

## WOMEN FOR SCIENCE PROGRAM

ENHANCING THE STATUS OF WOMEN SCIENTISTS

### Vision

Full inclusion and empowerment of women in science and technology from the top decision-making levels all the way down to the grass roots.

### Mission

By advising and informing IANAS, its academies and its programs on gender issues, and by developing strategies enhancing the status of women scientists, Women for Science (WFS) works towards full engagement of women in science, technology, and development.

### Goals

Advising and informing member Academies of IANAS and its programs on gender issues

How are we doing this?

- Appointing Wfs liaisons to all Programs.
- Arranging gender sessions at Programs' workshops; posting resources on gender issues on Wfs-WG web page.

### Enhancing the status of women scientists

How are we doing this?

- Quantifying representation of women scientists/engineers in the academies.
- Spur formation of Women for Science committees in the academies.
- Building a dedicated interactive web page on the IANAS website; post/publish interviews, biographies of outstanding women scientists in the Americas.
- IANAS-Prize enabling an outstanding female PhD student to work at a research institute in another IANAS country.

### Summary of Achievements

IANAS Wfs has pursued the above two goals: to be the resource on the different needs of men and women who are the beneficiaries of IANAS Programs, and to enhance the status of women scientists. The Program activities were mostly funded by IAP and by member academies of IANAS. A foremost achievement has been the recent publication of the bilingual book of 16 biographical interviews of eminent women scientists "Women Scientists in the Americas: Their Inspiring Stories" conducted by science journalists and Focal Points. The project started in 2011: IANAS academies were invited to each identify one interviewee and they were posted by the Biography Committee on the Wfs web page. In mid-2012, the IANAS invited a network of science journalists, who produced about half of the 16 biographies in the book - assuring appeal to a general public and

the young. The book was released on March 8, 2013, International Women's Day. Focal points and Women's Committees organized book ceremonies at half a dozen IANAS Academies. A multitude of avenues are now open for future exploration. Some are indicated in Wfs 3-year plan.

Another successfully completed objective is the first round of the IANAS prize, which was awarded to a PhD chemistry student Clarimar Camacho of Venezuela. Clarimar is completing a 6-month research project at UC Riverside, CA, USA in Jan. 2013. The prize project was evaluated in August 2012. This will guide plans for future prize action included in the Wfs 3-year plan.

Beginning in 2010, the Wfs Programs has worked steadily as adviser on gender aspects of IANAS programs: appointing liaisons to Science Education, Water and Energy Programs were appointed at the Mexico Wfs Meeting in 2011.

Updating is part of Wfs 3-year plan. The 3-year plan includes focusing on cultural and sociological aspects of engaging the population, especially women, as partners in development projects.

Starting in 2010, FP have gathered information on the representation of women in their academies on the basis of an open-ended questionnaire that also included questions on their current activities and needs; and what they expected from Wfs. By end of 2011, almost all academies had responded and this input helped to define goals and objectives of Wfs. In the Women for Science meeting, Panama, a data action group was established that.



"Women Scientists in the Americas. Their Inspiring Stories" March, 2013



## THE INTER-AMERICAN NETWORK OF ACADEMIES OF SCIENCE

Accomplishments Report  
September 2010-July 2013



Science Education focal points meeting, Mexico City, 2011



The IANAS Executive Committee 2010-2013. Venezuela 2012



"Water Diagnosis in the Americas" March, 2012

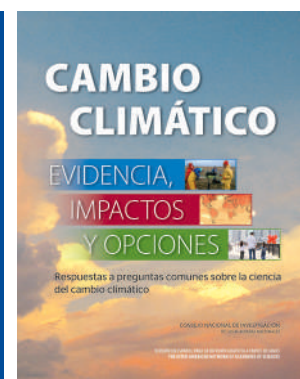
Bridging the Gap between Scientists and Journalists was one of the sessions for the meeting Challenges and Opportunities in Communicating Science to Public. Buenos Aires, 2011



Book "Women Scientists in the Americas. Their Inspiring Stories" March, 2013



Co-Chairs Michael Clegg and Juan Pedro Laclette working along with the IANAS Strategic Planning committee in Irvine CA, adjusting the strategic plan for the organization.



Climate Change. Evidence, Impacts, and Choices, 2013



Women for Sciences Focal Points meeting, Mexico 2011



Energy meeting in Bogota, Colombia 2011

## THE INTER-AMERICAN NETWORK OF ACADEMIES OF SCIENCE



www.ianas.org

### Accomplishments

Networks are powerful instruments for sharing and rapidly disseminating information, best practices and novel ideas through a larger community. By virtue of their credibility and independence from government, Academies have certain inherent advantages in addressing issues related to science, technology and health and in advancing high quality science education at the national level.

IANAS, the Inter-American Network of Academies of Sciences was created to support cooperation towards the strengthening of science and technology as a tool for advancing research and development, prosperity and equity in the Americas.

### Our Mission

Is to strengthen science communities and to provide an independent source of policy advice to governments on key scientific, technological and health challenges.

### Our Vision

IANAS views strong science academies and vibrant science and technology communities as essential to sustainable development in the Americas.



## IANAS DIRECTORY

### ACADEMIES MEMBERS OF IANAS

#### Argentina

National Academy of Exact, Physical and Natural Sciences of Argentina  
www.ancefn.org.ar  
Roberto L.O. Cignoli, President  
Eduardo Charreau, Ex-President

#### Brazil

Brazilian Academy of Sciences  
www.abc.org.br  
Jacob Palis, President

#### Bolivia

National Academy of Sciences of Bolivia  
www.aciencias.org.bo  
Gonzalo Taboada López, President

#### Canada

The Royal Academy of Sciences. The Academy of Arts, Humanities and Sciences of Canada  
https://rsc-src.ca/en/  
Graham Bell, President  
Marie D'Iorio, Ex-President

#### Caribbean

Caribbean Academy of Sciences (Regional Networks)  
www.caswi.org  
Trevor Alleyne

Caribbean Scientific Union (Regional Networks)  
www.academiadecienciasrd.org/ccs/

#### Chile

Chilean Academy of Science  
www.academia-ciencias.cl  
Juan Asenjo, President

#### Colombia

Colombian Academy of Exact, Physical and Natural Sciences  
www.accefyn.org.co  
Jaime Rodríguez-Lara, President

#### Costa Rica

National Academy of Sciences of Costa Rica  
www.anc.cr  
Gabriel Macaya, President

#### Cuba

Cuban Academy of Science  
www.academiaciencias.cu  
Ismael Clark Arxer, President

Dominican Republic Academy of Sciences of the Dominican Republic  
www.academiadecienciasrd.org

Milciades Mejía, President  
Nelso Moreno, Ex-President

#### Ecuador\*

The National Academy of Sciences of Ecuador  
Carlos Alberto Soria  
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#### Guatemala

Academy of Medical, Physical and Natural Sciences of Guatemala  
www.interacademies.net/Guatemala.aspx  
Enrique Acevedo, President  
María del Carmen Samayoa, Ex-President

Latin American Academy of Sciences (Regional Network)  
www.acal-scientia.org

#### Mexico

Mexican Academy of Sciences  
www.amc.unam.mx  
José Franco, President  
Arturo Menchaca, Ex-President

#### Nicaragua

Nicaraguan Academy of Sciences  
www.cienciasdenicaragua.org  
Jorge A. Huete-Pérez, President

#### Panama\*

Scientific Organization APANAC  
Jorge Motta  
www.apanac.org.edu.pa

#### Peru

National Academy of Sciences of Peru  
www.ancperu.org  
Ronald Woodman Pollitt, President

#### United States of America

US National Academy of Sciences  
www.nasonline.org  
Ralph J. Cicerone, President

#### Uruguay\*

Academia Nacional de Ciencias del Uruguay  
Rodolfo Gambini  
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Venezuela Academy of Physical, Mathematical and Natural Sciences of Venezuela  
www.acifman.org.ve  
Claudio Bifano, President

\*Observers 2013

### CO-CHAIRS OF THE PROGRAMS

#### Women for Science:

Anneke Levelt Sengers (US)  
Lilliam Alvarez (Cuba)

#### Science Education:

Gabriel Macaya (Costa Rica)  
Norma Nudelman (Argentina)

#### Water Program:

Blanca Jimenez (Mexico)  
Jose Tundisi (Brazil)

#### Energy Program:

Claudio Estrada (Mexico)  
John Millhone (US)

#### Capacity Building:

IANAS

### IANAS SECRETARIAT

Mexican Academy of Sciences (2010-2013)  
Brazilian Academy of Sciences (2004-2010)

#### Co-Chairs

Michael Clegg (2010-2013)  
Foreign Secretary of the US-National Academy of Sciences

Juan Pedro Laclette (2007-2013)  
Former President of the Mexican Academy of Sciences

Hernan Chaimovich (2004-2010)  
Vice President of the Brazilian Academy of Sciences

Howard Alper (2004-2007)  
President of the Royal Society of Canada

#### Executive Directors

Adriana de la Cruz Molina (Mexico, 2010-2013)

Marcos Cortesao (Brazil, 2004-2010)

Verónica Barroso  
Assistan to the IANAS programs

## IANAS CAPACITY BUILDING

STRENGTHENING SCIENCE ACADEMIES IN THE AMERICAS

### Vision

IANAS aspires to make the academies of the Americas more effective instruments in providing science advice to governments, in engaging society in implementing S&T based solutions to pressing problems, and in so doing, to contribute to social and economic development in the hemisphere.

### The goals of IANAS are:

- To strengthen and empower science communities in the American hemisphere by enhancing the capacities of academies and science associations.
- To serve as formal and informal sources of S&T advice and expertise to all levels of government and civil society in the Americas.
- To develop programs on scientific capacity building, science education, science communication and other science-related issues of significance to the Americas;
- To collaborate with the Global Network of Science Academies (IAP), the Inter Academy Council (IAC) and allied organizations such as ICSU and TWAS.

**Accomplishments:** Since its inception IANAS has initiated active programs in academy capacity building, science education, water resources, energy, and women for science. Each of these programs has as a central purpose the strengthening of the capacities of science academies to be valuable national assets in the Americas. Capacity building achievements in the past five years include:

- A new level of cooperation has been reached by the member academies of IANAS on actions to solve pressing academic and societal needs.
- New Academies have been established in Nicaragua, Uruguay and Ecuador.
- Programs on scientific exchange have been developed for young to mid career level



investigators. To date 28 scientists from Latin America and the Caribbean have participated in the program.

- Organized a workshop on the science funding landscape hosted by the Guatemalan Academy.
- A partnership with the Organization of American States (OAS) has been initiated.
- Organized a workshop with science journalists and academy leaders from throughout the Americas to enhance the communication of science to the public.
- Organized a meeting of young to mid career scientists from Mexico, Cuba, the US and Caribbean states to plan a major symposium.
- IANAS has developed significant linkages with UNESCO, the Inter-American Development Bank (IDB) and with the Caribbean Community and Common Market (CARICOM).

- IANAS has developed an informative web site ([www.ianas.org](http://www.ianas.org)) that provides linkages to science policy reports from a number of sources. ■

## IANAS ENERGY PROGRAM

SUSTAINABLE ENERGY IN THE AMERICAS

### Achievements

The IANAS Energy Program is advancing in the Americas the insights and recommendations of the 2007 InterAcademy Council's report, *Lighting the way; Toward a sustainable energy future*. The program has identified the report's highest priorities for the Americas, shared information on these priorities among academies and scientific organizations and outside experts in annual workshops, drafted action plans in these priority areas and begun the initiation of these plans.

The program currently is drafting a book on these activities to highlight the critical role of science in a sustainable future that incorporates social, environmental and economic values. The book will expand the public awareness of the role of science in current energy security, supply, cost, and Climate Change issues. The book also will be used to secure financial support from governments, the private sector, international financial institutions, foundations and non-governmental organizations.

### Energy for unserved and underserved populations

The focus has been on providing electricity to 29 million without access to electricity and 65 million who use traditional biomass for cooking. These totals are smaller than in other global regions, but the challenge is widespread. The plans include participation by local communities, sustained efforts, optimizing the mix of energy sources and multi-country programs. This is a shared priority with the Women for Science program.

**Renewable energy.** The program has focused on the role of science in mapping the rich mix of renewable energy resources in the Americas and on advanced strategies that convert these resources into useable energy. While these efforts continue, the future will be on persuading decision makers to use this information to adopt renewable energy plans both nationally and in multi-state initiatives with common renewable resources.

**Bioenergy.** The primary activity is support for and cooperation with Brazil in its leadership in the Global Sustainable Bioenergy (GSB) project. The plan envisions expanding the production of ethanol from sugarcane to other countries, modifications for different bioenergy feedstocks, and reconciling large scale bioenergy projects with food supply and wildlife habitat priorities. The activity also includes capturing energy from municipal wastes.

**Energy efficiency.** The goal in this priority is to increase energy efficiency throughout the energy chain –from energy sources to final end uses. Improving the energy data along this chain is necessary to prioritize the opportunities for energy savings. These opportunities can be realized through advances in science and engineering. Subsidies that distort the real cost of energy is an obstacle. The plan is to raise awareness of these interconnections, highlight advances, and strengthen energy efficiency programs.

**Capacity building.** Unlike conventional approaches, the program is taking a top-down approach to capacity building, rather than one that's bottom-up. The approach is to ask science academies: What do you want to accomplish? What do you want to do in the above priorities? The answers will include questions of leadership, research, development, education, training... When the top-down answers come, they will have more consequence.

### Activities for 2014-2016

The Energy Program will hold its 2013 workshop this fall in Irvine, California. In addition to country reports and priority breakout sessions, the focus will be on the status of the book. The schedule is to complete the draft chapters of the book by the end of 2013, followed by reviews, revisions and publication in the spring of 2014. At the California meeting, we also plan to arrange meetings with international government and financial institutions. ■



Solar energy, Cuba



Eolic turbins, Chile

## IANAS SCIENCE EDUCATION PROGRAM

SCIENCE ACADEMIES ENHANCING SCIENCE EDUCATION IN THE AMERICAS

The IANAS Science Education Program (IANAS SEP) comprises at present 19 Academies of Sciences in the Americas. The major objective of the IANAS SEP is to improve science literacy in the Americas.

### Science education for primary level schools

Each country has its own priorities and needs in science education. The various National Academies of Science in the Americas work within their local and national contexts to develop Inquiry Based Science Education (IBSE) programs. These programs are aimed at training primary, middle school and high school teachers to enhance science literacy. Working through IANAS, the academies share experiences and best practices and rapidly disseminate effective practices and experiences among countries.

With different names and scopes of work like "Doing Science at School" in Argentina; "Science goes to your School" in Bolivia; "ABC na Educação Científica" in Brazil; "Small Scientists" in Colombia; IBSE in Chile; "Science at School" in Mexico; ECBI in Peru, the Academies share a single goal: to provide teachers and students the wonderful experience of discovery in science and technology using the Inquiry Based Science Education methodology.

### Professional Development or "Training the trainers"

Academies work to raise the level of teacher's knowledge in science. The most effective means to reach students is through their teachers. The academies engage professional scientists from all disciplines in enhancing the training of teachers.

Since the inception of the Program, Workshops on IBSE have been conducted in most of the countries of the Americas. As a result of those activities thousands of teachers in the region have been benefited with these training courses.

**Latin American Workshops.** An essential feature of the Network is the *sharing* of experience, knowledge and resources between the countries. More than a hundred Latin American workshops were held, facilitating the attendance of teachers from many countries.

**Materials-Resources Development:** Approaches used in the adoption and/or development of teaching materials vary by country. Initially there was a heavy reliance on materials



Science Education Venezuela

from *La main a la pate* developed in France or on materials developed by the Smithsonian National Science Resource Center. In some cases, a hybrid IBSE model based national curricular mandates has been developed by individual national academies.

### Subsequent achievement: secondary level science education

The "Transition from IBSE to secondary School" of Chile has a demonstrated record of stimulating the interest of young students in science where IBSE has contributed to the development of critical thinking skills. Latin American Workshops for secondary level science teachers have been implemented with emphasis in MolecularBiology and Genomics (Chile); Mathematics (Peru); Green Chemistry (Argentine); Evolution, Health and Nutrition (Bolivia). The Mexican Academy of Sciences has successfully implemented distance education courses, mainly offered to teachers of Central America, the Caribbean and other countries. The teachers obtain a *Diploma* after successfully completing all the courses.

**IndagaLA.** In 2009 the web portal IndagaLA was launched by the Colombian Academy to collect materials and make them available to all countries. In 2012 the new Portal "IndagaLA" sponsored by the Mexican Academy of Sciences ([www.indagala.org](http://www.indagala.org)) has been expanded and renewed with new content based on the experiences of the several IANAS Academies. ■

## IANAS WATER PROGRAM

ENHANCING ACCESS TO WATER AND SANITATION IN THE AMERICAS

In response to a call by IANAS, several Science Academies of the Americas established National Water Committees, which are helping local governments and society in the effort to enhance access to water and sanitation in the Americas. The first task of these National Water Committees was to prepare a white paper providing a strategic view on the water resources of their countries. As a result of this process, and as part of the celebration of International Water Day, the program published the book "Water Diagnosis in the Americas" on March 22, 2012. This publication was launched simultaneously in 15 countries, bringing a comprehensive assessment of water resources in the continent.

A few Academies have also produced national water books and others are now working on this. Through the Water Committees, IANAS Academies are playing a more active role in policy and decision making processes in water related issues within their countries.

Capacity Building has also been an important component of the IANAS Water Program. Through the volunteer work of national focal points of the program, training courses for high-level water managers have been organized in several countries, benefitting more than 500 professionals from all over the Americas. These courses have assembled water managers coming from major public and private companies in Latin America, as well as water authorities from the different levels of government.

In addition to annual meetings of the program - the last 3 were held in Argentina (Nov 2010), Bolivia (Nov 2011) and Guatemala (Nov 2012) –major regional and international water meetings have been organized by IANAS.

In September 2010 IANAS organized, in collaboration with the Network of African Science Academies (NASAC), the international symposium "Improving Access to Safe Water: Perspectives from Africa and the Americas". This meeting assembled representatives from 6 African and 5 Latin-American countries to share views and experiences on water resources management in the 2 different continents.

In November 2010 IANAS co-sponsored the 7th Rosenberg International Forum, which was held in Argentina, focusing on "Water for the Americas: Challenges and Opportunities". This meeting brought together 52 water experts from 28 countries, and discussion covered common water problems facing the Americas and the range of adaptations to those problems; lessons in storing surface water in ground water

basins, transboundary water management and the role of indigenous claims and indigenous knowledge in managing water resources.

In June 2012 IANAS co-sponsored the international symposium "Enhancing Water Management Capacity in a Changing World: Science Academies Working Together to Increase Global Access to Water and Sanitation", held in Brazil. This symposium gathered specialists from 34 different countries and representatives from some of the main international programs in the area of water resources such as: International Lake Environment Committee (ILEC), International Hydrological Programme-UNESCO (IHP-UNESCO), United Nations University-Institute for Water, Environment & Health (UNU-INWEH) and United Nations Environment Programme (UNEP).

### Goals for 2014-2016:

- Complete the production of a new book, focusing on "Urban Waters in the Americas". Growing urbanization and the advent of megacities –a global and regional problem– represent an enormous challenge to water management.
- Academies will convene National water meetings and capacity building activities, helping to bridge the gap between Science and water management.
- The IANAS Water Program will stimulate the National Water Committees that still haven't published a national water publication to do so. ■

