
 L'Oréal research centers
 Country of the year at Viva Tech Paris





ABOUT THE PROJECT

France in the Indo-Pacific - Proactive power and solutions provider is an unprecedented research project that consolidates, synthesises and maps France's actors and actions in a region of vital importance to national interests.

It consists in a dozen thematic fact sheets intended to provide greater visibility and to highlight what is being done in overseas territories for the benefit of the French people and local populations by ministries, other state actors but also French business and NGOs.

This project ties in with research by FRS, including two policy papers: "La France, une puissance d'initiatives en Indo-Pacifique" (November 2022)⁵ and "Reconceptualizing French foreign and security policy in the Indo-Pacific" (July 2023)⁶.

List of Fact Sheets as of September 15th, 2023

- No.1 - Overseas territories
- No.2 - Demographics and political representation
- No.3 - Diplomatic network and official visits
- No.4 - Military presence and defence diplomacy
- No.5 - Security and police cooperation
- No.6 - Development aid and the environment
- No.7 - Humanitarian aid, crises and natural disasters
- No.8 - Economic cooperation and business
- No.9 - Cultural cooperation and Francophonie
- No.10 - Education and human rights
- No.11 - Scientific cooperation and innovation

ABOUT THE AUTHOR

This project was initiated by **Antoine BONDAZ, Ph.D.**, director of the "Observatory for Multilateralism in the Indo-Pacific". He was assisted by **Marie DESBONNETS**, a Sciences Po student and a graduate of IEP Lyon. **Nathan BLUJSTAN**, a graduate from SOAS, translated.

The Foundation for strategic research (FRS), founded in 1992, is a foundation with public utility status (decree of February 26, 1993) that operates in complete independence. Its mission is to analyse strategy and international security issues, and to contribute to the strategic debate in France and the promotion of French thinking abroad.

FRS conducts research on and in the Indo-Pacific through regional and thematic approaches, publishes policy papers and reports, organises international conferences, conducts high-level strategic dialogues (bilateral and trilateral), pilots a European exchange platform on the Indo-Pacific and has signed cooperation agreements with the region's leading think tanks.

⁵ <https://www.frstrategie.org/publications/notes/france-une-puissance-initiatives-indo-pacifique-2022>

⁶ <https://www.frstrategie.org/en/publications/notes/reconceptualizing-french-foreign-and-security-policy-indo-pacific-2023>