THE GEOLOGICAL SOCIETY OF AMERICA®
SCIENCE • STEWARDSHIP • SERVICE

AGI
THE AMERICAN GEOLOGICAL INSTITUTE

Joint Assembly 2010
Iguassu Falls, Brazil
8-13 August
Earth - Oceans - Atmosphere - Space - Planets

AGU

Town Hall

International Geosciences Initiative

Sponsored by Geological Society of America, American Geological Institute, Geological Society of London, and British Geological Survey

"Latin American and Caribbean S&T Cooperation Agency – A Proposal"

Jaime Urrutia Fucugauchi
TWAS Mexico Chapter

twas

UNESCO 2005 Science Report, April 2006

The world is globalizing and Latin America is not even getting it together'. Attempts at intra-regional integration have faced persistent 'obstacles connected with development problems and political and financial instability. The report also points to 'untapped potential in Latin America and the Caribbean for the horizontal transfer of knowledge and technologies under mutually advantageous conditions'.

Latin America and the Caribbean continue to account for just a fraction of world expenditure on R&D and this share appears to have slipped between 1997 and 2002 (from 3.1% to 2.6% - compared to a 7.6% share of world GDP). According to the UNESCO 2005 Science Report, just three countries - Brazil, Mexico and Argentina - contribute 85% of the total.

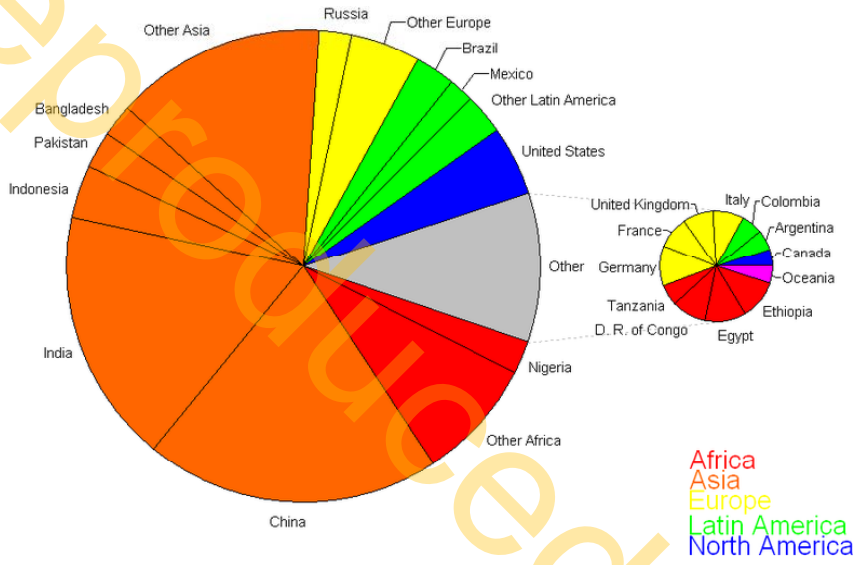
Of the US$ 21.7 billion spent on GERD in Latin America and the Caribbean in 2002, Brazil contributed US$ 13.1 billion, Mexico US$ 3.5 billion and Argentina US$ 1.6 billion. Brazil is the only country in the region to devote 1% of GDP to R&D, the R&D effort of Argentina and Mexico amounting to just 0.4% and 0.3% of GDP.

Regional Cooperation in Latin America and the Caribbean

Science policy makers and the research community should realize that, if the region is to advance and increase its presence on the international scene, they require to pull together, and that this entails strengthening intra-regional ties.

UNESCO Science Report, April 2006

Latin America and the Caribbean represents 8.6% of the world population but just 2.5% of the world's scientists.
In the region, on average, there are 261 researchers per million population There are 715 in Argentina, 315 in Brazil and 217 in Mexico.
This compares with 2982 in France, 3209 in Germany, 4374 in the USA and 5085 in Japan.



Latin American and Caribbean Science and Technology

- Small, isolated academic communities
- Inadequate infrastructure
- Few large, long-term programs
- Dependence on programs, projects, directives from groups in industralized nations
- Few collaboration projects with the region
- Economic, social and political problems
- Most student programs directed to industrialized nations
- Few academic exchange programs with the region
- Relatively few groups and individuals with international status
- Brain drain
- Poor telecommunication facilities
- Low-speed internet
- Few if any regional S&T funding agencies

Latin American and Caribben Science and Technology

- Small, isolated, poorly-financed national societies

- Lack of coordination among Governmental Science Agencies

- Lack of cooperation in Science and Technology among countries in the region

- Lack of communication and academic exchange

- Lack of science and technology as state-policies in most countries

- Lack of long-term S&T programs and even visions

- Lack of national S&T infrastructures

- Un-fullfilled dreams of Latin American integration and a successful Latin American scientific community

- Un-promising future

International Collaboration North-North, North-South and South-South

International Collaboration – Papers ISI	1981	1985	2000	2007
International Collaboration Papers (Co-authors from two or more countries)	5.7%	7.3%	18.4%	21.9%
Developed Countries Collaborative Papers	6.0 %		20.4%	
Developing Countries Collaborative Papers	15.1%		30.8%	
Collaboration Among Developed Countries	80.9%		75.1%	
(From Total Number of Papers) Collaboration Developed/Developing Countries			28.9%	
Collaboration Among Developing Countries			1.9%	
Number International Collaboration Papers			107,637	

Over the 20 years under analysis, international collaboration in science and technology has increased. One indicator of this process is the rise in papers co-signed by authors from different countries. The share of world papers with authors in two or more countries has more than tripled between 1981 and 2000, from 5.7% to 18.4%. The proportion of publications from authors in developed countries co-signed with authors in other countries has risen more than three times from 6.0% to 20.4% between 1981 and 2000, and in developing countries the share of collaborative papers doubled from 15.1% to 30.8%. Of the total 107,637 internationally collaborative papers in 2000, 74.0% were collaborations between scientists in different developed countries (”North-North”8), 24.5% collaborations between authors in developed and developing countries (“North-South”), and only 1.6% between scientists in different developing countries (“South-South”). From the total number of papers by authors in developing countries, 28.9% were written in collaboration with authors in developed countries (“South-North”) and 1.9% with scientists in other developing countries (“South-South”). “South-North” collaboration represents therefore 93.7% of total collaboration involving developing country authors. On the other hand, developed countries Collaborate mainly between themselves: 75.1% of their collaborative papers were written with authors in other developed countries in 2000, down from 80.9% of papers in “North-North” collaboration in 1981.

Ongoing and past efforts

- **Government Programs**

-**International Collaboration Programs**

- Increased Involvment/Participation International Projects
- Increased collaboration with Industrilized Nations
- Support Laboratory Infrastructure
- Equipments/Instrument Donnations

- **Student Support Programs**

- Student Travel Grants
- Student Project Grants
- Postgraduate Fellowships
- Instrumental Networks

- **Academic Exchange Programs**

- Postdoctoral fellowships
- Postgraduate fellwoships

- **Education Programs**

- **North-South Collaboration Projects**

-

-**South-South Collaboration Projects**

Needs for Collaboration in Science and Technology in Latin America and Caribbe

-Coordination of programs, activities and policies in a regional context

- Increased funding

- Top high-quality laboratory infrastructure

- Frontier science projects

- Frontier technologies

- Science academic mobility

- New research centers

Alternatives, options, actions?

Proposal

Creation of the

Latin American and Caribbean Intergovernmental Cooperation Agency in Science and Technology

Advisory body for science and technology to assist the Latin American and Caribbean governments with the implementation of cooperation strategies and coordination of regional research and development policies.

Latin American and Caribbean Research Council

Intergovernmental research council and funding body for science and technology

Latin American and Caribbean Science and Technology Foundation

Independent, non-governmental, non-profit organization that facilitates cooperation and collaboration in research and development

European Research Council

The European Research Council (ERC) is the first European funding body set up to support investigator-driven frontier research.
Its main aim is to stimulate scientific excellence by supporting and encouraging the very best, truly creative scientists, scholars and engineers to be adventurous and take risks in their research. The scientists are encouraged to go beyond established frontiers of knowledge and the boundaries of disciplines.
The ERC complements other funding activities in Europe such as those of the national research funding agencies, and is a flagship component of the 'Ideas Programme' of the European Union's Seventh Research Framework Programme (FP7).

The ERC aims to:
- support the best of the best scientific efforts in Europe across all fields of science, scholarship and engineering.
- promote wholly investigator-driven, or 'bottom-up' frontier research.
encourage the work of the established and next generation of independent top research leaders in Europe.
- reward innovative proposals by placing emphasis on the quality of the idea rather than the research area.
- harness the diversity of European research talent and channel funds into the most promising or distinguished researchers.
- raise the status and visibility of European frontier research and the very best researchers of today and tomorrow.
- put excellence at the heart of European Research

European Cooperation in Science and Technology - COST

COST is an intergovernmental framework for European Cooperation in Science and Technology, allowing the coordination of nationally-funded research on a European level. COST contributes to reducing the fragmentation in European research investments and opening the European Research Area to cooperation worldwide.

The goal of COST is to ensure that Europe holds a strong position in the field of scientific and technical research for peaceful purposes, by increasing European cooperation and interaction in this field. This research initiative makes it possible for the various national facilities, institutes, universities and private industry to work jointly on a wide range of Research and Development (R&D) activities. COST – together with EUREKA and the EU framework programmes – is one of the three pillars of joint European research initiatives. These three complementary structures have differing areas of research.

Setting Science Agendas
The ESF provides a common platform for its Member Organisations in order to:
- Advance European research
-Explore new directions for research at the European level

Through its activities, the ESF serves the needs of the European research community in a global context.

The **European Science Foundation** (ESF) is an association of 79 member organisations devoted to scientific research in 30 European countries. It is an independent, non-governmental, non-profit organisation that facilitates cooperation and collaboration in European research and development, European science policy and science strategy. It was established in 1974. The ESF offices are in Strasbourg, France (headquarters), and in Brussels and Ostend, Belgium.
The ESF Member Organisations are research-performing and research-funding organisations, academies and learned societies across Europe. Together they represent an annual funding of about €25 billion.
The ESF provides a platform for foresighting and research networking on a European and global scale to the ESF member organisations. According to its mission and strategic plan, the European Science Foundation runs foresighting programmes in science, programmes to enhance science synergy (i.e.: research networking programmes and collaborative research projects for European scientists) and activities dedicated to science management (such as providing administrative services to independent scientific committees and other organisations).

Latin American and Caribbean Intergovernmental Cooperation Agency in Science and Technology

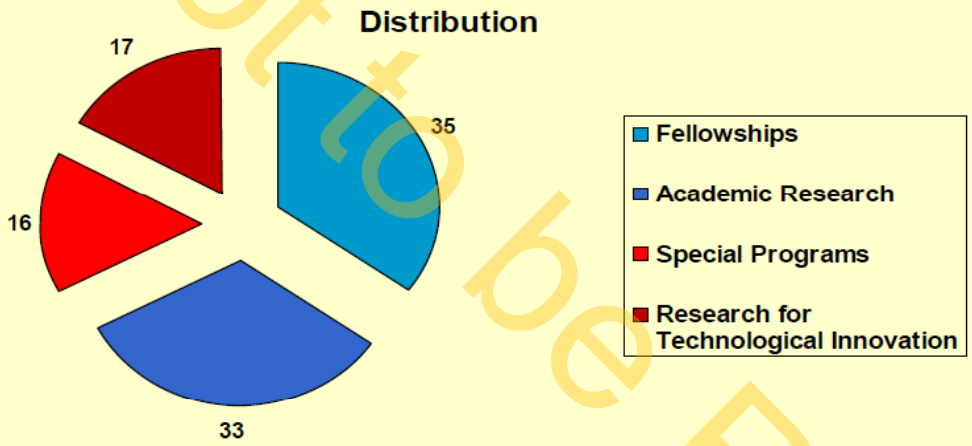
Latin American and Caribbean Research Council

Latin American and Caribbean Science and Technology Foundation

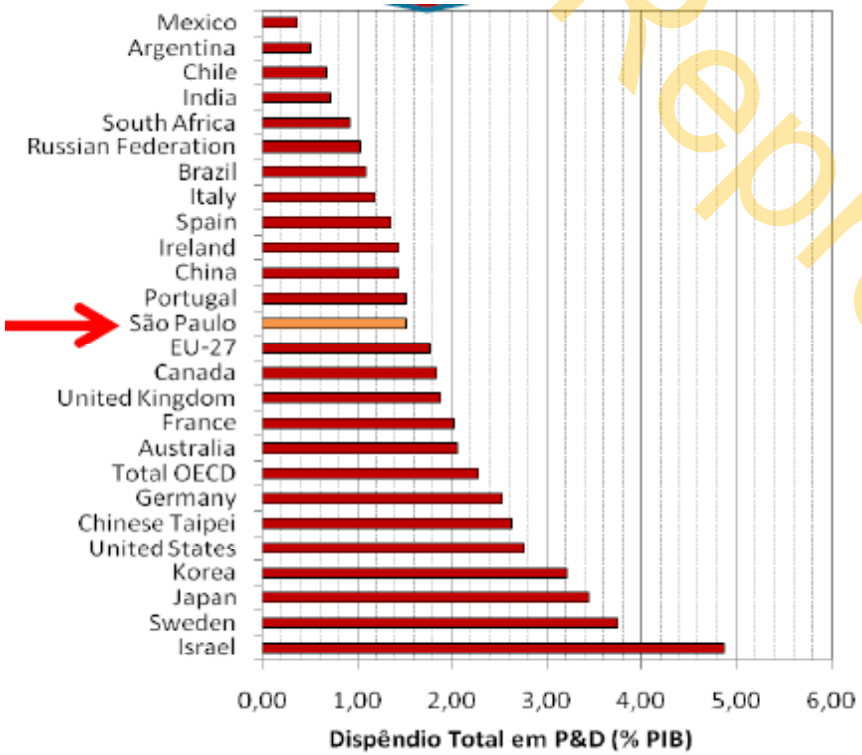
Are these proposals realistic?

The São Paulo Research Foundation, FAPESP

- 2009 budget: ~ US$ 420 million



Percentage of Gross National Product Spent for R&T Activities

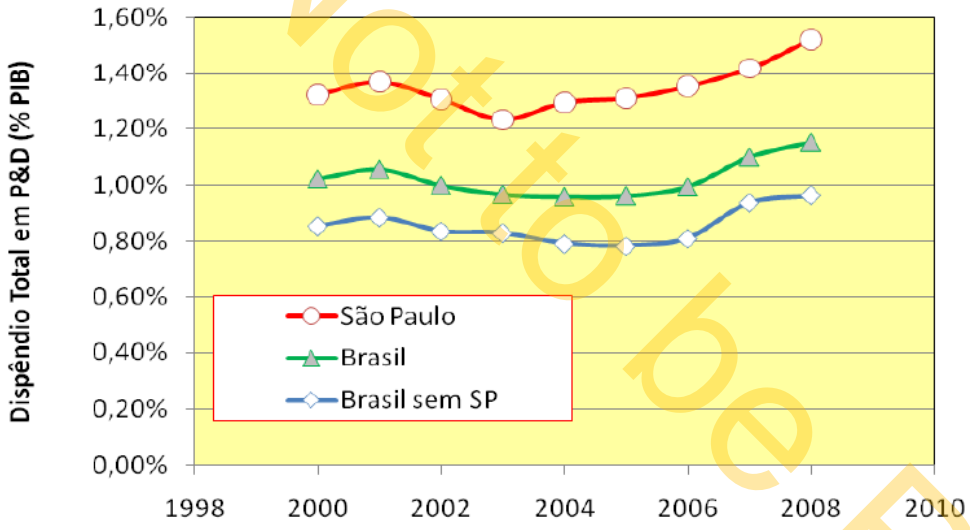


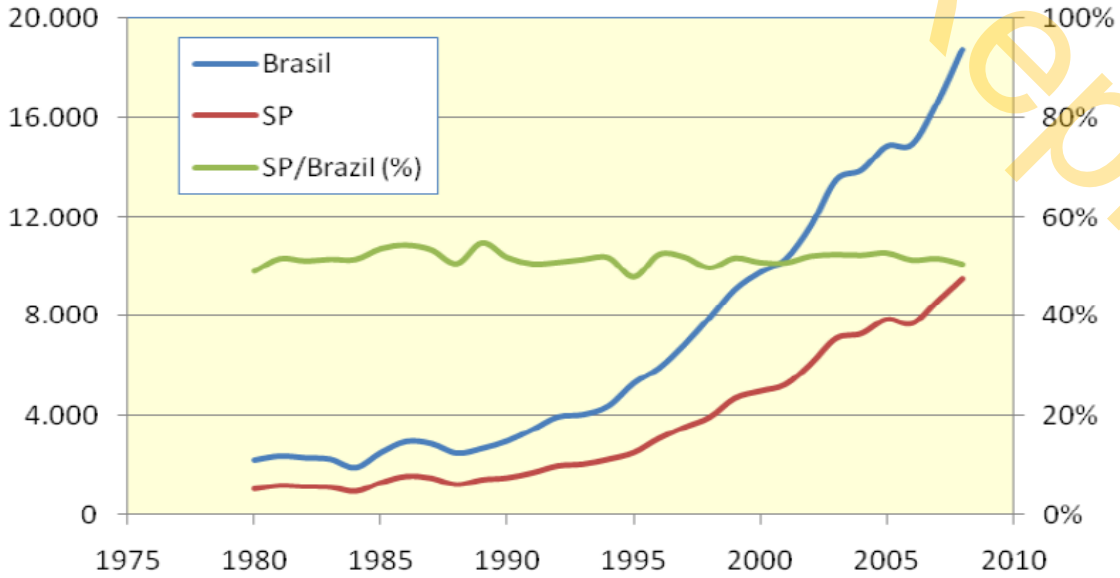
1989: New State of São Paulo Constitution –Article 271 –

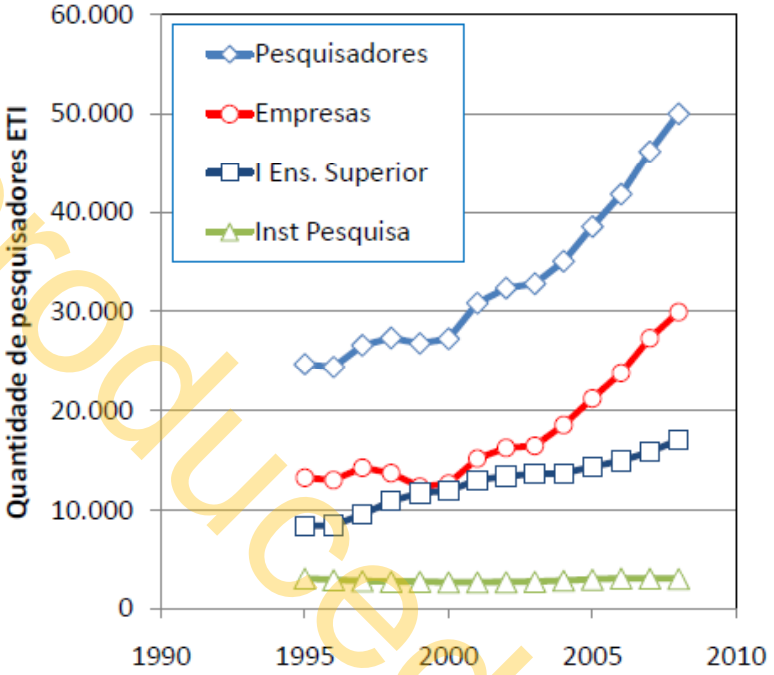
"The State shall grant no less than one percent of its total tax revenues to the Foundation for the Support of Research in the State of São Paulo, as a revenue to be privately managed by said foundation, to be applied in scientific and technological development"

S. Queiroz, Science, Technology and Innovation in the State of Sao Paulo

The São Paulo Research Foundation, FAPESP







Number of Publications

S. Queiroz, Science, Technology and Innovation in the State of Sao Paulo

THE GEOLOGICAL SOCIETY OF AMERICA®
SCIENCE • STEWARDSHIP • SERVICE

AGI
THE AMERICAN GEOLOGICAL INSTITUTE

AGU

UK-Brazil International Conference
"Frontiers of Science"

August 2010
Royal Society – Sao Paulo Cooperation Agreement
Royal Society 350 year Anniversary

ICSU
International Council for Science

IUGS
International Union of Geological Sciences

International Union of Geodesy and Geophysics for the Planet Earth

Thanks!
Muito Obrigado
Muchas Gracias
Merci