

UK & BRAZIL: PARTNERS IN SCIENCE, SPACE & INNOVATION



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If you would like to receive our monthly newsletters, produced jointly with SIN Mexico and SIN Chile, please don't hesitate to get in touch at Julia.knights@fco.gov.uk

Deep beneath the Andes an underground lab is being constructed to detect dark matter. Agua Negra Deep Experiment Site (ANDES) is a joint project between Brazil, Chile, Argentina & Mexico and is due for completion by 2021.

Less than three degrees from the equator, the Alcântara Launch Center sits on Brazil's northern Atlantic coast. The earth spins fastest here so less fuel is required for launches, making it an attractive prospect for UK satellite launches for communication.

In Rio de Janeiro, a vaccine aimed at protecting against Schistosomiasis – the most devastating parasitic infection in the world after malaria – is being developed by scientists at the Oswaldo Cruz Foundation.

These are just a few of the exciting innovative projects of the UK's Science and Innovation Network (SIN) in Brazil. Based in the British Embassy in Brasilia

and the British Consulate in Sao Paulo, SIN Brazil fosters world-class science partnerships with Brazil whilst informing UK stakeholders of new science policies, funding mechanisms and opportunities for research and commercial partnerships with Brazil.

BRAZILIAN GOVERNMENT INVESTMENT IN SCIENCE

Brazil is rapidly becoming one of the world's science

powerhouses. Federal and State Government spending on Science, Technology and Innovation in 2013 was estimated to be around \$31 billion USD, amounting to around 1.2 % of Brazil's GDP.

... opportunities for UK business and academia to offer expertise ...

In 2013, Brazil published 46,306 articles in Elsevier scientific journals, representing more than two-thirds of South America's entire research output. The impact and quality of Brazilian research is world-class in many areas, with citations three times greater than the world average in Agricultural Sciences (8.8% of the world scientific output), plant and

animal science (6.6%), environment and ecology (3%), and biology and biochemistry (2.6%). Pockets of excellence are also emerging in avionics, engineering and oil and gas.

However, the country still faces a number of challenges including a lack of research scientists and engineers, a need for expertise in innovation, and a legal and commercial framework to support it with IP law

enforcement. Links between academia and industry are still in the early stages of development. These are all opportunities for UK business and academia to offer expertise.

The Brazilian Government is investing heavily in Brazilian industrial development and developing a skilled labour force. President Dilma Rouseff has increased the powers and funding of FINEP, the Brazilian equivalent to Innovate UK. In June 2014 she launched the £5 billion "Knowledge Platform National Program" over ten years that will invest in research on health, oil, basic engineering, robotics, monitoring technology for the Amazon rainforest, genetics and biotechnology.

This rapidly developing landscape provides significant opportunities to further UK-Brazil science and innovation co-operation as well as commercial opportunities for British institutions and companies.

BRAZIL'S NEW SCIENCE MINISTER

Space and Innovation are the new priorities for Brazil's new

Science, Technology and Innovation Minister, Aldo Rebelo, who took office at the beginning of this January. Rebelo, a long standing member of the Communist Party of Brazil, was Sports Minister for the FIFA World Cup 2014 in Dilma's last government. This brings the Science Ministry greater political importance as his party has been loyal to the coalitions in power since 2003.

OPPORTUNITIES IN SPACE

Brazil is a key place to launch satellites thanks to its main

... creating five new launch pads ...

launch facility, Alcântara Launch Center. Several Space superpowers are already partnering with Brazil's Space programme. China launched a \$250 million Earth Resources Satellite last November joint with Brazil, with another launch due 2017. Russia and Brazil are designing a family of next-generation rockets and creating five new launch pads as part of their Southern Cross Project. Their first rocket will launch in 2022.

The Science and Innovation Network (SIN-Brazil) will create new partnerships to increase sales of small satellites and launch satellites such as Cubesat on existing missions from Alcântara. We will do this by encouraging UK companies to apply for grants from the UK Space Agency's new £32m International Partnership Space Programme. Brazil is also due to host the Disaster Charter Organisation in Autumn 2015.

We will use this to showcase UK expertise on disaster monitoring with the UK's Satellite Applications Catapult and the Space Agency.

OPPORTUNITIES IN INNOVATION

In partnership with UKTI, SIN has increased dialogue with different levels of the Brazilian government on innovation policy, working on sharing best-practice and increasing the dialogue with key local partners to influence policy-making. This includes the Brazilian Innovation Agency, the Brazilian Ministry of

Development, Industry and Foreign Trade, and State and Municipal governments in Sao Paulo. We have also used recent recognitions such as the UK's second place in the Global Innovation Index to foster interest in large Brazilian innovative companies looking to carry out R&D in the UK.

In 2014 we have seen an increased interest and investment of UK universities and research centres in Brazil. The University of Edinburgh and King's College London opened local offices in Brazil in 2014, joining Universities of Birmingham, Nottingham, De Montfort and Cambridge Assessment with a presence in the country.

Strong opportunities in biotechnology exist for UK companies. The UK's biotech firm Oxitec of Oxford opened the first factory producing transgenic mosquitoes in

Campinas last year. The mosquitoes are designed to control against dengue fever and the Chikunguna virus. Oxitec began as a start-up at Oxford University and SIN-Brazil facilitated its internationalisation and development in Brazil.

... producing transgenic mosquitoes in Campinas ...

UK BRAZIL £27M NEWTON FUND PROJECT

SIN Brazil is also developing Innovation partnerships in health, future cities, neglected diseases, biodiversity and climate through the UK's £27m Newton Fund (Overseas Development Assistance funding). Launched by the Chancellor last year, we have secured a further £27 million from the Brazilian government. To date, five new innovation calls have been successfully launched in 2014.

Exciting examples include digitising the entire Brazil plant collection held at the Royal Botanical Gardens at Kew for the benefit of Brazil. Partners involved in digitising the collections include the Rio

... specimens collected by Charles Darwin ...

Botanic Garden, the Brazilian National Research Council and Brazilian universities. The Reflora project, as it is known, includes specimens collected by Charles Darwin and will not just benefit Brazil but also future generations around the world.

A £6m joint research call between the Research Councils UK and the Brazilian Council of State Funding Agencies attracted four times the number of bids

that could be funded, revealing the strong interest on both sides. Seventy projects on health, future cities, biodiversity and economic development and welfare reform will be funded in 2015. Three further calls for 2015 are under way including a

£3 million joint call on energy, waste and water between Innovate UK and the National Service for Industrial Training in Brazil. SIN-Brazil will continue to help negotiate new calls between Brazilian partners and the UK's Newton Fund delivery partners (RCUK, British Council, the Academies and Innovate UK).

SCIENCE WITHOUT BORDERS

Further innovation partnerships are being fostered through Brazil's Science without Borders mobility programme. The UK has also welcomed over 8,500 students under "Science Without Borders", Brazil's education mobility scheme. A third of these students are already on a research or industrial placement

in the UK, paving the way for future innovation collaborations. The Brazilian government is keen to send more students on courses that offer placements, so the UK government and Universities UK are working with British companies to make this possible.