




Regional Office for Latin America and the Caribbean

Annual Report 2013

Strengthening international science
for the benefit of society

ICSU
International Council for Science

ICSU

International Council for Science

Vision:

The long-term ICSU vision is for a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy-making. In such a world, universal and equitable access to high quality scientific data and information is a reality and all countries have the scientific capacity to use these and to contribute to generating the new knowledge that is necessary to establish their own development path-ways in a sustainable manner.

Promote and implement actions in line with ICSU's strategic priorities.

Assist ICSU in strengthening science and capacity building in developing countries through South-South and North-South collaboration.

Support integration of ICSU's regional and global activities.

ICSU
International Council for Science
Regional Office for
Latin America and the Caribbean

Ensure that the views of the scientific communities in the regions are taken fully into account in the development of ICSU's strategic priorities.

Promote increased participation of developing country scientists and regional scientific organizations in the implementation of the ICSU Strategic Plan 2012-2017.

Message from the Director of the Regional Office

2013 finished with important results in our 4 work priorities. Special emphasis was on Future Earth program, with important outreach and advocacy in the Region. Two priorities of our Region are cross cutting with Future Earth: Risk and Disasters and Sustainable Energy. In 2013 José Luis Morán-López honored us as the new chairman of our Regional Committee. His presence has helped to carry out the work and meet the objectives.

Two meetings on Disasters were held in Panama from 20 to 22 March in collaboration with IRDR, following the agenda discussed in the meetings held in Buenos Aires in 2012, and 24 to 25 September, to establish the steering committee with very well-known scientists proposed by ICSU regional focal points. A working plan was approved with short and medium term activities.

In Sustainable Energy: the Global-Regional integration Workshop was in Mexico, April 8 and 9, 2013, with 42 participants from 18 countries including Nobel Prize winner Mario Molina. A Follow up Workshop was on April 10, with experts and ROLAC ICSU staff to discuss the way forward recommended from this meeting.

On the 7 and 8 May 2013 was the implementation meeting on Sustainable Energy in Nairobi, Kenya. 36 experts from 16 countries from Africa attended. Also Drs. Manuel Limonta, Anthony Clayton and Décio Gazzoni participated representing our Office.

An efficient use of scientific resources is being pursued by establishing cooperation with other regional organizations regarding Disasters and Sustainable Energy. A Consortium with the Inter American Institute (IAI) and the UNESCO regional office was agreed as a very important strategic result with a signed Memorandum of Understanding containing a program of activities to seek support from funders.

Other important strategies developed this year:

A) The strengthened relations with international organizations like The World Academy of Sciences (TWAS), and the Inter American Association of Academies of Sciences (IANAS). With TWAS we organized a TWAS-ICSU young scientist meeting at the end of 2013. 19 countries participated. New ideas of collaboration with TWAS are on the way.
B) New countries in ICSU. El Salvador was admitted in 2013. Ecuador, Nicaragua, Honduras on the way.
C) Increased collaboration with regional representatives of Scientific Unions under ICSU included the preparation in 2013 of a workshop organized for Cuba in January 2014.
D) In Biodiversity two important international events were held: the preparatory meeting on Access and Benefit Sharing in LAC: Dialogue between science and policy for academic research in Montevideo in May; and the workshop in November in Lima. There is a publication under preparation from these meetings.
E) The successful mathematics meeting in Brazil in 2013 that will be followed with a book publication

Other important achievements:

A) The stabilization of the work of the office in finance and communications, very well recognized by our Scientific Regional Committee.
B) The newsletter of the Office, established and circulating with a proven quality.
C) Participation in 25 workshops, symposia, congresses emphasizing sustainability of the planet with gender balance.
Monitoring and deepening work objectives will allow us to fully reach a middle term work as a strong foundation for long-term goals.

Manuel Limonta
Director of the Regional Office

Message from the Chair of the Regional Committee

This year, 2013, has been very busy in the accomplishment of a large number of activities on the agenda of our ICSU ROLAC office. The quality of the work in several strategic areas has provided a clear vision of how the Office is approaching the way to expand the visibility of ICSU and produced important results in actions related to our four priority areas of interest.

Objectives and actions regarding the Future Earth program have been the main frame of work and a special field of dedicated work from the members of the ICSU ROLAC Office and the scientific Regional Committee. Two of the main priorities of our Region are cross cutting with this Future Earth program: Risk and Disasters and Sustainable Energy. Both have been developed to an important position with the establishment of the respective steering committees that constitute the base for specific programs to induce real transformations in our Region.

The strengthened relations and communication with international organizations like The World Academy of Sciences (TWAS) and the Inter American Association of Academies of Sciences (IANAS) are producing an important internationalization of our work in the Region and also beyond its borders.

The establishment of a Consortium with the Inter American Institute (IAI) and UNESCO for the work on Sustainable Energy and Risk and Disasters is an important milestone in the establishment of new support for the work programs of the ICSU ROLAC Office.

The ICSU Office succeeded this year in bringing El Salvador as a new country inside our family and started to work on the incorporation of Ecuador, Nicaragua and Honduras.

The strategy of work developed with the scientific unions and biodiversity are reflecting a comprehensive way to focus all the important priorities and field of action in the Region.

Important activities in the four priority areas have been accomplished through participation in different workshops, symposia, congresses and other type of meetings, where the office presented lectures about Future Earth and other topics from our priorities.

In the meetings organized every six months with the Scientific Regional Committee, we have perceived an increase in quality in the communication within the ICSU ROLAC Office and the work of finance has achieved a stable level.

With regard to the composition of our Scientific Committee, one of our members, Professor Humberto Rodriguez, asked to resign his membership because of the impossibility combining his actual duties and responsibilities with the work of ICSU. The members of the Committee understood the situation and all agreed to accept his request.

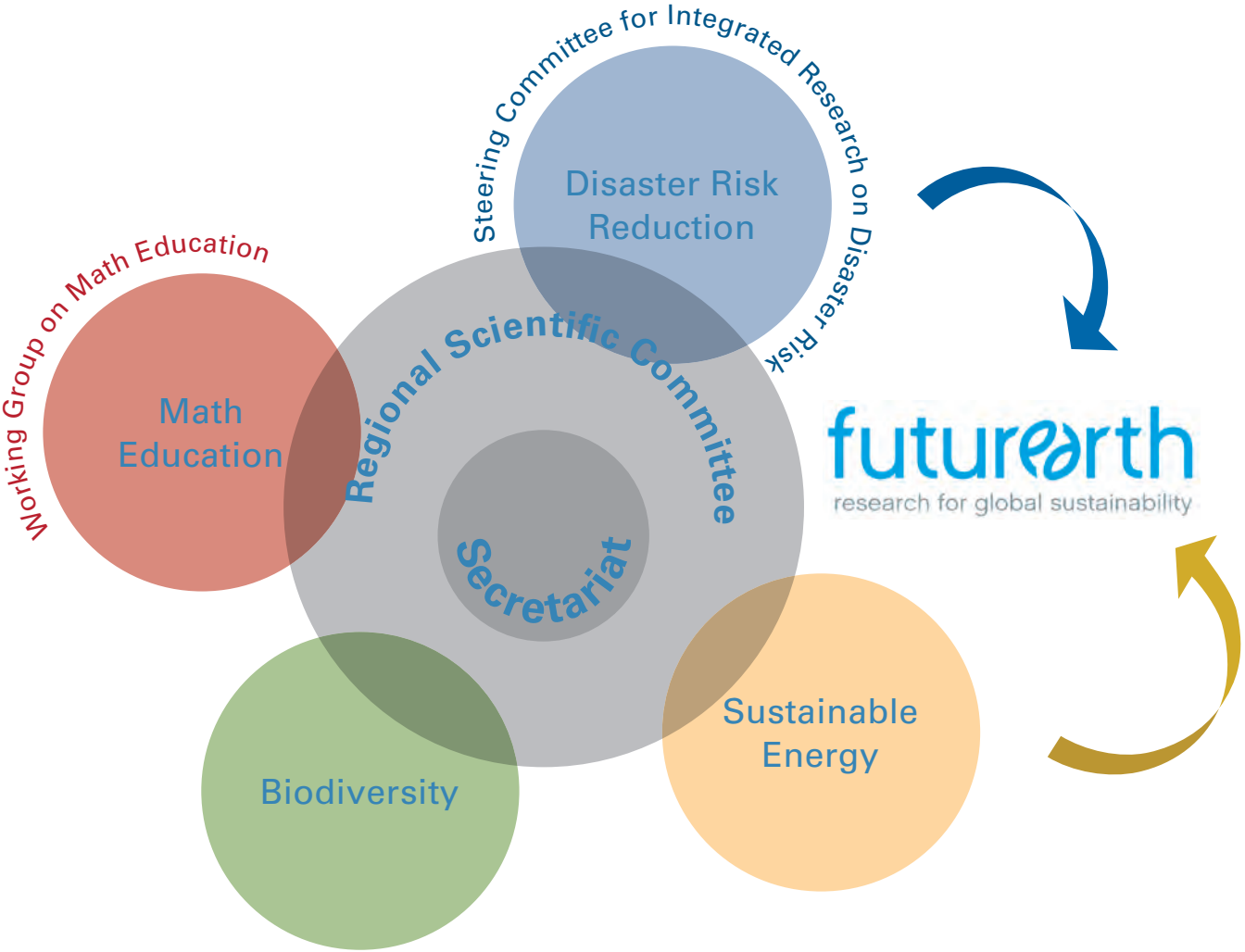
In June the Office will issue a call for a new member of the scientific Regional Committee. We thank Humberto Rodriguez for his contribution to the work of our Committee during his active time and we hope to select a new member to be presented in the October Regional Committee meeting.

Finally, I would like to thank ICSU, ICSU ROLAC and the Regional Committee for the strong support given to my work as chairman of the Committee during 2013, my first year as Chairman. I am sure that the great job done and the important achievements of ICSU ROLAC in 2013 will continue.

José Luis Morán-López
Chair of the Regional Committee

Scientific Priority Areas

Mathematics Education
Sustainable Energy
Disaster Risk Reduction
Biodiversity


Steering Committee for Integrated Research on Disaster Risk
Disaster Risk Reduction
Working Group on Math Education
Math Education
Regional Scientific Committee
Secretariat
Biodiversity
Sustainable Energy
futureearth
research for global sustainability

Mathematics Education: Why Mathematics?

Lilliam Alvarez

ROLAC is the only ICSU Regional Office that has included improvement in the teaching of mathematics as a key contribution to sustainable economic and social development. It is fair to say that the Mexican mathematician José Antonio de la Peña has been the main promoter of this initiative.

The last Annual ICSU-ROLAC Report included a brief assessment of the teaching of mathematics, activities in some LAC countries, and a proposal for actions to lay the foundation for a broader and more regional impact program. The report concluded that there was a need to incorporate the entire community of mathematicians, researchers, and professors of mathematics in this crusade, to constantly monitor the state of the discipline in the region, to focus on in-service teachers to provide them with more knowledge and tools for the teaching-learning process, and to sound an alert that something urgent has to be done to transform the current reality.

The purpose of this current report on actions at the regional level during 2012 and 2013 is to highlight the importance of mathematics education and the need to strengthen teacher preparation and integrate professional mathematicians in an effort to improve math teaching at all levels in the region.

It is well understood that in today's world, development and international competition require education of citizens and investment in science and technology. But why is math education needed? In fact, without math there is no statistics, no indexes, and no indicators to measure development or policy impact. Mathematics is necessary if the common citizen is to understand many facets of the world in which we live, from banking to the interpretation of a simple graph operation in a grocery cart. Without math there are neither climate studies nor databases and analysis for biodiversity, neither models to predict hurricane tracks nor the modeling of natural and social phenomena, and there are no good tools for studying trends. Many of the great advances of the twentieth and our current century have been made possible by the advancement of physics, whose language is mathematics. Furthermore, the method and the development of abstract thinking that contributes to the learning of mathematics are

Mathematics Education has been a priority research area unique to the ICSU Regional Office for Latin America and the Caribbean. We highlight in this 2013 ICSU ROLAC report the achievements in this area, and thank Prof. José Antonio de la Peña, General Director of the Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico; President of the Commission for developing countries of the International Mathematical Union (IMU); and former Chair of the ICSU ROLAC Regional Committee for his great effort and his successful leading of the office to make significant progress in the integration of actions in this area in the region and in the spreading and sharing of positive experiences throughout the region.

José Antonio de la Peña

essential to the promotion and development of other sciences and technologies. It is also fundamental for decision making, from the simplest family level to that of high government.

ROLAC is the only ICSU Regional Office that has included improvement in the teaching of mathematics as a key contribution to sustainable economic and social development. It is fair to say that the Mexican mathematician José Antonio de la Peña has been the main promoter of this initiative.

The problems we face and the bad test results achieved by children and young people in our region are multi-causal, ranging from poor training of teachers to the lack of priority given to this discipline in education policies. Another problem is the lack of integration of mathematics teachers with scientists working in different areas of mathematics.

The UNESCO Regional Office for Education periodically tests students in grades three and six for their proficiency in Spanish and mathematics. Their assessment of the quality of education is not limited to diagnostics of the situation but provides elements to promote good educational practices and progress toward a quality education without exclusion. The results show a significant deficit of quality in the math education being offered to elementary students in Latin America and the Caribbean.

Figure 1 shows the mean scores by country of the SERCE test. Few countries in the LAC region score above the average (500) in both third and sixth grade: Cuba, Uruguay, Costa Rica, Mexico, and Chile. Argentina and Brazil appear very close to the average, reflecting a bad situation in the universe of 16 countries where the tests were applied.

The Programme for International Student Assessment (PISA) of the Organisation for Economic Co-operation and Development (OECD) administers tests every three years in the 34 OECD member countries and 31 partner countries.

Country	Average score	
	Third Grade	Sixth Grade
Argentina	505.36	513.03
Brazil	505.03	499.42
Chile	529.46	517.31
Colombia	449.35	492.71
Costa Rica	538.32	549.33
Cuba	647.93	637.47
Dominican Rep.	396.65	416.64
Ecuador	473.07	459.50
El Salvador	482.75	471.94
Guatemala	457.10	455.81
Mexico	532.10	541.61
Nicaragua	472.78	457.93
Panama	453.04	451.60
Paraguay	485.60	468.31
Peru	473.04	459.98
Uruguay	538.53	578.42
Country Average	500.00	500.00
Total for Latin America & Caribbean	505.11	506.70

Figure 1. Average mathematics scores of students in third and sixth grade by country (Average score 500, standard deviation 100). Source: SERCE, 2007.

PISA assesses the extent to which 15-year-old students have acquired key knowledge and skills that are essential for full participation in modern society. A limitation to our analysis is that only seven countries in the LAC region participate in those tests, in part because they have to pay to participate. According to findings published in 2012, as shown in Figure 2, the Asian countries have the best performance in solving math problems, Germany and the United States results are

close to average, and countries in our region (Chile, Brazil and Colombia) appear at the bottom.

The scattered and occasional measurements of learning that are available to us point to a bleak conclusion: education is of poor quality. In a significant sample of countries, only 50% of high school graduates can understand a text and do basic numerical calculations. International comparisons are unfavorable to our region even though for several years experts have prepared reports and recommendations for the development of what has been called a basic quality education and stressed that learning depends on various factors, many of which can be controlled from the education systems themselves.

With regard to the small number of women in mathematics, cultural factors are multiple, including hierarchical organization, traditions that tend to drive the girls from the "world of numbers," the "rational world," and tilt them more towards careers with social profile and vocations in services. In the region that situation has been changing in recent decades, albeit slowly.

REGIONAL ACTIONS

Several countries of the LAC region have begun to reinforce the actions of scientific societies, academies of sciences, and

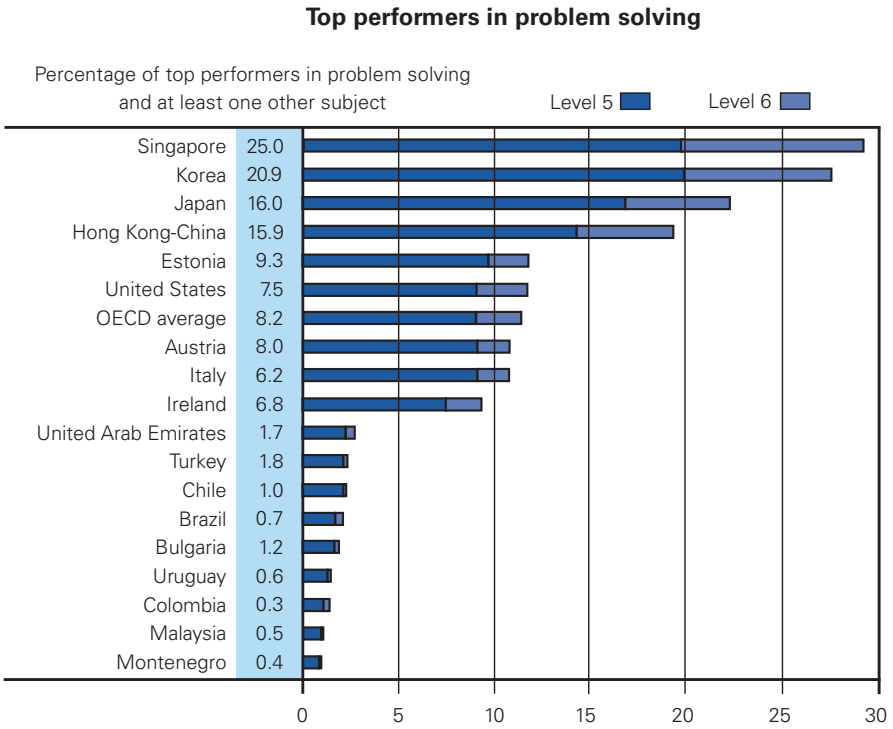


Figure 2. Ranking of countries in problem solving, according to the PISA report 2012

especially the involvement of the community of professional mathematicians who work in different fields. They have also taken steps to influence and make recommendations at various policy levels such as Ministries of Education, according to the particularities of each country.

Chile

Through the project "*Resources for the initial training of primary school teachers,*" a collection of four texts focused in Math teaching—*Numbers, Geometry, Algebra and Data Probability*—were developed by a team of mathematicians and education experts from various universities, led by the Education Laboratory of the Center for Mathematical Modeling of the University of Chile. In previous years, the same authors developed the standards for the initial training of teachers for basic education, tools for quality assurance in teaching mathematics. These standards would be very useful for other Latin American countries. A volume with resources for teachers and educators in English has also been published.

Brazil

There is an impressive large-scale public movement generated by the *Olimpíada Brasileira de Matemática das Escolas Públicas* (OBMEP), a project designed to promote the study of mathematics among students and teachers from all over Brazil. The OBMEP is promoted by the Ministries of Science and Technology and Education, and is organized and developed from the National Institute of Pure and Applied Mathematics (IMPA) with the support and participation of the Brazilian Mathematical Society, SBM.

It is one of the best examples of integration between political will from the government, teachers, and mathematicians in the country. This Olympiad has been held nine times and features participation of millions of young people throughout the Brazilian territory, from very remote and inaccessible schools to prisons. In the 9th Olympiad, 18.7 million students from more than 47,000 schools participated, representing 99.35% of the institutions in all Brazilian municipalities. The Math Olympiad is a major event in Brazilian society, involving families, teachers and school directors. Increasingly it is achieving awareness of the importance of mathematics for the future of young people and the development of Brazil. Much information of interest can be found at the website of the Brazilian Olympiad, http://www.obmep.org.br/

ICSU ROLAC is recommending the spreading of this effort, with its specific outcomes and impacts throughout the region.

Cuba

Once a month, the Cuban Society of Mathematics and Computing celebrates the *Mathematical Culture Seminar,* inviting teachers, professors and professionals of mathematics. October 31 has been established as the "Day of the Cuban Mathematician," and it has become a tradition to reward each year the winners of the prize "For the Mathematical Culture" and those of the University National Mathematical Olympiad "Raimundo Reguera" (ONUM), organized by the Cuban Society of Mathematics and Computing and the Faculty of Mathematics and Computer Science of the University of Havana. ONUM has been held 16 times already.

The Ministry of Education works in the continuous improvement of the curriculum for the training of math teachers; has established student scientific societies; organizes high-achievement student groups in mathematics at pre-university institutes; prepares students for mathematics competitions at school, municipal, provincial and national levels; and prepares students for international olympiads, where Cuban students perform well and often receive medals.

Interactive Children and Youth Festival, Havana, 2013.

The Cuban Academy of Sciences works in the promotion and improvement of science. Conferences are organized for spreading the popularity of mathematics. Integrated efforts are made to promote an essential task: to create a favorable attitude toward mathematics and to restore to society an image of what mathematical knowledge is and what is it for. The Academy contributed to the publication of the book "Numbers and Figures in History," which was the basis of an episode in an Educational Television series called "University for All."

Mexico

The Olimpiada Mexicana de Matemáticas (Mexican Mathematical Olympiad) works to promote and encourage the study and appreciation of mathematics, as well as searches for and stimulates the skills of talented young people for this discipline. We must emphasize that the Mexican Mathematical Olympiad has been the first national competition of its kind and was originated in the heart of the Mexican Mathematical Society, strongly supported by the Mexican Academy of Sciences.

The Mexican Mathematical Olympiad takes place annually in four stages: state competition, national competition, selection, and training of delegations representing Mexico and participating in international Olympiads. See http://www.ommenlinea.org/

For more than ten years the Mexican Academy of Sciences has coordinated the "Math Spring Competition" and the "Parrot Math Competition" for children and young people. The large-scale project "Science at your School" has a positive impact in the area of elementary education. This program aims to improve the attitude of primary school teachers towards science and mathematics as well as to update their knowledge in these disciplines. It involves scientists, educators and social service providers.

At the webpage www.lacienciaentuescuela.amc.edu.mx, interesting teaching materials, studies and online forums can be found.

These programs help to reduce the large deficiencies observed in the mathematical skills of young learners.

It is an obligation for the governments, not an option, to develop mathematics and mathematical thinking and to prioritize the strengthening of teaching of this science and general basic science in their agendas.

From these pages, ICSU-ROLAC is making a call for people to design and propose new actions, strengthen existing ones, generalize and disseminate best practices throughout the region, and a call for governments, ministries, universities and academic institutions and scientific societies to raise awareness and to provide funds and work together in this noble endeavor.

Lilliam Alvarez PhD

University of la Habana, Cuba

Member of the Regional Committee

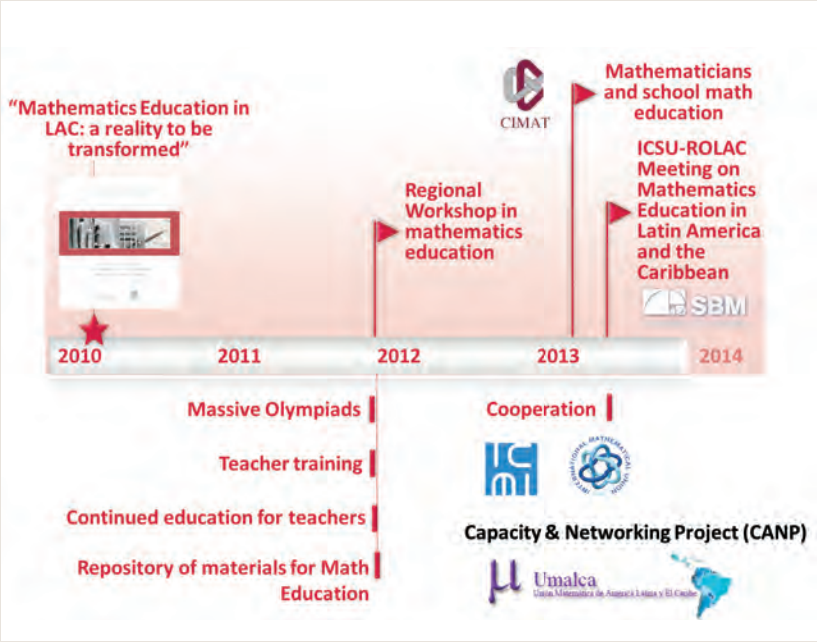
ICSU ROLAC AND MATHEMATICS EDUCATION

At the workshop "Mathematics and Mathematics School Education" held in Chile in January 2012, four aspects were identified as the building blocks for a regional strategy: the organization of massive Math Olympiads, initial training for teachers, continuous training, and the need to create a repository of materials for mathematics teaching.

Following up on these agreements, and taking into consideration the successful experience of Brazils "Olimpiada Brasileira Matematica das Escolas publicas," the "Workshop on Math School Education in Latin America" was held in Rio de Janeiro, Brazil, in June 2013. The event was attended by leading experts of the continent: Lilliam Alvarez, Academy of Sciences of Cuba (member of the Scientific Committee of ICSU); Patricio Felmer, University of Chile (member of the Scientific Committee of ICSU); José Antonio de la Peña, Director of CIMAT of Mexico; as well as Victor Giraldo and Yuriko Baldin, both from Brazil and executives of the International Mathematical Union (ICMI). From ICSU ROLAC participated the director, Manuel Limonta, and the Science Officer Ángela Guzmán.

The event focused on discussing the massive Olympiads and other national competitions, the standards for the training of mathematics teachers (primary and secondary) and for practicing teachers, creating a repository of materials for teaching and learning mathematics, and the establishment of a Steering Committee for the Program teaching mathematics.

A foundation was laid for cooperation between the Regional Office for Latin America of ICSU and the International Commission on Mathematical Instruction (ICMI), specifically supporting the CANP (Capacity Networking Project) and the inclusion of sessions on mathematics education in the current structure of the Schools of Mathematics for Latin America and the Caribbean (EMALCA).



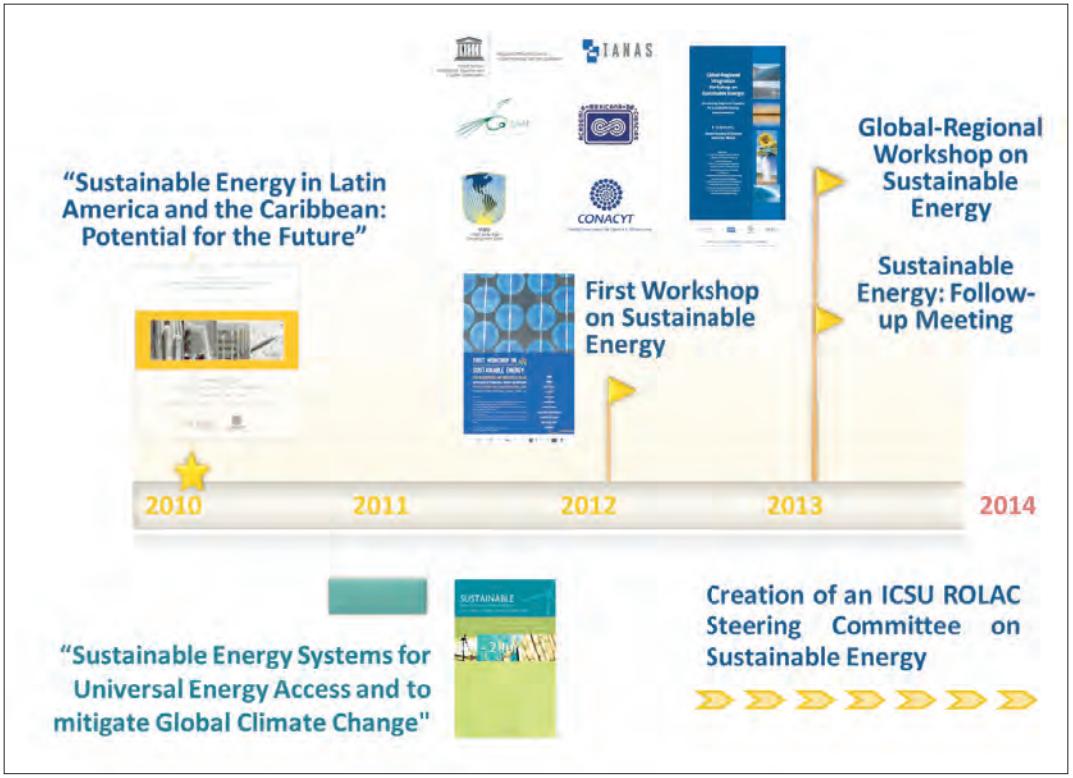
Sustainable Energy

Anthony Clayton

On April 8-9th 2013, ICSU ROLAC held a workshop on sustainable energy, titled the 'Global-Regional Integration Workshop on Sustainable Energy: Developing Regional Capacity for Sustainable Energy Transformation', at its headquarters in Mexico City. The main purpose of the meeting was to identify how and where ICSU could make an effective contribution to both the regional and the global transition to more sustainable energy sources and systems, to define a framework for research and development activities, and to identify the partners and funding sources that could enable progress in this area. At this meeting, the ICSU Regional Offices agreed on a number of common and individual priorities for work on sustainable energy, agreed to ensure that ICSU's work on sustainable energy was embedded in the framework of the Future Earth Program, and agreed that it was necessary to establish a steering committee to coordinate ICSU ROLAC's work in this area.

The ICSU ROLAC Regional Committee then met the next day, on April 10th 2013, in order to develop the regional priorities with regard to sustainable energy and to ensure that these could be accommodated within the framework of the Future Earth Program. At this meeting, the Regional Committee agreed to establish a formal steering committee on sustainable energy, with the following specific responsibilities: to analyze the energy situation in Latin America and the Caribbean with regard to technological, economic, social and environmental factors, to serve as the advisory body on sustainable energy to the Regional Committee, and to propose strategic interventions that could assist the region to achieve more sus-

Participants in the 'Global-Regional Integration Workshop on Sustainable Energy" Mexico City, April.



tainable energy systems, to coordinate ICSU ROLAC activities with regard to sustainable energy with ICSU and with national members, to catalyze trans-disciplinary education and capacity building programs in sustainable energy, to assist ICSU ROLAC with regard to the organization of conferences, follow-up activities, and outreach activities relating to sustainable energy, and to coordinate the process of data collection and database management in areas related to sustainable energy.

The 14th ICSU ROLAC Regional Committee meeting took place in Panama City, September 26-27, 2013. The Regional Committee noted the progress made by ICSU ROLAC with regard to the formation of the steering committee on sustainable energy, and Dr. Arturo Martínez convened a meeting with Professors Anthony Clayton, Manuel Limonta, and Ángela Guzmán to develop an agenda for the first meeting of the steering committee on sustainable energy. This group developed a proposed roadmap for an ICSU-ROLAC Program in Sustainable Energy. This roadmap included identifying existing networks, information sources and consultants, supporting relevant multi-disciplinary projects, developing ICSU expertise in providing policy advice to governments about the risks, costs and benefits of energy options, with particular regard to the implications of each option for national resilience.

Prof. Anthony Clayton, PhD
University of West Indies, Jamaica
Member of the Regional Committee

Disaster Risk Reduction

Barbara Carby

In 2013 the ICSU Regional Committee approved to change the name of the priority area Natural Hazards to that of Disaster Risk Reduction.

In 2010 an inter-disciplinary group from Latin America and the Caribbean was asked by ICSU ROLAC to develop a science plan for disaster risk reduction (DRR) for Latin America and the Caribbean. The document 'Understanding & Managing Risk Associated with Natural Hazards: A Comprehensive Scientific Approach for LAC' sets out guidelines for an interdisciplinary approach to better integrating science in disaster risk reduction policy and practice.

In 2013 a decision was taken to establish the Steering Committee (SC) on Disaster Risk Reduction for Latin America and the Caribbean. The Steering Committee convened its first meeting on September 24-25, 2013. The mission of the SC is 'To promote integrated interdisciplinary scientific research on risk prevention and management in LAC, including

the development of methods for integrating social and natural sciences and to support evidence-based policy and decision making.' The first activity, now in progress, is to carry out a diagnostic study on interdisciplinary science projects which support DRR activities in LAC. This study will identify good practices of scientific organisations engaged in DRR research, scientific institutions which provide services to national DRR entities, scientific networks which link DRR and scientific knowledge and gaps in research. The output of the study will be available across the region.

The Committee supports efforts to give greater visibility to science in DRR and the Committee members will work to have a science statement included in the Hyogo Framework for Action (HFA) 2.

In the medium to long term the SC will promote projects which address the gaps identified in the study, as well as focus on education at all levels, economic evaluations and development of scenarios and models and application of the IRDR FORIN methodology after disaster events.

Barbara Carby PhD
Chairperson
Steering Committee on Disaster Risk Reduction

Biodiversity

Juan Jaén

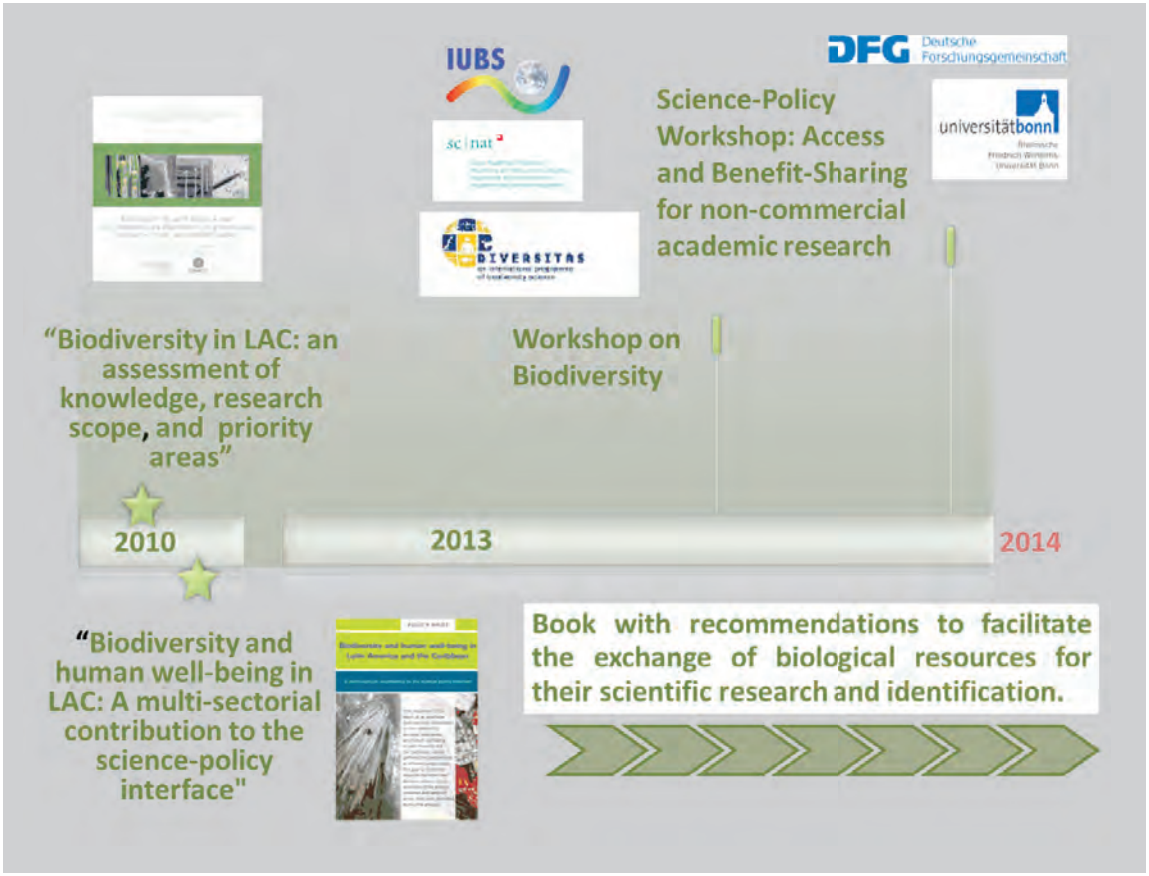
In Latin America and the Caribbean (LAC), as in the rest of the world, there is a long history of interaction between humans and the natural environment. People have accumulated local and indigenous knowledge that has become an important resource for allowing communities to combat marginalization and poverty. This is why ICSU-ROLAC has committed itself to work, within one of its priority areas, biodiversity, towards a sustainable future rooted in indigenous knowledge and the suitable utilization of genetic resources. ICSU-ROLAC continues its efforts relating to the knowledge, preservation and utilization of biodiversity of all countries of the Latin American and Caribbean region, seeking for activities in biodiversity that involve indigenous knowledge useful for research on global sustainability.

The ICSU-ROLAC work in biodiversity has been performed in close collaboration with the international program of biodiversity science, DIVERSITAS, on the Access and Benefit-sharing-ABS initiative. ICSU-ROLAC was one of the organizers of the Access-Benefit-Sharing (ABS) workshop for the LAC region, held June 2013 in Montevideo. Partners in the organization were Diversitas, SCNAT (Académie de Sciences Naturelles de Suisse) and IUBS (International Union of Biological Sciences). The meeting gathered a group of experts (Core Team) who convened to write a background document for the preparation of a subsequent ABS science-policy workshop aiming at developing guidelines for promoting a dialogue between researchers working with genetic resources and policy-maker focal points responsible for implementing the Nagoya Protocol on ABS in the LAC region.

The follow up Science-Policy Workshop on Access and Benefit-Sharing for Non-commercial Academic Research was held in Lima, Peru, in November of 2013. It focused on ABS issues in regards to the LAC region and gathered 40 participants from various countries. The workshop represented research and policy actors from nine LAC countries, namely Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, Mexico, and Peru. The workshop was jointly organized by DIVERSITAS, ICSU ROLAC, SCNAT, IUBS, the University of Bonn (Uni-Bonn), and the Deutsche Forschungsgemeinschaft (DFG), with the participation of the GEF UNEP IUCN-Sur Regional Project ABS LAC.

The workshop discussions identified the benefits from non-commercial academic research and the challenges and opportunities for implementing access and benefit-sharing in the LAC region, and compared the different legal processes of access and benefit-sharing of the countries represented. It should be regarded as the first step in the process of discussing and facilitating ABS for academic research in LAC on the basis of a science-policy dialogue.

Follow up Science-Policy Workshop on Access and Benefit-Sharing for Non-commercial Academic Research



In the long term, the work of ICSU-ROLAC on biodiversity is committed to bridging the gap between academic research and policy on ABS for LAC biological resources and associated traditional knowledge, taking into account the concerns of indigenous and local communities. The end goal is to build synergies between local and indigenous knowledge, the scientific community, and policy-makers for sustainable development.

It has come a long way in establishing trust among actors, though there is still much work to be done. Nonetheless, a stage has been reached where advocacy for the outcomes of the scientific work in front of the regional governments should be done in order to adopt the recommendations on ABS resulting from the research collaboration DIVERSITAS-ICSU ROLAC.

Prof. Juán Jaén PhD
University of Panamá, Panamá.
Member of the Regional Committee

ICSU ROLAC and Future Earth

Developing Future Earth in LAC

ICSU ROLAC has followed a threefold strategy to help implement and strengthen the Future Earth Program across LAC:

Integrate the work in two of its priorities, Sustainable Energy and Disaster Risk Reduction, within the framework of Future Earth: In April during the Global-Regional Workshop on Sustainable Energy and the follow-up meeting, participants from the region agreed on both, the need to create an ICSU ROLAC Steering Committee on Sustainable Energy and on encompassing their work on Sustainable Energy with the Future Earth Programme. In September the ICSU ROLAC Steering Committee on Disaster Risk Reduction also agreed on working within the framework of Future Earth.

Disseminate information on Future Earth across the LAC region: Dr. Manuel Limonta presented lectures on the Future Earth Programme at the Mexican Institute of Renewable Energies; in an international conference in Mexico; at the Autonomous University of Morelos in Cuernavaca, Mexico; at the University of Panama on two occasions including the national Panamanian Conference; and to two national academic institutions in Ecuador on occasion of his visit to SENESCyT.

Establish a Consortium with IAI and UNESCO for common fundraising activities: In April M. Limonta held a two-day meeting in Rio de Janeiro, Brazil, with Jorge Grandi, Anthony Clayton, R. Guimaraes, and Alice Abreu to plan the implementation of the Future Earth Program in LAC; to identify common actions and activities as the basis for collaboration among UNESCO, IAI, ICSU-ROLAC (and other key partners) for establishing Future Earth in the region; and to plan timing and advocacy strategy to governments and extra-regional funding sources for Future Earth. In June, M. Limonta had a meeting with the Executive Council of the IAI in Montevideo, Uruguay, where the terms of the Partnership Agreement were established.

futureearth
research for global sustainability

The IAI - ICSU ROLAC - UNESCO Consortium

The Inter-American Institute (IAI) for Global Change Research is an intergovernmental treaty organization of 19 countries in the Americas promoting scientific excellence, international cooperation, and the free and open exchange of scientific information to increase the understanding of global change phenomena and their socio-economic implications.

On October 4th, ICSU ROLAC, UNESCO and IAI signed a Partnership Agreement to form a Consortium with the intention to seek opportunities for cooperation on aspects of global environmental change and its impacts on human well-being. The Parties to the Consortium agree on the importance of contributing to the Future Earth initiative in the Latin American and Caribbean region through the strengthening of focused interdisciplinary programs with social, applied, and natural science components, the co-designing of interdisciplinary research involving stakeholders and end-users, and the generation of relevant, policy-oriented research outcomes. The agreement provides the framework for a regional program of research, assessment, capacity building, and outreach in support of Future Earth, initially on the themes of sustainable energy and disaster risk.

Joint activities of the Parties of the Consortium might include:

◊ Collaboration in setting specific agendas, research networking, and the promotion of global change research in the region;
◊ Collaboration in funding initiatives, including the search for third-party funding;
◊ Joint organization of workshops, capacity building events, and scientific meetings;
◊ Communication of research outcomes in support of informed decision making; and
◊ Other forms of cooperation as agreed upon by the Parties of the Consortium.

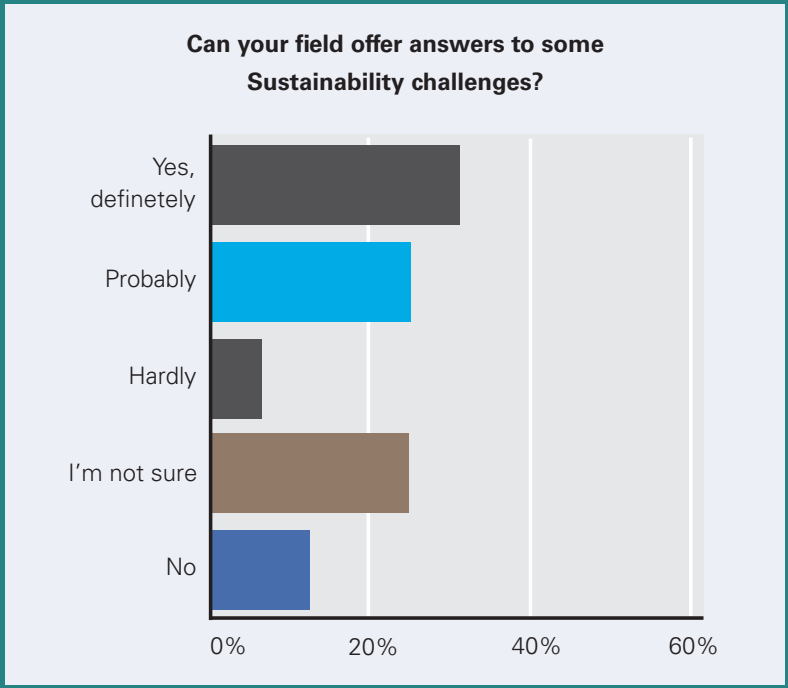
Participants in the Meeting for the establishment of the IAI – ICSU ROLAC – UNESCO Consortium. From left: A. Martinez, J. Tezón, S. Pastrana, C. Ereño, J. Grandi, A. Clayton, M. Limonta, Holm Tiessen, L. Leff.

ICSU ROLAC and Young Scientists

The Young Scientist Conference organized by TWAS ROLAC and ICSU ROLAC was held in Cancun, Mexico on December 4-6, 2013. Five objectives were established for this meeting: 1) To increase the number of Latin American countries that participate in TWAS and ICSU ROLAC activities. 2) To strengthen the current regional links between TWAS and ICSU. 3) To create bridges among the different disciplines in order to promote an exchange of perceptions and visions. 4) To extend ICSU ROLAC presence among young scientists, with a gender perspective. 5) To promote the project "Future Earth" in the context of Latin America and the Caribbean (LAC) region.

The participants comprised four of the TWAS ROLAC Executive Committee members: Harold Ramkissoon, Francisco Barrantes, Rafael Vicuña, and Manuel Limonta (Director of ICSU ROLAC); the President of the Mexican Academy of Sciences, José Franco; ICSU ROLAC Regional Committee Chair, José Luis Morán-López; and 19 Young Scientists under 40 years old nominated by the Presidents of 17 National Academies: Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Peru and Uruguay.

As a preparation for this event, ROLAC developed a survey based on the Future Earth perspective. This survey showed that about half of the Young Scientists work in fields that can offer answers to some sustainability challenges. In addition, it was acknowledge that three quarters of them are currently working to some degree with social scientists or decision makers. Most importantly, all of them believe in the integration



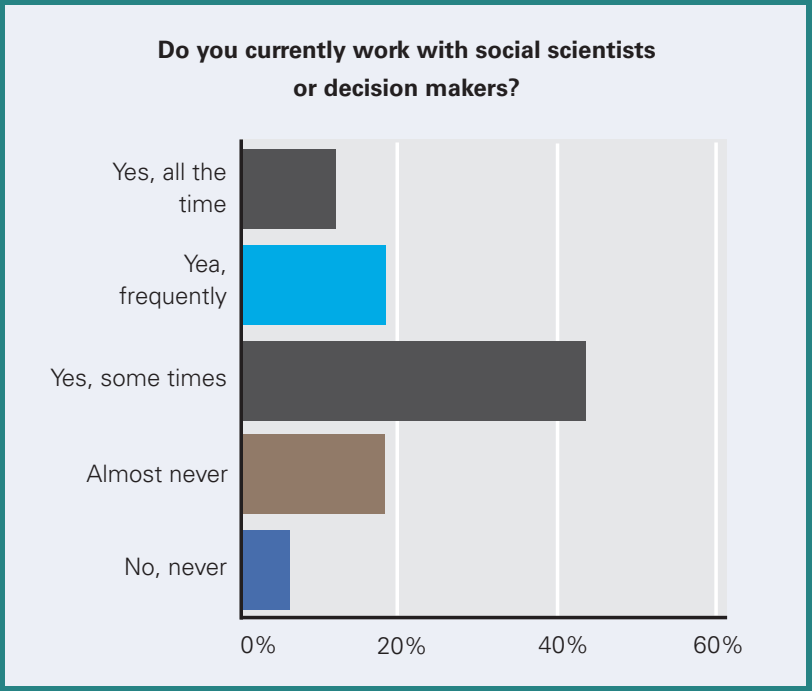
of Natural and Social Sciences and in working across fields, disciplines, sectors, and geographies. The totality of the respondents feel identified with Future Earth's goals. Putting together the survey results and the reactions towards the Future Earth keynote, some Young Scientists were identified whose characteristics perfectly match Future Earth's goals.

The Conference was divided in two sections. First, Dr. Ramkisson presented the work of TWAS ROLAC and Dr. Limonta presented the work of ICSU ROLAC and the Future Earth programme. Next, all the Young Scientists presented the results of their research activities.

This Conference allowed the establishment of contacts and networks in the LAC region. One of them is the TWAS-ICSU collaboration in the LAC region, which may grow and bring many benefits for both parts. Another is the identification of a new generation of Young Scientists from the region working on themes directly related to our priority areas such as Biodiversity and Disaster Risk. Finally, the participants got the opportunity to build professional networks, which have already produced some specific collaborations.

This event allowed ICSU ROLAC to start a new strategic branch in the Regional Office focused on Young Scientists. The Regional Office has started to build a Young Scientist network so that we can work together in the near future. Furthermore, we are creating a good relationship with TWAS ROLAC so we can pursue together various common objectives.

Participants in the Young Scientists Conference



ICSU Grants Programme

The ICSU Grants Programme supports collaborative scientific initiatives of relevance to science and society through seed funds that are often used to leverage funds from other sources. It is a competitive, peer-reviewed programme for ICSU Scientific Unions, Interdisciplinary Bodies, and Joint Initiatives in collaboration with other ICSU bodies including Regional Offices.

Since 2008, the programme has offered up to ten awards of €30,000 each. The programme seeks proposals that:

ICSU ROLAC endorses proposals intended to contribute to the advancement of its Science Plans in priority areas for the LAC region.

Focus on the themes of the *ICSU Strategic Plan 2012-2017* and are international and multi-disciplinary.

Involve scientists across disciplines and national borders.

Promote the involvement of young scientists, women, and scientists from developing countries.

Address the strategic priorities of the ICSU Regional Offices.

Since 2008 the Regional Office has been a partner to several ICSU Grants. In 2013 ICSU awarded three grants co-sponsored by the Regional Office.

The CBD Nagoya Protocol on Access and Benefit Sharing of Genetic Resources in Latin America and the Caribbean: A science-policy dialogue to stimulate the mutually beneficial implementation of Article 8a of the Nagoya Protocol and promote cooperation- DIVERSITAS

In 2010 the Convention on Biological Diversity adopted the Nagoya Protocol that aims at regulating the access to transboundary biological material (including genetic resources) and the fair and equitable sharing of benefits derived from their utilization. Its Article 8a calls for facilitated access for non-commercial biodiversity research. Currently, biodiversity scientists face many barriers when conducting research with material (e.g. biological samples) from abroad. This project aims at bringing together researchers and policy-makers from Latin America and the Caribbean to engage in an insightful dialogue in order to discuss current obstacles regarding access to biological material, clarify the needs of academia and government agencies, and build mutual trust. Participants will elaborate joint recommendations to support the implementation of national and/or regional ABS regulations that suit the needs of users and providers of biological material with a view to better conserve and sustainably use biodiversity, while allowing the generation of urgently needed biodiversity knowledge for the benefit of society.

LANDSCAPE-LAC: Landslide Networking for Disaster Studies, Capacity-IGU

LANDSCAPE-LAC focuses on the need for developing and implementing integrated landslide research for disaster risk from a transdisciplinary perspective considering that scientific achievements must be visibly useful for societies. Understanding risk and investigating the natural and social dimensions of disasters are critical issues for disaster risk reduction. Consequently, integrated risk research can be regarded as a key factor for sustainable development as disasters quite frequently have become an obstacle for development, and particularly in vulnerable countries exposed to hazards. Strengthening capacity building and promoting disaster risk research on landslides would help to increase resilience and awareness in the Latin-American region. Special attention will be devoted to the engagement of young scientists and the strengthening of the collaboration on integrated landslide disaster risk research in Latin America. A young scientist's workshop on forensic landslide disasters investigations (FORIN) has been planned as a means to contribute to the dissemination and application of IRDR methodologies in the region.

Workshop "Mathematics of Climate Change, Related Natural Hazards and Risks"- IMU, IUGG and IUTAM.

Mathematics, statistics, and mechanics are essential tools in geodesy and geophysics, and play a defining role in modern climate and natural hazards studies. The Workshop will address the methodology for climate and natural hazards research, climate change and its socio-economic implications, and environmental hazards with emphasis on extreme hydro-meteorological hazards. The proposed advanced educational and capacity-building workshop will allow a diverse group of post-doctoral students and young researchers, including a large group of women scientists, mainly from Central and South America, to learn from and interact with the leading internationally recognized experts in different aspects of the rapidly growing, multifaceted field of global environmental change. The workshop will result in establishing new research ties and specific projects within and outside the Americas. The involvement of three international Unions is symbolic for the overarching impact of the "Mathematics of Planet Earth" (MPE13) program on the worldwide communities of mathematicians, mechanics, and geophysicists.

Regional Climate Downscaling over South America, Central America and the Caribbean: A Coordinated Effort to Pursue Vulnerability, Impacts and Adaptation Studies in the Region. - WCRP CORDEX

This proposal is led by the Science Advisory Team of the Coordinated Regional Climate Downscaling Experiment (CORDEX) from the World Climate Research Program (WCRP). It aims to develop a capacity-building effort in South and Central America and the Caribbean to evaluate regional climate downscaled model projections, provide targeted downscaled information for impact assessment analysis, and plan strategies for adaptation/mitigation options. These aims pursue supporting sustainable development over the region through a coordinated bottom-up approach for coping with the impacts of climate change, integrating the vulnerability, impact and adaption (VIA) communities with concerned stakeholders. CORDEX currently has no facility in the region to bridge the gap between regional climate data and its impact on societal areas. This proposal represents a timely opportunity to initiate such an effort through two capacity building workshops, leveraging the knowledge and experience gathered during successful CORDEX activities in Africa and Asia.

Reaching Out

Strengthening relations with the ICSU family
Reaching out to ICSU Scientific Unions
Reaching out to ICSU National Members
Reaching out to International Organizations

Strengthening Relations with the ICSU Family

M. Limonta and G. Iturriaga visited ICSU Headquarters April 24-30 to attend several joint activities with other regional offices and ICSU Unions, including the following. (1) A meeting with all regional offices, where the potential activities to be performed at the regional level as part of the proposal submitted to the Swedish International Development Cooperation Agency (SIDA) in 2013 were discussed. (2) Gabriel Iturriaga, ICSU ROLAC Science Officer, attended a training on Results Based Management. (3) The Meeting of the International Scientific Unions, hosted every three years by ICSU, focused on how the ICSU Unions and regionally-based networks can contribute to global initiatives like the Future Earth Program.

May 7-8, ICSU ROLAC was invited to participate in the Regional Implementation Workshop on Sustainable Energy in Sub-Saharan Africa, held in Nairobi, Kenya. The workshop was attended by 36 experts from 16 countries, most of them from Africa. Drs. Manuel Limonta, Anthony Clayton, and Décio Gazzoni participated in this workshop organized by ICSU and funded by SIDA. The workshop objectives were to harmonize ICSU activities in sustainable energy in Africa by bringing together the main regional actors and others interested in sustainable energy research, and to construct a framework for proposals on sustainable energy research to be implemented within the context of Future Earth in the Sub-Saharan region.

November 4-6 ICSU ROLAC's Director and Prof. José Luis Morán-López, Chair of the Regional Committee, participated in the 5th Meeting of ICSU Officers, Regional Chairs and Directors (ORCD5) in Paris. The objective of this meeting is to monitor the Regional Offices' operation and activities. The headquarters offered counselling and guidance to the Regional Offices as recommended by the triennial General Assembly of ICSU (ICSU's highest authority).

Reaching out to ICSU Scientific Unions

IUBS joined ICSU, Diversitas, the Swiss Academy of Sciences, the Universität Bonn, and the Peruvian Ministry of Environment for the organization of two Science-Policy Workshops on Access and Benefit-Sharing for non-commercial, academic Research in LAC", subsequently held in Montevideo, Uruguay, and Lima, Perú. The Workshops facilitated the exchange of experiences and the drawing of key lessons for improved access and sharing of benefits for non-commercial, academic research as considered under Article 8(a) of the Nagoya Protocol on Access and Benefit-Sharing. The Workshop in Lima was attended by about 40 researchers and policy makers and implementers representing nine Latin American and Caribbean countries, namely Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, Mexico, and Peru

Yuriko Baldin (Member-at-large of the Executive Commit tee of ICMI), José Antonio De la Peña (President of the Com mission for Developing Countries (CDC) of the IMU), and Victor Giraldo (ICMI representative from Brazil) participated in the ICSU-ROLAC Meeting on Mathematics Education in Latin America and the Caribbean, held in June at the headquarters of the Sociedade Brasilera de Matemática (SBM), IMPA, in Rio de Janeiro, Brazil. The ICMI dignitaries asked for ICSU-ROLAC´s support to the CANP (Capacity Networking Project) and to the inclusion of sessions on mathematics education in the current structure of the Schools of Mathematics for Latin America and the Caribbean (EMALCA).

ICSU-ROLAChas planned a 2014 Workshop on Future Earth with ICSU Unions.

Participants in the workshop "Mathematical and School Mathematics Education in Latin America." Rio de Janeiro, Brazil, June 2013: From left to right: Patrick Felmer (Chile), José Antonio de la Peña (Mexico), Lilliam Alvarez (Cuba), Ángela Guzmán (ICSU ROLAC), Vanderlei Horita (Brazil), Yuriko Baldin (Brazil), Manuel Limonta (ICSU ROLAC), Marcelo Viana (Brazil), Victor Giraldo(Brazil)'.

Reaching out to ICSU National Members

During 2013, ICSU ROLAC devoted special effort to disseminate the Future Earth Programme among ICSU National Members (see diagram). The ICSU ROLAC Director accepted several invitations from academic institutions to present the Programme and promote its implementation, and achieved a milestone: after negotiations with the SENECyT from Ecuador, the Ecuadorian authorities agreed to apply for ICSU national membership. Authorities from El Salvador already are preparing an application to become ICSU National Members and negotiations with Honduras are on the way

Outreaching activities and promotion of the Future Earth Programme among ICSU National Members

Reaching Out to International Organizations

In April ICSU ROLAC´s Director visited UNESCO to discuss the creation of a Consortium to implement the Future Earth Programme in Latin America. Conversations with the IAI followed in June, and after several negotiations, a MoU for a Consortium IAI-ICSU-UNESCO was signed.

ICSU ROLAC participated in several Meetings of diverse Regional and International Organizations in order to foster collaborations and increase ICSU ROLAC visibility in the Americas. M. Limonta attended a Meeting with Ministers of S &T & Innovation in Latin America in Rio de Janeiro, Brazil in June, the 8th Regular Meeting of the Inter American OAS Committee on Science & Technology (COMCYT) in Washington DC in November, and the World Science Forum in November in Rio de Janeiro.

Manuel Limonta, Enrique Cabrero, and Jorge Grandi

Meeting with Focal Points of IANAS in Irvine, California, USA

He also attended the meeting of the American Geophysical Union in Mexico in May; the Mezo American Workshop on Seismicity, Volcanism and natural hazards organized by FeLaSoFi in Panama in September; and a Meeting with Focal Points of IANAS in Irvine, California, USA, in September. During that meeting the ICSU ROLAC Director discussed possible ICSU-IANAS collaboration on Sustainable Energy.

Looking for the involvement of Young Scientists in the Future Earth Program, M. Limonta had a meeting with TWAS dignitaries in Rio de Janeiro, Brazil, and attended the 24th General Meeting of TWAS in Buenos Aires, Argentina, in October. The negotiations with TWAS lead to the joint organization of the 1st TWAS-ICSU Latin American Young Scientists Conference, in Mexico in December.

Outreach to International Organizations

ICSU ROLAC Governance

Regional Committee Members
RCLAC13
RCLAC14
The Regional Office Secretariat
Financial Summary
Communications

Regional Committee Members

Prof. Dr. José Luis Morán-López (*Chair*)	Instituto Potosino de Investigación Científica y Tecnológica	Mexico	Male	2013-2015 (first term)
Dr. Arturo Martinez (*Vice-chair*)	National Council for Scientific and Technological Research of Argentina (CONICET)	Argentina	Male	2013-2015 (second term)
Prof. Dr. Patricio Felmer	Academia Chilena de Ciencias	Chile	Male	2013-2015 (second term)
Prof. Dr. Anthony Clayton	University of the West Indies	Jamaica	Male	2012-2014 (first term)
Prof. Dr. Juan Jaén	Universidad de Panamá	Panama	Male	2013-2015 (first term)
Prof. Dr. Jerson Lima da Silva	Academia Brasileira de Ciencias	Brazil	Male	2012-2014 (first term)
Prof. Dr. Humberto Rodríguez	Universidad Nacional de Colombia	Colombia	Male	2012-2014 (first term)
Prof. Dr. Lilliam Álvarez	Academia Cubana de Ciencias	Cuba	Female	2013-2015 (first term)
Prof. Dr. Luiz Davidovich (*ex-officio*)	ICSU Executive Board Liaison	Brazil	Male	
Dr. Manuel Limonta (*ex-officio*)	ICSU ROLAC Director	Mexico	Male	
Dr. Steven Wilson (*ex-officio*)	ICSU Executive Director	France	Male	
Prof. Dr. Carmen Cisneros (*Liaison*)	Instituto de Física, UNAM Mexican Academy of Sciences	Mexico	Female	

RCLAC 13

The 13th Meeting of the ICSU Regional Committee for Latin America and the Caribbean took place in Mexico City on April 11-12. New members J.L. Morán López (Chair), J. Jaén, L. Alvarez, and C. Cisneros - the new liaison of the AMC with the Regional Committee - were welcomed by the ICSU ROLAC Director. The Committee accepted the nomination of A. Martínez as Vice-Chair of the RCLAC and elected him to that position.

A special invitation was extended to Edith Madela-Mntla, Director of ICSU ROA, to attend the Regional Committee meeting as a distinguished guest and contribute to discussions of potential synergies between ICSU ROA and ICSU ROLAC .

M. Limonta reported on the process of selection of the two Science Officers, G. Iturriaga and A. Guzmán. The new Communication Officer, A. Bucio, reported on the ICSU ROLAC communication strategy: continuous improvement of the ICSU ROLAC website, added member zones and working spaces in the website, new format and deadlines for the Newsletter, and the use of social networks, such as Twitter and Facebook, as a new strategy to address young scientists.

The meeting was convened in conjunction with the Global-Regional Workshop on Sustainable Energy (SE), where the global-regional ICSU community agreed on framing their work on SE within the Future Earth Programme. The RCLAC decided to create a Steering Committee on Sustainable Energy (SE) consisting of 7 to 11 members and directed the office to organize the first meeting of the Steering Committees on DRR and SE.

The RCLAC directed the Secretariat to maintain close interaction with and obtain feedback from the principal investigators of the ICSU grants and to concentrate efforts on both the involvement of high level scientists into ICSU activities and the implementation of the Science Plans for the four regional scientific priority areas.

Participants of the 13th Meeting of the ICSU Regional Committee for Latin America and the Caribbean

RCLAC14

The 14th ICSU Regional Committee Meeting for Latin America and the Caribbean was held in Panamá City, Panamá, on September 26-27, 2013. The meeting was convened conjoint with the Workshop on Disaster Risk Reduction (DRR). Barbara Carby, Chair of the Steering Committee on DRR, and Salvano Briceño, Director of the secretariat of the International Strategy for Disaster Reduction, UN/ISDR, were invited to attend the meeting as special guests. They voiced the recommendation of the Steering Committee to the Secretariat for the hiring of a consultant to identify research gaps at the regional level.

M. Limonta reported on the recommendations arising from the follow-up meeting to the Global-Regional Workshop on Sustainable Energy, in particular on ICSU ROLAC´s fund-raising strategy to obtain financial support from regional governments for the Future Earth Programme, and on a major achievement: a MoU for establishing a consortium with IAI and UNESCO for this purpose.

One of ICSU´s major challenges for the next decade is to establish a closer relationship with the International Unions, and at the same time to develop new activities that require a wider involvement of the different disciplines and scientific areas. To this purpose, the ICSU grants programme has been recently modified to provide an increasing participation of Regional Offices, and to use the ICSU grants to catalyze closer interactions with the IU, Interdisciplinary Bodies, and ICSU Regional Offices. ICSU ROLAC has planned a meeting with ICSU Unions at the regional level to discuss opportunities for the enhancement of interdisciplinary collaboration and to create a synergy between the International Scientific Unions and ICSU ROLAC science programs. Advancement on the Science Plan Agendas for Mathematics and Biodiversity were also reported. The RCLAC was supportive of all initiatives of the Secretariat, noted the very rapid increase of activities and contacts with prospective partners of the ICSU ROLAC, and congratulated the ICSU ROLAC communication officer for implementing tools for social networking and improving communication with the scientists and younger generation.

Participants of the 14th Meeting of the ICSU Regional Committee for Latin America and the Caribbean

The Regional Office Secretariat

The ICSU ROLAC secretariat is hosted by the Mexican Academy of Sciences in Mexico City, Mexico. Under the leadership of the Regional Director, the secretariat coordinates and implements the scientific activities of the Regional Committee. The secretariat also acts as liaison to ICSU headquarters in Paris.

The Mexican Academy of Sciences (AMC) hosts the Regional Office for Latin America and the Caribbean as established in a formal agreement signed by AMC, CONACyT and ICSU for the period 2011-2015. AMC and CONACyT support the Regional Office by making staff and premises available plus catalytic financial support for programme activities.

DIRECTOR
Manuel Limonta, Prof. Ph.D.
manuel.limonta@icsu-latin-america-caribbean.org

SCIENCE OFFICER
Gabriel Iturriaga, Ph.D.
gabriel.iturriaga@icsu-latin-america-caribbean.org
Since January 2014 please contact
Ángela M. Guzmán
angela.guzman@icsu-latin-america-caribbean.org

ADMINISTRATIVE OFFICER
Camilo García, Lic.
camilo.garcia@icsu-latin-america-caribbean.org

COMMUNICATION OFFICER
Angélica Bucio, Lic.
angelica.bucio@icsu-latin-america-caribbean.org

Financial Summary

Financial Summary 2013	
Credit	**USD**
CONACyT	$ 314,731.49
ICSU	$ 77,946.84
SIDA	$ 74,862.94
TWAS	$ 20,454.53
Total Funding	**$ 487,995.80**
Expenses	**USD**
ROLAC Workshops	
Air and ground transportaion	$ 138,252.67
Accommodation and meals	$ 83,738.64
Support material	$ 2,213.29
Total	**$ 224,204.60**
Meetings RCLAC	
Air and ground transportaion	$ 8,127.86
Accommodation and meals	$ 13,633.15
Support material	$ 405.35
Total	**$ 22,166.36**
Outreach Activities	
Air and ground transportaion	$ 12,520.37
Accommodation and meals	$ 4,038.83
Support material	$ 312.29
Total	**$ 16,871.48**
ROLAC Expenses	
Staff honoraries	$ 214,796.21
Editing and printing	$ 3,894.46
Travel expenses	$ 1,739.85
Office supplies	$ 569.12
Equipment	$ 2,737.59
Communications	$ 1,016.13
Total	**$ 224,753.36**
Total Expenses 2013	**$ 487,995.80**

Note: Exchange rate 1 USD = 12.77 MXN (Average 2013)

Communications

The communications area of ICSU ROLAC has been growing in the latest months. We have opened some new roads in order to be closer to the community and created bridges that may be beneficial for the scientists and for the society as a whole.

In the webpage http://www.icsu.org/latin-america-caribbean you may find the events organized by ICSU ROLAC since its establishment since 2007. There you can learn more about our priority areas and outreach activities. Moreover, you can get free access to our publications.

The ICSU ROLAC Newsletter started in 2012 and goes out every four months —January, May and September—; it is published in English and Spanish. You may find it in our webpage and receive it in your mail if you subscribe our mailing list.

For a more direct communication with the scientific and non-scientific community, this year we launched some social networks. Currently we have Facebook ICSU LAC, Twitter @ ICSU_LAC and Flickr ICSU ROLAC. In there, we post information in real time and share information such as pictures, interesting news and calls

The International Council for Science (ICSU)

Benefits of Joining ICSU

All Members receive copies of ICSU publications: the electronic newsletter ICSU Insight, Annual Reports, as well as any other ICSU publications including serials.

Members have access to the restricted Member Zone of the ICSU website and to the ICSU databases.

Members have access to the activities and services of different committees of ICSU, in particular, the Committee on Freedom and Responsibility in the conduct of Science helps solving visa problems for scientists wishing to attend scientific meetings and provides advice to organizers of international meetings.

Members gain access to the global scientific community and to the enormous network of scientists comprising the membership of ICSU.

Members gain the prestige provided by the ICSU umbrella.

Full National Members have voting rights at the ICSU General Assembly, the highest ICSU's governance body, and thus participate in establishing guidelines and directives for ICSU activities.

ICSU's International Scientific Unions and National Scientific Members meet every three years in the ICSU General Assembly. Members get an excellent cross-discipline opportunity for the exchange of ideas and also get access to a wide spectrum of scientific expertise. This enables Members to address major international, interdisciplinary issues, which they could not undertake alone.

For further information on the range of ICSU's activities, see the ICSU interactive website: www.icsu.org. Since March 2011, the ICSU ROLAC website has been integrated into theICSU global website. ICSU ROLAC's activities are highlighted at www.icsu.org/latin-america-caribbean.

ICSU Interdisciplinary Bodies

Interdisciplinary Bodies focus on specific areas of international research that are of interest to all or many ICSU Members, and are designed to become self-sufficient and independent in terms of day-to-day operations and financing.

Thematic Organizations

Programme on Ecosystem Change and Society (PECS)
Integrated Research on Disaster Risk (IRDR)
Committee on Space Research (COSPAR)
Scientific Committee on Antarctic Research (SCAR)
Scientific Committee on Health and Wellbeing in the Changing Urban Environment
Scientific Committee on Oceanic Research (SCOR)
Scientific Committee On Solar-TErrestrial Physics (SCOSTEP)

Global Environmental Change Programmes

DIVERSITAS, An International Programme of Biodiversity Science
Future Earth: Research for Global Sustainability
International Geosphere-Biosphere Programme (IGBP)
International Human Dimensions Programme on Global Environmental Change (IHDP)
WMO-ICSU-IOC World Climate Research Programme (WCRP)

Monitoring and Observations

Global Climate Observing System (GCOS)
Global Ocean Observing System (GOOS)
Global Terrestrial Observing System (GTOS)

Data and Information

ICSU World Data System (WDS)
Committee on Data for Science and Technology (CODATA)
International Network for the Availability of Scientific Publications (INASP)
Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science (IUCAF)

ICSU Scientific Associates

Scientific Associates support the objectives of ICSU and uphold the principle of the Universality of Science.

4S, Society for Social Studies of Science
AAS, African Academy of Sciences
AASSA, Association of Academies and Societies of Sciences in Asia
ACAL, Academia de Ciencias de América Latina
CIE, Commission Internationale de l'Eclairage
FIG, Federation Internationale des Geometres
IAHR, International Association for Hydro-Environment Engineering and Research
IASC, International Arctic Science Committee
ICA - acoustics, International Commission for Acoustics
ICA - cartography, International Cartographic Association
ICIAM, International Council for Industrial and Applied Mathematics
ICLAS, International Council for Laboratory Animal Science
ICO, International Commission for Optics
ICSTI, International Council for Scientific and Technical Information
IFIP, International Federation for Information Processing
IFLA, International Federation of Library Associations and Institutions
IFS, International Foundation for Science
IFSM, International Federation of Societies for Microscopy
IIASA, International Institute for Applied System Analysis
IUVSTA, International Union for Vacuum Science, Technique and Applications
IWA, International Water Association
PSA, Pacific Science Association
TWAS, The World Academy of Sciences
UIS, Union Internationale de Spéléologie

ICSU Scientific Unions

The 31 international Scientific Union Members provide the disciplinary backbone of ICSU. They play a central role in bringing together scientists from all parts of the world to consider the issues of particular interest to individual disciplines.

	Regional Contact
IAU, International Astronomical Union	Marta Rovira
IBRO, International Brain Research Organization	
IGU, International Geographical Union	Irasema Alcántara-Ayala
IMU, International Mathematical Union	Marcelo Viana
INQUA, INternational Union for QUAternary Research	
ISA, International Sociological Association	
ISPRS, International Society for Photogrammetry and Remote Sensing	Mario Hernández
IUAES, International Union of Anthropological and Ethnological Sciences	
IUBMB, International Union of Biochemistry and Molecular Biology	
IUBS, International Union of Biological Sciences	
IUCr, International Union of Crystallography	
IUFRO, International Union of Forest Research Organizations	Bastiaan Louman
IUFoST, International Union of Food Science and Technology	
IUGG, International Union of Geodesy and Geophysics	Luiz Paulo Souto Fortes
IUGS, International Union of Geological Sciences	Marta Mantovani
IUHPST, The International Union for History and Philosophy of Science and Technology	

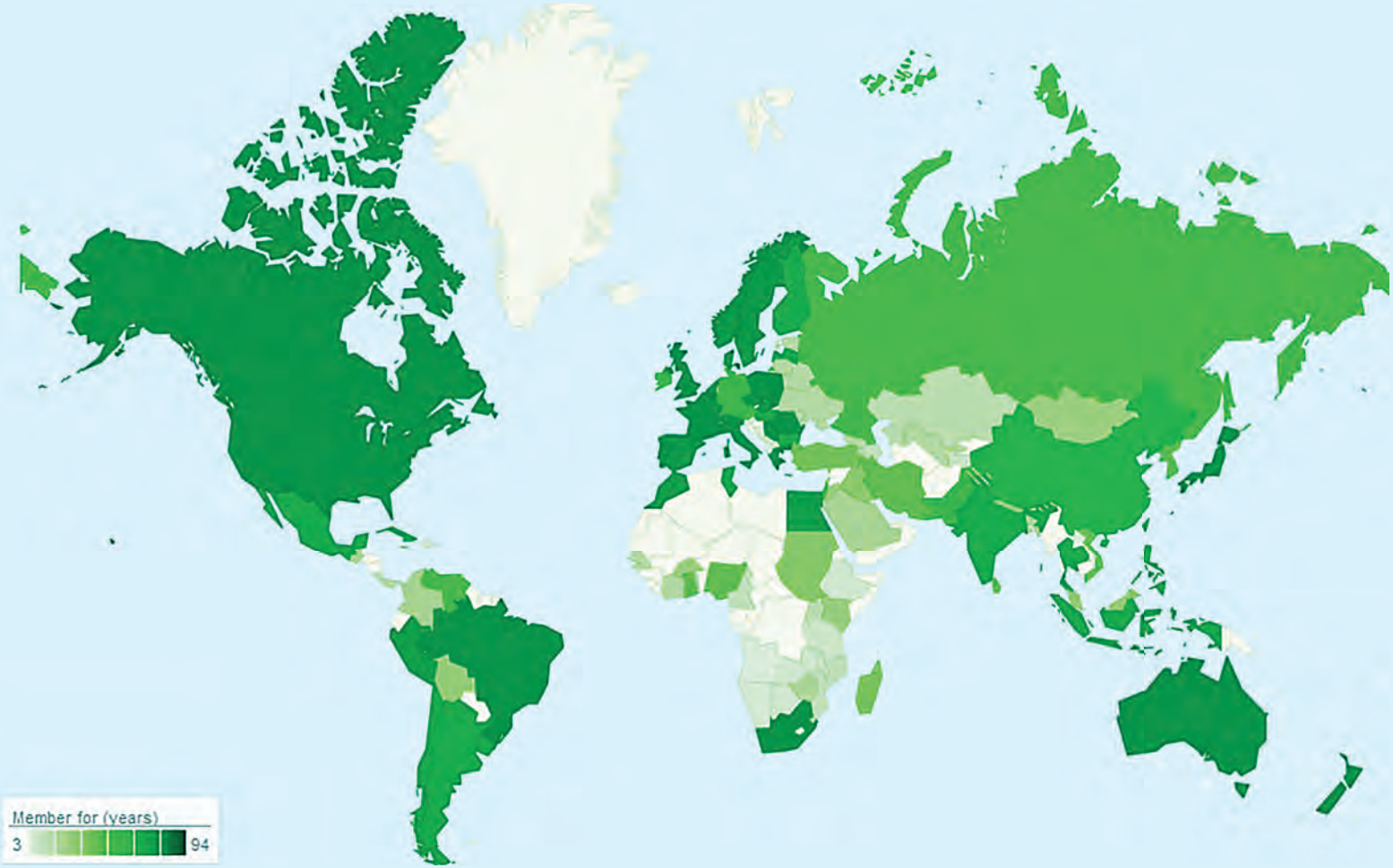
	Regional Contact
IUIS, International Union of Immunological Societies	
IUMRS, International Union of Materials Research Societies	
IUMS, International Union of Microbiological Societies	
IUNS, International Union of Nutritional Sciences	
IUPAB, International Union for Pure and Applied Biophysics	
IUPAC, International Union of Pure and Applied Chemistry	Ram S. Lamba
IUPAP, International Union of Pure and Applied Physics	Carmen Cisneros
IUPESM, International Union for Physical and Engineering Sciences in Medicine	
IUPHAR, International Union of Basic and Clinical Pharmacology	
IUPS, International Union of Physiological Sciences	
IUPsyS, International Union of Psychological Science	Juan José Sánchez Sosa
IUSS, International Union of Soil Sciences	
IUTAM, International Union of Theoretical and Applied Mechanics	Luiz Bevilacqua
IUTOX, International Union of Toxicology	
URSI, Union Radio Scientifique Internationale	Emanoel Costa

ICSU National Members

ICSU has 121 National Members covering 141 countries. These Members provide input, from a national, multidisciplinary perspective, on priority areas for future ICSU activities. They also play an important role in facilitating links with national governments and science agencies.

Albania, Academy of Sciences
Angola, Foundation of Science and Development
Argentina, National Scientific and Technological Research Council (CONICET)
Armenia, National Academy of Sciences of the Republic of Armenia
Australia, Australian Academy of Science
Austria, Die Osterreichische Akademie der Wissenschaften
Azerbaijan, Azerbaijan National Academy of Sciences
Bangladesh, Bangladesh Academy of Sciences
Belarus, National Academy of Sciences (NASB)
Belgium, Royal Academies for Science and the Arts of Belgium (RASAB)
Bolivia, Academia Nacional de Ciencias de Bolivia (ANCB)
Bosnia & Herzegovina: ANUBiH, Academy of Sciences and Arts of Bosnia and Herzegovina
Bosnia & Herzegovina: ANURS, Academy of Sciences and Arts of the Republic of Srpska
Botswana, Ministry of Infrastructure Science and Technology
Brazil, Academia Brasileira de Ciências (ABC)
Bulgaria, Bulgarian Academy of Sciences (BAS)
Burkina Faso, Centre National de la Recherche Scientifique et Technologique
Cameroon, Cameroon Academy of Sciences
Canada, National Research Council of Canada
Caribbean, Caribbean Academy of Sciences (CAS)
Chile, Academia Chilena de Ciencias
China: CAST, China Association for Science and Technology (CAST)
China: Taipei, Academy of Sciences located in Taipei
Colombia, Academia Colombiana de Ciencias Exactas, Fisicas y Naturales
Costa Rica, Academia Nacional de Ciencias
Cuba, Academia de Ciencias de Cuba
Czech Republic, Academy of Sciences of the Czech Republic
Côte d'Ivoire, Académie des Sciences, des Arts, des Cultures d'Afrique et des Diasporas Africaines (ASCAD)
Denmark, Royal Danish Academy of Sciences and Letters
Dominican Republic, Academy of Sciences of the Dominican Republic
Egypt, Academy of Scientific Research and Technology (ASRT)
El Salvador, Viceministerio de Ciencia y Tecnología de El Salvador
Estonia, Estonian Academy of Sciences
Ethiopia, Ethiopian Science and Technology Agency
Finland, Council of Finnish Academies
France, Académie des Sciences
Georgia, Georgian Academy of Sciences
Germany, Deutsche Forschungsgemeinschaft (DFG)
Ghana, Ghana Academy of Arts & Sciences
Greece, Academy of Athens
Guatemala, Academia de Ciencias Médicas Fisicas y Naturales de Guatemala
Hungary, Hungarian Academy of Sciences
India, Indian National Science Academy
Indonesia, Indonesian Institute of Sciences (LIPI)
Iran Islamic Rep. Of, University of Tehran
Iraq, Ministry of Science and Technology
Ireland, Royal Irish Academy
Israel, Israel Academy of Sciences and Humanities
Italy, Consiglio Nazionale delle Ricerche
Jamaica, Scientific Research Council
Japan, Science Council of Japan
Jordan, Royal Scientific Society
Kazakhstan, National Academy of Sciences of the Republic of Kazakhstan
Kenya, Kenya National Academy of Sciences
Korea Democratic People's Republic of, State Academy of Sciences

Korea Republic of, National Academy of Sciences of the Republic of Korea
Lao PDR, Lao National Science Council
Latvia, Latvian Academy of Sciences
Lebanon, National Council for Scientific Research
Lesotho, Department of Science and Technology
Lithuania, Lithuanian Academy of Sciences
Luxembourg, Fonds National de la Recherche
Macedonia, Former Yugoslav Rep. Of, Macedonian Academy of Sciences and Arts
Madagascar, Ministère de l'Enseignement Supérieur et de la Recherche Scientifique
Malawi, National Comission for Science and Technology
Malaysia, Academy of Sciences Malaysia
Mauritius, Mauritius Research Council
Mexico, Academia Mexicana de Ciencias
Moldova, Academy of Sciences of Moldova
Monaco, Principauté de, Centre Scientifique de Monaco
Mongolia, Mongolian Academy of Sciences
Montenegro, Montenegrin Academy of Sciences and Arts
Morocco, Hassan II Academy for Science and Technology
Mozambique, Scientific Research Association of Mozambique (AICIMO)
Namibia, Ministry of Education: Directorate of Research, Science and Technology
Nepal, Nepal Academy of Science and Technology (NAST)
Netherlands, Koninklijke Nederlandse Akademie van Wetenschappen
New Zealand, Royal Society of New Zealand
Nigeria, Nigerian Academy of Science
Norway, Norwegian Academy of Sciences and Letters
Pakistan, Pakistan Association for the Advancement of Science
Panama, Universidad de Panama
Peru, Academia Nacional de Ciencias
Philippines, National Research Council
Poland, Polish Academy of Sciences
Portugal, Academia das Ciencias de Lisboa
Romania, Academia Româna
Russian Federation, Russian Academy of Sciences
Rwanda, Kigali Institute of Science and Technology (KIST), Rwanda
Saudi Arabia Kingdom of, King Abdulaziz City for Science and Technology (KACST)
Senegal, Association des Chercheurs Sénégalais
Serbia, Serbian Academy of Sciences and Arts
Seychelles, Seychelles Centre for Marine Research and Technology
Singapore, Singapore National Academy of Science
Slovak Republic, Slovak Academy of Sciences
Slovenia, Slovenian Academy of Sciences and Arts
South Africa, National Research Foundation (NRF)
South Pacific, University of the South Pacific
Spain, Ministerio de Ciencia y Innovacion
Sri Lanka, National Science Foundation
Sudan Republic of, National Centre for Research
Swaziland, National Research Council
Sweden, Royal Swedish Academy of Sciences
Switzerland, Swiss Academy of Sciences
Tajikistan, Academy of Sciences of the Republic of Tajikistan
Tanzania, Tanzania Commission for S&T
Thailand, National Research Council of Thailand
Togo, Chancellerie des Universités du Togo
Tunisia, Université Tunis El Manar
Turkey, Scientific and Technical Research Council of Turkey
Uganda, Uganda National Council for Science and Technology (UNCST)
Ukraine, National Academy of Sciences
United Kingdom, Royal Society
United States, National Academy of Sciences
Uruguay, Comisión Consejo Nacional de Innovacion Ciencia y Tecnologia (CONICYT)
Uzbekistan Republic of, Uzbekistan Academy of Sciences
Vatican City State, Pontificia Academia Scientiarum
Venezuela, Fondo Nacional de Ciencia, Tecnología e Innovación
Vietnam, Vietnam Union of Science and Technology Associations
Zambia, Zambia Academy of Sciences
Zimbabwe, Research Council of Zimbabwe


Member for (years)
3
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Edited by Ángela M. Guzmán, ICSU ROLAC Science Officer, 2014.

CREDITS:
Electronic Editing and Design: Ana Ezcurra and Juan Carlos Burgoa
Cover Photos: Thinkstock

ICSU
International Council for Science
Regional Office for
Latin America and the Caribbean

ICSU Regional Office for Latin America and the Caribbean
"Casa Tlalpan", Km. 23.5 Carretera Federal México-Cuernavaca,
Avenida Cipreses s/n Col. San Andrés Totoltepec, Tlalpan, 14400 México, D.F.
Tel: + 52 55 58 49 20 32
Fax: + 52 55 58 49 51 08
E-mail: secretariat@icsu-latin-america-caribbean.org
www.icsu.org/latin-america-caribbean