

**INTERNATIONAL WORKSHOP ON SCIENCE CENTRE IN PROMOTING A
KNOWLEDGE AND INNOVATIVE SOCIETY FOR SUSTAINED AND
RESPONSIBLE GROWTH IN DEVELOPING COUNTRIES**

Kuala Lumpur, Malaysia
11-14 October 2010

***PARTICIPATING COUNTRIES:* 25 Developing Countries (Including 18 Member Countries, 7 Non-member Countries)**

***NUMBER OF PARTICIPANTS:* The Workshop was attended by 34 overseas participants from 24 countries and 32 scientific papers were presented in five Technical Sessions**

The entire world is investing on capacity building in science, which has become a major prerequisite for the development of any nation. Creation and continuous development of such capability is extremely important particularly for the countries transiting from resource-based to knowledge-based economy. Throughout the developing world, the role of science centres is being recognised by the governments, which are ascribing an explicit identity to it in the formulation of national growth policies by supplementing the formal science learning system with a non-formal approach, thus empowering the society through awareness programmes. Science centres and science museums all over the world have consciously joined hands in the effort to enhance scientific literacy and awareness among the people at large. Of course, youth is the primary target and one of the highly effective ways to make young students interested in science and career in science is to expose them to an easily accessible non-formal science learning ambience where they have the opportunity to do science with their own hands, learn to put questions and discover the scientific principles involved all by themselves. A science centre makes such a learning ambience by offering experiences in science that go deep into young minds to inculcate in them a spirit of inquiry – the fundamental gateway to a scientific attitude. Therefore science centres are important agents to introduce to the students the taste and thrills of science at an early age. These play a major role in taking the messages of science and technology to the people through numerous in-house and outreach science

awareness programmes with direct participation of various sections of the society and bring forth a scientific temper and logical attitude among the masses.

In order to deliberate on these issues, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with the National Science Centre, Ministry of Science, Technology and Innovation (MOSTI), Malaysia organised a 4-days International Workshop on “Science Centre in Promoting a Knowledge and Innovative Society for Sustained and Responsible Growth in Developing Countries” at Kuala Lumpur, Malaysia during 11th-14th October 2010.

The Inaugural Session of the workshop commenced with the Welcome Remarks by Assoc. Prof. Dr. Irmawati Ramli, Director, National Science Centre of Malaysia, that were followed by an Introduction to the Workshop by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre highlighting the background of the event, the role being played by the Centre in promoting South-South cooperation in various scientific areas and specifically in the context of issues related to the role of science centres in promoting a knowledge and innovative society in developing countries. The workshop was formally inaugurated by Hon. Prof. Datin Paduka Dr. Khatijah M. Yusoff, Deputy Secretary General (Science), Ministry of Science, Technology and Innovation (MOSTI) of Malaysia. Prof. Yusoff also read a welcome address by Hon. Datuk Seri Dr. Maximus Johnity Ongkili, Honourable Minister of Science, Technology and Innovation of Malaysia, who could not join the Inaugural Session due to prior commitment. Congratulating the NAM S&T Centre for having the foresight in recognising the need to evaluate, update and expediting the current roles of science centres so that they continue to play their unique role as a vehicle for promoting public awareness, but more importantly, as agents of change in shaping the minds and attitudes of society towards S&T, the Minister noted that in the 21st Century, knowledge is realised as a critically necessary yet insufficient condition to move into the developed nations’ status and in addition, one needs innovation, insight and foresight. Science is based on a need to know, the why and the how based on observations which are quantifiable and verifiable, hypotheses which are testable and conclusions which are objective and data-based. The need to know requires curiosity, the need to solve requires creativity, imagination and resourcefulness. Schools and formal education play their part, yet science centres have an

important role to play in encouraging curiosity and creativity. In this age of free communication and expanded access to information, one needs to go beyond belief and should not be anxious about questioning long-held opinions and beliefs. Malaysia without hesitation or doubt stands in full support of these efforts and will be honoured and privileged to help the fellow NAM members in the process of establishing their own science centres. The other persons present on the podium were YM Ms. Tengku Nasariah Tengku Syed Ibrahim, General Manager and CEO of Petrosains and Mr. Syed Abu Bakar Bin Syed Hassan, Under Secretary, Science & Technology Core Division, MOSTI.

Twenty four countries, namely, Cambodia, India, Indonesia, Iran, Iraq, Japan, Kenya, Kuwait, Libya, Malawi, Mauritius, Mexico, Myanmar, Nepal, Pakistan, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Uganda, the U.K., Vietnam, Zambia and the host country Malaysia participated in the workshop. There were 35 overseas participants, from Cambodia [Mr. Sok Chea, Chief of S&T Office, Ministry of Industry, Mines and Energy], India [Mr. Ingit Mukopadhyay, former Director General, National Council of Science Museums (NCSM); Mr. Raju Manigandan, Project Coordinator, North Bengal Science Centre, NCSM; Mr. Chander Mohan, Director and Chief Executive, Science Express, Department of Science & Technology (DST), Government of India; Mr. Gulshan Kharbanda, Head & Proprietor, Wide-Aids; and Mr. Basudev Prasad Purohit, Project Officer, Uttarakhand State Council for Science & Technology], Indonesia [Mr. Hendra Suryanto, Head of Operation Division, Science and Technology Center], Iran [Dr. Alireza Ghorban Ali Allahyar, Director of Entrepreneurship, Iranian Research Organization for Science and Technology (IROST); Dr. Mohd. Hassanzadeh, Head, Popularization of Science Department, National Research Institute for Science Policy (NRISP); and Dr. Akram Ghadimi, Faculty Member, NRISP], Iraq [Prof. Dr. Abbas Hamid Abid Ali Sulaymoon, Head of Environmental Engineering Department, College of Engineering and Prof. Dr. Thamer Khazaa Al-Ameri, Head of Petroleum Studies Unit, College of Science, University of Baghdad], Japan [Mr. Hideo Nakano, JICA Senior Volunteer, Japan International Cooperation Agency], Kenya [Ms. Christine Njeri Kamau Kariuki, Chief Research Officer, Ministry of Higher Education, Science & Technology (MoHEST)], Kuwait [Dr. Sameer Al-Zenki, Scientist, Food Resources Division, Biotechnology Department], Libya [Mr. Ali Matous and Mr. Shokri Khalifa, National

Authority for Scientific Research], Malawi [Mr. Patrick Mphadzula, Principal Science and Technology Officer, Department of Science & Technology], Mauritius [Ms. Kamudu Bhamini, Resource Officer, Rajiv Gandhi Science Centre], Mexico [Dr. J. Ruben Lara-Lara, Center for Scientific Research and Higher Education], Myanmar [Dr. Thant Zin Soe, Deputy Director, Department of Technical and Vocational Education], Nepal [Prof. Surendra Raj Kafle, Vice-Chancellor, Nepal Academy of Science & Technology], Pakistan [Mr. Muhammad Akhter Javed, Sr. Operational Manager, Pakistan Museum of Natural History (Pakistan Science Foundation)], South Africa [Mr. Faivey David Kramer, Chief Executive Officer, The Sci-Bono Discovery Centre], Sri Lanka [Mr. K.G. Janaka Karunasena, Scientific Officer, National Science Foundation], Sudan [Dr. Mohammed Elimam Ahamed, Scientific Researcher, Sudan Atomic Energy Commission], Tanzania [Dr. Dugushilu Mafunda, Principal Research Officer, Tanzania Commission for Science & Technology], Thailand [Dr Janchai Yingprayoon, Past President, International Council of Associations for Science Education (ICASE)], Uganda [Mr. Richard Tushemereirwe, Senior Private Secretary to the President], U.K. [Mr. Stephen Pizzey, Science Museum, London and Mr. Ian Russel, Interactive Science Ltd.] Vietnam [Ms. Ngo Thi Loan, Vice Director, Centre for Regional Research & Development and Ms. Trieu Thi Bao Hoa, Official, Ministry of Science & Technology], Zambia [Mr. Chipu M Simunchembu, Director, Copperbelt Museum, National Museums Board (Science and Technology)] and a representative from the NAM S&T Centre [Ms Chitra, Research Scientist]. In addition, there were 53 participants from the host country, Malaysia.

Thirty two scientific papers were presented in 5 interactive sessions. While most of the programme was held at the National Science Centre, the session on the second day was organised at Petrosains, Kuala Lumpur City Centre (KLCC). The interactive sessions were moderated by Mr. Ian Russel; Assoc. Prof. Dr. Mohd. Fauzi Zakaria of the Centre of Excellence for Environmental Forensics and, Universiti Putra Malaysia (UPM), Malaysia and Mr. Ingit Kumar Mukhopadhyay; YM Ms. Tengku Nasariah Tengku Syed Ibrahim, General Manager and CEO of Petrosains, Malaysia; Mr. Janchai Yingprayoon; and Dr. Ms. Phyllis Lam Li Wan, Chief Assistant Director, National Science Centre, Malaysia and Mr. Stephen Pizzey.

The keynote addresses were given by Mr. Ingit K. Mukhopadhyay on ‘Empowering the Society for National Growth: The Non-Formal Approach by Science Centres’; Mr. Ian Russel on ‘The Value of Simple Exhibits: Balancing Free Exploration and Creativity with ‘Directed Learning’; Assoc. Prof. Dr. Mohamad Pauzi Zakaria on ‘Environmental Forensic - From Science to Action!’; Mr. Stephen Pizzey on ‘The Impact of Small Science Centres’; and Dr Janchai Yingprayoon on ‘Inspiring Science at Home’.

The scientific presentations by foreign delegates were on ‘Country Report on Science Centres in Cambodia’ by Mr. Sok Chea [Cambodia]; ‘Science Express- Journey Extraordinaire’ by Mr. Chander Mohan [India] ; ‘Country Report on Science Centres in India’ by Mr. Gulshan Kharbanda [India]; ‘Is the Science Centre Movement Essential and Relevant in Developing Countries such as India?’ by Mr. Raju Manigandan [India]; ‘Concept of Science Centre at Dehradun, the Mountainous Capital of Uttarakhand: In the Pursuit of Awareness and Popularization of Science in Uttarakhand Vis-à-Vis in India’ by Mr. Basudev Prasad Purohit [India]; ‘Science and Technology Center Indonesia and the Development of Science Centers across Indonesia’ by Mr. Hendra Suryanto [Indonesia], ‘Thirtieth Anniversary of the Ratified of the Iranian Research Organization for Science and Technology (IROST) and its Role for the Development of the Nation’ by Dr. Alireza Ghorban Ali Allahyar [Iran]; ‘Science Centres and Popularization of Science’ by Dr. Akram Ghadimi [Iran]; ‘Role of Science Centres in Popularisation of Science’ by Dr. Mohd. Hassanzadeh [Iran], ‘Science Popularisation through Low-Cost and Locally Available Materials’ by Mr. Hideo Nakano [Japan], ‘Popularization of Science and Technology: Status of Science Centres in Kenya’ by Ms. Njeri Kamau Christine [Kenya], ‘Country Report on Science Centre in Kuwait’ by Dr. Sameer Al-Zenki [Kuwait], ‘Science Centre, a Cost Effective way to increase the Human Capacity in Science and Technology for Sustainable Socio-Economical Development’ by Mr. Patrick Mphadzula [Malawi], ‘Science Awareness for a Sustainable Mauritius’ by Ms. Kamudu Bhamini [Mauritius], ‘Consortium of Science and Technology for Sustainability’ by Dr. J. Ruben Lara-Lara [Mexico], ‘Science Centre in Promoting a Knowledge and Innovative Society for Sustained and Responsible Growth in Developing Countries: Country Report for Myanmar’ by Dr. Thant Zin Soe [Myanmar], ‘Country Report on Science Centres in Nepal’ by Prof. Surendra Raj Kafle [Nepal], ‘Voice of Science Promotion in Pakistan’ by

Mr. Muhammad Akhter Javed [Pakistan], 'Taking Charge of Change- How Much Can a Science Centre Achieve' by Mr. Faivey David Kramer [South Africa], 'Country Report on Science Centres in Sri Lanka' by Mr. K.G. Janaka Karunasena [Sri Lanka], 'Sudan Atomic Energy Commission: Scientific Services and its Role in the Development of Sudan' by Dr. Mohammed Elimam Ahamed [Sudan], 'Establishment of a National Science Center in Tanzania: Challenges and Opportunities' by Dr. Dugushilu Mafunda [Tanzania], 'Country Report on Science Centre in Uganda' by Mr. Richard Tushemereirwe [Uganda], 'Science and Technology Propaganda in Vietnam' by Ms. Ngo Thi Loan assisted by Ms. Trieu Thi Bao Hoa [Vietnam], 'The Development and Role of National Science Centre and Science and Technology Museum in Zambia' by Mr. Chipom Simunchembu [Zambia] and 'Popularisation of Science through Non-formal Education in India' by Ms Chitra [NAM S&T Centre]. Among the Malaysian speakers Dr. Ms. Phyllis Lam Li Wan spoke on 'Nurturing a Creative & Innovative Society: National Science Centre in Action'. A presentation was also made by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre on 'the Genesis and Activities of the NAM S&T Centre in Promoting South-South Cooperation in Science and Technology'. A programme was showcased on 'Nurturing Innovation to Young Kids – Budding Scientist Programme' and a poster display was also organised during the workshop.

On the second day the delegates were welcomed to Petrosains by YM Ms. Tengku Nasariah Tengku Syed Ibrahim, who also subsequently gave a detailed presentation on her organisation. A Technical Session was held at Petrosains and during the post-lunch period the delegates visited the Petrosains Galleries and the KLCC Bridge.

During the Wrap-Up Session chaired by Prof. Arun P. Kulshreshtha, the participants shared their ideas on how they and their concerned agencies intend to follow up on the issues raised during the workshop and proceed with collaboration to support each other's ongoing programmes and initiate new activities.

A set of recommendations for submission to the governments and concerned agencies on matters concerning the science centres was also deliberated upon during the Wrap Up Session, after which a document titled 'Kuala Lumpur Recommendations on Science

Centres in Promoting a Knowledge-Based, Innovative Society for Sustained and Responsible Growth in Developing Countries’ was unanimously adopted.

Finally, the Certificates of Participation were given out to individual participants by Assoc. Prof. Dr. Irmawati Ramli and Prof. Arun P. Kulshreshtha.

Field Trips for the participants had been organised to the Firefly Park at Kuala Selangor, the Federal Administrative Centre of Malaysia at Putrajaya, and the historical city of Malacca.

The participants thanked and greatly applauded the efforts made by the NAM S&T Centre and the National Science Centre, Ministry of Science, Technology and Innovation (MOSTI), Malaysia in organising such a wonderful and useful workshop. The contributions made by Dr. Phyllis Lam Li Wan, Ms Norzilawati Md. Kamsor and Dr. Ahmad Wafi Harussani, Principle Assistant Secretary, MOSTI for the success of the programme were particularly recognised.

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KUALA LUMPUR RESOLUTION

ON SCIENCE CENTRES IN PROMOTING A KNOWLEDGE-BASED, INNOVATIVE SOCIETY FOR SUSTAINED AND RESPONSIBLE GROWTH IN DEVELOPING COUNTRIES

WHILE EXPRESSING GRATITUDE to the National Science Centre, Ministry of Science, Technology & Innovation (MOSTI) of Malaysia, the host of the international workshop on ‘Science Centres in Promoting A Knowledge and Innovative Society for Sustained and Responsible Growth in Developing Countries’, jointly held with the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) at Kuala Lumpur, Malaysia during 11th – 14th October 2010;

HAVING DELIBERATED on the issues relating to the improvement of the science communication functions of the existing science centres and to the need for the establishment of new science centres as non-formal mechanisms for capacity building and learning in science;

THE WORKSHOP PARTICIPANTS, including the professionals and experts from Cambodia, India, Indonesia, Iran, Iraq, Japan, Kenya, Kuwait, Libya, Malawi, Malaysia, Mauritius, Mexico, Myanmar, Nepal, Pakistan, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Uganda, the U.K., Vietnam and Zambia, unanimously resolve the following:

- The workshop has been highly successful and it is recommended that similar workshops be held in other developing countries in future, as a means of strengthening and promoting science communication;

- The interactive nature of the science centres and museums represents an important opportunity to spread scientific awareness, promote non-formal science education and literacy, improve attitudes to science and provide lifelong learning opportunities for all. There is, therefore, an acute need to establish new science centres and upgrade existing science centres in developing countries;
- There is a need to establish a vibrant network of science centres / museums and other institutions engaged in science popularisation amongst the developing countries in order to facilitate the effective sharing of expertise, experience and best practice.
- It is recommended that the concerned national authorities and funding institutions in the NAM and other developing countries promote the role of science centres, science museums and science outreach projects as vital elements of public education, improvement of public awareness and interest in science;
- It is also recommended that the national authorities and funding agencies fund research into the impact of science centres and the dissemination of the results of such research;
- Indigenous knowledge and innovations are strong components of developing countries. In a context of paucity of finances for their S&T development programmes, these countries should endeavour to include traditional as well as innovative approaches in their programmes;
- The activities of science centres should be appropriately extended to include the rural and less privileged areas. Wherever possible, these activities should emphasise the socio-economic implications of global climate change and other millennium development goals;
- Science centres should also increase public awareness and improve decision makers' understanding of the social, economic and political aspects of these issues;
- Wherever possible, the partnerships between the developing countries and assistance from one country to another for the establishment of new science centres / museums and outreach projects should be encouraged;
- The governments of the developing countries should provide appropriate statutory and legal frameworks, mechanisms and structures to facilitate the development of science centres / museums and outreach projects through partnerships in the private sector, investment and concessions, including tax relief. The concerned authorities should facilitate garnering support from the ministries within the government;
- Collaboration between developing countries should be encouraged, using the available bilateral, multilateral and inter-governmental cultural, educational,

scientific and technical exchange programmes and through private and philanthropic funding agencies;

- The Kuwait Institute for Scientific Research (KISR) has in principle agreed to host the next international workshop on an appropriate theme related to the Science Communication and Science Parks jointly with the NAM S&T Centre sometime in 2012, subject to receiving the necessary regulatory and governmental approvals.

THUS, RESOLVED IN KUALA LUMPUR, MALAYSIA ON THIS DAY, THE 13TH OCTOBER 2010.