

**CENTRE FOR SCIENCE AND TECHNOLOGY OF THE NON-ALIGNED AND  
OTHER DEVELOPING COUNTRIES (NAM S&T CENTRE)**

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**INTERNATIONAL TRAINING PROGRAMME  
ON  
DEVELOPING THINKING SKILLS THROUGH INQUIRY-BASED SCIENCE EDUCATION  
(IBSE)**

**KUALA LUMPUR, MALAYSIA, 22-26 OCTOBER 2018**

Most of the developing countries are faced with a variety of issues related to science education such as the shortage of qualified science teachers, lack of facilities including laboratories and equipments and poor techniques of delivery in the teaching of the subjects. The teaching often tends to be teacher centric and prescriptive thus leaving little opportunity for the students to introspect, go into the depth of the subject based on the fundamentals and discover many things by themselves. With the passage of time the students get started disinterested in the subject. Particularly in the areas of science an appropriate approach is required in teaching in which the learners get actively engaged in formulating hypothesis and theories that aid in inculcating the cognitive processes as well as a sense of curiosity and creativity.

Inquiry-Based Science Education (IBSE) has been recognised as an effective method of teaching science. It is an innovative teaching pedagogy that calls for the active participation of pupils in the learning process through maximising children's natural curiosity, identification of problems and possible explanations and solutions. By using IBSE in teaching, the way of learning science will be more appealing and meaningful. This can contribute to increased interest in learning the subject and minimise the current issues facing school science education today.

In view of the above and to provide opportunity to the science educators from various developing countries to upgrade their skills in IBSE, the Centre for Science and Technology of the Non-aligned and Other Developing Countries (NAM S&T Centre) and the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC), Malaysia under the auspices of UNESCO jointly organised an *International Training Programme on 'Developing Thinking Skills through Inquiry - Based Science Education'* in **Kuala Lumpur, Malaysia** on **22-26 October, 2018**. The main objective of the Training Programme was to examine the basic principles of inquiry-based approach to science education with an effort to re-emphasise and revive the importance of learning.

The Opening Ceremony commenced with a welcome address by the Director, ISTIC, Dato' Dr. Sharifah Maimunah Syed Zin, FASc. A brief address to the audience was made by Prof. Dr. Arun P. Kulshreshtha, Director General, NAM S&T Centre who presented the genesis of the event by touching upon the basic issues and concerns related to conventional methods of teaching science and also gave a short description of the activities of the inter-governmental organisation headed by him. The programme was officially inaugurated by Prof. Madya Dr. Ramzah Dambul, Deputy Secretary General (STI), Ministry of Energy, Science & Technology, Environment and Climate Change (MESTECC), Malaysia on behalf of Datuk Seri Dr. Mohd. Azhar Bin Haji Yahaya, Secretary General of MESTECC and President, NAM S&T Centre. In

his address, Prof. Dambul cogently referred the Inquiry Based Science Education as an effective tool of teaching science. The Opening Ceremony was concluded with an official Group Photo Session.

The Training Programme was attended by **41 experts and professionals from 18 different countries**, out of whom, 13 trainees from 10 NAM member countries – Bhutan, Egypt, India, Mauritius, Nepal, Palestine, Sri Lanka, South Africa, Zambia and Zimbabwe - were sponsored by the NAM S&T Centre. The 6 Resource Persons and Facilitators for the training component of the event were from the host country Malaysia.

**23 foreign participants** were from **Bangladesh** [Dr. Probir Chandra Roy, Curriculum Specialist (Science), National Curriculum and Textbook Board, Dhaka]; **Bhutan** [Mr. Pema Tshering, Teacher, Katsho Lower Secondary School, Haa Dzongkhag]; **Egypt** [Prof. Dr. Boshra Bakr Mahmoud Salem, Department of Environmental Sciences, Faculty of Sciences, Alexandria University, Alexandria and Dr. Eman Abdel-Samiaa Ali Hussein Alam, Lecturer, Botany Department, Faculty of Science, Al-Azhar University, Nasr City, Cairo]; **India** [Mr. Kathan Abhay Kothari, Lead Designer, Outreach Co-ordinator and Ms. Swati Jangir from Manthan Educational Programme Society, Ahmadabad; and Ms. Monika Singh, Research Associate, NAM S&T Centre, New Delhi]; **Indonesia** [Mr. Arisal Nurhadi, Science Teacher, Education Authorities (Secondary High School Public 2, Aceh Jaya, Provinsi Aceh; and Ms. Helmina Mauludiyah, Teacher, Elementary School of Sisir 03, Batu City, East Java]; **Iran** [Dr. Sahar Bayat Zarir, Group Head, Iran National Commission for ISESCO, Saadat Abad, Tehran]; **Maldives** [Mr. Mohamed Shihab, Lecturer, Faculty of Education, The Maldives National University, Male' City]; **Mauritius** [Dr. Bholah Ravhee, Associate Professor, Science Education Department, School of Science & Mathematics, Mauritius Institute of Education, Réduit]; **Myanmar** [Dr. Nu Nu Khaing, Lecturer and Dr. Thet Naing Oo, Lecturer, Yangon University of Education, Ministry of Education, Kamayut, Yangon]; **Nepal** [Ms. Manchita Kumari Arya, Scientific Officer, Nepal Academy of Science and Technology (NAST), Kathmandu]; **Palestine** [Mrs. Dalya O.M. Khatib, Head of Central Evaluation Department, General Directorate for Technical Development, Higher Council for Innovation and Excellence, Ramallah]; **South Africa** [Prof. Moses Sibusiso Mtshali, Associate Professor Life Sciences/Biology Education, Department of Mathematics Science and Technology Education, University of Limpopo, Sovenga]; **Sri Lanka** [Dr. Prashan Francis, Director General/CEO, Gem and Jewellery Research & Training Institute (GIRTI), Kaduwela]; **Sudan** [Mr. Ahmed Hamdelneel Hassaballa Ahmed, Research Assistant, National Center for Curriculum and Educational Research, Ministry of Education, Khartoum]; **Thailand** [Ms. Wachiraporn Ditsomboon and Ms. Pawita Likitdacharote, Science Educators, National Science Museum Thailand, Klong Laung]; **Zambia** [Mrs. Nsama Chilumbu Mataka, Programme Officer Promotion, National Science and Technology Council, Curriculum Development Centre Building (CDC), Lusaka]; and **Zimbabwe** [Ms. Beaula Chipoyera, Science Programme Officer, Zimbabwe National Commission for UNESCO, Harare]. The NAM S&T Centre was represented by its Director General, Prof. Dr. Arun P. Kulshreshtha.

**18 Malaysian** participants included Mr. Ab Aziz Bin Rajab, Master Trainer, National STEM Centre, Educational Planning and Research Division, Ministry of Education; Ms. Anis Diyana Binti Halim, Teacher, SM Sains Seri Puteri, Jalan Kolam Ayer, Kuala Lumpur; Dr. Chin Chee Keong, Lecturer, IPG Kampus Tuanku Bainun, Pulau Pinang; Ms. Marziah Binti Md. Rahim, Teacher, SK Kampung Tunku, Petaling Jaya, Selangor; Mr. Mhd. Shafiee Bin Abd Ghani, Assistant Director, Curriculum Development Division, Ministry of Education; Ms. Noraida Binti

Md Idrus, Assistant Director, Curriculum Development Division, Ministry of Education; Ms. Norhayaty Yahya, Teacher, SK Binjal, Kedah; Mr. Norhaziruddin Bin Ibrahim, Assistant Director, Curriculum Development Division, Ministry of Education; Ms. Nur Farhana Binti Ramli, Teacher, Sekolah Dalam Hospital PPUKM, Cheras, Kuala Lumpur; Mr. Rishi Kumar Loganathan, School Improvement Specialist Coaches, Kinabatangan District Education Office, Kinabatangan, Sabah; Ms. Rosnah Binti Sulaiman, Head of School(Secondary), Sri Bestari Private School, Bandar Sri Damansara, Kuala Lumpur; Ms. Sangkeri, Teacher, SJKT Kinrara, Puchong, Selangor; Ms. Soraya Binti Ishak, Assistant Director, Curriculum Development Division, Ministry of Education; Ms. Seow Hooi Siew, Officer, Text book Division, Ministry of Education; Ms. Wong Mei Chee, Teacher, Sri Bestari Private School, Bandar Sri Damansara, Kuala Lumpur; Mr. Zafarul Islam Bin Mohamed Idris, Teacher, SK Sungai Rusa, Perak; Mrs. A. Mary Lily, Teacher, Ideas Academy; and Mr. Imran Arif, Learning Specialist, Educators Centre, Petrosains, Petronas Twin Towers, Kuala Lumpur.

The Training was conducted by dividing the participants into groups for 'Hands on Activities' on different themes including 'Earth Science and Natural Disaster', 'Measuring Time', 'History and Science' and 'Climate Change Education.'

A Plenary Session was held on the last day in which the Resource Persons (Facilitators) including Mr. Abdul Adzim Bin Abd Rashid, Ms. Zarmila Salmi Binti Sabot, Mr. Mohd Azim Bin Noor, Tuan Haji Abdul Muhaimin Bin Osman, Mrs. Nor Azlina Binti Ghazali and Mrs. Alice Kaling gave their short remarks. The Certificates of Participation were handed over to the participants by Dato' Dr. Sharifah Maimunah Syed Zin, Director, ISTIC. She also gave the Vote of Thanks. The participants thanked the organisers and hosts for extending warm hospitality, efficient coordination and successful completion of the training programme.

During the training programme, the participants got the opportunity to display and present posters on IBSE related activities of their respective institutions and also visit the National Science Centre in Kuala Lumpur.

The Training Programme was a great success as it provided opportunities to participants to learn various aspects of IBSE (e.g. inquiry learning, science journal, questioning techniques), its implementation and also critical reflections on these lessons. It thus empowered the participants to confidently use IBSE in their learning contexts/classes.