INTERNATIONAL ROUNDTABLE ON LIGHTNING PROTECTION
COLOMBO (SRI LANKA), MAY 22-25, 2007

PARTICIPATING COUNTRIES: **12 COUNTRIES (INCLUDING 9 MEMBER COUNTRIES AND 1 INDUSTRY NETWORK MEMBER OF THE NAM S&T CENTRE**

NUMBER OF PARTICIPANTS: **52 SCIENTISTS FROM 12 COUNTRIES**

Lightning has always greatly fascinated, awed and frightened the humankind with its spectacular intense tree-like flashes. It was present on our planet Earth long before the evolution of life and probably played a significant role in the production of organic molecules necessary for the formation of the life form. Though lightning and thunderstorms are vital to our life as they make nitrogen and also oxygen and free radicals available to the plants and other terrestrial organisms, these are capable of causing wild land fires, human and animal death due to electrocution/fire and if in close proximity, temporary deafness and rupturing of the ear's tympanic membrane due to loud cracking sound produced by the strike. The action of lightning's electrical and magnetic fields and the lightning current on industrial premises, power transmission lines, underground communications, aircraft and their electrical circuits and induction of dangerous over voltage are well known. Lightning is known to have caused extensive exterior and interior damage to structures. Early detection of lightning is important for commercial flights, but is vital for the success of space flights. Lightning is a natural hazard causing serious economical losses and personal injuries and deaths in many parts of the world. Especially in South and East Asia, Africa and South America, the problem is quite acute due to the high occurrence density of lighting, the large population and the rapid and unplanned industrialization. The lack of information in the NAM and other developing countries regarding the lightning related characteristics is one barrier that hinders the development of protection systems. The other barrier is the poor knowledge among the engineering community on lightning and lightning protection and the lack of awareness among the general public in lightning safety.

In order to address some of the pertinent issues related to lighting, such as its detection and warning systems, safety and education, protection of structures, power systems, communication and data lines, and the latest status of development in surge protective devices and resolve these concerns through

North-South and South-South collaborations, the Centre for Science and Technology of the Non-Aligned and other Developing Countries (NAM S&T Centre) organised an International Roundtable on Lightning Physics during 22-25 May 2007 at Hotel Global Towers, Colombo, Sri Lanka jointly with the National Science and Technology Commission (NASTEC) of Sri Lanka.

H.E. Prof. Tissa Vitarana, Minister of Science and Technology of Sri Lanka inaugurated the Roundtable after lighting of the oil lamp and National Anthem; welcome remarks by Prof. Nalini Ratnasiri, Chairperson, NASTEC; introduction to Roundtable by Dr. Chandima Gomes, Chairman, Expert Study Group of NASTEC on Lightning Protection; and address by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre. Dr. Muditha Liyanagendara, Scientific Program Manager of NASTEC presented the Vote of Thanks. Dr. A.N.R. Amarathunga, Secretary, Ministry of Science and Technology of Sri Lanka was also present at the podium.

The Roundtable was conducted in seven technical sessions to discuss, namely, Lightning and Atmosphere; Detection and Safety; Structural Protection; Protection Standards, Risk Analysis and Other Issues; Overall Protection Measures & Lightning Environment; Protection of LV & Communication Systems; and Protection of HV Systems and Other Concerns. A field trip and excursion to Kurunegala was arranged on the concluding day of the Roundtable to acquaint the participants with real life lightning situation.

The overall technical programme of the Roundtable was coordinated by Dr. Chandima Gomes, Chairman, Expert Study Group on Lightning Protection Measures of NASTEC and Professor in the Department of Physics, University of Colombo, and was attended by 52 scientists from 12 countries. The overseas participants were from Bangladesh [Dr. Munir Ahmed, Executive Director, Technological Assistance for Rural Advancement - TARA); Botswana [Mr. Oarabile Nnabu, Electronics Engineer, Botswana Technology Centre]; India [Dr. Ing. Ravindra Arora, Professor, Department of Electrical Engineering, Indian Institute of Technology, Kanpur; Mr. Manish Ranalkar, Meteorologist, India Meteorological Department, Pune; and Dr. C. Lakshmi Narasimhan, Earthquake Engineer, Vellore

Institute of Technology University]; Indonesia [Mr. Hary Soebagyo, Head of Div. of Roadmapping of S&T Program, State Ministry of Science and Technology (RISTEK)]; Malaysia [Mr. Wan Mohd Nazri Wan Daud, Principal Assistant Director, KLIA Meteorological Office, Selangur Darul Ehsan and Mr. Hartino Zainal Abidin, President / R&D Consultant, Lightning Research SDN BHD, Kuala Lumpur]; Mauritius [Mr. Prabhakar Sembhoo, Transmission and Distribution Manager, Central Electricity Board, Curepipe]; Myanmar [Dr. Salai Tluang Za Thang, Lecturer, Power Engineering Department, Mandalay Technological University]; Pakistan [Mr. Mozzam Ali Toor, Chief Executive Officer, Capital Consultants]; Saudi Arabia [Prof. Mohamed Hamid Shwehdi, Electrical Engineering Department, College of Engineering Sciences, Dhahran]; Serbia [Dr. Mladjen Curic, Professor, Institute of Meteorology, University of Belgrade]; and South Africa [Mr. Ngcobo Abednego Maliwa, Senior Technician, Telekom College], who made their presentation during the event.

The participants from Sri Lanka, who made scientific presentation during the workshop, were Dr. Chandima Gomes (on 'Fundamental Concepts of Lightning', 'Concepts of Building Protection' and 'Lightning Surge Protection in Power Systems'), Dr. Chandana Jayaratne (on 'Atmospheric Conditions Favouring Thunderstorms'), Dr. Mahendra Fernando (on 'Methods of Lightning Detection & Warning Systems'), Mrs. J. Dewasurendra (on 'Development Concerns of Sri Lanka Standards'), Mr. Kamal Illeperuma (on 'Effects of Lightning on Power Systems in Sri Lanka') and Dr. Mahesh Edirisinghe (on 'Special Concerns of Protecting LV and Communication Equipment').

Among the overseas speakers Mr. Hartono Zainal Abidin delivered talks on 'Effective Air-terminal Positioning', 'Non-conventional Air Terminals', 'Protection of Oil Refineries' and 'Improvised Lightning for Indigenous Homes and Makeshift Huts'; Prof. M. H. Shwehdi on 'Establishment of Saudi Arabia Isokeraunic Levels' and 'Protection of HV Systems'; Prof. Mladjen Curic on 'Lightning Suppression by the Anti-hail Rockets Fired into Thundercloud'; Prof. Ravindra Arora on 'A New Approach to the Mechanism of Lightning Strike'; Mr. Manish Ranalkaron 'Study of Lightning Activity over Indian Subcontinent'; Dr. C Lakshmi Narasimhan on 'Culture of Safety against Lightning – Indian Perspective'; Dr. Munir Ahmed on 'Lightning Safety Awareness Programme Especially in South Asia to

Minimize Loss of Human Lives and Properties'; Mr. M. N. Wan Daud on 'Lightning Detection System in Malaysia'; Mr. Oarabile Nnabu on 'Lightning Situation in Botswana'; Mr. Ngeobo Abednego Maliwaon 'An ICT Perspective on Lightning and Earthing in South Africa'; Mr. Hary Soebagyo on 'Lightning Risk Handling Policy in Indonesia'; Mr. Mozzam Ali Toor on 'Lightning Environment and Lightning Protection in Pakistan'; and Dr. S. T. Za Thang on 'Lightning Protection Status in Myanmar'.

During the Concluding Session an invited lecture was delivered by Mr. Shailendra Kumar, Senior Regional Sales Manager, Thomas & Betts, Dubai, UAE on the subject 'BSEN 62305:2006 Protection against Lightning: An Overview'.

The Panel Discussion in the Concluding Session was chaired by Dr. Dr. C. Gomes, Prof. R. Arora and Prof. M. Curic, which was followed by a discussion on the 'Colombo Declaration on Lightning Protection and Safety' that was presented by Prof. Arun P. Kulshreshtha and later adopted by the participants. A copy of the Colombo Declaration is appended to this Report. The Roundtable ended with the distribution of participation certificates to the participants.

The participants thanked the organizers of the Roundtable, particularly Prof. Nalini Ratnasiri, Chairperson and Dr. R. D. Guneratne, Director, NASTEC; Dr. Chandima Gomes; Dr. Miditha Liayanagendra and all other associated with the organisation of the Roundtable and unanimously hoped that more similar events will be held in future with a focus on South-South cooperation.