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NAM S&T Newsletter

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Centre for Science and Technology of the Non-Aligned
and Other Developing Countries (NAM S&T Centre)

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From the Director'S Desk

SEASON'S GREETINGS to all our readers for a Happy and Prosperous New Year 2012!!

The year 2011 has been extremely productive for the NAM S&T Centre with many milestones accomplished during the year. The Centre added Jordan as a new member to its family, bringing the number of member countries to 45; Brought out its 50th publication titled 'Sustainable Rainwater Harvesting and Ground Water Recharge in Developing Countries', a 517-pages State-of-the-Art Report that also includes a Manual for Rural Areas, Trainers' Manual and RWH Guide besides the status reports of 17 countries; And completed one year of the Joint CSIR / CFTRI (Diamond Jubilee) - NAM S&T Centre Fellowship scheme with letters of offer awarded to the scientists from member countries.

The Centre successfully organised an International Symposium on 'Lightning Protection' in Nepal on 12-14 October 2011 and an International Workshop on 'Nanotechnology in the Edge of Convergence' in Malaysia on 24-27 November 2011 with participation from 18 and 19 countries respectively. In the Nanotechnology workshop, one of the co-organisers was the Commission on Science and Technology for Sustainable Development in the South (COMSATS). These scientific events concluded with the adoption of 'Kathmandu Resolution on Lightning Safety and Protection' and 'Bangi Recommendations on Nanotechnology in the Edge of Convergence' for dissemination to the policy makers in developing countries.

In the last quarter, a scientist from Sri Lanka successfully completed her affiliation with the International Centre for Chemical and Biological Sciences (ICCBS) of the H.E.J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research, Karachi, Pakistan, and a scientist from Indonesia left for ICCBS in November to work there under the Joint NAM S&T Centre - ICCBS Karachi Fellowship on Natural Products Chemistry, Drugs and Pharmaceuticals. 3 scientists from Myanmar, Nepal and Sri Lanka successfully completed their 6-months affiliation with the Central Food Technological Research Institute, Mysore, India under the Joint CSIR / CFTRI (Diamond Jubilee) - NAM S&T Centre Fellowship on Food Science & Technology. A scientist from Tanzania completed his affiliation with the Leibniz Centre for Tropical Marine Ecology (ZMT), Bremen, Germany under the Joint NAM S&T Centre - ZMT Bremen Fellowship on Tropical Coastal Marine Ecology and Biogeochemistry.

Happy Reading!

(Arun P. Kulshreshtha)

Centre Organised

International Symposium on
LIGHTNING PROTECTION
Kathmandu, Nepal, 12-14 October 2011

Lightning is a most dramatic and most common natural activity that occurs in the atmosphere. Lightning strikes may cause severe damage to physical structures and claim human and animal lives. It may ignite fires that may bring an entire structure down to ashes or create cracks, and at a lower degree of damage, it may destroy electrical, electronic and communication equipment beyond repair. Transmission and

Inauguration of Lightning Protection symposium, Kathmandu, Nepal

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International Workshop on
NANOTECHNOLOGY
In the Edge of Convergence
Malaysia, 24-27 November 2011

Nanotechnology, the study of manipulating matter on atomic and molecular scales, involves developing materials or devices possessing at least one dimension sized from 1 to 100 nanometers. This field of science has gathered enormous significance in recent years and tremendous advancements have been made with a variety of applications in almost all spheres of life. Nanotechnology has the potential to create many new materials and devices and possibly holds solutions to world's problems related to water, agriculture, nutrition, health and energy.

Inauguration of Nanotechnology Workshop, Malaysia

With a view to providing a forum for the academicians, scientists and researchers active in

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(Contd. from Page 1 - Lightning Symposium, Kathmandu, Nepal)

Foreign Co-Chairs and Speakers of Lightning Symposium, Kathmandu, Nepal

communication towers, transmission lines and tall physical structures including residential houses and monuments are more vulnerable to lightning activities. However one of the most significant losses that it may cause as far as the industries are concerned is the downtime. A couple of hours of standstill of normal operation or a loss of some important data stored in a computer may cause a company a huge economic loss. Thus there is an urgent need to launch national and international level programmes in the non-aligned and other developing countries as well as in developed countries to create awareness among masses and educate the engineering, technical, scientific and civil communities on the subject of lightning safety and protection.

In order to deliberate on lightning science and its engineering and protection related aspects the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with the Ministry of Science and Technology (MOST), Government of Nepal and the Nepal Academy of Science and Technology (NAST), Nepal Physical Society (NPS), Central Department of Physics (CDP) of Tribhuvan University and REHDON College organised a 3-day International Symposium on Lightning Protection at Dhulikhel Lodge Resort, Kathmandu, Nepal during 12-14 October 2011.

In the Inaugural Session Prof. Devi Dutta Paudyal, Chairman, Organising Committee welcomed the delegates. The Inaugural Ceremony was opened in Nepalese traditional way by lighting of the oil lamp by the Chief Guest H.E. Mr. Lekh Raj Bhatta, Honourable Minister of Commerce and Supplies (formerly, Minister of Science and Technology) of Nepal. Prof. Arun P. Kulshreshtha, Director & Executive Head, NAM S&T Centre presented the genesis of the event and also briefly described the activities of the Centre. This was followed by a brief talk by Dr. Chandima Gomes, Faculty of Engineering, Universiti Putra Malaysia (UPM), Selangur, Malaysia about the Symposium. After the address by the Guest of Honour, Mr. Tana Gautam, Secretary, Ministry of Science and Technology, Nepal the Honourable Minister Mr. Lekh Raj Bhatta gave the Inaugural Address. The session was concluded with the Vote of Thanks by Prof. Shekhar Gurung, President, Nepal Physical Society followed by the Concluding Remarks of Prof. Surendra Raj Kafle, Chairperson of the Inaugural Session and Vice Chancellor, Nepal Academy of Science and Technology (NAST).

18 countries, namely, Bangladesh, Cambodia, Croatia, India, Indonesia, Kenya, Malaysia, Mauritius, Myanmar, Nigeria, Pakistan, Sri Lanka, Sweden, Togo, Uganda, USA, Zambia and the host country Nepal participated in this Symposium. The overseas participants were from Bangladesh [Mr. Munir Ahmed, Executive Director, TARA, Dhaka and Mr. Abidur Rahaman, Research Scholar, Dept. of Applied Physics, University of Dhaka], Cambodia [Mr. Leng Sovannarith, Lecturer, Electricity and Energy Department, Institute of Technology of Cambodia (ITC)], Croatia [Dr. Branko Grisogono, Department of Geophysics, Faculty of Science, University of Zagreb], India [Prof. Dr. Ravindra Arora, Ansal Institute of Technology; Gurgaon; Dr. Joy Thomas Meledath, Assistant Professor, High Voltage Laboratory, Indian Institute of Science (IISc), Bangalore; and Ms. Isha Parmar, Project Executive, Philanthrope, New Delhi], Indonesia [Ms. Evy Rosa, Staff, Division of Geophysical Potential and Time Signal, Agency of Meteorology, Climatology and Geophysics (BMKG), Jakarta], Kenya [Ms. Akinyi Margareta Ocholla, Principal Research Officer, Ministry of Higher Education, Science and Technology, Nairobi], Malaysia [Mr. Mazly Bin Mohamed, Meteorological Officer and Head of TDR Unit, Malaysian Meteorological Department, Kuala Lunpur], Mauritius [Prof. Harry Coomar Shumsher Rughooputh, University of Mauritius], Myanmar [Ms. El El Cho, Lecturer, Electrical Power Engineering Department, Technological University (Taunggyi)], Nigeria [Mr. Gaji Muhammed Musa, Senior Scientific Officer, Energy Commission of Nigeria, Abuja], Pakistan [Mr. Ahmad Waqas, Lecturer, COMSATS Institute of Information Technology, Islamabad], Sri Lanka [Mr. Nuwan Kumarasinghe, Electronics Engineer, Department of Meteorology, Colombo; Mrs. H. K. W. I. Jayawardena, Research Scholar, University of Colombo; and Dr. Chandima Gomes, Currently Associate Professor, Universiti Putra Malaysia; Selangur], Sweden [Prof. Leif Enger, International Science Programme (ISP), University of Uppsala], Togo [Mr. Afanou N'Boueke, Engineer In-Charge of Studies, Ministry of

Nepalese Co-Chairs and Speakers of Lightning Symposium, Kathmandu, Nepal

(Contd. on page 3 col. 1)

(Contd. from Page 2 - Lightning Symposium, Kathmandu, Nepal)

Mines and Energy, Lomé], Uganda [Mr. Richard Tushemereirwe, Senior Private Secretary, Statehouse], USA [Prof. Mary Ann Cooper, Professor Emeritus, University of Illinois and Prof. Vladimir A. Rakov, Co-Director of the International Center for Lightning Research & Testing (ICLRT), Department of Electrical and Computer Engineering, Gainesville, University of Florida] and Zambia [Mrs. Lubasi Foster Chileshe, Head, Materials Engineering and Technical Services, National Institute for Scientific and Industrial Research, Lusaka]. From the NAM S&T Centre, Prof. Arun P. Kulshreshtha, Director & Executive Head and Mr. Yasir Abbas Rizvi, Research Assistant attended the event.

The overall programme of the Symposium was conducted at the premises of the MOST and NAST in five technical sessions, respectively co-chaired by (1) Prof. Branko Grisogono of Croatia and Dr. Narayan Adhikari, Tribhuvan University Central Department of Physics, Kirtipur, Kathmandu; Nepal; (2) Prof. Leif Enger of Sweden and Dr. Rajendra Parajuli, Amrit Science College, Tribhuvan University, Lainchaur, Kathmandu, Nepal; (3) Prof. Shekhar Gurung, President, Nepal Physical Society, Nepal and Prof. Ravindra Arora of India; (4) Prof. Lok Narayan Jha, Head, Central Department of Physics, Tribhuvan University, Kathmandu, Nepal and Dr. Ms. Leela Pradhan Joshi, Assistant Professor, Physics Department, Amrit Science Campus, Tribhuvan University, Kathmandu, Nepal; and (5) Prof. Mary Ann Cooper of USA and Mrs. Ravee Lakshml Chitrakar, Physics Department, Amrit Science Campus, Tribhuvan University, Kathmandu, Nepal.

26 scientific papers presented during the Symposium by the foreign participants were on 'Status of Lightning Accidents and Awareness in South East Asia' by Dr. Munir Ahmed of Bangladesh; 'Lightning Protection Practice in Bangladesh: An Overview' by Mr. Abidur Rahaman of Bangladesh; 'Mountain Meteorology' by Prof. Branko Grisogono of Croatia; 'Development of Streamer and Leader' by Prof. Ravindra Arora of India; 'Lightning Protection of Airborne Systems' by Dr. Joy Thomas of India; 'Lightning Protection in India' by Ms. Isha Parmar of India; 'Lightning Monitoring Activity in Indonesia' by Ms. Evy Rosa of Indonesia; 'Lightning Protection In Kenya A Country Status Report' by Ms. Akinyi Margareta Ocholla of Kenya; 'Lightning in Peninsular Malaysia' by Mr. Mazly Bin Mohamed of Malaysia; 'Lightning Protection of Power Systems' by Prof. Harry Coomar Shumsher Rughooputh of Mauritius; 'Lightning Protection In Myanmar A Country Status Report' by Ms. El El Cho of Myanmar; 'Basic Primer in Lightning Effects for Developing A Consumer Oriented Guide on Surge Protection' by Mr. Gaji Muhammed Musa of Nigeria; 'Frequency Distribution of Thunderstorms in Pakistan' by Mr. Ahmad Waqas of Pakistan; 'Frontiers of Lightning Protection' and 'Protection of LV Systems' by Dr. Chandima Gomes of Sri Lanka; 'The Effect of Mountain Wake Vorticity on Lightning Occurrence in Sri Lanka' by Mrs. H. K. W. I. Jayawardena of Sri Lanka; 'Community based Low Cost Lightning Protection System' by Mr. Nuwan Kumarasinghe of Sri Lanka; 'The Importance of Modelling for Resolving Some Atmospheric Processes' by Prof. Leif Enger of Sweden; 'Lightning Protection for Facilities' by Mr. Afanou N'Boueke of Togo; 'Uganda Country Report Lightening' by Mr. Richard Tushemereirwe of Uganda; 'Fundamentals of Lightning', 'Lightning Electric and Magnetic Fields and Protection of Structures' by Prof. Vladimir A. Rakov of USA; 'Lightning Safety Campaigns - USA Experience' and 'Medical Aspects of Lightning related Events' by Prof. Mary Ann Cooper of USA; and 'Lightning Protection in Zambia' by Mrs. Lubasi Foster Chileshe of Zambia;

5 scientific papers presented by Nepalese scientists were on 'Status of Lightning Research in Nepal' by Dr. Shriram Sharma, Department of Physics, Amrit Science College, Tribhuvan University / REHDON College, Samakhushi, Kathmandu; 'Variation of Lightning Activity with Temperature' by Mr. Raju Ghimire, Patan Multiple Campus, Tribhuvan University, Lalitpur; 'Trends of Lightning in Nepal' by Mr. Surendra Bhatta, Patan Multiple Campus, Tribhuvan University, Lalitpur; 'Radio Lightning in Nepal' by Mr. Rabi K.C.; Association of Community Radio Broadcasters, Lalitpur; and Ensuring Safety of Installation from Lightning Discharges by Mr. Bhesh R. Kanel, Chairman, Nepal Telecommunication Authority, Tripureshwor, Kathmandu.

At the end of the Technical Sessions, Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre made a presentation on 'The Role of the NAM S&T Centre for South South Cooperation in Science & Technology'. Subsequently, there was considerable deliberation and debate on generating a set of recommendations titled 'Kathmandu Resolution on Lightning Safety and Protection', which was adopted during the Closing Session. The Symposium ended with the handing over of the Participation and Sponsorship Certificates to the participants and sponsors of the Symposium and concluding remarks of the Chairman and members of the Organising Committee and Vice-Chancellor of NAST.

The participants thanked the organisers for the successful and fruitful organisation of the Symposium and for excellent hospitality and arrangements made for the delegates, and unanimously hoped that more similar events will be held in future with a focus on South-South cooperation.

Group Photo of Lightning Protection Symposium, Kathmandu, Nepal

KATHMANDU RESOLUTION - 2011

On
Lightning Safety and Protection

We, the scientists, academics, professionals, engineers, scientific managers and social awareness promoters of the non-aligned and other developing countries and developed countries from Bangladesh, Cambodia, Croatia, India, Indonesia, Kenya, Malaysia, Mauritius, Myanmar, Nepal, Nigeria, Pakistan, Sri Lanka, Sweden, Togo, Uganda, USA and Zambia.

Thank:

- The Centre for Science and Technology of the Non-aligned and Other Developing Countries (NAM S&T Centre), Ministry of Science and Technology (MOST) of the Republic of Nepal and Nepal Academy of Science and Technology (NAST), Nepal Physical Society (NPS), Central Department of Physics, Tribhuvan University and REHDON College, the joint hosts of the International Symposium on Lightning Protection held at Dhulikhel Lodge Resort in Kathmandu, Nepal during 12-14 October 2011.
- Our respective governments and sponsors who have made our participation at this very important meeting possible.

And

Place on record our appreciation to MOST, Nepal and NAST for providing the interactive platform, excellent ambience for the meeting, fine arrangements and kind hospitality.

Realising that there is:

- a marked increase in reported lightning related deaths and injuries in the world during the last few years of which the majority is in rural areas of developing countries,
- an unacceptable rate of property / equipment damage and data / information loss that makes even vital systems vulnerable to failure at critical operational cycles resulting in downtime that causes significant economic impact at all levels,
- a dangerous level of misinformation and unsafe lightning related products / technologies that reach the public in many countries creating hazardous environments.

Hence emphasising the need for scientific and technological advancement, proper engineering and technical practices, dissemination of knowledge and public awareness with respect to lightning safety and protection,

Unanimously recommend the adoption of a 3-point plan by the concerned parties in all countries, which should be put into practice with immediate effect to minimise the injury, loss of life and property damage from lightning.

1. Governmental authorities should be informed, educated and convinced to:
   - A. Adopt and promote mandatory lightning protection standards or update and enforce existing standards, especially for government and privately owned buildings of mass gathering; high rise and high risk/defence installations; essential services such as power, communication, transportation and water supply; and structures of archaeological and national interest.
   - b. Institutionalise a body to make recommendations, authorisations and certifications on both locally manufactured and imported lightning protection technologies and systems.
   - c. Strongly condemn and discourage the marketing and implementation of lightning protection systems rejected by International Standards such as IEC and IEEE.
   - d. Include essential concepts of lightning safety / protection and emergency first aid in school curricula.
   - e. Identify lightning safety and protection as an important component in national disaster preparedness / management programs.
   - f. Issue mandates to responsible authorities for the display of appropriate lightning safety guidelines at vulnerable locations such as outdoor sports complexes, gatherings and open entertainment/recreational landscapes, etc.
   - g. Support government and non-governmental organisations in promoting lightning safety and protection.
   - h. Consider lightning physics and engineering as one of the priority areas in government research funding programs.
   - i. Require appropriate bodies to develop and maintain a database on lightning strikes, death, injury and damage.
2. Non-governmental organisations should be made aware of lightning risks and encouraged to:
   - a. Develop capacity building for promoting lightning awareness and protection through training programs, media presentations and other awareness campaigns.
   - b. Organise educational and awareness programs for different target groups and include lightning safety drills and emergency first aid training into existing programs.
   - c. Publish information on lightning, its hazards and precautions.
   - d. Enhance technical knowledge and skills among the professionals dealing with lightning protection.
   - e. Require manufacturers, importers, designers and installers of protection systems to use lightning protection equipment certified by a government authorised body to be in compliance with international standards.
   - f. Educate and encourage the public to adopt scientifically validated and certified lightning protection systems.
3. Academic and research communities should be approached and requested to:
   - a. Develop research groups to conduct investigations on various aspects of lightning.
   - B. Develop collaborative programs and forums for exchange of information and sharing of work experience.
   - c. Facilitate access to up-to-date scientific and technical information through mass media and other means for all professionals and concerned parties.
   - d. Organise national/international programs on lightning in collaboration with government and non-governmental organisations.
   - e. Provide advice to manufacturers and importers of lightning protection equipment on compliance of their products with international standards.
   - f. Train the trainers of lightning safety and protection under various educational schemes.

In view of the recent series of catastrophes as a result of the lightning strikes, the NAM S&T Centre has been requested to support the organisation of an emergency meeting on lightning protection at the actual site of the disaster in Uganda by taking care of the international travel of 3-4 experts on the subject from its member countries in about 3-4 months period.

The delegates from Uganda and Kenya proposed the organisation of the 3rd scientific event on Lightning Protection and related topics in either of the countries in joint collaboration with the NAM S&T Centre sometime in 2013-2014 subject to the availability of finances and approvals from the concerned authorities.

Thus, resolved and adopted this 14th day of October 2011 at Kathmandu, Nepal.

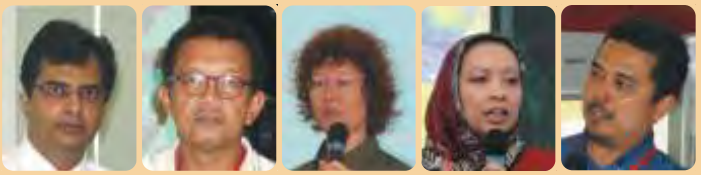
(Contd. from Page 1 - Nanotechnology Workshop, Malaysia)

Foreign Co-Chairs and Speakers of Nanotechnology Workshop, Malaysia

the fields of nano-science and nano-technology to deliberate upon the aforementioned issues and to create awareness of this field's significance, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi, India in collaboration with the Commission on Science and Technology for Sustainable Development in the South (COMSATS), Islamabad, Pakistan and the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia (UKM), Malaysia organised a 4-days International Workshop titled 'Nanotechnology in the Edge of Convergence' at Puri Pujangga, Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, Malaysia during 24-27 November 2011. The United Nations Educational, Scientific and Cultural Organization (UNESCO) was among the major sponsors of this scientific event.

The Inaugural Ceremony was opened with the Welcoming Remarks by Prof. Dato' Dr. Burhanuddin Yeop Majlis, Director, Institute of Microengineering and Nanoelectronics (IMEN), UKM. Prof. Arun P. Kulshreshtha, Director & Executive Head, NAM S&T Centre presented the genesis of the event and also briefly described the activities of the Centre. This was followed by a message of Dr. Imtinan Elahi Qureshi, Executive Director, COMSATS read by Prof. Arshad Saleem Bhatti, Dean, Faculty of Science, COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan. After brief remarks of Mr. Mohd. Zulkifli Hashim, Executive Secretary, Malaysian National Commission of UNESCO, the opening speech was given by Prof. Datuk Dr. Noor Azlan Ghazali,, Deputy Vice Chancellor, UKM. The Opening Session concluded with a Keynote Address on 'Nano Malaysia Programme and Way Forward' by Prof. Dr. Halimaton Hamdan, Undersecretary, National Nanotechnology Directorate, Ministry of Science, Technology and Innovation, Malaysia.

19 countries, namely Bangladesh, Bulgaria, Cambodia, Egypt, India, Indonesia, Iraq, Kenya, Malawi, Mauritius, Morocco, Myanmar, Nepal, Pakistan, Sudan, Tunisia, Uganda, Vietnam and the host country Malaysia participated in this Workshop. The overseas participants were from Bangladesh [Mr. M. L. Palash, Lecturer, Dept. of Applied Physics, Electronics and Communication Engineering, University of Dhaka], Bulgaria [Prof. Kostadin Grozev Kostadinov, Associate Professor on Robotics and Automation, SM IEEE, Sofia and Scientific Secretary of Bulgarian Academy of Sciences], Cambodia [Mr. Seng Silong, Lecturer, Electrical and Power Engineering, Institute of Technology of Cambodia (ITC), Phnom Penh], Egypt [Dr. Hany Hussein Abdel Ghafar, Researcher, Water Pollution Research Department, Environmental Research Division, National Research Center (NRC), Dokki], India [Dr. Madhulika Bhati, Scientist, National Institute of Science, Technology and Development Studies, (CSIR-NISTADS), New Delhi; and Ms. Bidisha Pal, Research Assistant, NAM S&T Centre], Indonesia [Dr. Silvester Tursiloadi, Senior Researcher of Applied Chemistry, Research Centre for Chemistry, Indonesian Institute of Sciences (LIPI), Tangerang], Iraq [Dr. Sabeeha Abdul Jabbar Beden, Scientific Researcher, Directorate of Materials, Ceramic Centre, Ministry of Science and Technology, Baghdad], Kenya [Dr. Erastus Gatebe, Senior Lecturer, Department of Chemistry, Jomo Kenyatta University of Agriculture and Technology, Nairobi], Malawi [Dr. Timothy Tiwonge Biswick, Senior Lecturer, Chancellor College, University of Malawi, Zomba], Mauritius [Mr. Hemraj Ramsurrun, Resource Officer, Rajiv Gandhi Science Centre Trust Fund], Morocco [Prof. Ismail Mekkaoui Alaoui, Physics Department, Faculty of Sciences, Cadi Ayyad University, Marrakech], Myanmar [Dr. Aung Kyaw Myo, Assistant Director, Nanotechnology Research Department, Metallurgical Research and Development Center, Nay Pyi Taw], Nepal [Dr. Deba Bahadur Khadka, Vice President, Nepal Chemical Society, Tribhuvan University, Kirtipur], Pakistan [Prof. Arshad Saleem Bhatti, Dean, Faculty of Science, Department of Physics; Mr. Jibran Ahmed Abbasi, Research Associate, Department of Physics; Mr. Muhammad Fahad Bhopal, Research Associate, Department of Physics; and Mr. Muhammad Rizwan Khan, Researcher, Department of Physics of the COMSATS Institute of Information Technology (CIIT), Islamabad; and Dr. Shamsa Kanwal, Assistant Professor, HEJ Research Institute of Chemistry, Karachi University, Karachi], Sudan [Mr. Nazar Shawgi Abdellateef Ahmed, Director, Materials and Electronics Research Institute (MERI), National Centre for Research, Ministry of Science and Technology, Khartoum], Tunisia [Ms. Ben Yahya Sonia, Researcher, High Institute of Technological Studies, ISET, Gabes; and Ms. Nouri Hanen, Researcher, Research Laboratory: Chemical Reactor and Process Control, National School of Engineering, Gabès University], Uganda [Ms. Philippa Ngaju, Instrumentation Engineer, Uganda Industrial Research Institute, Kampala] and Vietnam [Mr. Nguyen Ngoc Thinh, Principal Investigator, Department of Inorganic and



Malaysian Co-Chairs and Speakers of Nanotechnology Workshop , Malaysia

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(Contd. from Page 5 - Nanotechnology Workshop, Malaysia)

General Chemistry, Hanoi University of Science and Technology, Hanoi]. From the NAM S&T Centre, Prof. Arun P. Kulshreshtha, Director & Executive Head had attended the event.

The overall programme of the Workshop was conducted in six technical sessions, respectively co-chaired by (1) Prof. Halimaton Hamdan (Malaysia) and Prof. Mekkaoui Alaoui Ismail (Morocco); (2) Dr. Hany Hussein Abdel Ghafar (Egypt) and Prof. Kostadin Grozev Kostadinov (Bulgaria); (3) Prof. Ille Christine Gebeshuber (Department of Physics, Nanotechnology and Biomimetics, IMEN, UKM) and Mr. Nazar Shawgi Abdellateef Ahmed (Sudan); (4) Prof. Mohamad Deraman (School of Applied Physics, Faculty of Science and Technology, IMEN, UKM) and Dr. Silvester Tursiloadi (Indonesia); (5) Assoc. Prof. Mohd. Yusri Abd. Rahman (Dept. of Sciences, Mathematics and Computing, College of Foundation and General Studies, Universiti Tenaga Nasional, Kajang, Malaysia) and Dr. Deba Bahadur Khadka (Nepal); and (6) Prof. Pankaj Kumar Choudhury (IMEN, UKM) and Dr. Madhulika Bhati (India).

24 scientific papers presented during the Workshop by the foreign participants were on 'Nanotechnology and Governance: Bangladesh Perspective' by Mr. M. L. Palash of Bangladesh; 'Hydro-Mint Robot Technology in Hybrid Assembly for Precise Manufacturing of Microproducts' by Prof. Kostadin Grozev Kostadinov of Bulgaria; 'The Starting of Nanotechnology in Cambodia' by Mr. Seng Silong of Cambodia; 'Preparation and Characterization of Nano-Sized Hybrid Photocatalyst of WOx and TiO2' by Dr. Hany Hussein Abdel Ghafar of Egypt; 'Emerging Risk Issue, Debates and Silences about Nanotechnology: A Case Study of India' by Dr. Madhulika Bhati of India; 'Therapeutically Engineered Nanoparticles and Their Targeted Delivery' by Ms. Bidisha Pal of India; 'Nano - Catalyst Sulfated TiO2, ZrO2 and TiO2-ZrO2 Prepared by Supercritical Extraction and Modified Gel.' by Dr. Silvester Tursiloadi of Indonesia; 'Nano-Colloidal Silver Impregnated Ceramic Candle Filter for Drinking Water' by Dr. Sabeeha Abdul Jabbar Beden of Iraq; 'Controlled Release of Fertilizer using Mesoporous Silica Nanoparticles' by Dr. Erastus Gatebe of Kenya; 'Controlled Release and Antioxidant Activities of Zinc Basic Salt (ZBS) - Phenolic Acid Nanohybrids' by Dr. Timothy Tiwonge Biswick of Malawi; 'Nanotechnology for Mauritius Awareness on Potential Applications and the Need for Capacity Building' by Mr. Hemraj Ramsurrun of Mauritius; 'Nanocrystalline CdSe Quantum Dots and Applications for Finger Mark Visualization' by Prof. Mekkaoui Alaoui Ismail of Morocco; 'Process Study on Titanium Dioxide Nanotubes, TNT from TiCl4 and Fabrications of Dye Sensitized Solar Cell by using TiO2 Nanopowder and TiO2 Nanotubes' by Dr. Aung Kyaw Myo of Myanmar; 'Measurement of Deexcitation Cross Sections of Ne(3P1) by N2 using a Pulse Radiolysis Method' by Dr. Deba Bahadur Khadka of Nepal; 'Facile One-Pot Synthesis of Gold Nanoparticles and their Sensing Protocol' by Dr. Shamsa Kanwal of Pakistan; 'Bonding Energy Dependence of Solubility of Catalysts in the VLS Synthesized ZnS Nanostructures" by Dr. Arshad Saleem Bhatti of Pakistan; 'Optimized SACM-Avalanche Photodiode Structure' by Mr. Muhammad Rizwan Khan of Pakistan ; 'Temperature Tuned Simulation of InAlAs-InGaAs-InAlAs DHBT' by Mr. Muhammad Fahad Bhopal of Pakistan; 'Effect of Absorption Region Thickness on the Performance of Planner InP/InGaAs/InP PiN Photodiode' by Mr. Jibran Ahmed Abbasi of Pakistan; 'Pure Methane Storage on Olive Stones based Microporous Activated Carbon for Vehicular Applications' by Ms. Ben Yahia Sonia of Tunisia; 'Design of the Microreactor for the Heterogeneous Catalysis' by Ms. Nouri Hanen of Tunisia; 'Emergence And Development Of Nanotechnology In Uganda, East Africa' by Ms. Philippa Ngaju of Uganda; and 'Some Biomedical Applications of Chitosan Based Hybrid Nanoparticles' by Mr. Nguyen Ngoc Thinh of Vietnam.

12 scientific papers presented by Malaysian scientists were on 'Synthesis of ZnO Nanoparticles via the Sol gel Technique and their Use in Solar Photo Catalytic Degradation' by Prof. Dr. Abdul Amir Hassan Kadhum of the Department of Chemical Engineering, UKM; 'Improvement of Pressure Driven Membrane Performance Through Nanotechnology ' by Prof. Abdul Wahab Mohammad of the Department of Chemical and Process Engineering, UKM; 'Nanocellulose from Mengkuang for Biocomposite Application' by Prof. Ibrahim Abdullah, Professor of Physical / Polymer Chemistry, School of Chemical Sciences and Food Technology, UKM; 'Metal Oxide Nanoparticle Synthesis Using Microwave Technique' by Prof. Shahidan Radiman, Deputy Dean, Undergraduate and Alumni, Faculty of Science and Technology, UKM; 'Role of Nanoparticles in Modifying Contact Performance between Electrode and Current Collector of a Supercapacitor' by Prof. Dr. Mohammad Deraman; 'Properties of M Fe2O4 (M= Mn and Zn) Ferrite Nanoparticles Synthesized Via Thermal Treatment Method' by Prof. Abd Halim Shaari, Department of Physics, Universiti Putra Malaysia (UPM), Serdang; 'Metal Oxide Nanostructure for Photoelectrochemical Cell' by Associate Prof. Mohd. Yusri Abd. Rahman; 'Nanobioconvergence' by Prof. Ille Christine Gebeshuber; 'Towards a Strategic Nanotechnology Action Plan in OIC Countries' by Prof. Emeritus Muhammad Yahaya, School of Applied Physics, UKM; 'Fuel Cell' by Prof. Ir. Dr. Wan Ramli Bin Wan Daud, Director, Fuel Cell Institute, UKM; 'Localized Surface Plasmon Resonance (LSPR) of Gold Nanoparticles to Detect Formaldehyde' by Prof. Muhamad Mat Salleh, IMEN, UKM; and 'Low-Temperature Catalyst-Free Formation of Carbon Nitride Nanostructures using Plasma Enhanced Chemical Vapour Deposition' by Prof. Datin Saadah Abdul Rahman, Leader, Low Dimensional Materials Research Centre, Department of Physics, Universiti Malaya, Kuala Lumpur.

At the end of the Technical Sessions, Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre made a presentation on 'The Role of the NAM S&T Centre for South South Cooperation in Science & Technology'. Subsequently, there was considerable deliberation and debate on generating a set of recommendations titled 'Bangi Recommendations on Nanotechnology in the Edge of Convergence', which was adopted during the Closing Session.

Group Photo of Nanotechnology Workshop , Malaysia

(Contd. from Page 5 - Nanotechnology Workshop, Malaysia)

A Poster Session was also organised concurrently with the workshop presentations at which nine posters were displayed by Malaysian scholars.

The Workshop ended with the handing over of the Participation and Sponsorship Certificates to the participants and sponsors of the Workshop, concluding remarks and the Vote of Thanks.

The participants thanked the organisers for the successful and fruitful organisation of the Workshop and for excellent hospitality and arrangements made for the delegates, and unanimously hoped that more similar events will be held in future with a focus on South-South cooperation.

BANGI RECOMMENDATIONS

On

Nanotechnology

We, the scientists, academics, professionals, engineers, scientific managers and policy makers of the non-aligned and other developing countries from Bangladesh, Bulgaria, Cambodia, Egypt, India, Indonesia, Iraq, Kenya, Malaysia, Malawi, Mauritius, Morocco, Myanmar, Nepal, Pakistan, Sudan, Tunisia, Uganda and Vietnam;

THANK:

- The Centre for Science and Technology of the Non-aligned and Other Developing Countries (NAM S&T Centre), Commission on Science and Technology for Sustainable Development in the South (COMSATS), Islamabad, Pakistan and the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia (UKM), Malaysia, the joint hosts of the International Workshop on 'Nanotechnology in the Edge of Convergence' held at Puri Pujangga, UKM, Malaysia on 24-27 November 2011;
- Our respective governments, United Nations Educational, Scientific and Cultural Organization (UNESCO) and other sponsors who have made our participation at this very important meeting possible;

AND

PLACE ON RECORD our appreciation to the Ministry of Higher Education (MOHE), Ministry of Science, Technology & Innovation (MOSTI) of Malaysia and the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia (UKM) for providing the interactive platform, excellent ambience for the meeting, fine arrangements and kind hospitality;

REALISING THAT the promotion of Nanoscience and Nanotechnology and their applications is presently becoming a major conduit to achieve the technical and economic prosperity of all the countries, including the Non Aligned Member States and other developing nations. Besides, there is a great need to educate younger generations about the science and engineering at nanoscale.

HAVING RECOGNISED that Nanoscience and Nanotechnology cut across almost all the disciplines such as agriculture and food technology, biotechnology, health, medicine, new materials, energy, water and air purification, among others. It is a new perspective with which the developing countries can create wealth to enhance the quality of life.

HAVING EXTENSIVELY DELIBERATED ON the issues related to the Nanoscience and Nanotechnology in the developing countries, the specific issues encompassing:

1. Status and prospects of Nanoscience and Nanotechnology in developing countries,
2. Nanotechnology policy, governance, strategy, human resource and market development,
3. Implications of Nanotechnology to the health and environmental risks,
4. Implications of Nanotechnology to the ethical, legal and social issues,
5. Necessary infrastructure to support R&D on Nanoscience and Nanotechnology,
6. Applications of Nanotechnology,
7. Developing standards for analysis/quality control of nanoproducts, and
8. Enhancing the regional and global networking in Nanoscience and Nanotechnology activities.

UNANIMOUSLY RECOMMEND THAT:

- Nanoscience and Nanotechnology should be made a major area of development to achieve the technical and economical progress.
- Developing countries should be convinced to exhibit commitment (political will, financial and human resources) towards research, development, application and commercialisation of nanoproducts with the involvement of concerned stakeholders.
- Developing countries should adopt a holistic approach to provide adequate resources for training and creating awareness amongst policy makers, industry partners and the public at large about the importance of Nanotechnology, not just for its inherent value, but also for its role in alleviating poverty and wealth creation.
- The Governments need to prepare vision document for the advancement of Nanoscience and Nanotechnology covering all aspects like education, R&D applications and implication of this technology. In this regard, scientific papers, reports or documents etc. should be shared with developing countries (for example, via internet or other means).
- Regulatory bodies should be established to ensure the safe use and applications of nano-containing products to avoid health and environmental hazards. Since products have already come in the market, it is the need of the hour.
- Safety and precautionary measures for scientists and engineers working in the development of Nanoscience and Nanotechnology in private and public sectors, R&D institutions and universities should be defined and followed strictly.
- Nanotechnology based curriculum should be developed and integrated from high school to university to facilitate the transformation of research to innovation in this emerging area.
- Web portals may be designed for developing countries serving purposes like education and awareness.
- Advantage may be taken from established Centres of Excellence in developed countries as well as in developing countries for short term training, channelizing and enhancing knowledge and learning capacity.
- Nanotechnology expert teams should be formed with the involvement of scientists, industrialists and policy makers for the formulation of new plans and policies and governance.
- There is a pressing need of public engagement in formulation of regulation to ensure transparent, inclusive and equitable development of nanotechnology and to avoid the previously made mistakes with biotechnology, e.g. in the case of GM crops.
- Short, medium and long term plans should be prepared to create continuous innovative capacity in Nanotechnology.
- Multilateral and bilateral collaborations should be encouraged to enhance global partnerships.

Thus, resolved and adopted on the 27th November 2011 at Bangi, Malaysia.

PARTICIPATION OF CENTRE'S SCIENTISTS IN WORKSHOPS/SEMINARS/CONFERENCES

02 Oct 2011	**Ms. Apeksha Yadav**, Research Assistant attended the 11th Sarojini Naidu Prize ceremony hosted by The Hunger Project (THP) at the India Habitat Centre, New Delhi.
12 Oct 2011	**Dr. V. P. Kharbanda**, Publications Advisor and **Ms. Apeksha Yadav** and **Ms. Bidisha Pal**, Research Assistants attended a seminar on 'Effective Public Service Delivery in Health and Education' organised by the Global Development Network (GDN) at the Hotel Claridges, New Delhi.
12-14 Oct 2011	**Mr. Yasir Abbas Rizvi**, Research Assistant attended the International Symposium on 'Lightning Protection' at Dhulikhel Lodge Resort, Kathmandu, Nepal.
18-20 Oct 2011	**Dr. Gurjeet Kaur**, Scientist attended the Indo - German Symposium on 'Plant Biology' co-organized by The Indian National Science Academy (INSA), the German National Academy of Sciences (DAAD) and the German Research Foundation (DFG) at INSA, New Delhi.
02-05 Nov 2011	**Dr. V. P. Kharbanda**, Publications Advisor attended the Indo Russian Conference on 'Socio-Economic and Technological Innovations in the Globalizing Economy: Mechanism and Institutions' organized by the National Institute of Science of Science, Technology & Development Studies (NISTADS - CSIR) and the Russian Academy of Sciences and presented a paper on 'The Impact of Globalization on the S&T Institutional Structure: A Case of CSIR, RAS and CAS' jointly written with Kasturi Mandal, Tetiana Shevchenko and Partha Banerjee.
14 Nov 2011	**Dr. V. P. Kharbanda**, Publications Advisor attended the Jawaharlal Nehru Birth Centenary Award Lecture 2010-11 on 'Indian Health Care The Road Ahead' by Dr. Naresh Trehan, Cardiologist and CMD, Medanta at the India International Centre, New Delhi.
14-19 Nov 2011	**Dr. Gurjeet Kaur**, Scientist attended a Training Workshop on 'Advances in Biotechnology' organised by The Energy and Resources Institute (TERI) at India Habitat Centre, New Delhi.
24-27 Nov 2011	**Ms. Bidisha Pal**, Research Assistant attended the International Workshop on 'Nanotechnology in the Edge of Convergence' at Puri Pujangga, Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, Malaysia
15-16 Dec 2011	**Dr. V.P. Kharbanda**, Publications Advisor attended the "High-Level Policy Dialogue on Development Challenges facing the South and South West Asia" organized on the occasion of the opening of the ESCAP Sub-regional Office for South and South-West Asia by the Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations, New Delhi.
17 Dec 2011	**Ms. Apeksha Yadav**, Research Assistant attended a Seminar on 'Relevance and Value of Women Members on Company's Boards' at PHD House, New Delhi.
21 Dec 2011	**Ms. Apeksha Yadav**, Research Assistant attended a Pre-Congress Seminar on 'Growth, Development and Empowerment of Women' organised by the Indian Science Congress Association (Delhi Chapter) at India International Centre, New Delhi.

Director NAM S&T Centre Meets and Visits

Visit to Nepal

With H.E. Mr. Lekh Raj Bhatta (C) and Prof. Surendra Raj Kafle (R)

With Prof. Surendra Raj Kafle (L) and Dr. Shekhar Shah (R) of NAST

Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre visited Dhulikhel in Nepal during 12-14 October 2011 to organise a 3-day International Symposium on Lightning Protection. Prof. Kulshreshtha used this opportunity to call on Mr. Tana Gautam, Secretary to the Government of Nepal in the Ministry of Science and Technology and apprised him of the activities of the NAM S&T Centre and follow up to the Lightning Protection workshop, including the possibility of establishing a Lightning Centre in Nepal. Mr. Arjun Karki, Joint Secretary of the Ministry and Dr. Shekhar Shah, Special Class Officer and Chief, Planning and Evaluation Division of the Nepal Academy of Science and Technology (NAST) were also present during this meeting. The Director also had a separate meeting with another Joint Secretary in the Ministry, Mr. Mukunda Raj 'Prakash'. Later, Prof. Kulshreshtha called on Prof. Dr. Surendra Raj Kafle, Vice-Chancellor, Nepal Academy of Science and Technology (NAST) and discussed the issues of mutual interest. Prof. Kulshreshtha also had an opportunity to address a meeting of the young scholars in the premises of the Nepal Physical Society (NPS), a professional society of Nepali physicists, at the request of Prof. Dr. Shekhar Gurung, President NPS. Professor Kulshreshtha also spent time with Prof. Dilip Subba, Professor, Tribhuvan University and formerly Secretary, NAST.

With Prof. Dilip Subba, Ex-Secretary NAST

Visit to Doha, Qatar

Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre visited Doha, Qatar during 21-23 October 2011 to attend the 18th international science conference on 'The Islamic World and the West: Rebuilding Bridges through Science and Technology', which was organised by the Islamic World Academy of Science (IAS) at Doha with active support from the Ministry of Foreign Affairs of Qatar. Dr. Moneef R. Zou'bi, Director General, IAS played the key role in

With H.E. Prof. Atta-ur-Rahman, Coordinator General. COMSTECH and Former Federal Minister of Science & Technology, Pakistan (C) and Prof. M. Asghar, Institute of Nuclear Sciences, Grenoble, France

(Contd. on Page 9)

(Contd. from Page 8 - Director NAM S&T Centre Meets and Visits)

With Acad. Lee Yee Cheong, Chairman, ISTIC (L) and Prof. Zakri Bin Abdul Hamid, Scientific Advisor to the Prime Minister of Malaysia

hosting this event, which was attended by 158 scientists and professionals from the government agencies, academic and R&D institutions and NGOs across the world. Prof. Kulshreshtha took this opportunity to discuss the matters of mutual interest with several officials and experts of many countries.

Prof. Moneef R. Zou'bi, DG, Islamic World Academy of Science (IAS)

Visit to Malaysia

Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre visited Bangi, Selangor in Malaysia to organise the International Workshop on 'Nanotechnology in the Edge of Convergence' during 24-27 November 2011, which was held at the National University of Malaysia, UKM. Prof. Kulshreshtha took this opportunity to call on Prof. Emeritus Dato' Dr. Zakri Bin Abdul Hamid, Science Advisor to the Prime Minister of Malaysia in the Prime Minster's Office to discuss the matters of mutual interest and request him to write the Foreword for inclusion in the Centre's publication (in press) on 'Science and Technology Policy and Sustainable Development', to which he readily consented. Subsequently Prof. Kulshreshtha visited the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC) and met with Academician Dato' Ir. Lee Yee Cheong, Chairman, ISTIC Governing Board and explored various possibilities of ISTIC-NAM S&T Centre collaboration. At ISTIC he also spent some time with the Science Officer Dr. Abdul A'dzim Bin Abd. Rashid. Later, Prof. Kulshreshtha called on YM Ms. Tengku Nasariah Tengku Syed Ibrahim, General Manager and CEO of Petrosains Sdn Bhd at KLCC Twin Towers.

VISITORS TO THE CENTRE

Dr. Hong Pong Gi (2nd from L) , Councilor of S&T, Embassy of DPR Korea, New Delhi

Dr. Tan Ching Sin, (2nd from R) Head Energy Security, Universiti Tenaga Nasional, Malaysia

With Prof. Theeshan Bahorun (3rd from L), University of Mauritius

DISTINGUISHED VISITORS TO THE CENTRE

3rd Oct 2011	**Dr. Tan Ching Sin**, Head of Energy Security, Institute of Energy Policy and Research (IEPRe), Universiti Tenaga Nasional (UNITEN), Kajang, Selangur, Malaysia
10th Oct 2011	**Dr. Richard Tushemereirwe**, Senior Private Secretary for Science and Technology to H.E the President, Statehouse, Uganda
17th Oct 2011	**Dr. Harry Coomar Shumshe Rughooputh**, Faculty of Engineering, University of Mauritius
19th Oct 2011	**Dr. Ali M. Birang**, Manager of International Affairs, Center for Innovation and Technology Cooperation (CITC), Tehran, Iran
19th Nov 2011	Group of Participant Scientists of the Workshop on 'Advances in Biotechnology' organised by The Energy and Resources Institute (TERI), New Delhi
1st Dec 2011	**Prof. Theeshan Bahorun**, Faculty of Science, Department of Bioscience, University of Mauritius Reduit Republic, Mauritius
7th Dec 2011	**Dr. S.N. Zindal**, Chief, R&D Officer, Birla Institute of Technology and Science (BITS), Pilani (Raj.), India
23rd Dec 2011	**Dr. Ruckmani**, Scientist, International Mulitlateral & Regional Cooperation Division (IMRCD), Department of Science & Technology (DST), Government of India
26th Dec 2011	**Dr. Hong Pong Gi**, Councilor for Science & Technology, Embassy of the Democratic People's Republic of Korea, New Delhi, India.

SCIENCE AND TECHNOLOGY NEWS IN THE DEVELOPING WORLD

Bahrain: Centre for Arab Genomic Studies

Arab nations have some of the highest rates of genetic disorders in the world due in part to the relatively high levels of consanguineous (blood-related) marriages. More than 900 genetic diseases have been identified, around 200 of which are prevalent only within the six Gulf Cooperation Council States of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. According to a 2006 report by the US-based charity March of Dimes, 15 of the 22 countries with the most birth defects are in the Middle East and North Africa. Sudan has the most birth defects, with 82 per 1,000 live births, compared with 39.7 in France, which had the lowest number among the 193 countries surveyed. In an effort to boost the development of education and research in inherited diseases and genetic disorders in the Arab world, a molecular medicine centre, Centre for Arab Genomic Studies, has opened in Bahrain on 28th November 2011, which will focus on providing research and educational facilities in molecular medicine, clinical genetics and gene therapy as well as defining the intellectual property rights of universities and protection of scientific discoveries. The Centre is located at Arabian Gulf University in Manama, the capital of Bahrain and its establishment is a pioneering step for the Gulf region and the Arab world, as well as internationally, in the follow-up and treatment of genetic diseases. The Al-Jawhara Centre is the first academic institute in the Arab world to adopt molecular medicine and link it to clinical and molecular diagnostic services, research and education in the area of work with the community. The Centre harbours latest techniques in the molecular diagnosis of abnormalities of genes and chromosomes in the fields of paediatrics, neonatal and reproductive health to improve diagnosis, treatment and prevention of inherited and gene-regulated diseases. It will provide diagnostics services for heritable syndromes and disorders including chromosome, DNA and biochemical analysis, as well as providing clinical genetics services and specialty clinics for the adult and paediatric population. It will also identify and describe the patterns of birth defects, assess the impact of congenital malformations on infants and families, and collaborate with others to determine factors involved in their causes in order to develop insights into primary prevention.

Source: Science Development Network, 11th December 2011

China: GM Rice produces Blood Protein

Albumin is a water-soluble protein that is widely used in drugs, vaccines and cell culture media. The primary source of albumin is human plasma and rising demand has prompted an increase in illegal blood collection throughout many countries. In China, for example, the practice has caused the rapid spreading of HIV and hepatitis C. Scientists of the Wuhan University have now genetically modified a rice plant so that its grains contain around 10% albumin. They have even developed a cost-effective protocol for the large-scale production of high-purity albumin. This technology not only avoids the need to use human plasma but also helps satisfy worldwide demand. Structural analysis shows that rice-derived albumin is identical to plasma-derived albumin. In addition, rice-derived albumin is just as efficient for binding drugs, promoting cell culture growth and treating ascites caused by chronic liver disease in mice. Environmental tests suggest that the transgenic rice plant has minimal impact on nearby crops. These results show that rice-derived albumin is an adequate substitute to plasma-derived albumin, and that it can be produced in commercially viable amounts at high purity.

Source: nature CHINA, 7th December 2011

India: NRSC Open EO Data Archive (NOEDA)

Bhuvan, ISRO's Geoportal and Gateway to Indian Earth Observation data products and services, now facilitates the users to select, browse and download satellite data through NRSC Open EO Data Archive (NOEDA). The data can be downloaded based on various search options like bounding box, tiles (1degree x 1degree), interactive drawing and SOI mapsheet (1:250,000 scale) number. Users can presently download Elevation data of CartoDEM-1arc second and Resourcesat-1: AWiFS data (56m) of the Indian region with existing Bhuvan log-in credentials. Those who have not registered on Bhuvan can do now and access the data. This facility will be extended for other IRS satellite data coarser than 24m in near future. NOEDA can be accessed from the link provided at the Bhuvan home page (www.bhuvan.nrsc.gov.in). It can also be accessed directly from http://bhuvan-noeda.nrsc.gov.in

Source: Bhuvan Updates, 1st October 2011

Indonesia: Development of NSDI using Cloud

Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet). Cloud computing provides computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services. Parallel to this concept can be drawn with the electricity grid, wherein end-users consume power without needing to understand the component devices or infrastructure required to provide the service. Indonesia's National Coordinating Agency for Survey and Mapping, BAKOSURTANAL, is taking its GIS initiatives to a whole new level by developing its National Spatial Data Infrastructure (NSDI) using cloud computing technology, an initiative which stemmed from the agency's thrust to provide accurate and reliable geospatial information to government agencies and the general public. BAKOSURTNAL is currently collaborating with Esri, a worldwide leader in GIS, to develop Indonesia's Spatial Data Infrastructure (Ina-SDI) using cloud. Cloud computing can provide seamless sharing of information between different agencies, and also provide various opportunities for BAKOSURTANAL to become more cost-effective, productive, flexible and efficient. In order to be spatially enabled, Indonesia will make spatial data acquisition complete on every scale as mandated in Indonesia's geospatial Information Laws. The development of the Indonesian Spatial Data Infrastructure is very critical. For the next three years BAKOSURTANAL will continue to develop the NSDI to focus more on geospatial data as well as build on capacity building for Indonesian human resources who will be custodians of their geospatial data

Source: http://www.futuregov.asia, 19th September 2011

Nigeria: New Varieties of Vitamin A Cassava

The Nigerian Government announced the release of three new varieties of yellow cassava bio-fortified with vitamin A. This news is good not just to the farmers who need high yielding varieties, but also to the women and children of Nigeria because the crop could provide up to 25% of their daily vitamin A needs. These new varieties were developed by the experts at the International Institute for Tropical Agriculture (IITA) and the Nigerian National Root Crops Research Institute (NRCRI) using conventional breeding techniques. The team is now working on varieties that could provide half of the daily vitamin A requirement. This project is funded by Harvest Plus and other partner international agencies.

Source: Crop Biotech Update, 9th December 2011

Pakistan: Development of Green Super Rice

Pakistan is one of the rice exporting Countries, but its production is comparatively low. The scientist of Hazara University started working on development of green super rice, a rice that can be used as green fodder as well as exportable grain quality. A wild rice Oryza longistminata, four land races of Pakistani origin and three varieties viz. JP-5, Basmati 385, KS-282 were used in this breeding strategy. By making crosses and selection, unique rice was developed. The leaves remain green with continued photosynthetic activities after the maturity of the grains. Due to this prolong photosynthetic activities the number of grains per panicle has been increased from 200 to 700. The panicle length increased up to 47 cm. 250-300 grains per panicle has been reported in the literature but there is no

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report of 700 grains per panicle. The production has been increased from 5t/ha to 12t/ha. It is 20 days early in maturity than locally cultivated varieties. The farmers can use it as fodder as well as a high yielding, early maturity and the best quality rice. Prolong photosynthetic activities may clean the environment by releasing Oxygen and utilizing CO_2. It is resistant to bacterial blight and is drought tolerance.

Source: www.visbdev.net, 1st October 2011

The Philippines: Philippine Genome Center Agriculture Programme Pre-Launch

A mini symposium and a field tour of plant genetics and breeding laboratories and facilities were conducted at the Institute of Plant Breeding of the University of the Philippines Los Baños (IPB-UPLB) on 20th October 2011 as the activities for the pre-launch of the Philippine Genome Center (PCG) Agriculture Programme. The PGC is envisioned to be a world class Centre of Excellence in Gene Discovery and Genomics Research that effectively translates knowledge into applications beneficial to society. PCG has five programmes, namely, agriculture, health, biodiversity for drug discovery & bioenergy, forensics & ethnicity, and social, legal and ethical issues. Crop genomics, particularly in abaca, saba and pili will be a priority of PGC's Agriculture Programme as these three crops are endemic to the Philippines. The Department of Science and Technology (DOST) has initially provided funding to support PGC health research efforts and considers Genomics as one of its priority programmes. The Department of Agriculture Biotechnology Program Office provides research funds for the ongoing crop genomics studies.

Source: Crop Biotech Update 21st October 2011

Senegal: Centre of Maths and Science

A new Pan-African Centre for Excellence in Maths and Science in Africa has been opened under the auspices of the African Institute for Mathematical Sciences (AIMS) in Mbour, 80 km south of Dakar, Senegal. AIMS - Senegal is the second centre in the AIMS network, joining AIMS-South Africa, which has operated in Cape Town since 2003. The plan to expand AIMS across Africa is known as the AIMS-Next Einstein Initiative (AIMS-NEI). AIMS-NEI was launched in 2008 to build a critical mass of scientific and technical talent across Africa, capable of driving progress across the continent. The plan is to expand Africa's scientific and technological capacity by providing advanced training to outstanding African students and enabling them to work effectively for the prosperity of the continent. AIMS-NEI is the outcome of a desire first expressed by AIMS founder Professor Neil Turok, who is the current director of Canada's Perimeter Institute for Theoretical Physics, that the next Albert Einstein must be African. The wish has evolved into a plan to create a Pan-African network of 15 AIMS centres over the next decade. AIMS-NEI is supported through public and private funding, including a $20-million investment by the government of Canada provided through the International Development Research Centre (IDRC). The government of France is also a significant partner in AIMS-Senegal, providing land for the current and future AIMS-Senegal facilities through French public research institution Institut de recherche pour le développement (IRD). AIMS-Senegal's first 36 students selected from 350 applicants from 14 countries were joined by dignitaries from 15 countries at the opening ceremony to recognise the centre's many supporters and partnering academic institutions. The Cape Town AIMS centre has 360 graduates from 32 African countries, to date, of whom one-third are women. An AIM has become globally recognised as a Centre of Excellence for postgraduate education and research. To further its ambitious mandate and innovative teaching methods, AIMS-NEI receives financial support from the government of Senegal, securing $1.4-million for the establishment of AIMS-Senegal and a donation of a seaside parcel of land. The government of France contributed land valued at $1.3-million and the government of Canada donated $20.5-million, channelled through the IDRC to support the growth of the network. AIMS-NEI is also supported by a growing number of North American and European universities and companies through its One-for-Many scholarship programme. The government of Ghana has contributed $1.5-million for the creation of AIMS-Ghana. Internet search engine Google has donated $2 million and the Kavelman-Fonn Foundation contributed about $600,000 for AIMS-Senegal.

Source: SDN Science and Technology Bulletin, 6th October 2011

South Africa: Prehistoric Painters

When Vincent Van Gogh moved to the southern French town of Arles in 1888, he painted nearly 200 vivid canvasses before cutting off his left ear in a fit of madness. This artistic explosion was possible in part because Van Gogh kept his brushes, paints and palette constantly at the ready. A new discovery in South Africa suggests that prehistoric human painters also planned ahead, using ochre paint kits as early as 100,000 years ago. But just what they used the paints for is still a matter of debate. Red or yellow ochre, an iron-containing pigment found in some clay, is ubiquitous at early modern human sites in Africa and the Near East. Some researchers think the earliest known art comes from the site of Blombos in South Africa, about 300 km east of Cape Town, where pieces of ochre incised with an abstract design have been dated to 77,000 years old. Scientists have found even earlier signs of ochre use at Blombos and other sites as old as 165,000 years, but solid evidence that the pigment was used in artistic or other symbolic communication has been lacking. In this study, the scientists report two ochre-processing 'toolkits' at Blombos, dated to 100,000 years ago with a technique called optically stimulated luminescence, which measures how long grains of sand in archaeological layers have been hidden from sunlight. The toolkits, found only 16 centimeters apart in the same layer, were very similar: Both consisted of abalone shells filled with a mixture of ochre, crushed bone, and charcoal. Inside both shells were chunks of ochre-stained quartzite rock apparently used to grind the mixture. One of the shells also had part of the forearm bone of a canid, possibly a wolf or fox, which the team thinks might have been used to stir the paint or transfer it out of the shell. The two shells appear to be components of an ochre workshop. It was inferred that the Blombos humans followed a specific series of steps to create the ochre paint, including grinding the pigment into a powder, heating the bone before crushing and adding it to the mix, and then putting the paint into the shells where it was gently stirred. But what the ancient craftsmen used the paint for is 'not self-evident' and it is suggested that it might have been used for decorating skin or clothing or for protecting the skin as Ochre is known to repel mosquitoes and other insects.

Source: Science NOW, 13th October 2011

Thailand: Natural Hazards Management - Mapping App to Trace Floods

The Information and Communication Technology Ministry of Thailand has introduced an online mapping application to let users find any location in the country and its flood status. The application is called the Thai Crisis Planner & Reporter and was developed with Chulalongkorn University. It can be accessed at http://thaicrisis.chula.ac.th. The application can provide floodwater details and water levels for all 50 districts of Bangkok. Interested websites and social media may partner with the Thai Crisis Planner & Reporter free of charge. The Longdo Map, Thai Flood and Flood Helps websites have expressed interest in participating. The system features better data evaluation from all state agencies, including the Royal Thai Survey Department and the Department of Highways. The application could further develop on top of the government's GIS for future flood planning and drought prevention measures.

Source: Geospatial World, 14th November 2011

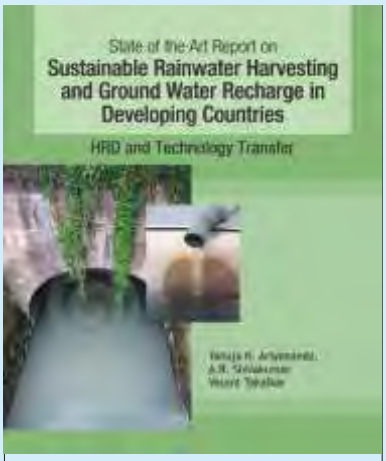
Thailand: First 5 MW Solar Thermal Parabolic Trough Plant

The first 5 MW solar thermal parabolic trough plant built with a unique technology of Solarlite company in Southeast Asia, a German supplier of the solar technology, was opened on 29th November 2011 in Huaykrachao in the Thai province of Kanchanaburi. The TSE 1 power plant is the first in the world to be based on direct steam generation, thus making it more efficient and environmentally-friendly because it uses water instead of oil as a heat transfer fluid. It is also the first of 15 facilities with a combined total output of 135 MW that are slated for construction under Thailand's regulations for very small power producers (VSPP). The regulations guarantee additional feed-in tariffs for projects with up to 10 MW in their first 10 years of operation.

Source: Energetica, 5th December 2011

New Publicatrion

State-of-the-Art Report on Sustainable Rainwater Harvesting and Ground Water Recharge in Developing Countries: HRD and Technology Transfer



ISBN 978-81-7035-770-4
pp. 517 Price `4000 / US$150

The NAM S&T Centre implemented a multilateral collaborative project on 'Sustainable Rainwater Harvesting and Ground Water Recharge in Developing Countries HRD and Technology Transfer', which was partially supported by the Group of 77 (G-77) under its Perez-Guerrero Trust Fund (PGTF) with participation of 18 developing countries. The 3-year project was an integrated effort on Rain Water Harvesting (RWH) and Ground Water Recharge (GWR) as a model solution to solve the water shortage problem in conventional water supply systems in the developing countries. The prime objective of the Project was capacity building through HRD and technology transfer by executing two major components, viz. preparing a State-of-the-Art Report to help professionals in planning and modifying water conservation and supply schemes, and holding a centralised training programme for professionals from developing countries engaged in implementing relevant schemes to empower them to organize national level training courses for water technicians. As part of the project execution, the Centre organised a 4 days International Workshop on the subject at Pune, India during 17-20 August 2009; a 6 days Trainers' Training Programme at Bengaluru, India during 22-27 February 2010; and a Seminar on 10th November 2010 at the National Science Foundation (NSF), Colombo, Sri Lanka. In conclusion the Centre brought out the present 517-pages State-of-the-Art Report that has been jointly edited by Dr. Tanuja N. Ariyananda, Director, Lanka Rain Water Harvesting Forum, Sri Lanka; Mr. Vasant Takalkar IFS, Consultant, Maharashtra Knowledge Corporation Ltd. (MKCL) Pune, India. Mr. A. R. Shivakumar, Principal Investigator, RWH, Karnataka State Council for Science and Technology (KSCST), Bangalore, India and includes the Country Status Reports, 'RWH & GWR Manual for Rural Areas' and 'Trainers' Manual and RWH Guide'. It is a comprehensive publication and will be a useful resource material for the concerned engineers, researchers, experts and practitioners interested in water management in the developing countries.

List of Contents

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