

**IANAS Science Education Program  
(IANAS-SEP)  
Report of Achievements 2004-2013**

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# IANAS Science Education Program

Objectives of IANAS SEP since 2004:

- Promote *collaboration & synergy* in Science Education projects.
- Stimulate the *sharing of materials* among projects dedicated to *IBSE*.
- Generate *common* methods, mechanisms & guidelines.
- Fostering the teaching of Sci & Tech at the *primary level*.



# Centrality of the SEP for IANAS

- The SEP crosses the other IANAS programs.
- Existence of significant expertise on different areas in several Academies of Sciences of the Network, opening an opportunity for sharing resources.
- This was clearly demonstrated by the many Latin American Workshops for secondary level science teachers, sponsored by IANAS SEP, frontier subjects, as: Molecular Biology and Genomics (Chile); Mathematics (Peru); Green Chemistry (Argentina); Evolution, Health and Nutrition (Bolivia); etc.
- Special mention deserves the extended activity of the Mexican Academy of Sciences in the Distance Courses, mainly offered to teachers of Central America, the Caribbean and other countries, that obtain their *Diploma* after approving all the courses.

# *International collaborations for Science Education*



- ✓ **LAMAP: French Academy of Sciences**
- ✓ **International Workshops “IBSE Assessments” (Stockholm, USA, Santiago, York)**
- ✓ **NSRC (USA) “LASER” (L. Approach Sci Ed Reform)**
- ✓ **Ten big Ideas in Science (UK)**
- ✓ **Spanish translation of books & documents**  
(The children and Science: the adventure of LAMAP”,  
Assesments in IBSE, Ten Big Ideas, 29 notions to enjoy &  
making enjoy Science)

*2013 ONE SINGLE NETWORK of 19  
ACADEMIES of Sciences IN THE AMERICAS*

**IBSE before 2004**

Academy of Sciences of  
Argentina, Brazil, Canada Chile, Colombia and the  
and the US National Academy of Sciences

**between 2004-2006**

Academies of Sciences of  
Bolivia, Cuba, Mexico, Peru and Venezuela

**more recently....**

Academies of Sciences of:  
Costa Rica, Dominican Republic, Guatemala,  
Nicaragua, Panama, Caribbean Ac Sci and Uruguay

# IANAS SEP 2013

## Implementation of IBSE Programs

- ☆ Before 2004
- ☆ 2004-2006
- ☆ More recently



# Focal Points

- Raimundo Villegas (ACAL)
- Norma Nudelman (Argentina)
- Elsa Quiroga (Bolivia)
- Diógenes de Almeida Campos (Brazil)
- Patricia M. Rowell (Canada)
- Harold Ramkisson (Caribbean Academy of Sciences)
- Jorge E. Allende (Chile)
- José Lozano (Colombia)
- Gabriel Macaya (Costa Rica)
- Oscar Alvarez (Cuba)
- Nelson Moreno Ceballos (Dominican Republic)
- Maria del Carmen Samayoa (Guatemala)
- Carlos Bosch-Giral (Mexico)
- Jorge Huete (Nicaragua)
- Gladys Bernett (Panama)
- Cesar Carranza (Peru)
- John Emrick (United States)
- Rafael Gambini (Uruguay)
- Claudio Bifano (Venezuela)

# Executive Council IANAS-SEP meetings, all Focal Points

- 10<sup>th</sup> (proposed) Meeting September 2013, Santiago (Chile)**
- 9<sup>th</sup> Meeting August 2012, Bogota (Colombia)**
- 8<sup>th</sup> Meeting June 2011, Mexico D.F. (Mexico)**
- 7<sup>th</sup> Meeting June 2010, Rio de Janeiro (Brazil)**
- 6<sup>th</sup> Meeting May 2009, Washington D.C. (USA)**
- 5<sup>th</sup> Meeting July 2008, San José, (Costa Rica)**
- 4<sup>th</sup> Meeting July 2007, Mexico D. F. (Mexico)**
- 3<sup>rd</sup> Meeting September 2006, Edmonton (Canada)**
- 2<sup>nd</sup> Meeting August 2005, Bogota (Colombia)**
- 1<sup>st</sup> Meeting November 2004, Santiago (Chile)**



# IANAS SEP 2010-2012

- *Exchanging science education materials*
- *IndagaLa Portal Mexico 2012*
- *Inter-American Strategic Planning Workshop*
- *Inter-American short-term fellowships on science education*
- *Visiting International Science Education Experts*
- *Several Latin-American Courses and Workshops for teacher training*



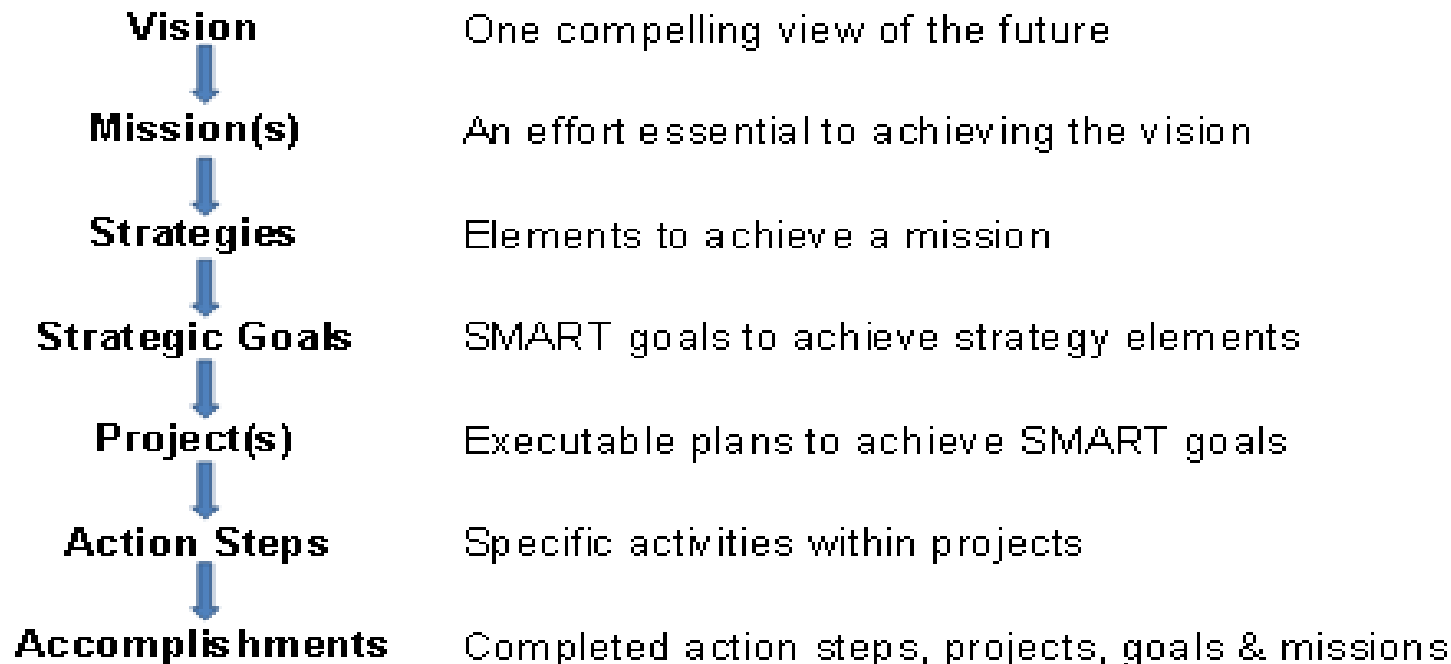
# LA Workshops of IANAS SEP

- ❖ “Enlighten the World” workshop on **Energy** (2008)
- ❖ 1st Latin American Workshop on **IBSE for secondary schools** (2009)
- ❖ 1st Latin American Workshop on **IBSE- Evaluation/Assesment Inst.** (2010)
- ❖ 1st Latin American WS on “**The Big Ideas in Science**” (2011)
- ❖ 2nd Latin American WS on “**Communicating Science**” (2011) (I, 2009)
- ❖ 1st Latin American WS on “**Strategic Planning for Science Education** (2011)
- ❖ LA Conference on “**Water in the Americas**” (2012)
- ❖ LA Conference on “**The role of women in Science**” (2013)
- ❖ IV Latin American Workshop on “**Green Chemistry**” for secondary school teachers April 2013 (I-III 2005, 2006, 2007)
- ❖ 1st Latin American Workshops on “Molecular Biology and Genetics”, simultaneously held in: Costa Rica, Mexico and Chile (with RELAB, 2012)
- ❖ Distance Courses “La Ciencia en tu Escuela” in some Central America countries, organized by the Mexican Academy of Sciences (2012-2013)

## *Some recent achievements*

- Development of PE resources for secondary schools; (energy; electronics, health) improvement of the STEM curricula
- Usage of microscience kits increase the interest of young people, promote gender equality, & choice of a career (S&E)
- PD courses to provide teachers skills in new approaches to content & delivery.
- Creation of Pilot Centres along the country
- Forum for teachers-academicians interactions, discussion & collaboration

## Strategic Planning Process



# **Strategic Planning 2013-2015**

## **5 Top areas of work: Committees**

- ❖ Organizational structure and policy building**
- ❖ Collaborative mechanisms for sharing resources**
- ❖ Internal and external communications**
- ❖ Alliance development**
- ❖ Strategies for Internal and external funding**

# *Strategic Planning for 2013-2015*

- **Continours addressing specific aspects of science education: curriculum, pedagogy, assessment and evaluation.**
- **Increase formal agreements with Ministries of Education to improve the quality of STEM education in secondary school.**
- **Effectively engage OAS, UNESCO, IAP, IAC, etc. in the work of IANAS SEP to influence science education policies, governments, stakeholders, decision makers and potential donors for funding.**
- **Increase agreement with Universities, academies and ministries of education within the framework of IANAS-SEP.**
- **Foster interactions with the other IANAS Programs: WfS; Water; Energy; Capacity Building.**
- **Promote the vision of young entrepreneurs & leadership**

# *Reflection on the role of IBSE in LAC*

- The results observed in these first 10 years of IANAS SEP, and the efforts of the Academies of Science in implementing the IBSE methodology in the primary and secondary schools, afford encouraging messages for the education in the region. Some of them are as follows:
  - School can have a substantial impact on reducing the learning inequalities associated with social disparities.
  - Quality education must be seen as a right of all girls and boys.
  - It represents a solid base for sustainable development, for peace and democratic progress and promotion social equality.
  - The equitable distribution of learning across different social strata remains still a pending task.

Thank you