



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 Dg'S Desk

Heartiest Greetings!!



Our esteemed readers will be pleased to learn that the NAM S&T Centre's family is slowly, but steadily, on the rise and with the latest induction of the State of Palestine in January 2016, our strength has grown to 48 member countries.

During 10-13 March 2016 we organised an international workshop on 'Mitigation of Disasters due to Severe Climate Events: From Policy to Practice' in Colombo, Sri Lanka in partnership with the National Science & Technology Commission (NASTEC) of Sri Lanka in the scenario that has emerged since the 2015 United Nations Climate Change Conference (COP-21) held in Paris from 30 Nov. to 12 Dec. 2015. 64 professionals, policy makers and other stakeholders from 19 countries shared views and experiences for developing a roadmap to reduce the climate change related disaster risks in real situations and at the conclusion of the workshop, unanimously adopted a Resolution on 'Practical Guidelines to minimize Hazards due to Severe Natural Events'.

During 22-25 May 2016 the Centre will partner with the Pardis Technology Park in Tehran, Iran to hold an International Training Workshop on 'Commercialisation of Technology'.

During 8-12 August 2016 the Centre in partnership with the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC) under the auspices of UNESCO is organising an International Training Programme in Kuala Lumpur, Malaysia on 'STI Policy and Management for Developing Countries (ITPS)' to impart necessary knowledge and skills to the participants in the development and management of a national STI policy in support of social-economic transformation.

The selection process for the Centre's Training Fellowship on Minerals Processing & Beneficiation for 2016 in partnership with the Department of Science & Technology (DST), South Africa is over with the selection of 20 Fellows from 13 countries for the award.

The Centre's Research Training Fellowship for Developing Country Scientists (RTF-DCS) Scheme for 2015-16 is successfully being implemented with most of the 50 selected Fellows from 31 countries already in place at their respective Indian host institutes. Further, we have already circulated the Announcement inviting applications from interested researchers for RTF-DCS Fellowships for the current year, 2016-17.

Happy Reading!

(Arun P. Kulshreshtha)

Centre Welcomes

STATE OF PALESTINE: 48TH MEMBER COUNTRY OF NAM S&T CENTRE



NAM S&T Centre welcomes the State of Palestine as its new member country which has joined the Centre in January 2016. Dr. Adnan Judeh, Executive Director, Higher Council for Innovation and Excellence (HCIE), State of Palestine has been designated as the Focal Point of the Centre in Palestine.

As a member of the NAM S&T Centre, Palestine would henceforth have the right to participate in the policy making process for the Centre and shall be entitled to nominate its scientists, researchers and professionals to participate in the international scientific events and training courses organised by the Centre, avail various Fellowships offered by the Centre and also take part in multilateral collaborative projects without any financial implications. The Centre expects to forge collaborative relations with the concerned organisations in the State of Palestine on various scientific issues that are of relevance and interest to the developing countries.

Centre Organised

INTERNATIONAL WORKSHOP ON
MITIGATION OF DISASTERS DUE TO SEVERE CLIMATE EVENTS:
FROM POLICY TO PRACTICE

COLOMBO, SRI LANKA, 10-13 MARCH 2016

The entire globe is currently getting highly vulnerable to the impacts of severe climate events originating from atmosphere related conditions. The susceptibility of a country is closely linked to its geological, geographical and socio-economic characteristics. For alleviating the risk of disaster due to severe



Disaster Mitigation Workshop, Colombo, Sri Lanka, Inaugural Session:

(L to R) Dr. Muditha Liyanagedera, Prof. Dhammika A. Tantrigoda, Hon'ble Minister H.E. Susila Premajayanth, Hon'ble Secretary Mrs. R. Wijjaludchumi and Prof. Dr. Arun P. Kulshreshtha

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climate events in a given region, many factors are needed to be studied in depth in an integrated context. The disaster prevention and risk reduction process should be done in a sequential path after gathering the information on geological, meteorological, sociological, technical and economic aspects of the possible severe climate events and a suitable risk mitigation plan should be chalked out and evolved.

During the last few years, due to the constant failure of implementing pre-planned strategies in actual disaster situations there has been a growing need for a concrete platform to educate and train the individuals and entities in the developing world and network with them to act beyond the disaster management policies. Keeping this in view, the NAM S&T Centre in partnership with the National Science & Technology Commission (NASTEC) of Sri Lanka organised an international workshop on 'Mitigation of Disasters due to Severe Climate Events: From Policy to Practice' in Colombo, Sri Lanka during 10-13 March 2016, which brought the scientists, experts and professionals engaged in R&D, policy making and implementation, social activists and other stake holders to a common forum for sharing views and experiences for the development of a road map for reducing the risks in real situations.

The Inaugural Session started with the National Anthem and lighting of the traditional lamp. During the Inaugural Session Prof. Dhammika A. Tantrigoda, Chairman, National Science and Technology Commission (NASTEC) of Sri Lanka made a welcome address, which was followed by the address of Prof. Dr. Arun P. Kulshreshtha, Director General, NAM S&T Centre, who presented the genesis of the event and also briefly described the activities of the inter-governmental organisation headed by him. The Chief Guest, H.E. Susil Premajayanth, Honourable Minister of Science, Technology and Research of the Democratic Socialist Republic of Sri Lanka in his Inaugural Address remarked about the calamities being faced by the humanity due to climate change related natural disasters and shared his experiences from the past in his capacity as the former Environment Minister of Sri Lanka. Dr. Muditha Liyanagedera, Director & CEO, NASTEC presented the Vote of Thanks. Mrs. R. Wijjaludchumi, Secretary SLAS (Special) in the Ministry of Science, Technology and Research of Sri Lanka also graced the podium with her presence.

The Colombo Workshop was attended by 64 senior



Prof. Arun Kulshreshtha, DG NAM S&T Centre with Mrs. R. Wijjaludchumi, Secretary SLAS (Special), Ministry of Science, Technology and Research of Sri Lanka

professionals from 19 countries, respectively, Cambodia, Egypt, Hungary, India, Indonesia, Iran, Malaysia, Mauritius, Myanmar, Nepal, Nigeria, Pakistan, Palestine, Thailand, Uganda, Venezuela, Zambia and Zimbabwe, and the host country Sri Lanka. Mr. Davino Ribeiro de Sena, Deputy Chief of Mission of the Embassy of Brazil in Colombo was present during the Inaugural Session.

The 23 foreign participants were from Cambodia [Mr. Neth Vansitha, General Secretary and Mr. Viseth Ung, Deputy Secretary General, National Science and Technology Council (NSTC), Ministry of Planning, Phnom Penh]; Egypt [Dr. Mohour Ibrahim Hassan Hassan, Supervisor, Climatic Changes Unit, Egyptian Environmental Affairs Agency (EEAA),



Group photo of International Disaster Mitigation Workshop, Colombo, Sri Lanka, March 2016

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Cabinet of Ministers, Alexandria]; Hungary [Prof. Dr. Laszlo Bozo, Scientific Adviser, Hungarian Meteorological Service (HMS) and Corvinus University of Budapest]; India [Prof. Rajesh Kumar Mall, Institute of Environment & Sustainable Development, Banaras Hindu University (BHU), Varanasi (U.P.)]; Indonesia [Dr. Ir. Adawiah, Deputy Director, Harmonization of Innovation Programmes and Policies, Ministry of Research, Technology, and Higher Education, Jakarta]; Iran [Dr. Reza Aghnoum, Deputy of Research and Technology, Khorasan Razavi Agricultural and Natural Resources Research and Education Center (KANRRC), Mashhad]; Malaysia [Dato' Ir. Rohaizi Mohd Jusoh, Senior Director, National Disaster Management Agency, Prime Minister's Department, Putrajaya; Prof. Dr. Chandima Gomes, Professor of Electrical Engineering, Department of Electrical and Electronics Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Serdang, Selangor Darul Ehsan; and Prof. Biswajeet Pradhan, Faculty of Engineering, Department of Civil Engineering, UPM]; Mauritius [Mr. Grish Gunraz Gunesh, Acting Senior Chief Executive, Ministry of Environment, Sustainable Development & Disaster and Beach Management, Port Louis]; Myanmar [Dr. Aye Mya Cho, Associate Professor, Department of Civil Engg., Mandalay Technological University, Mandalay]; Nepal [Prof. Jiba Raj Pokharel, Vice-Chancellor, Nepal Academy of Science and Technology (NAST), Kathmandu]; Nigeria [Mr. Agoro, Olayiwola A., Chief Scientific Officer, Department of Physical and Life Sciences, Federal Ministry of Science and Technology, Abuja; and Dr. Onimode Abdullahi Bande, Deputy Director, Search and Rescue, National Emergency Management Agency (NEMA), Abuja]; Pakistan [Mr. Muhammad Danish, Principal Scientific Officer, National Institute of Oceanography (NIO), Karachi]; Palestine [Mr. Hatim Fahed Al Wahsh, Researcher, An-Najah National University, Nablus]; Thailand [Prof. Jayant K. Routray, Professor, Regional and Rural Development Planning, Coordinator of Interdisciplinary Academic Program on Disaster Preparedness, Mitigation & Management (DPMM) and Climate Change & Sustainable Development (CCSD), Asian Institute of Technology (AIT), Bangkok]; Uganda [Dr. Kisamba Mugerwa, Executive

Chairperson, National Planning Authority, Kampala]; Venezuela [Prof. Dr. Joaquin Alejandro Linayo Rivero, President, Research Center C.I.G.I.R, Disaster Risk Reduction Research Center, Caracas]; Zambia [Mr. Mpanga Shadreck, Lecturer, Department of Electrical and Electronic Engineering, School of Engineering, University of Zambia, Lusaka]; and Zimbabwe [Ms. Chipo Mudavanhu, Lecturer, Geography Department, Bindura University of Science Education, Bindura]. The NAM S&T Centre was represented by its Director General, Prof. Arun P. Kulshreshtha and Ms. Nidhi, Research Associate.

The Sri Lankan participants, who made technical presentations during the Workshop, were Mrs. A.R. Warnasooriya, Deputy Director; Mr. N. Kumarasinghe, Senior Electronic Engineer and Mrs. W.N.S. Rupasinghe, Meteorologist of the Department of Meteorology, Colombo; Mrs. Subashini Dyananda, Legal Officer, Ministry of Disaster Management, Colombo; Mr. K. Sivapalasingh, Director, Assets Management & Disaster Management, Department of Irrigation, Colombo; Dr. P. Jayasinghe, Senior Geologist; Mr. D.M.D.S. Dissanayaka, Scientist; Ms. W.D.G.D.T Rajapaksha and Mr. W.A.D.T Wijesinghe of the National Building Research Organization,



Sri Lankan Speakers of Disaster Mitigation Workshop, March 2016

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Colombo; Mr. Nalaka Deepal Subasinghe, Associate Research Professor, National Institute of Fundamental Studies, Kandy; Dr. J.M.S.B. Jayasundara, Head, Department of Environmental Management, Rajarata University, Mihinthale and Mr. R.T. Thrimawithana, Zebra Technologies Lanka Pvt. Ltd.

The overall programme of the Workshop was conducted in eight technical sessions, respectively chaired by Dr. Rajesh Kumar Mall of India; Dr. Riza Aghnaum of Iran; Prof. Chandima Gomes and Prof. Biswajeet Pradhan of Malaysia; and Prof. Dhammika Tantrigoda, Mrs. A.R. Warnasooriya, Dr. J.M.S.B. Jayasundara and Mr. R.M.S. Bandara of Sri Lanka, as well as the Plenary / Concluding Session.

The technical programme commenced with a Keynote Address by Prof. B. Pradhan of Malaysia on 'Multi-Sensor Remote Sensing Data & Geoinformation Tools for Natural Hazards Monitoring, Forecasting and Mitigation for Disaster Risk Reduction'. The other scientific papers presented during the Technical Sessions were on 'Cambodia's Resilient Actions to release Severe Disaster and Climate Change' by Mr. Neth Vansitha of Cambodia; 'Global Warming and Changing Weather Patterns' by Dr. Mohour Ibrahim Hassan Hassan of Egypt; 'Changing Weather and Air Quality Patterns in Central European and Mediterranean Region' by Dr. Laszlo Bozo of Hungary; 'Integration of Disaster Risk Reduction and Climate Change Adaptation in SAARC Region: A New Approach towards Disaster Risk Resilience' by Prof. Rajesh Kumar Mall of India; 'The Impact of Climate Change on Natural Disasters in Iran' by Mr. Reza Aghnaum of Iran; 'Identification of Indonesian Technology Readiness in Disaster Risk Reduction' by Dr. Ir. Adawiah of Indonesia; 'Optimization of Mitigation Strategies under Severe Climate Conditions by addressing Practical Issues' by Prof. Dr. Chandima Gomes of Malaysia; 'Existing National Policies on Natural Disaster Management in Malaysia - Directive No 20 and Flood Management' by Mr. Dato' Ir. Rohaizi Mohd. Jusoh of Malaysia; 'Climate Change and Changing Weather Condition' by Mr. Grish Gunraz Gunesh of Mauritius; 'Development of Damage Patterns and Isoseismal Maps for Thabeikkyin Earthquake in Myanmar' by Dr. Aye Mya Cho of Myanmar; 'Challenges in Implementation of Climate Change Policy of Nepal' by Prof. Jiba Raj Pokharel of Nepal; 'Natural Disasters and Climate Change in Nigeria: Issues and Mitigation Strategies' by Mr. Agoro Olayiwola A. of Nigeria; 'The Impact of Climate Change on the Socioeconomic, Hydrological and Soil Characteristics in the Chad Basin (Borno and Yobe States) of Nigeria' by Dr. Onimode Abdullahi Bande of Nigeria; 'Impact of Climate Change and Natural Hazards on Pakistan Coast in a Worst Case Scenario' by Mr. Muhammad Danish of Pakistan; 'Academic Hubs: Using Applied Research and Community Services to Build Resilience of Nations and Communities to Disasters' by Mr. Hatim Fahed Al Wahsh of Palestine; 'Disaster Mitigation Policies and Practices in South Asia with a Focus on Social Capital' by Prof. Jayant K Routray of Thailand; 'Mitigation of Disasters due to Severe Climate Events: A Case of Landslides and Mudslides in Uganda' by Dr. Kisamba Mugerwa of Uganda; 'Experience in designing A National Research Agenda on Disaster Risk Management' by Prof. Dr. Joaquin Alejandro Linayo Rivero of Venezuela; 'Mitigating the Effects of Adverse Climatic Conditions in Zambia' by Mr. Mpanga Shadreck of Zambia; 'Children's Experiences, Participation and Resilience to Flooding: Insights from Muzarabani, Zimbabwe' by Ms. Chipso Mudavanhu of Zimbabwe; and 'Changing Climate and Disaster Mitigation: Current Status in India' by Ms. Nidhi of NAM S&T Centre.

The presentations made by the Sri Lankan participants were on 'Mitigation of Water Scarcity Caused by Severe Droughts in Sri Lanka' by Mr. Nalaka Deepal Subasinghe; 'A Methodology for Assessing Changing Drought Conditions in Tropical Dry Lands' by Dr. J.M.S.B. Jayasundara; 'Case Study of Flash Floods Event on 14th November 2014 in Colombo due to Short

Period High Intense Rainfall' by Mrs. A.R. Warnasooriya; 'Disaster Management Policy of Sri Lanka' by Mrs. Subashini Dayananda; 'Disaster Management associated with Kelani River' by Mr. K. Sivapalasundaram; 'Geotechnical and Geological Characterization of Kahagolla Earth Slip for Mitigation Purpose' by Mr. W.A.D.T. Wijesinghe; 'Land Subsidence at Atchuveli: A Case Study from Sri Lanka' by Dr. P. Jayasinghe; 'Adaptation of Modern Consumer Technology for Disaster Management and Mitigation' by Mr. R.T. Thrimawithana; 'Challenges in introducing New Technologies for Risk Reduction' by Mr. Nuwan Kumarasinghe; 'Physical and Social Environmental Assessment of Dodandeniya and Watagoda Landslides In Matale' by Ms. W.D.G.D.T. Rajapaksha; 'Applying Advanced Investigation and Monitoring Techniques to mitigate Slow Moving Landslides in Sri Lanka' by Mr. D.M.D.S. Dissanayaka; and 'Possible Early Warning for Landslides in Sri Lanka using "Antecedent Daily Rainfall Index": A Case Study of Meeriyabedda Landslide on 29.10.2014' by Mrs. W.N.S. Rupasinghe.

The official Banquet Dinner was hosted by the Chairman and the members of NASTEC at The Imperial Room of Mount Lavana Hotel on 11th march 2016.

The Plenary Session was chaired by Prof. Dhammika Tantrigoda (Chairman, NASTEC), Prof. Dr. Arun Kulshreshtha (DG, NAM S&T Centre), Mr. R.M.S. Bandara (Sri Lanka), Prof. Dr. Chandima Gomes (Malaysia), Prof. Dr. Joaquin Alejandro Linayo Rivero (Venezuela), Prof. Jayant K. Routray (Thailand) and Prof. Dr. Biswajeet Pradhan (Malaysia), in which to begin with, a brief presentation titled 'Role of NAM S&T Centre for South-South Cooperation in Science & Technology' was made by Prof. Arun Kulshreshtha. This was followed by extensive



Foreign Participants at Kandy

discussion on a draft Colombo Resolution on 'Practical Guidelines to minimize Hazards due to Severe Natural Events', which in the end was unanimously adopted by the participants for its submission to the concerned ministries, agencies and other authorities in their countries. The Certificates of Participation were handed over to the Workshop participants by Prof. Dhammika Tantrigoda and Prof. Arun Kulshreshtha. The Session concluded with the Vote of Thanks by Dr. Muditha Liyanagedera, Director and CEO, NASTEC.

After the workshop a Technical – cum – Cultural visit for the foreign delegates was organised to Kandy, the second largest city in Sri Lanka located in the Central Province and a sacred Buddhist UNESCO World Heritage site. In Kandy the delegates were taken to the provincial office of National Building Research Organization (NBRO) where a presentation was made by Mr. R.M.S. Bandara, Director, Landslide Research and Risk Management Division on the activities of NBRO and landslide warning and mitigation programmes of Sri Lanka. The delegates also visited a Landslide site at Mahamaya Girls School of Kandy.

Colombo Resolution

On Practical Guidelines to Minimize Hazards Due to Severe Natural Events

We, the participants of the International Workshop on “Mitigation of Disasters due to Severe Natural Events: From Policy to Practice” jointly organized by the National Science and Technology Commission (NASTEC), Sri Lanka and Centre for Science and Technology of the Non- Aligned and Other Developing Countries (NAM S&T Centre) in Colombo, Sri Lanka from 10th to 13th March 2016, respectively from Cambodia, Egypt, Hungary, India, Indonesia, Iran, Malaysia, Mauritius, Myanmar, Nepal, Nigeria, Pakistan, Palestine, Thailand, Uganda, Venezuela, Zambia, Zimbabwe and the host country Sri Lanka;

REALIZING THAT there is a significant number of severe natural events related human catastrophes in the world during the last few years of which the majority is in developing countries, both in urban and rural areas;

NOTING THAT there is loss of lives, high level of property & equipment damage and unexpected occurrences of service interruptions that make even vital public supply systems vulnerable to failure at critical circumstances which deprive the affected victims of basic needs for long durations and downtimes that may cause significant economic and social impacts at all levels;

RECOGNIZING THAT there is a lack of practical guidelines for the public to be adopted at grassroots level in the society and hierarchical order of risk reduction in many countries that leads to chaotic and haphazard decision making by the public under severe natural conditions, which enhances the level of human disaster;

REALIZING THAT there is a dearth of safety shelters, devices and equipment available and affordable to the public, especially in underprivileged communities, a fact that hinders the reduction of injuries and deaths due to severe events;

EMPHASIZING THE NEED for the development of feasible practical guidance for the public to be adopted in the event of severe natural situations, scientific and technological advancement in developing affordable safety systems, proper hierarchical order of safety reduction in the society, dissemination of knowledge and public awareness with respect to safety guidelines;

UNANIMOUSLY RESOLVE TO RECOMMEND the following 3-point roadmap for adoption by all concerned countries and parties and put into practice with immediate effect to minimize the losses of life, injuries, social chaos and economic losses under severe natural conditions:

1. The governmental authorities shall be informed and persuaded to
 - a. Collaborate with scientific and social service communities to obtain relevant data and information on the outcomes of pre-determined safety plans during severe natural events;
 - b. Establish and/or strengthen early warning systems for severe natural events and disseminate relevant information to the public;
 - c. Set forth safety guidelines to the public to be adopted under severe natural events;
 - d. Define the hierarchical order of society in risk reduction due to severe natural event and enforce the societal order of command as a regulation;
 - e. Periodically revalidate the effectiveness of guidelines at grassroots level, especially after a severe natural event in the respective country;
 - f. Include essential concepts of severe natural event safety practices in school curricula;
 - g. Encourage inventors and investors to develop affordable safety shelters, devices and equipment using new technologies, materials and tools for the public at all levels through promotion of business opportunities;
 - h. Promote safety awareness among the public;
 - i. Consider development of scientific and sociological tools in reduction of risk due to severe natural events as a priority area in government research funding programmes; and
 - j. Focus on social capital for Community based Disaster Risk Reduction and Management (CBDRM) in formulation of policies.
2. The non-governmental organizations, private sector and other stakeholders shall be made aware of the risk of losses in the wake of a severe natural event and encouraged to:
 - a. Organize educational and awareness programmes for different target groups regarding the practical guidelines to be adopted;
 - b. Publish and share information on severe natural events, its hazards, vulnerability and risk precautions;
 - c. Display proper safety instructions to be followed under severe natural events, relevant to a particular region/ location such as unstable hill slopes, floodplains, public gathering places at risk prone areas, etc.;
 - d. Enhance technical knowledge and skills among professionals having potential to develop sociological and technical tools to reduce effects of severe natural events; and
 - e. Encourage the public living in high risk areas to adopt risk reduction measures.
3. The academic and research communities shall be approached and advised to:
 - a. Develop research groups to conduct investigations on various aspects of severe natural events, including technological and sociological methods and tools;
 - b. Develop collaborative programmes and organize fora for sharing information and experience;
 - c. Facilitate professionals to get access to the up-to-date scientific and technical information through electronic media and other means;
 - d. Organize national/international training programmes and workshops with the support of the government, nongovernmental organizations and the private sector;
 - e. Provide advisory, consultancy and laboratory services to inventors and investors to develop commercially viable safety shelters, devices and equipment and test their products against national/international standards;
 - f. Validate/evaluate the effectiveness of the products, technologies and sociological tools under situations of severe natural events;
 - g. Organize training of trainers' programmes on severe natural event safety and protection; and
 - h. Develop synergy and devise innovations to address disaster risk management associated with severe natural events.

Thus Adopted at Colombo, Sri Lanka this Day, the Twelfth of March, and Two Thousand Sixteen

SCIENCE AND TECHNOLOGY NEWS IN THE DEVELOPING WORLD

Brazil: GM Mosquitoes fight Dengue, Chikungunya and Zika Virus

Like many invasive insect species, *Ae. aegypti*'s territory is expanding as are the diseases it spreads, including dengue, chikungunya and Zika virus, which collectively impact over 100 countries and approximately 400 million people globally each year. Today, Brazil has the highest reported incidence of dengue in the Western Hemisphere, and with both chikungunya and Zika virus having entered the country in 2014 and 2015 respectively, the *Ae. aegypti* mosquito has become an increasing health risk. Intrexon Corporation, through its subsidiary Oxitec, and the Piracicaba City Hall have agreed to extend the 'Friendly *Aedes aegypti* Project' in Piracicaba, Brazil following strong results for controlling the *Ae. Aegypti* mosquito population, the primary vector for dengue, chikungunya and Zika virus outbreaks around the world. Zika, a rapidly spreading virus, emerged in Brazil in 2015 and is linked to a sudden increase in birth defects (microcephaly). The number of children born with microcephaly in Brazil has now risen to more than 3,500. For this programme, Oxitec initiated a new mosquito production facility in Piracicaba that will have the capacity to protect over 300,000 people. Piracicaba's CECAP/Eldorado district became the world's first municipality to partner directly with Oxitec after Brazil's National Biosafety Committee (CTNBio) approved releases throughout the country. In April 2015, self-limiting mosquitoes were released, and by the end of the calendar year, a reduction in wild mosquito larvae by 82% was recorded.

Source: Crop Biotech Update, 27th January 2016

Brazil: Startup develops Equipment for Automated Pesticide Application

Crop dusting aircrafts are frequently used for the aerial application of agrochemicals, but many agricultural enterprises spray pesticides manually, thus wasting material and potentially jeopardising accuracy and safety. Researchers at a company in São José dos Campos, São Paulo State, Brazil set out to minimise these problems. As part of the project 'On-board Automatic Control System (SECA): Development of A New Algorithm and Equipment for Automation of Pesticide Application in Agricultural Aircraft', conducted by NCB Sistemas Embarcados Ltda. with funding from FAPESP's Innovative Research in Small Business (PIPE) programme, they developed a customized product line for the automation of aerial pesticide application. The conventional procedure comprises aerial spraying of a crop in a parallel strip or grid formation and in a direction perpendicular to the wind, with some overlapping passes being repeated over certain segments in order to guarantee total coverage of the area concerned. The technology developed by NCB, a tech startup founded in 2006, replaces the manual control and drive mechanism with on-board hardware and an electromechanical system containing a sensor and actuator integrated in real time with the other components of the platform to spray crops autonomously without participation by the pilot. The system reduces agrochemical consumption by at least 10% and permits fuel savings of up to 5%. The first component developed by NCB was FLuX I, a flow meter used to monitor the spray application rate in real time. The pilot activates the system to calculate the ideal spray rate and the total amount of pesticide to be applied. Simplified calibration is available to ensure that the monitored rate genuinely represents the amount of spray applied, avoiding waste. The platform consists of a digital monitor installed on the aircraft dashboard

and a turbine sensor coupled to a filter affixed to piping under the plane's belly. The technology is easy to install and compatible with all aircraft used in Brazil. The control software includes a new algorithm created by the researchers involved in the project to automate aerial application. The algorithm was tested and validated in models running in a simulated environment. NCB is now working with ANAC, Brazil's civil aviation authority, to certify the product line while preparing to produce batches for sales campaigns, including demonstration and training units for representatives. This stage is supported by FAPESP under the project 'Technical and commercial Development of Products for Navigation and Pesticide Application Automation in Agricultural Aircraft' with funding from the FINEP-PAPPE-PIPE III programme. According to the Brazilian Aeronautical Register maintained by ANAC, all aircraft registered in Brazil in 2010 had basic navigation equipment. However, 90% had obtained this equipment from only two foreign suppliers. For Nicodemos, the solution is local development of precision agricultural equipment involving on-board electronic guidance and navigation systems for ground and air vehicles, such as crop sprayers, tractors, harvesters and agricultural aircraft.

Source: Agencia FAPESP Newsletter, 27th January 2016

India: Fluorescent Sensor signals Heart Attack

Researchers from CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh, and CSIR-Institute of Genomics and Integrative Biology (IGIB) and Academy of Scientific and Innovative Research (AcSIR), New Delhi, India have fabricated a sensitive fluorescent sensor that can detect minute traces of troponin I, a cardiac marker protein that signals the onset of a heart attack. This sensor is potentially useful for early diagnosis of heart attacks. Cardiac troponin I (cTnI) regulates the contraction of cardiac muscle. Cardiac muscle cells die during a heart attack, releasing cTnI into the bloodstream. Current techniques for detecting this marker protein are only moderately sensitive and tend to be tedious and expensive. To develop a fast sensor for detecting cTnI, the researchers synthesised a nanoprobe by attaching cTnI antibodies to modified graphene quantum dots. They then deposited graphene on the nanoprobe and probed its efficiency to detect cTnI. The nanoprobe emitted blue light when illuminated with ultraviolet light. But graphene on the nanoprobe absorbed the blue light, so that the sensor no longer fluoresced. On adding cTnI antigen to the sensor, the antigen formed an immune complex by binding to cTnI antibody. This complex detached the graphene from the sensor's surface, restoring its fluorescence. Such a recovery of fluorescence signals the presence of cTnI. The sensor's recovered fluorescence increased with increasing cTnI concentration. It selectively detected cTnI even in the presence of other antigens in human blood serum. The sensor could detect cTnI in 10 minutes in clinical samples, retaining 95% of its original sensing efficiency after being stored at 4°C for a year.

Source: Nature India update, 28th January 2016

Kenya: Bt Maize Approval for Limited Field Release

Kenya's Biosafety Authority has granted a conditional approval for environmental release of insect resistant maize (Bt maize) for National Performance Trials. The Bt maize has been genetically modified to produce an insecticide – Bt protein – that kills certain insect pests. The gene added to the maize comes from the soil bacterium *Bacillus thuringiensis* (Bt), which has long been known to possess an insecticidal effect and widely used in

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organic agriculture. The transformed crop will be able to withstand stem borers, known to reduce maize production by an average of 13%, or 400,000 tonnes of maize, equivalent to the normal yearly amount of maize that Kenya imports. This damage is valued at more than US\$80 million. Other African countries that have already authorised the sale of GM crops, include Burkina Faso, South Africa and Sudan. In 2014, South Africa grew 2.1 million hectares of biotech maize of which 28% was Bt maize. The Kenyan approval was reached after comprehensive review of the application submitted by Kenya Agricultural Livestock and Research Organization (KALRO) and the African Agricultural Technology Foundation (AATF) in June 2015. The review process included a public participation exercise, where stakeholders submitted written comments on the application. Kenya has the requisite capacity for GM crop research and regulation. Kenya developed a National Biotechnology Development Policy in 2006 and enacted the Biosafety Act in 2009. This was followed with the setting up of the National Biosafety Authority and publication of four regulations to address the governance of various aspects of modern biotechnology enterprise.

Source: Crop Biotech Update, 11th February 2016

Philippines: Government approves Revised GM Regulations

The Joint Department Circular (JDC) titled '*Rules and Regulations for the Research and Development, Handling and Use, Transboundary Movement, Release into the Environment, and Management of Genetically-Modified Plant and Plant Products Derived from the Use of Modern Biotechnology*' was finally approved and signed by Departments of Agriculture (DA), Science and Technology (DOST), Environment and Natural Resources (DENR), Health (DOH), and Interior and Local Government (DILG) of the Philippines as of March 7, 2016. The JDC was drafted in response to the nullification of the DA Administrative Order No. 8 by the Supreme Court on December 8, 2015. It was the product of five multi-sectoral public consultations held by the National Committee on Biosafety of the Philippines (NCBP) in January-February 2016 in Cagayan De Oro City, Cebu City, and Quezon City with participation of the stakeholders from the academia, farmers, industry and civil society organisations. Comments from the stakeholders were also solicited through the NCBP website. This development is expected to lift the temporary ban on research, field testing, commercialisation and importation of GM crops and biotech products in the country brought about by the Supreme Court decision which was met with criticisms from the scientific and academic community, farmer groups, traders, food and feed processors and livestock producers as well as disappointment from farmers who are looking forward to better quality GM seeds, particularly the insect resistant Bttalong (eggplant), the field trials of which were permanently stopped by the High Court. According to economic studies, Bt *talong* can have significant socio-economic benefits for both farmers and consumers such as reduction in chemical pesticide use. It is expected to greatly benefit major eggplant producing provinces such as Pangasinan, which has high insect pest pressure from Bt *talong*'s target insect, the fruit and shoot borer.

Source: Crop Biotech Update, 9th March 2016

Saudi Arabia: First ISCC Plant to set Record Low CSP Cost

Site activities are underway for the Duba 1 Integrated Solar Combined Cycle (ISCC) station which will host the largest integrated CSP capacity in the Arabian Gulf region. The 605 MW power plant is being built north of Duba city, at around 140 kilometers from Tabuk Province on the Red Sea Coast, in the

north west of the country and will include a 43 MW parabolic trough array, around double the largest solar capacity on an ISCC in the Middle East and North Africa to date. Algeria's Hassi-R'mel plant integrates a 25 MW solar field while Egypt's Kuraymat ISCC plant and Morocco's Ain-Beni-Mathar station each comprise 20 MW CSP units. The capital cost of the solar thermal facility is projected to be less than half the lowest CSP cost achieved up until now, due to the economies of scale associated with the large plant project. The 1,390 MW Waad Al Shamal plant is set to follow on from the Duba 1 project and provide 50 MW of solar capacity. According to IRENA's Renewable Energy Generation Costs 2014 report, the capital cost for standalone parabolic-trough plants without storage currently ranges from \$3,500/kW to \$8,000/kW. SEC, the owner and offtaker of the Duba 1 plant, awarded Spain's Initec Energia a \$663 million EPC contract for the project in November 2015. Local partner Saudi Services for Electro-Mechanic Works was also brought on board. GE will supply the power island, including two gas turbines, two heat recovery steam generators, a steam turbine and all the auxiliaries. Initec Energia will construct the entire plant and install the solar system. Duba 1 will be the first ISCC plant to use condensate as a gas turbine fuel when it starts operating in 2017. Condensate, which has properties similar to naphtha, is already used in some of Saudi Arabia's other gas turbine power plants. ISCC plants are not cheaper than combined cycle plants, but they are much cheaper than standalone CSP. The project is set to become operational in early 2018.

Source: CSP Today, 23rd February 2016

Senegal: Next Einstein Forum (NEF)

The number of students at African colleges has been rising steadily for many years. As a result, there are more and more students who aspire to an academic career beyond a bachelor's or master's degree. They want to help solve the social, economic and ecological problems of our time through outstanding research. Thanks to this fast-growing scientific community, the continent boasts great potential in terms of driving science forward, not just in Africa, but all over the world and the expectations are that '*The next Einstein will come from Africa!*'. With this in view, the African Institute of Mathematical Sciences (AIMS) has taken an initiative in conjunction with the Robert Bosch Stiftung in the form of Next Einstein Forum (NEF), which brings African and international scientists into contact with decision-makers from politics, business, media and society. The inaugural NEF Global Gathering was held in Dakar, Senegal during 8-10 March 2016 with ~500 invited delegates including several Heads of States. NEF is a new global scientific forum that aims to integrate and raise the profile of African scientists within the international scientific and research community and is a platform that brings together leading thinkers in science, policy, industry and civil society in Africa to leverage science to solve global challenges. Some of Africa's best young researchers, the NEF Fellows, take centre stage alongside renowned individuals. These fellows represent young African researchers by contributing their knowledge and ideas within the international research community. The NEF Global Gathering is a biennial global gathering of the minds to position science at the centre of global development efforts. With a strong focus on youth, it provides an exceptional opportunity for global science leaders' voices to be heard and have major impact on Africa's scientific future, through mentoring young people and through influencing continental science policy. Then next NEF will take place in Rwanda in 2018.

Source: <http://www.bosch-stiftung.de>; <http://gg2016.nef.org/>

(Contd. from Page 7 - S&T News)

South Africa: Commercial Operation of Khi Solar One, First Solar Tower Plant in Africa

Khi Solar One, the first solar thermal tower technology plant is commercially in operation in Africa. Abengoa, which has built and now operates and maintains the plant, owns 51% of the project; the Industrial Development Corporation (IDC), one of South Africa's development finance institutions, holds 29%; and Khi Community Trust holds the remaining 20%. This project is a public-private partnership awarded by the Department of Energy of South Africa and it will serve clean and reliable electricity to Eskom, South Africa's power utility, under a 20-year power purchase agreement. Khi Solar One is a solar thermal superheated tower technology, first of its kind, with installed capacity of 50 MW, capable of supplying 45,000 South African households with clean energy. The plant incorporates a storage system that enables production at maximum capacity for two hours without sun to bring stability to electric production. Furthermore, Khi Solar One has an innovative dry-cooling system, as well as other major improvements resulting from the important work done by Abengoa to develop solar thermal technology. This project offers a myriad of socioeconomic and environmental benefits. Its operation prevents the emission of 183,000 tonnes of CO₂ annually, serving enough energy to meet the growing demand for electricity in South Africa in a sustainable manner. Additionally, the plant fosters socioeconomic development locally through the participation of a high number of local companies. Likewise, inclusion of local community members in the shareholding structure of the project, represented under the Khi Community Trust, serves as guarantee for long-term continuity of its positive impact. In South Africa, Abengoa, IDC and Kaxu Community Trust have also completed the first year of operation of the parabolic trough plant Kaxu Solar One, the first solar thermal plant in the country. Adjacent to Kaxu Solar One, Abengoa, IDC, KaXu Community Trust and PIC are currently developing another 100 MW parabolic trough plant, Xina Solar One, which incorporates a five-hour storage system. These projects prove Abengoa and IDC's commitment to renewable energies in South Africa following the Government's strategy to bring 17,800 MW online from renewable sources by 2030, thus reducing the country's dependence -on oil and natural gas.

Source: FuturENERGY Newsletter, 10th February 2016

St. George's Grenada: Permaculture

The Government of Grenada is partnering with the German Agency for International Cooperation (GIZ) and People in Action to establish self-sufficient communities through Permaculture, or the use of modern science for sustainability. Permaculture is a system of agricultural and social design principles centred on simulating or directly utilising the patterns and features observed in natural ecosystems. The scheme is to get communities to be creative with ideas for production that are inexpensive to start, but with big profit margins. Grenada is setting up a model where permaculture will be taught, so people will come in and learn the skills and go back into their communities and share those skills. The first rule in permaculture is to find a yield, which means a product to take to market, and find simple, very low tech processes that can create a high value product. Grenada's agriculture sector will stand to benefit tremendously from the adaptation of Climate Smart Strategies. The agriculture sector has been identified as one the most

vulnerable sectors to climate change, and it is very important to build a climate resilient agriculture sector.

Source: CARDI Agriculture in the News, 10 - 16 January 2016

Tanzania: High-Yielding, Salt-Resistant Tanzanian Rice

According to the Food and Agriculture Organization (FAO), there are set to be four times as many people to feed in Africa by the end of the Century as there are now, so farmers will need to increase their food production. Tanzania has seen its population increase from roughly 8 million in the 1960s to nearly 45 million today. The country also has one of the fastest growing urban populations in East Africa, rising by 4.7 per year, according to the government. The expanding urban middle class prefers rice over other staples and the agriculture ministry is keen to ensure that local rice production can keep up with the demand to discourage expensive imports. Scientists in Tanzania have developed a high-yielding, salt-resistant rice variety that could benefit millions of farmers across Africa. The variety, dubbed SATO1, can yield several tonnes of rice per hectare even in salty ground, up from just 0.5 tonnes for traditional varieties that grow poorly in such soil. It is the highest yield ever recorded in the history of rice production in the entire eastern and southern Africa countries. The rice is being used as part of a wider project that combines salt-tolerant varieties identified in Japan after the 2011 tsunami with treatments designed to reduce salt concentrations in the earth. As the water receded following the 2011 tsunami in Japan, farmers noticed that some rice plants survived despite being inundated with seawater. Scientists had the foresight to collect these samples for later testing. The combination of better rice and soil treatment has led to the reclamation of 680 hectares of land previously almost incapable of producing rice. The research is yet to be published in a scientific journal, but the researchers say the land now supports 1,774 households in Ndungu, a salt-prone area in Kilimanjaro district in northern Tanzania.

Source: SciDev.Net, 21st March 2016

Uganda: First Field Observation of GM Potato Shows Extreme Resistance to Late Blight

In Uganda, losses due to potato late blight can reach up to 60%, forcing farmers to spray fungicides up to 15 times to protect their crops. About 300,000 smallholder households grow potatoes for their subsistence, living and income generation. Losses due to late blight represents between 10-25% of their revenue from potato. In this context, the first field trial of genetically modified (GM) potatoes resistant to potato blight conducted in Uganda from October 2015 to January 2016 has been completed at the Kachwekano Zonal Agricultural Research and Development Institute (KaZARDI) of the National Agricultural Research Organization (NARO) near Kabale. Twelve highly resistant GM potatoes of Desiree' and one of Victoria' varieties from the International Potato Center (CIP) showed extreme levels of resistance compared to the non-GM plants of the same varieties. Using genetic transformation, three resistance (R) genes from wild relatives (*Solanum bulbocastanum*, and *S. venturii*) were transferred into farmers' preferred varieties and the results are encouraging. A number of partially resistant varieties exist, but these are not preferred by farmers and consumers. This first observation of zero-fungicide potatoes marks an important milestone in the development and future deployment of biotech potato varieties to farmers in Africa that will significantly reduce losses and cost of production.

Source: Crop Biotech Update, 27th January 2016

Past Scientific Associates of NAM S&T Centre

Mrs. Sudipta Chakraborty



Mrs. Sudipta Chakraborty worked at the NAM S&T Centre from June 2008 to May 2009 in the capacity of a Research Assistant. During her tenure, Mrs. Chakraborty had been actively engaged in the planning, implementation, evaluation and assessment of the scientific programmes of the Centre.

She had significantly contributed to the organization of the international conference on 'South-South Cooperation for Technology Transfer and Development of Small and Medium Enterprises (SMEs)' held at Negambo, Sri Lanka in August 2008; international workshop on 'Empowerment of Women through Science and Technology Interventions' held at Tehran, Iran in December 2008; and international workshop on 'Nanotechnology: Present Status and Future Prospects in Developing Countries', held at Kashan, Iran in May 2009. She was also extensively involved in the work on the organization of a workshop on 'ADB-RETA Knowledge-Sharing Program using Good Asian Practices in Innovation and Development' on 17-18 April, 2009 in New Delhi, India for which she prepared the background material and compiled the papers and other documents of the participants for this event. Mrs. Chakraborty was also engaged in compiling the material for the NAM Centre's publications titled 'Microelectronics: Micro and Nano-Electronics and Photonics', 'Enhancing Change through Science Centres', 'Technology Transfer and Development of Small and Medium Enterprises (SMEs)', 'Empowerment of Women through Science and Technology Interventions' and the Report on 'Twenty years of NAM S&T Centre'. Mrs. Sudipta was the scientist responsible for coordinating the work on the implementation of various Fellowship programmes of the Centre jointly with the Centres of Excellence in Germany and Pakistan. She also assisted the Centre in the preparation of Agreements, MOUs and programmes of Cooperation between the Centre and various research organisations in the developed as well as developing countries.

Presently, Mrs. Sudipta is doing her M.Sc. in Molecular Life Science from Friedrich Schiller University, Jena, Germany. She has also joined the Max Planck Institute of Chemical Ecology (Department of Biochemistry), Jena as a Research Intern. She is actively involved in the research on "How do duckweeds defend themselves?" In this project, she is investigating the defence mechanisms of duckweeds, whether these plants produce toxic compounds and these metabolites are active against the plant enemies, and whether plants even warn each other from the attackers. Using the great duckweed *Spirodela polyrhiza*, one of the smallest and fastest reproducing Angiosperms, she is carrying out her research on how secondary metabolites affect the evolutionary trajectory of a lineage under different environmental stresses.

Ms. Priyanka Ahuja



Ms. Priyanka Ahuja worked at the NAM S&T Centre from September 2006 to April 2007 in the capacity of a Research Assistant. Her primary responsibilities included planning, implementation, evaluation and assessment of scientific programmes undertaken by the Centre.

Ms. Priyanka actively contributed towards promotion of scientific activities among students, scientists / academia and scientific organisations in the developing countries through workshops, seminars and training courses and also for the S&T Newsletter published quarterly by the Centre. She assisted in the organisation of a number of International scientific events and was also actively involved in compilation of papers for the publication of edited books based on viz. International Roundtable on 'Lessons from Natural Disasters, Policy Issues and Mitigation Strategies' held in association with the VIT University, Vellore, India during 8-12 January 2007; International Workshop-cum-Training Course on 'Coastal Ecosystems: Hazards Management and Rehabilitation' held in association with Zentrum für Marine Tropenökologie (ZMT) [Centre for Tropical Marine Ecology], Berman, Germany and Jenedral Soedirman University (UNSOED), Purwokerto, Indonesia during 8-18 August 2006; International Conference on 'S&T Policy Research and Statistical Indicators' held in association with the National Science Foundation (NSF) and National Science and Technology Commission (NASTEC) of Sri Lanka during 6-10 November 2006; and African Regional Conference on 'Science Centres and Museums' held in association with National Science Centre, Lusaka, Zambia during 10-14 January 2006. Apart from this she was also actively associated with the visit of a delegation led by H.E. Dr. Nagia M. Essayed, Commissioner for S&T and HRD of the African Union to India during November 26 to December 3, 2006. She also participated in several international and national seminars and conferences on behalf of the Centre on subjects such as Bioinformatics, Bioethics, GM Crops, IPR and Climate change.

Currently, Ms. Priyanka is working as a Senior Editor at Oxford University Press, Delhi, India.

The Centre Invites Applications

RESEARCH TRAINING FELLOWSHIP FOR DEVELOPING COUNTRY SCIENTISTS (RTF-DCS) FOR 2016 - 17

The Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) is presently implementing a Fellowship scheme titled 'Research Training Fellowship for Developing Country Scientists (RTF-DCS)' to provide opportunity to young researchers of the developing countries for their capacity building in science and technology through their affiliation with premier academic and research institutions in India to carry out short-term research work for a period of six months. This scheme is sponsored by the Department of Science & Technology (DST), Government of India.

Under this scheme, 50 researchers from the developing countries (irrespective of whether a country is a member of the Centre or not) will be selected this year with full financial support for their international travel to India (by economy class and shortest route), subsistence allowance comprising a consolidated monthly Fellowship amount of Indian Rupees 35,000 (~US\$525 at current exchange rate) to meet accommodation, meals and other miscellaneous expenses, and a one-time grant of Indian Rupees 30,000 (~US\$450) for research contingency and domestic travel in India (on actual cost basis).

In the fifth year of implementation of the RTF-DCS scheme, the NAM S&T Centre invites applications from the eligible researchers of the developing countries for the Fellowship for the financial year 2016-17 (1st April 2016 to 31st March 2017). The applicants should possess at least a Post Graduate Degree in any Natural Science subject or an equivalent degree in Technology / Engineering / Medicine / allied disciplines. The upper age limit for the applicants is 40 years as on 1st January 2016.

Only electronic communication will be accepted and therefore all the materials should be sent as attachments to an e-mail addressed to rtfdcs15@gmail.com after scanning the documents wherever required. Guidelines for the Fellowship and the application form are available at the Centre's Website www.namstct.org.

The last date for submission of completed Application Form is Friday, 17th June 2016

Visitors To The Centre

- 4th Jan. 2016** **Dr. Nutan Kaushik**, Senior Fellow and Area Convener, Plant Biotechnology, Environmental and Industrial Biotechnology Division, The Energy and Resources Institute (TERI), New Delhi, India
- 4th Jan. 2016** **Dr. B.M. Gandhi**, Chief Executive Officer, Neo BioMed Services and Former Advisor, Department of Biotechnology (DBT), Government of India
- 14th Jan. 2016** **Mr. Manoj Kumar Chaudhary**, Asst. Prof., Janaki Medical College, Ramdaiya, Nepal and RTFDSCS Fellow from Nepal in the Department of Biochemistry, University of Allahabad, India
- 18th Jan. 2016** **Engr. Dr. Diya'uddeen Basheer Hasan**, Deputy Director (Research), Industrial & Environmental Technology Department, National Research Institute for Chemical Technology (NARICT), Zaria, Nigeria
- 29th Jan. 2016** **Prof. Ranadhir Mukhopadhyay**, Chief Scientist & Deputy Director, CSIR-National Institute of Oceanography (NIO), Goa, India and Former Director, Mauritius Oceanographic Institute, Mauritius
- 9th Feb. 2016** **Dr. Elena Pavlyukova**, Assistant President on International Projects, Union of Science & Engineering Associations (USEA), Moscow, Russia and **Dr. Rama Bansal**, Scientist, International Science & Technology Affairs Division (ISTAD), Council of Scientific and Industrial Research (CSIR), New Delhi, India and Former Counsellor (S&T), Indian Embassy, Moscow, Russia
- 15th Mar. 2016** **Mr. Armando Rodriguez Batista**, Director, Ministry of Science, Technology and Environment (CITMA), Cuba

DISTINGUISHED VISITORS TO THE CENTRE



Mr. Armando Rodriguez Batista, Director, Ministry of Science, Technology and Environment (CITMA), Cuba (3rd From L)



Engr. Dr. Diya'uddeen Basheer Hasan, Deputy Director (Research), Industrial & Environmental Technology Department, National Research Institute for Chemical Technology (NARICT), Zaria, Nigeria



Prof. Ranadhir Mukhopadhyay, Chief Scientist & Deputy Director, CSIR-National Institute of Oceanography (NIO), Goa, India and Former Director, Mauritius Oceanographic Institute, Mauritius



(LtoR) **Dr. Nutan Kaushik**, Plant Biotechnology, Environmental and Industrial Biotechnology Division, The Energy and Resources Institute (TERI) and **Dr. BM Gandhi**, CEO, Neo BioMed Services & Former Advisor, Department of Biotechnology (DBT), Govt. of India.



Dr. Elena Pavlyukova, Assistant President on International Projects, Union of Science & Engineering Associations (USEA), Moscow, Russia and **Dr. Rama Bansal**, Scientist, Council of Scientific and Industrial Research (CSIR), New Delhi, India



Mr. Manoj Kumar Chaudhary, Asst. Prof., Janaki Medical College, Ramdaiya, Nepal and RTFDCS Fellow in the Department of Biochemistry, University of Allahabad, India

Participation of Centre's Scientists in Scientific Event

- | | |
|----------------------------------|---|
| 22 Jan. 2016 | Dr. Kavita Mehra , Publication Advisor and Ms. Ritu Kumari , Research Associate attended Awards for 'Responsible Indian BMOs', at India Habitat Centre, New Delhi organised by Ministry of Micro, Small and Medium Enterprises; European Union and MSME Foundation. |
| 1st Feb. 2016 | Dr. Kavita Mehra , Publication Advisor attended a conference on 'Towards a Sustainable Energy Strategy for India' at India Habitat Centre, New Delhi organised by the Indian Council for Research on International Economic Relations (ICRIER). |
| 4th Feb. 2016 | Dr. Kavita Mehra , Publication Advisor and Ms. Sunaina Kanojia , Research Associate attended Release of the India's Phytonutrient Report on 'A Snapshot of Fruits and Vegetables Consumption, Availability and Implications for Phytonutrient Uptake' at Hotel Taj Mansingh, New Delhi. |
| 14th Mar. 2016 | Dr. Kavita Mehra , Publication Advisor attended TalentNomics-ICRIER 2016 Conference on 'Empowering Women for Sustainable Development' at India Habitat Center, New Delhi. |
| 18th Mar. 2016 | Dr. Kavita Mehra , Publication Advisor attended CII Northern Region, Annual Conference on 'Building North for a Better Tomorrow' at Hotel Le-Meridien, New Delhi. |

Centre Announces

International Training Programme on STI Policy and Management for Developing Countries (ITPS), Kuala Lumpur, Malaysia, 8–12 August 2016



It is well known that science and technology is a strategic driver contributing toward a shift from relatively lower end economic performance into high value added activities. Unfortunately, the governments and industry professionals as well as those in non-governmental organisations (NGOs) in a large number of developing countries face problems in meeting the challenges from the fast pace of technological changes, whereas for designing the blueprints and strategic implementation frameworks in order to provide a planned transformation within countries and organisations it is absolutely critical to have experts who understand the dynamics of science and technology within the context of economic and market development.

The NAM S&T Centre in partnership with the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC), Malaysia under the auspices of UNESCO; Ministry of Science, Technology and Innovation (MOSTI) of Malaysia; United Nations Education, Science and Cultural Organization (UNESCO); Islamic Educational Scientific and Cultural Organization (ISESCO); and Islamic Development Bank (IDB) announces the organisation of an **International Training Programme on STI Policy and Management for Developing Countries (ITPS)** in Kuala Lumpur, Malaysia on 8–12 August 2016.

The main objective of the training programme is to impart necessary knowledge and skills to participants in the development and management of a national STI policy in support of social-economic transformation.

Participants in this programme will be actively involved in:

Learning key principles related to STI Policy and Management; Getting to apply Best Practices in STI Management through Projects; and Acquiring key competencies in STI Policy and Management; Development of Policy Responses; Applying Technology Management Best Practices in implementing Policies; Developing Human Capital Agenda in delivering the STI Policies; Creating Support Systems for the National Innovation System; Enhancing National Capacity in STI.

About 40 participants from developing countries, including member countries of the NAM S&T Centre, are expected to participate in this programme. The organisers will bear the local cost (accommodation, food and related transportation within Malaysia). Participants are required to seek travel grant from their organisations to pay their travel expenses to Kuala Lumpur, Malaysia. Limited travel grant from the NAM S&T Centre is available for the participants from its member countries based on merit and need on case by case consideration.

Last date for submitting the applications is 31st May 2016.

JOINT NAM S&T CENTRE - ZMT BREMEN (GERMANY) FELLOWSHIP IN TROPICAL COASTAL MARINE RESEARCH: CALL FOR APPLICATIONS FOR 2016

The Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre; www.namstct.org) is pleased to invite applications from suitable candidates for the Joint NAM S&T Centre - ZMT Bremen (Germany) Fellowship in Tropical Coastal Marine Research for the year for affiliation of the scientists from the developing countries with the Leibniz Centre for Tropical Marine Ecology (ZMT), Bremen, Germany [www.zmt-bremen.de] for a period of up to 3 months to work with its senior researchers and faculty members for upgrading research skills in the fields related to Ecology, Biogeochemistry, Modelling and Tropical Coastal Marine Systems and undertaking short-term joint research projects. Depending on the research topic, the Fellows can also benefit from the ZMT's association with the Marine Science Institute of Bremen University, Max Plank Institute for Marine Microbiology and the MARUM Research Centre in Bremen

Under this Fellowship scheme, the NAM S&T Centre sponsors up to five scientists in a given calendar year, of which only one scientist can be from any given country. The Centre covers the international airfare of the Fellows from its member countries while ZMT provides a monthly subsistence allowance of 1250 Euros to meet the accommodation and other expenses in Bremen. The selection is made strictly based on the professional details of the applicant, plan of work to be carried out and mutual research interests of the applicant and ZMT. The Guidelines of the scheme are available at the Centre's Website www.namstct.org, which may please be read carefully before submitting the application.

Applications recommended by the parent institutions of the applicants may be submitted to the NAM S&T Centre **by email** in the relevant format.

The last date for submitting application for the Fellowship is 8th July 2016.

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