

**IAP General Assembly
2 March 2016
Hermanus South Africa**

Presentation on IAP Science Education Program (SEP)

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Chair, IAP SEP Global Council**

IAP Co-Chairs Mohamed and Volker,
Ladies and Gentlemen

The activities of the IAP SEP since 2013 are given in pages 84 and 85 of the General Assembly Document. I would take them as read.

I would however like to report the following:

1. IAP SEP Governance

1.1 Changes in Rules

- Global Council members are experts in evidence based or inquiry based science education (IBSE) that are preferably nominated or endorsed by the member academies of IAP. SEP is owned by member academies.
- An International Advisory Board has been established tapping the expertise and experience of eminent science education experts like Bruce Alberts and Daya Reddy and maintaining the rapport with past Global Council members like Sameh Soror.
- The Co-Chair of Global Young Academies is an ex-officio member of the Global Council.

1.2 Composition

Current Global Council has gender, generation and geographical balance.

1.3 SEP Focal Points

We are pleased that 26 academies have nominated their SEP Focal Points. We intend to train and support focal points to get IBSE up and running in their academies, especially in developing countries.

2. SEP Activities in 2016

2.1 UNESCO as the Umbrella of IBSE

As Chair of the Governing Board of the UNESCO International Centre for Science, Technology and Innovation for South-South Cooperation (ISTIC) in which IBSE is a priority program with ISTIC partner “La Main a la Pate” (LAMAP) of the French Academy of Sciences,

I had in 2013 written to UNESCO D.G. Irina Bokova to make UNESCO formally as the UN Intergovernmental Umbrella for IBSE with LAMAP of

France as the global hub and ISTIC as the hub for South countries. In pursuit of this objective, ISTIC is holding a “One-Day Event” in UNESCO Head Office on 5 April 2016 entitled “*Embracing the Future: Improving Quality of Science Instruction in Schools*” together with LAMAP. The program will feature:

- Poster Exhibition of LAMAP and ISTIC activities worldwide;
- Demonstration by French pupils’ achievements in IBSE;
- Display of LAMAP and ISTIC resources in IBSE;
- Media presentation on IBSE activities worldwide.

There will be a forum on “*Embracing the Future: Improving Quality of Evidence Based Science Instruction in Schools in Developing Countries*”

UNESCO D.G. Irina Bokova has agreed to open this ISTIC Event.

The audience will consist of Heads of Delegation of Member States of UNESCO and high UNESCO officials. The French Ministries of Education and Foreign Affairs have been invited.

Peter McGrath will attend as Secretary of IAP SEP. Between Peter and myself, we will get IAP SEP associated.

2.2 Students as Agents of Change Against the Spread of Mosquitoes

A Workshop on “Children and Sustainable Development” was organised by the Pontifical Academy of Sciences and encouraged by Pope Francis last November. One of the outcomes is the concept of students as agents of change.

SEP is very concerned about the outbreak of zika in the Americas. A call was sent out to all member academies for educational material on preventing the spread of mosquitoes. The response from member academies offering educational material has been most encouraging. But the development of pedagogy and its introduction into schools would take time.

Meanwhile, there is tremendous political will to combat this epidemic. In view of the severity of the epidemic and the Rio Olympics 2016, the Brazilian military has been mobilised, distributing pamphlets to inhabitants during their cleaning and fumigating campaigns. Such top down methods may prove effective during an epidemic after which everything tends to revert to business as usual.

Applying the concept of students as agents of change using the bottom up approach, SEP should be able to mobilise the students to clean up their

neighbourhood of still and dirty water, starting with their own homes and schools. Hopefully the students will be able to mobilise their parents and then their communities. With both top down and bottom up approaches, good and healthy housekeeping may well develop into a culture of community cleanliness.

We need an organised student movement to anchor this. I have written to the Coordinator General of Fey Alegria, the Catholic Charity of Youth for Community in Latin America. I have twitt Pope Francis to get his blessing.

If member academies in Latin America can act as the go-between between their Governments and student groups, they will earn much public acclaim and appreciation.

2.3 ECO Countries

SEP focus in 2016 will be to spread IBSE in the 10 ECO countries in West and Central Asia working with ECO Science Foundation, LAMAP and ISTIC. Four training workshops for teachers are planned in Iran and Pakistan May 2016, Turkey September 2016 and Azerbaijan November 2016. I would like to thank the academies of Azerbaijan, Iran, Turkey and particularly Pakistan for their strong support.

3. Science Literacy

The last IAP General Assembly in Rio stressed the importance of science literacy or science outreach to society at large. IAP Co-Chairs had directed SEP to undertake this task. The above mentioned activities with respect to UNESCO and Latin America are both science education and science outreach programs.

3.1 “One Belt One Road” China

The most important happenings in the developing world in 2015 were the initiatives of China in setting up the BRICS Developing Bank, the Asia Infrastructure Development Bank and its own “One Belt One Road” program. These initiatives are aimed at promoting inclusive infrastructure in South countries. China has reportedly committed some US \$900.0 billion to infrastructure projects under the above banks and programs.

I am getting the Chinese Association for Science and Technology (CAST) to develop a “One Belt One Road” education curriculum that will emphasize inter-civilization knowledge exchanges in science, engineering and technology along

the land Silk Road through Central Asia to Europe and the Ocean Silk Road through the Indian Ocean to Arabia and East Africa. A “proof of concept” workshop will be held in July 2016 in Karamay, Xinjiang during the Karamay Science Fair. Delegates will be from the 10 ECO and 10 ASEAN countries.

ISTIC is cooperating with two sister UNESCO Centres under the Chinese Academy of Engineering, namely the UNESCO International Knowledge Centre for Engineering Science and Technology (IKCEST) and the UNESCO International Centre for Engineering Education (UICEE) to provide i) with IKCEST training courses for indigenous big data system managers in developing countries and ii) with UICEE training courses for indigenous engineers and technicians in the maintenance of infrastructure. Both series of training courses will be under the umbrella of “One Belt One Road”.

3.2 Trans Pacific Partnership (TPP)

Another initiative will be tried during the SEP Global Council meeting in Santiago, Chile in April 2016 to get the 12 Trans Pacific Partnership member nations to adopt evidence based science education in the Education and Capacity Building Provisions of the TPP Agreement. Apparently such Provisions were proposed by Chile which together with Brunei, Singapore and New Zealand were the four original proponents of TPP, the biggest trading bloc in the world. One possible entry point may be the education of students in computer technology and algorithm writing to prepare them for the digital economy. LAMAP is currently testing their module for ages 3 to 15 years in France, expecting to reach 10,000 classes by 2018.

4.0 Appreciation

I would like to thank IAP Co-Chairs for their strong support of SEP. I thank SEP GC and IAB members for spreading IBSE together with host IAP member academies. My deep appreciation goes to my own academy, the Academy of Sciences Malaysia, for shouldering the responsibility as Lead Academy of IAP SEP. Finally my gratitude goes to IAP staff in Trieste, Peter McGrath and Muthoni Kareithi, ASM staff under acting CEO Hazami Habib who is also IAP SEP GC member, as well as ISTIC Director Dato Samsudin Tugimen and my assistant in IAP SEP, Dato Dr. Sharifah Maimunah.