

Expanding scientific cooperation

By DR MARIO HAMUY

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MARIO HAMUY is an astronomer. He has a Bachelor's in Physics and a Master's degree in Astronomy from the University of Chile, and a PhD in Astronomy from the University of Arizona. He was awarded the National Prize in Exact Science in 2015 for the great impact his work has achieved at the international level. Dr Hamuy was appointed President of the Council of CONICYT, and scientific advisor of the President of the Republic of Chile on 21 March 2016, with the challenge of coordinating the committee that would lead to the creation of the Ministry of Science and Technology of Chile.

In recent years, the United Kingdom has become a strategic partner for our country, both in the development of joint research projects as well as in postgraduate training, an area that stands out as the main destination for students and researchers from Chile.

Since 2010, the National Commission for Scientific and Technological Research, CONICYT, has gradually increased its efforts to encourage and promote cooperation in science, technology and innovation with the UK. Every day there are more beneficiaries of the BECAS CHILE Programme (a programme of scholarships for Master's or Doctorate studies abroad), who choose British universities as their study destination. At the same time there is an increase in joint research projects in areas such as medicine, social sciences and physics that have been favoured by cooperation agreements and an offer of specific funds by both countries.

Chile has the capacity, resources and natural conditions necessary to open its doors to international research initiatives in strategic areas and to collaborate with our experience in issues where the country shows comparative advantages, such as astronomy, geology, palaeontology and Sub Antarctic Science, to name a few.

Studying in the UK

To train researchers and professionals of excellence through high-level studies in all areas of knowledge, through its Advanced Human Capital Development Programme, is one of CONICYT's objectives, and this has been carried forward to contribute to the development of Chile.

In 2010, through the BECAS CHILE Programme, 190 Chilean professionals received support to continue their Master and Doctorate studies in the UK, mainly in such areas as Social and Natural Sciences and Humanities. This figure increased gradually, reaching 264 beneficiaries in 2015. During this period, 1,539 professionals and researchers have completed their Master and Doctorate programmes in various British universities, positioning the UK as the primary destination chosen by CONICYT's beneficiaries.

This increase is not unexpected as it corresponds to the recognised excellence of British higher education institutions reflected in rankings such as the Academic Ranking of World Universities (ARWU), Times Higher Education (THE) and ranking of

publications and impacts of the articles, according to data from Web of Science. University College London is undoubtedly the favourite of Chilean students, followed by the University of Edinburgh, and the University of Bristol.

If we consider the benefits offered to our students in the period between 2010 and 2015 by the BECAS CHILE Programme, through its various instruments (including tuition fees, living stipends and airfare), US\$133,280,019 has been invested.

Excellence in collaborative research

In the past five years, CONICYT has funded 141 research projects with the active participation of British scientists. This collaborative work has been developed mainly through networking projects, including those between research centres in Chile and the UK, and through a programme, that promotes the short-term stay of UK scientists in Chilean institutions.

The National Fund for Scientific and Technological Development, FONDECYT, that funds basic research, encourages collaboration with foreign researchers, allowing them to participate in specific aspects of the projects. As a result of this collaboration, between 2011 and 2015, 237 researchers from the UK ▶

CONICYT

The National Commission for Scientific and Technological Research of Chile (CONICYT) was established in 1967 as an advisory body to the President of the Republic on scientific development issues. Its strategic pillars are promoting the development of human capital and strengthening Chile's scientific and technological base. In addition, both pillars are supported in a cross-cutting manner by scientific information and an international relations area. In 2015, after a 42-year recess, the Council of the institution, comprised of prominent members of the scientific community and representatives of the Ministries of Education and Social Development, was established. At present, CONICYT funds approximately 95 per cent of the scientific research undertaken in Chile. ■

The implementation of the Newton Fund in Chile has enabled the financing and development of joint research between Chilean and British scientists

The Chilean Antarctic Naval Base, Gabriel Gonzalez Videla, on the Antarctic Peninsula



visited Chile, with an associated cost of US\$720,000. Through FONDECYT, along with the Scientific and Technological Development Support Fund, FONDEF, an additional 62 British researchers have actively contributed to projects.

In terms of publications in specialist journals, cooperation between the two countries in the period 2011-2015 has resulted in more than 3,248 ISI documents, cited more than 45,543 times, constituting a good indicator of scientific productivity. The main areas addressed in these publications are Astronomy, Astrophysics, Ecology and Multidisciplinary Sciences.

New opportunities for cooperation

The implementation of the Newton Fund in Chile for a three-year period, starting from 2014, has enabled the financing and development of joint research between Chilean and British scientists. This initiative also enables technology transfer and innovation, the training of advanced human capital and the formulation of challenges that aim to create innovative solutions for Chile's development.

The implementation of the Fund is carried out collaboratively by the programmes of International Cooperation, Regional Scientific and Technological Research; and FONDEF of CONICYT, in partnership with institutions such as Research Council UK (RCUK), UK Natural Environment Research Council (NERC) and the British Council.

This initiative has become a valuable niche to share experiences on issues of common interest between Chile and the United Kingdom. Two years after its start, it has contributed to providing a range of opportunities in different areas for our investigators to further enhance their skills. This will certainly have a positive impact on the development of science and

innovation in our country in the future.

In the case of the International Cooperation Programme, the implementation of the activities of the Newton-Picarte Fund has taken place through calls for international research projects, including the calls for Development of International Research Projects and the International Research Projects in 2014; and the Joint Research Projects CONICYT-RCUK and the International Research Projects (CONICYT-NERC) calls in 2015. In addition, through the programme Support for the Creation of International Networking in 2014, projects on strengthening collaboration and partnerships between researchers from both countries were funded.

Furthermore, the CONICYT Regional Programme launched in 2015 the first call for the Support of Regional Centres in Scientific and Technological Development for Regional Development through R&D projects with SMEs that aimed to facilitate their access to the most recent scientific and technological knowledge. Moreover, through this processes, both regional centres and the companies involved in the projects have been able to benefit from the British experience and develop solutions to challenges and opportunities specific to the regions where the centres belong.

With regard to the training of advanced human capital and the implementation of entrepreneurship with a scientific basis, the FONDEF Programme, through its call for the Valorisation of Research at University programme, created a funding line for internships in the United Kingdom, giving grantees an opportunity for professional and academic development in their fields of study. This call targets undergraduate and graduate students and fosters capacity-building for new research-based ventures or enterprises, as part of their university thesis.

FONDEF has also funded research and development initiatives through the calls IDeA in Two Stages (IDeA en dos etapas) and Technological Research, in order to incorporate at least one associated institution from the United Kingdom, such as technology centres, universities, enterprises or other specialised institutions, whose support is essential to the implementation of the project.

The IDeA calls finance scientific and technological research initiatives with significant socio-economic impact, with results obtained and assessed, in a laboratory or at small scale, within a short deadline.

The successful results achieved by the joint work between Chile and the United Kingdom encourage us to continue this virtuous path of exchange of experiences of its researchers, the training of new talents and invites us to benefit from the comparative advantages that each nation has for the development of science and technology.