



International Organization for Science and Technology Education

www.modelab.ufes.br/ioste or www.ioste.org

In this issue:

- Photos from IOSTE XII
- New opportunities for science and technology in Africa
- Science textbooks can save lives in Brazil
- New IOSTE board members

Welcome to the final newsletter of 2006. This edition introduces a new section - a clearinghouse of news briefs about science and technology education from around the world, including web links to full articles. I hope readers find this section useful and I would encourage you to email any relevant and interesting web articles you find to me for the next newsletter. Also in this edition, Jane Mulemwa concludes her review of the new Centre for Science Education in Africa, and Nelio Bizzo explores the life saving content of some Brazilian science textbooks.

There are also details of four regional IOSTE symposia being held around the world in 2007. Thank you to IOSTE members who contributed content to this newsletter, and I would again like to acknowledge the support given me throughout the year by the National Centre of Science, ICT and Mathematics Education for Rural and Regional Australia (SiMERR Australia).

*Editor, Terry Lyons,
SiMERR National Centre,
University of New England
Australia
terry.lyons@une.edu.au*



Above: Delegates to the XII IOSTE Symposium, Penang Malaysia, July 30 – Aug 4.

Contents:

View from the Chair	1
Notice Board	2
STS News Clearinghouse	3
Hot off the presses	5
Featured Issue	6
STE in the Regions.	8
• Central & East Africa	
• South America	
• Central and Eastern Europe	
About IOSTE	11
Executive Committee	11
IOSTE Membership	12

View from the Chair

Since Penang, the new board of IOSTE has held successful email meetings (emeetings) in August and November to discuss IOSTE business. I am happy to inform members of three of the resolutions agreed to by the board. First, the board offered its thanks and congratulations to Suan Yoong and his team from Universiti Sains Malaysia for hosting an excellent symposium in August. Second, in August the board officially advised the team from Dokuz Eylul University, Izmir that they were successful in their bid to host IOSTE XIII in Turkey in 2008. Negotiations have begun with organizers Teoman Kesercioğlu and Bulent Cavas to begin planning. Third, there were a number of discussions at Penang about how IOSTE should respond to political events in which science and technology is used by governments or other parties against civilians. In order to make our position on such

events clear, the board has voted to include the following notice in a prominent place on our website:

"Consistent with our mission to encourage the peaceful and ethical use of science and technology in the service of humankind, IOSTE opposes the use of science and technology by any government or other organization for military purposes against civilians."

Since September we have been working to relocate and upgrade our website www.ioste.org. I apologise for any difficulties in accessing the site during this process. Hopefully the updated site will be online in early January. I would like to thank IPN, and Horst Bayruber and Renate Glawe in particular, for hosting the site over the last two years. Finally, sincere thanks are due to past Chair Nelio Bizzo and the previous board for their efforts in guiding IOSTE over the last two years.

*Terry Lyons,
IOSTE Chair,
University of New England, Australia*

Notice Board

IOSTE Regional Symposia

Tunisia

A Regional and Thematic Meeting of IOSTE is being held in Hammamet Tunisia, February 7- 10, 2007. The meeting is a collaboration between IOSTE, the FP6 European research project Biohead-Citizen (Biology, Health and Environmental Education for better Citizenship) and ARDIST (Association pour la Recherche en Didactique des Sciences et des Techniques).

Deadlines for proposals have closed, but further details are available at IOSTE.feb07@univ-lyon1.fr. Thanks to Pierre Clement for this information

South East Asia

A regional IOSTE symposium on Science for Sustainable Development will be hosted at the University of the Philippines from July 19-21, 2007.

The symposium will be organized by Vivien M. Talisayon from the University of the Philippines, in collaboration with the Regional IOSTE representative, Sharifah Norhaidah Idros from Universiti Sains Malaysia. Deadline for Submission of Abstracts: March 30, 2007

Notification of Accepted Abstracts: April 16, 2007

Deadline for Submission of Papers for CD: June 19, 2007

Deadline for Pre-Registration: May 31, 2007

Symposium website: To be confirmed.

Contact: vivien.talisayon@up.edu.ph

Thanks to Sharifah for this information.

Central and Eastern Europe

An IOSTE symposium will be hosted at Siauliai, Lithuania from July 17 - 21, 2007. Details of the symposium, chaired by the IOSTE regional representative Vincentas Lamanauskas can be found on the symposium website at

www.gutc.su.lt/IOSTEi/IOSTE_LT.htm

Deadline for proposals is March 31 2007. Thanks to Vincentas for this information.

South West Pacific

An IOSTE regional symposium will be held in Perth, Western Australia on July 11, to coincide with the World Conference on Science and Technology Education. The theme of the regional symposium is Science and Technology in Rural Schools.

The half-day symposium, organized by Peter Fensham and Debra Panizzon will feature presentations on the recent SIMERR National Survey of rural education, as well as from rural science and ICT teachers from New Zealand, Australia and Papua New Guinea.

Other Conferences

World Conference on Science Education

The World Conference on Science and Technology Education will be held from July 8-12, 2007 in Perth, Western Australia. Details can be found at

<http://worldste2007.asn.au/>

Three conferences will be associated with the event:

ICASE 2007

CONASTA 56 (Conference of the Australian Science Teachers Association)

CONSTAWA (Conference of the Science Teachers' Association of Western Australia).

Deadline for abstracts has closed.

ASERA

The Conference of the Australasian Science Education Research Association is also being held in Fremantle, Western Australia from July 11-14, 2007. This will allow delegates to attend both the WorldSTE2007 and the ASERA Conferences.

The ASERA website is:

www.education.ecu.edu.au/conferences/ASERA/

Deadline for Abstracts is April 13, 2007.

If you would like your conference, article or other STE activity mentioned in the May 2007 edition of the IOSTE newsletter, please send details to terry.lyons@une.edu.au

'... inspirational and rigorous teachers in high school who engendered an insatiable intellectual hunger for factual knowledge, and who encouraged observation and deductive thinking.'
 - Professor Michael Wilson, on what inspired him to become a scientist? (in What Inspired You?)

Conferences (continued)

ESERA 2007

The biennial conference of the European Science Education Research Association will be held at Malmö University, Malmö Sweden, August 21-25, 2007. The new conference website is www.mna.hkr.se/~ll/eseraconf/. Deadline for proposals is Jan 8, 2007.

SAARMSTE

The 15th annual conference of the Southern African Association for Research in Mathematics, Science and Technology Education will be held at Eduardo Mondlane University and Pedagogical University, Maputo, Mozambique January 9-12, 2007. Details at www.wits.ac.za/SAARMSTE/index.htm. Deadlines for this conference have closed. Thanks to Moira Keane for this information.

NICE Symposium, Taipei

The 2nd NICE (Network for Inter-Asian Chemistry Educators) Symposium will be held July 30-31, 2007 at the National Taiwan Normal University, Taipei. Deadline for submission of papers is May 15, 2007. Details of the symposium can be found at <http://science.gise.ntnu.edu.tw/nice2007/index.htm>. Thanks to Shu-nu Chang for this information.

ISATT, Ontario

The 13th Biennial Conference of the International Study Association for Teachers and Teaching (ISATT) will be held at Brock University, July 5-9, 2007, St. Catharines, Ontario, CANADA (close to Niagara Falls). The ISATT 2007 conference is entitled, "Totems and Taboos: Risk and Relevance in Research on Teachers and Teaching". Details of the Call for Papers can be found at <http://www.ed.brocku.ca/isatt2007/callforpapers.html>. Thanks to Xavier Fazio for this information.

STS news clearinghouse

Thanks to various IOSTE members for the following news briefs from around the world.

USA looks to Asia to boost grades in math, science (June 2006)

"There are grave concerns in the United States about the quality of math and science education in American schools," said a new report by experts at Asia Society, a US-based institution striving to bridge the US-Asia gap. It outlined key ways in which China, and East Asia more broadly, have been successful in producing higher student achievement in math and science and underlined US "need to benchmark best practices wherever we can find them." The full article can be viewed at www.internationalead.org/news.htm

What Inspired You?

Spiked & Pfizer

This is a fascinating overview of the results of a survey of famous scientists about what initially inspired them to take up science. The most common influence was a good teacher or mentor. This is a great resource for lecturers of pre-service science students. Available online at www.spiked-online.com/index.php?/site/article/1569/

UNESCO teams up with BBC to supply science programmes to developing countries

(UN News, 22 September 2006)
 "Developing nations in Africa and Asia will receive high-quality television programmes on science and technology under a Memorandum of Understanding signed today between the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the British Broadcasting Corporation (BBC)."
 The full article can be viewed at <http://www.un.org/apps/news/story.asp?NewsID=19976&Cr=UNESCO&Cr1>

STS news clearinghouse (cont.)

India - Science takes back seat for talented school students: survey

(*The Hindu*, August 12, 2006)

"A minuscule 3.6 per cent of talented students opt for science after school as other disciplines offer more in terms of material gains, a survey conducted by the Indian National Science Academy (INSA) says."

The full article can be viewed at <http://www.hinduonnet.com/thehindu/holnus/002200608121021.htm>

Teach science for science's sake: Replacing physics, chemistry and biology with lessons in 'scientific literacy' will make children more wary of science in general.

(*Spiked*, 15 August 2006)

"Recently, the Belfast newspaper the Irish News ... devoted three pages to the decline of traditional science in schools. The new GCSE courses starting next month will use multiple-choice tests to account for between 75 and 60 per cent of the marks awarded. There is little support for this move ... according to Jonathan Osborne, professor of science education at King's College London." The full article can be viewed at www.spiked-online.com/index.php?/site/article/1484

Scotland. Can skies attract more to science?

"Stargazing is the latest subject to be offered to pupils across Scotland as part of an initiative to encourage more young people to take up science subjects...The drop (in enrolments) follows warnings that the science curriculum in Scottish schools is out of touch with the needs of the modern world."

The full article can be viewed at <http://www.theherald.co.uk/news/75889.html>

University physics declining as student numbers fall and departments shut

(11 August 2006)

"In a report published today, Professor Alan Smithers and Dr Pamela Robinson of the Centre for Education and Employment Research at the University of Buckingham show that since 1982 A-level physics entries have declined from 55,728 in 1982 to 28,119 in 2005 (by 49.5 per cent). The full article can be viewed at www.buckingham.ac.uk/news/pressreleases/2006/ceer-physics-2.html

African science: Now is the time to deliver

(Science and Development Network, 19 June, 2006)

"Next January, the heads of member states of the African Union will meet to discuss science and technology in what will be a unique opportunity to support the continent's scientific renaissance." The full article can be viewed at www.scidev.net/Editorials/index.cfm?fuseaction=readEditorials&itemid=193&language=1

Islam and Science: The data gap

(*Nature*, November 1, 2006)

"The Islamic world encompasses remarkable diversity in political systems, geography, history, language and culture. But science in these nations is weak, with spending on research and development far lower than the global average. This much is acknowledged to be true, but what of the details behind the broad picture?"

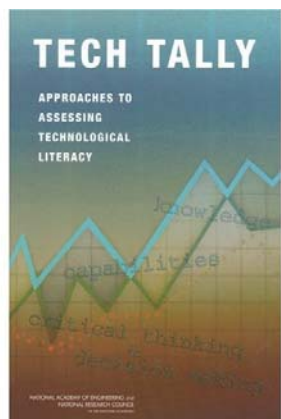
The full article can be viewed at www.nature.com/news/2006/061030/full/444026a.html

'Stargazing is the latest subject to be offered to pupils across Scotland as part of an initiative to encourage more young people to take up science subjects'

Hot off the presses

Tech Tally: Approaches to Assessing American's Technological Literacy and Video Games as Educational Tools

National Academy of Engineering and National Research Council



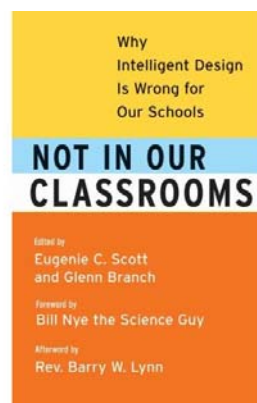
Contributed by Lee Yuen Lew,
IOSTE Regional representative for
North America,
Long Island University, NY
leeyuen.lew@liu.edu

Hot from the press is "*Tech Tally: Approaches to Assessing Technological Literacy*", published by the National Academic Press of America. This 358 page hardback (2006) is the final product of a two-year study by the Committee on Assessing Technological Literacy, a group of experts on diverse subjects under the auspices of the National Academy of Engineering, National Research Council. A key finding of the report was that no one really knows the level of technological literacy among people in the United States. Although many concerns have been raised that Americans are not as technologically literate as they should be, these statements are based on general impressions with little hard data to back them up. The report will be of special interest to individuals and groups promoting

technological literacy (e.g. museums, industries, media outlets) which will benefit from a more technologically literate public. The Executive Summary can be read online and downloaded free from the website of the National Academic Press (NAP), www.nap.edu. The full report and individual chapters can be downloaded as PDF files for a fee, and the entire report can be ordered in hard copy from NAP.

Not in our classrooms: Why Intelligent Design is Wrong for our Schools.

Edited by Eugenie C. Scott and Glenn Branch



This book from the National Center for Science Education (www.natcensci.org/) argues that intelligent design (ID) and other forms of creationism should not be taught in science classes in America's public schools, for both pedagogical and legal reasons. In a series of essays, the book sets out to give readers an understanding of what is at stake in the evolution versus intelligent design debate, and provide them with rational arguments to use in understanding and countering the claims of ID promoters. Whatever your view of the ID debate, this book is a timely resource for science educators, parents and the general public.

"If you're concerned about scientific literacy, read this book. The authors of Not in our Classrooms are authorities on the various battles fought over the teaching of evolution – biology's fundamental discovery."

-Bill Nye the Science Guy

Featured Article

Science education saves lives

Nelio Bizzo
Faculty of Education,
São Paulo University
bizzo@usp.br

Methods and procedures for field management of venomous snakebites before arrival at the medical facility are part of the science curricula in many countries of the world. In Brazil, many science textbooks provided misleading information, such as wounding the victim with multiple incisions and subsequent suction of the blood, and the use of a tourniquet. After an assessment of science textbooks carried out by the Ministry of Education such errors were banned from science textbooks. The number of casualties from snakebites declined in the subsequent years in Brazil, official health statistics recently revealed.

Science Textbooks

It may seem unbelievable, but the same science textbook that brought information about the danger of direct contact with blood, for the high risk of disease transmission (AIDS, hepatitis, etc), brought information about the "safety" of "drinking" somebody else's blood with snake poison. Students were taught how harmless snakes' venom is in human digestive system (this is actually true).

In 1995 publishers were invited to submit science textbooks for official assessment, as a qualifying step prior to sales to public schools, aimed at 35 million students, all over the country (including rural areas). However, many of them were criticised as several problems were found. Some advised incorrect first aid instructions, especially for snake bites. In a tropical country like Brazil, this is a very important issue. The official results were published in June 1996, with a major public reaction, which included newspaper front pages and nationwide TV news giving notice of the incorrect

procedures that were taught in all Brazilian schools (see Bizzo, 1996). In the period 1990-1993 there were 81,611 snakebites officially registered in the country. The real number may be much higher, as compulsory notification is frequent only when the victim seeks medical assistance. In fact, over 97% of the recorded victims were involved in venomous snakebites.



Fig 1- Image taken from a Brazilian science textbook published in 1994. Notice the snakebite, the tourniquet and a nail in the bare hand of the help-mate. The nail is at least 10 cm long and at least 16 incisions in the victim's legs can be figured out surrounding the snakebite (actual picture taken from a science textbook)

Historical Origins

In the years 1927-8 experiments were carried out in San Antonio (Texas), indicating that dogs injected with *Crotalus atrox* (Texas rattlesnake) venom could recover with incisions and blood suction. In fact, these results greatly influenced practices in the United States, though later studies did not confirm the effectiveness of this method. For many years, the standard of medical practice in the United States followed the recommendations of an American panel of venomous snakebite authorities in 1960, which included incision, suction and constricting band. These recommendations were repeated in 1979, by the American *National Research Council of the National Academy of Sciences*, in a report prepared for the *American Red Cross* (see Hardy, 2003). Brazilian recommendations seem to derive from these

Now it is well established that these practices are not recommended, and

"the same science textbook that brought information about the danger of direct contact with blood, for the high risk of disease transmission (AIDS, hepatitis, etc), brought information about the 'safety' of drinking somebody else's blood with snake poison"

it is very likely that the effects are different from those expected. In some cases (and in some countries), if signs and symptoms are severe, a lymphatic constriction band can be recommended. This is the case for elapid accidents. However, a lay-person seldom can perform such constriction without a high risk. Progressive swelling can turn a constriction band into a tight tourniquet, with severe consequences, as amputations and pulmonary thromboembolism (see Hardy, 2003).

Less than 7% of the venomous snakebites in Brazil involve rattlesnakes (genus *Crotallus*), what means that even if the experiments from 80 years ago were considered valid today (which is not the case), those practices would still not be applicable to Brazilian snakebites. In fact, some 92% of bites involve another genus (*Bothrops*), with a much lower mortality and very different effects. Application of tourniquet in such cases brings a severe worsening to the victim's general state.

Mortality Of Victims Of Snakebites In The Period 1993-1999

It is not easy to know the real number of casualties caused by snakebites in a huge country such as Brazil. In rural setting snakebites can be treated in a number of ways. If help is provided as Figure 1 suggested, the victim would probably die from hemorrhagic consequences, infection or thromboembolism, with probable lack of reference to the primary cause, the original snakebite. In 1991 a well-documented tragedy occurred in a Brazilian school in a town called Andradina (SP). A student suffered a snakebite in school and management followed textbook procedures, which included use of a tourniquet. The young man died soon after, apparently from tourniquet release consequences. In fact, major problems in hospitals are not only those that follow snakebites themselves, but also associated injuries as consequence of improper field management.

In order to know what happened in the period in which correct science textbooks were distributed all over the

country, a reliable database can reveal the tendency in the period. Casualties which occurred in hospitals as a consequence of snakebites are well documented, and there is a clear tendency (Figure 2).

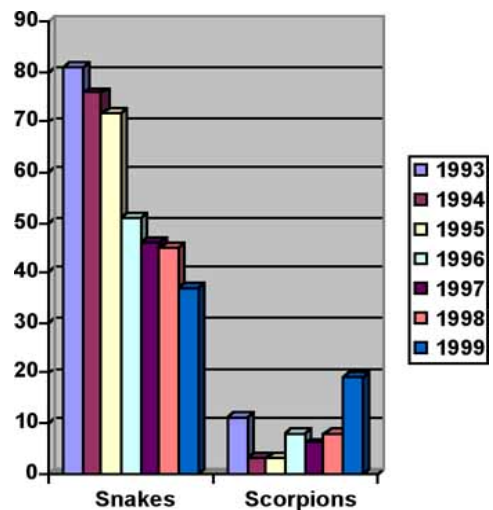


FIG2 - Casualties from snakebites (left) and scorpions (right) registered in Brazilian hospitals in the period 1993-1999. Absolute numbers, without correction of population growth. (DATASUS-SIH)

In the years 1985-6 several people died in Brazil as consequence of lack of specific anti-venoms in medical facilities. After the public repercussion of those dramatic casualties a new national policy was established, which included compulsory notification, and anti-venom production and distribution plans. The Brazilian policy (called "*Programa Nacional de Ofidismo*") resulted in a strong decrease of the death rate of snakebites, in the period 1986-1994, when a stable level was achieved (Cardoso and Wen, 2003), around 110 deaths per year in the country. In the years 1993-5 a mean of 75 of these deaths occurred inside hospital facilities. Compared with the situation that can be seen in the years 1996-1999 in the same database, we can figure out a mean around 45 deaths per year. In other words, there is a significant reduction in the mortality (almost 50%), which is consistent with the hypothesis of change of field

management procedures. Especially in the cases of *Bothrops* snakebites, which are almost 92% of the total in Brazil, these changes could explain a lower death rate. They could possibly have been brought by the repercussion of nation wide broadcasted news about wrong first aids for snakebites in science textbooks. Interestingly, accidents with scorpions do not show the same tendency (Fig. 2). We are carrying out a survey in order to test other hypotheses, which could possibly explain such reduction. Changes in field management could be a consequence of the massive change of science textbooks all over the country. Since 1996 they recommend to move the victim as soon as possible to a medical facility, to put at rest the affected extremity, to decrease physical exertion in any possible way, and by no means hurt the victim with incisions or tourniquet. Science education can play

a major role, bringing to light local contexts and the population's real needs.

Bibliographical Notes

- BIZZO, N., 1996. Graves Erros de Conceito em Livros Didáticos de Ciência. *Ciência Hoje*, 121 (21):26-35, (Junho), (1996)
- HARDY, D.L., 2003. Alternatives in the Field Management of Venomous Snakebites. Pp 402-416 IN Cardoso et alii *Animais Peçonhentos no Brasil*. São Paulo, Ed. Savier & FAPESP (2003).
- CARDOSO, J.L.C, and F.H Wen, 2003. Introdução ao Ofidismo. Pp 3-5 IN Cardoso et alii. *Animais Peçonhentos no Brasil*. São Paulo, Ed. Savier & FAPESP (2003).

Science and Technology Education in the Regions

Central & Eastern Africa

In Part Two of Jane Mulemwa's report on the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA), she suggests five ideas to guide activities of the Centre.

1. Identification of Projects and Programmes

There are many, albeit piece-meal initiatives in the form of research works, projects and programmes that have been tried out and/or are under implementation in the different countries of Africa, all aimed at improving participation and performance in SMTE. In addition, there are regional organizations, associations and networks that endeavour to address similar issues. These include the "African Forum for Children's Literacy in Science and Technology" (AFCLIST), the African Academy of Sciences (AAS) and the "South African Association for Research in Mathematics, Science and Technology Education" (SAARMASTE). CEMASTE needs to

learn from such initiatives and then develop appropriate training and realistic interventions and programmes.

2. Collection, Development and Distribution of Materials

As a training center, CEMASTE needs to identify and make a collection of existing curricula materials, policies, pertinent projects and programmes from different countries, as reference materials training and researchers. In addition, the development of materials should be a vital part of the programmes offered so as to train the participants in school-based curriculum and materials development. The center then needs to identify strategies of disseminating information and distributing materials to the different countries of Africa. It should also develop mechanisms of receiving a critical feedback on its programmes and materials it develops.

"the majority of the relatively few students at secondary school levels do not take science-based courses. The result is that, at University levels, the ratio of Sciences: Arts students is about 1:5 in many African countries, and hence there are hardly any personnel qualified enough to participate in SMT-based endeavour and development"

3. Linkage of SMT/SMTE to Societal Needs and Aspirations

While SMT/SMTE is often referred to as a cornerstone to development, the majority of the people in Africa are not sensitized enough to see the urgent need for the pursuance of studies in these fields. For instance, the majority of the relatively few students at secondary school levels do not take science-based courses. The result is that, at University levels, the ratio of Science to Arts students is about 1:5 in many African countries, and hence there are hardly any personnel qualified enough to participate in SMT-based endeavour and development. Consequently, African countries have the great challenges of not only making SMT/SMTE a vital part of their national agendas, but also the provision of resources for appropriate implementation. Therefore, the center could assist this process by sharing and disseminate specifically developed and focused materials that clearly bring out these linkages. It could also develop different frameworks of possible ways of streamlining SMT/SMTE into national curricula and development agendas and multi-faceted approaches to achieving the stated objectives. Such frameworks would help in stimulating in-depth analysis, a strategy that is more likely to result into faster adoption and/or adaptation of such materials for use in the different countries or the development of new materials for this purpose.

4. Research Work and Utilization

As clearly stated in the functions of the CEMASTEIA, this center cannot become a Center of Excellence for SMTE in the region without a very strong focus on appropriate research work and development. It needs to identify key areas for research whose results would directly feed and contribute to the development of SMT-literacy and

good quality SMTE to hasten the development and productivity of African countries. Moreover, it is vital that the center focuses more on action-research that develops and improves as it is being carried out, not only for cost-effectiveness, but even more importantly, for fast realization of stated objectives. Some key areas for research that in my view cut across all African countries include:

- Methods of teaching resource-constrained large classes, coupled with learning under such conditions;
- Assessment of higher lever Cognitive Abilities of Application, Analysis, Synthesis, and Evaluation, as well as the Psychomotor and Affective abilities in the Examination-driven systems of education that prevail in most of the African countries.
- Linking educational institutions to Industry not only for support in terms of resources for these institutions, but even more importantly, for ensuring that the education provided meets the requirements of the job markets.

In carrying out such research, emphasis should be placed on the minimization or elimination of major disparities in Africa, the major ones for Africa being gender and equity and the rural-urban divide. In addition, the center needs to encourage the vital relationship between those with the knowledge of indigenous science and technology and the SMT/SMTE practitioner and researcher, so that theories of development and policies that are appropriate to the African context can emerge, be developed and disseminated.

One of the ills that seems common to many African countries is the lack of utilization of research finding, despite large expenditures and even commissioned work. Since

the center has to have a strong research focus, it could also develop an aspect as a “demonstration center” for the utilization and implementation of research findings and recommendations, where appropriate.

5. Staffing and Sustainability for the Center

The information I accessed on the web indicated that the center currently has 62 Kenyan and 6 Japanese academic staff and 35 administrative staff. While I do not have the details of the roles of the administrative staff, it seems to me that a ratio of 2:1 of academic to administrative staff in a training center appears rather high. A possible explanation might be that the center houses several secretariats. However, even with such an explanation, it is important, in my view, that as the center grows, both its focus of training and its regional nature be reflected in its numbers and origin of its staff. Personnel with appropriate expertise as trainers, practitioners, and researchers in SMTE and policy development should be recruited from different countries for the activities.

Lastly, but most importantly, the center needs to come up with different ways of mobilizing financial and other resources for the sustainability of its staff and activities. Efforts must be made to involve member countries and modalities worked out to ensure their contributions on a regular and timely basis. This will not only minimize dependency on donors and development partners, but even importantly, it will ensure ownership and better sustainability of this vital center for Africa.

Jane N. Mulemwa
IOSTE Regional Representative,
Central and East Africa
Education Service Commission,
Uganda.
mulemwa@utlonline.co.ug

South America

IOSTE officially supported the XI Brazilian Planetary Association Annual Meeting, held in November (see <http://www.modelab.ufes.br/planetaris> or www.modelab.ufes.br/planetaris

(sorry, Portuguese version only). Present at the meeting was Martin George, President of the International Planetary Society (<http://www.ips-planetarium.org>). Martin George is the Curator of the Launceston Planetarium at Queen Victoria Museum in Launceston, Tasmania, Australia. I attended a round table on Infusion of Image Technology into Modelling and Visualisation talking about Scientific Visualization in Science and Technology Education. The focus of my presentation was on the need for a systematic investigation of planetary education related issues as a means of reaching funds for developing the activities and research about the related topics.

Laercio Ferracioli
IOSTE Deputy Chair
Federal University of Espirito Santo
BRAZIL
laercio@npd.ufes.br

Central and Eastern Europe

The 5th IOSTE symposium for this region was held at the University of Tartu in Estonia between November 8 and 11. The theme of the symposium, chaired by Miia Rannikmäe with help from Anne Laius and Moonika Teppo, was ‘Europe needs more scientists: The role of Eastern and Central European science educators’. Highlights of the symposium included keynotes from Prof. Svein Sjøberg from the University of Oslo and Prof. Onno de Jong from University of Utrecht, among others. Sub-themes included:

- teaching strategies for promoting problem-solving and socio-scientific reasoning skills;
- promoting personal and social values in a science education context;
- the nature of relevant science education;
- Assessment for promoting scientific literacy; and
- ICT in science education

Photos from the symposium can be found at www.ut.ee/BG/ioste/pics.php

Miia Rannikmäe
Tartu University
miia.rannikmae@ut.ee

About IOSTE

The International Organization of Science and Technology Education (IOSTE), founded in 1979, identifies science and technology education with the real and changing needs of humankind as a whole and with specific needs of its component communities and nations. IOSTE wants to continue to strengthen its tradition and considers that S&T education should:

1. highlight S&T education for citizenship and for informed, critical, and active participation in democracy;
2. stress the relationship between science, technology and society;
3. emphasize the cultural and human values of S&T;
4. promote equity in S&T and S&T education;
5. advance S&T education for a just and sustainable development and consider how S&T education can contribute to the fight against poverty, discrimination and injustice;
6. encourage the peaceful and ethical use of S&T in the service of humankind;
7. encourage cultural diversity and international understanding through S&T education;
8. stimulate international collaboration in the domains of research and development and promote cooperation with other international organizations.

The International Organization for Science and Technology Education (IOSTE) is an organization comprising individuals with the common aim of advancing the cause of education in science and technology as a vital part of the general education of the peoples of all countries. Such education should include knowledge of the fundamental concepts of science and technology, the development of scientific and technological creativity, and awareness of the interrelations of science, technology and society.

A reflective account of the 25 year history and philosophy of IOSTE by the organization's first Chair, Charles McFadden, can be found at www.unbf.ca/education/ioste.html Professor McFadden notes that "from the outset, IOSTE's organizational structure, based on regional representation, has ensured a distribution in its leadership across all regions of the globe." Below is a list of IOSTE board members elected in August 2006.

Current Executive members of IOSTE

Chairperson

Terry Lyons
University of New England,
Australia
terry.lyons@une.edu.au

Deputy Chairperson

Laercio Ferracioli
Federal University of Espirito Santo,
Brazil
laercio@npd.ufes.br

Secretary/Treasurer

Angela James
University of KwaZulu-Natal,
South Africa
jamesa1@ukzn.ac.za

Past Chairperson

Nelio Bizzo
Sao Paulo University,
Brazil
bizzo@usp.br

Forthcoming Symposium Organizers

Teoman Kesercioğlu
Bulent Cavas
Dokuz Eylul University, Turkey
cavasbulent@yahoo.com

Past organizer IOSTE XI

Suan Yoong
Universiti Sains Malaysia
yoongsuan@yahoo.com

**Regional representatives on the
Committee of IOSTE**

West Africa

Ishmael Anderson
ishkandy@yahoo.com

East and Central Africa

Jane Mulemwa
mulemwa@utlonline.co.ug

Southern Africa

Moyra Keane
keanem@science.wits.ac.za

**Arab Countries and
South West Asia**

Mohammed Reza Behrangi
Behrangi@saba.tmu.ac.ir

South East Asia

SharifaSyed Idros
snsi@usm.my

South Asia

Jayshree A. Mehta
satwac@gmail.com

Far East Asia

Shu-Nu Chang
shunu@ms3.url.com.tw

South West Pacific

Beverley Jane
Beverley.Jane@Education.monash.edu.au

West and North Europe

Svein Sjøberg
svein.sjoberg@ils.uio.no

Southern Europe

Pierre Clement
pclement@univ-lyon1.fr

Eastern and Central Europe

Vincentas Lamanauskas
vincentas@osf.su.lt

South America

Eduardo Galembeck
eg@unicamp.br

North America

Lee Yuen Lew
leeyuenlew@hotmail.com

Central América

Xavier Fazio
xavier.fazio@brocku.ca

IOSTE membership

Registration

Membership of the International Organization for Science and Technology Education is open to all who subscribe to its Constitution. The fee for membership is US\$20.00 and covers the period between two symposia.

Inquiries about membership can be sent to the Secretary of IOSTE:

Angela James
School of Science, Mathematics and
Technology Education
University of KwaZulu - Natal
(Edgewood campus)
Private Bag XO3, Ashwood, 3605
South Africa
jamesa1@ukzn.ac.za



From l to r. XII IOSTE Symposium organizer Suan Yoong; Bill McIntyre and Nadaraj Govender in Bill & Fred's excellent adventure; Horst Bayruber, Miia Rannikmae, Jayshree Mehta, Peter Fensham and Glen Aikenhead meet Chief Minister of Penang, Dr Koh Tsu Koon and Dean of Education Dr. Abdul Rashid Mohamed; Svein Sjøberg and the Norwegian delegation. Thanks to Suan, Laercio and Svein for the photos.