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Contributions from readers are welcome on any matter relevant to the mission of COMSATS, namely the promotion of South-South cooperation in science and technology for sustainable progress of the developing countries. The responsibility for the accuracy of any information rests with the original source. Views expressed in this publication do not necessarily reflect those of its editors, publisher or COMSATS.



Participants of the Seminar on Science Communication and Journalism held on April 8, 2014, in Islamabad

Inside this Issue	
From the Executive Director's Desk	01
News/Activities/Highlights from COMSATS Secretariat	02
Activities/News of COMSATS' Centres of Excellence	07
S&T Indicators of Member States: Jordan	10
Science, Technology and Development	14
Profile of Head of Centre of Excellence: Prof. M.M.A. Mtambo, Director General TIRDO, Tanzania	15
COMSATS' Brief and Announcements	16

### From the Executive Director's Desk

The scientific discoveries and their technological ramifications pervade all spheres of human activity. In fact, it would be fair to say that technology defines the way people lead their lives; the way they communicate with each other, how they travel, what they eat and where they live; everything is determined by the products and services based on currently available technological resources. Under these conditions, it is paradoxical to find a disconnect between the people who create scientific knowledge and the society that benefits from these advances. This communication gap can be attributed to various factors, such as the obfuscation of scientific terminology; the constraints of time or necessary skills on the part of researchers to make their scientific results known to general public in simplified manner; and perhaps, most importantly, the insufficient number of competent science iournalists. Science communicators can be scientists themselves or experienced journalists who have the ability to grasp the essential features of new scientific results without getting bogged down by the details of methodology and data taking, which predominantly constitute the content of scientific publications. Ideally, the communication of scientific discoveries to general public should be made by scientists themselves but given the general preoccupation of scientific workers with their research work, it would be desirable if a greater number of science graduates adopted journalism as their occupation after necessary training in linguistic skills and operational requirements of print and electronic media.

One may ask, why is it necessary in the first place to make special efforts to keep public informed about the breakthroughs taking place in the arena of science and technology? The answer is very simple; it is necessary because anything that happens within the hallowed walls of a research laboratory ultimately affects the day-to-day life of common man. In order to remain in control of their lives with respect to their beliefs, traditions and cultural traits, people need to know the implications of what technology is offering. Public engagement in discussions on topics such as genetically modified foods, stem-cell research, privacy of telecommunications, ethical dimensions of freedom of expression, environmental hazards of excessive greenhouse gas emissions, and scores of other issues validate the desirability of public access to specialized knowledge. What is more, the policy-makers especially in developing countries, if not well-informed about the impact of new technologies on their economies, are prone to making strategic decisions disadvantageous for their populations.

Realizing that the developing countries, in general, are considerably lagging behind in reporting of S&T developments, COMSATS made a tentative attempt to gauge the interest of mainstream print and electronic media of Pakistan in science journalism. A one-day seminar on

continued on page 3

### **NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT**

# COMSATS ORGANIZES A ONE-DAY SEMINAR ON SCIENCE JOURNALISM

"COMSATS has the administrative capacity and academic resources to organize lectures on topics of current interest in science and technology both for science students and general public, in all its Member Countries", noted the Executive Director COMSATS, Dr. I. E. Qureshi, while moderating the concluding Roundtable Discussion of a seminar on 'Science Communication and Journalism', in Islamabad on April 8, 2014.

The one-day Seminar was organized by COMSATS in partnership with the ECO Science Foundation (ECOSF) and had a participation of more than 70 media representatives, scientists, faculty members of media science departments, university students, web-based forums, and officials of COMSATS Secretariat and ECOSF.

The fundamentals of Science Journalism, contemporary issues in disseminating scientific advances, and the role of various media for science communication, were covered during the three technical sessions of the seminar, which were followed by an interactive Roundtable Discussion. The Chief Editor monthly 'Global Science', Karachi, Mr. Aleem Ahmed; and Editorial Consultant Express Tribune, Mr. M. Khalid Rahman, delivered keynote lectures on the basics of science writings and communication. Other presenters of the event included: Freelance Science Journalist, Mr. Ameen Amjad Khan; Lecturer Fatima Jinnah Women University, Mrs. Saadia Ishtiaq Nauman; Editor weekly Technology Times, Pakistan, and CEO Tech TV, Mr. Savved Paras Ali; and Mr. Iqbal Jamil, Director Institute of Communication and Media Studies, Ziauddin University, Karachi (Pakistan). These presentations explored ways to promoting science through the existing means of communication and available knowledge resources; the need for curriculum development for Science Journalism and the electronic media's role in the advocacy of science.

The seminar also included speakers from Italy, and USA via Skype. Speaking from Italy, Mr. Edward W. Lempinen, Public Information Officer at The World Academy of Sciences (TWAS), talked about science policy, diplomacy and education in the developing world, and acknowledged the invaluable contributions of the eminent Pakistani scientist and Nobel Laureate, Dr. Abdus Salam towards the uplift of science in the developing world. Ms. Joanne Manaster, Faculty Lecturer, University of Illinois at Urbana-Champaign, USA, highlighted the multi-faceted role of social media in driving change in modern-day science. Ms. Shireen Gul, copy-editor of a student newspaper, Tech News of the Illinois Institute of Technology (IIT), USA, made a presentation on 'Science Journalism for Social Media'.

The Federal Secretary, Ministry of Information, Broadcasting and National Heritage, Government of Pakistan, Dr. Nazir Saeed presided over the inaugural ceremony of the Seminar. In his address, Dr. Saeed urged the Pakistani national media to devote at least five per cent of their media space to project science and technology research and advancements to create a culture of science in the country. He opined that national media can play an important role in building scientific culture among the masses by sensitizing them about the scientific and technological advancements and their impact on the life of a common man. The Executive Director COMSATS and the President ECOSF, Dr. Manzoor Hussain Soomro, highlighted the importance of the theme of the event in their addresses during the ceremony. Dr. Qureshi informed that COMSATS has been engaged in various activities of fundamental importance to the working scientists, including repair and maintenance of scientific equipment at laboratory facilities of educational and research organizations. Such activities lead to regaining the functioning of equipment worth millions of dollars, resulting in high accolades from Member States. However, this activity remains unnoticed by the media. Noting the inadequate coverage of science related activities in the local media, he stressed on creating triangular relationship between the scientists, journalists and public for effectively communicating the benefits of science and technology to society. On similar lines, Dr. Soomro considered the seminar an important initiative for starting a campaign in the subject area, which has been overlooked for a long time. He called for institutional arrangements, involving relevant stakeholders, especially scientific and academic organizations in Pakistan, in order to encourage science journalism in the country.

The Roundtable Discussion started with appreciation of COMSATS' initiative of organizing the seminar on such an important topic from the speakers and the participants.



During the discussion, Dr. Anwar Nasim, Secretary General, Pakistan Academy of Sciences, made a candid analysis of the situation of the Science Journalism in Pakistan and called for a thrust to sensitize media houses to project science and scientists. Also, the speakers of the event offered their services for providing training in future events on the subject. The discussions made by the speakers and participants called for:

- creation of a forum to further the objectives and findings of the science journalism seminar and facilitate further knowledge sharing;
- field surveys for identification of needs of the society regarding science journalism;
- necessary training for scientists to project their work in a way that it is comprehensible by the public at large;
- greater involvement of academia at all levels in developing a scientific culture through journalism;
- collaboration among scientists and journalists to furnish write-ups with authentic and accurate yet simplified and relatable scientific information for the masses; and
- persistent follow-up on the recommendations of the seminar.

An important pledge made during the discussion related to the formulation of a Science Journalist Association of Pakistan, the participants pledged to immediately initiate work to make such an institutional arrangement possible, and COMSATS agreed to provide patronage to the online presence of such a forum, directed towards building capacities of Science writers, reporters and journalists.

# EXECUTIVE DIRECTOR COMSATS VISITS BANGLADESH

"BCSIR laboratories are well-equipped and some of these, like Centre for Chemical Metrology, seem to be at par with the laboratories in advanced countries", noted the Executive Director COMSATS, to the honorable State Minister for Science and Technology, Government of Bangladesh, His Excellency Mr. Yafesh Osman, during a meeting held on 3<sup>rd</sup> April 2014, at the latter's office. Dr. Qureshi was on a visit to Bangladesh from 1<sup>st</sup> to 3<sup>rd</sup> April 2014, on invitation from the Bangladesh Council of Scientific and Industrial Research (BCSIR), which joined the COMSATS' Network of International S&T Centres of Excellence in 2011. The

#### contd. from page 1 ... 'From the Executive Director's Desk'

'Science Communication and Journalism' was held on 8<sup>th</sup> April 2014, in Islamabad in which editors, newspaper reporters, students and members of scientific community participated to hear from experts from Pakistan and abroad (through Skype). Not surprisingly, there was a lukewarm interest shown by major newspapers of the country. Probably, such seminars in other developing countries will Chairman BCSIR, Prof. Dr. Ahmad Ismail Mustafa, had extended an invitation in this regard to give the Executive Director an opportunity to meet the scientists of the Council and have the first-hand understanding of their working environment. Apart from the meeting with the State Minister for Science and Technology, Government of Bangladesh, on the last day of his visit, Dr. Qureshi's visit comprised of four activities: (i) meeting with the senior officials of BCSIR; (ii) address to BCSIR Scientists and Q&A session about COMSATS; (iii) visit to selected laboratories of Dhakabased Institutes of BCSIR; and (iv) meeting with the Vice Chancellor of Dhaka University.

The meeting with the State Minister for Science and Technology (MoST), Government of Bangladesh, was also attended by the Additional Secretary, MoST, Bangladesh. The Executive Director briefed the State Minister about the unique features of COMSATS as an Inter-governmental Organization, such as the mechanism of South-South S&T Cooperation through a Network of Centres of Excellence; hands-on training workshops on topics of crucial importance to the developing countries; establishment of a high-ranking public-sector University; and dissemination of S&T-related information through its various publications. The State Minister was pleased to note COMSATS' engagements with Bangladeshi institutions, especially with BCSIR, and expressed the resolve of his Ministry to invest in developing strong S&T infrastructure in the country. He informed Dr. Qureshi that his Ministry met the requirements of BCSIR by



also elicit similar response. From the platform of COMSATS, we would like to change this situation, which would require continued engagement with journalist community.

All readers of this Newsletter are most welcome to send their suggestions or comments on this issue. Any other feedback regarding the scope and style of this Newsletter or activities of COMSATS, in general, will be highly appreciated.

providing latest high-tech instruments through its own national budget instead of relying on foreign aid.

Earlier, Dr. Qureshi held consultations with the Chairman, Members and other senior officials of the Council. During his meetings, he also answered a number of questions related to the details of COMSATS' operations. A general presentation on BCSIR's structure and programmes in the context of its historical evolution was given by a senior officer in order to elaborate the Council's role in meeting the developmental requirements of Bangladesh through R&D in relevant scientific fields. It was informed that the twenty thrust areas in this respect, including chemical metrology, microbiology, nanotechnology and renewable energy, are being pursued by BCSIR in its three full-fledged multidisciplinary regional laboratories and five mono-disciplinary institutes.

On the second day of his visit, Dr. Qureshi made a powerpoint presentation on COMSATS and its role in providing opportunities of capacity-building and South-South cooperation in Science & Technology. Later, a tour of selected laboratories was conducted for the visiting Executive Director in order for him to observe the laboratory conditions and exchange views with working scientists and technicians. Some of the most conspicuous aspects observed during this tour had been: (i) the excellent layout of all laboratories and the availability of latest equipment in fully working conditions; (ii) enthusiastic staff comprising of mostly young scientific workers with almost equal gender distribution; (iii) appropriate ratio of analytical services provided to industry and commercialization of completed projects through pilot studies; (iv) training of in-service staff and university students; and (v) applied research for S&Tbased indigenous solutions for meeting the national needs.

During his meeting with the Vice Chancellor, Dhaka University, arranged through the courtesy of the Chairman BCSIR, mainly the academic strengths of COMSATS Institute of Information Technology (CIIT) were elaborated by the Executive Director in his capacity as the Chairman Board of Governors of CIIT.

The parting exchange of remarks by the Executive Director and the Chairman BCSIR along with his senior colleagues took into account the wide scope of benefits available to the scientific community of Bangladesh through the platform of COMSATS, and the desirability of close contacts between COMSATS and BCSIR.

#### VISIT OF THE EXECUTIVE DIRECTOR TWAS: MEETINGS AT COMSATS SECRETARIAT AND ITS FOCAL MINISTRY

Science advocacy is an ongoing process and governments' patronage and commitment is crucial for the success of



science-related initiatives. The role of organizations like COMSATS in this regard is very important. Dr. Romain Murenzi, Executive Director The World Academy of Sciences (TWAS), expressed these views to his counterpart at COMSATS, Dr. I.E. Qureshi, and discussed avenues of strengthening cooperation between COMSATS and TWAS during his visit to COMSATS Secretariat in Islamabad, on April 30, 2014. The meeting was also attended by other senior officials of COMSATS, including Advisor (Programmes), Mr. Tajammul Hussain; Advisor (Host Country Affairs), Mr. Sabih-ur-Rahman; and Deputy Director (Programmes), Mr. Irfan Hayee.

Dr. Murenzi was on his visit to Pakistan to participate in the 'IYCr2014 South Asia Summit Meeting on Vistas in Structural Chemistry' (Page 7) organized by one of the COMSATS' Centres of Excellence in Pakistan, the International Center for Chemical and Biological Sciences (ICCBS), Karachi, where he also delivered a lecture, entitled 'Building Strength in Science: The Role of Education and Regional Cooperation'.

Welcoming the Executive Director TWAS, Dr. Qureshi introduced the senior officials of COMSATS to him and gave a multimedia presentation to elaborate COMSATS' scope, mandate, role and functions as an IGO operating from Islamabad. He highlighted the similarities in the operations of the two organizations that have the same founding father, Prof. Abdus Salam, and considered their programmes and activities complementary in some respects. Dr. Qureshi explained that COMSATS takes pride in its Network of 18 International S&T Centres of Excellence, which has a spectrum of mono-disciplinary and multi-disciplinary S&T institutions in different developing countries. He noted that the Coordinating Council of COMSATS comprising the Heads of these Centres serves as an effective platform for South-South Cooperation, facilitating scientific exchange and collaboration among the participating institutions

belonging to different developing countries. Dr. Qureshi also acquainted Dr. Murenzi with the functions of other statutory bodies of COMSATS, the Consultative Committee and the Technical Advisory Committee; the membership of the latter, he noted, is granted on recommendation of TWAS. The performance and growth of COMSATS' flagship projects, COMSATS Institute of Information Technology (CIIT) and COMSATS Internet Services, was also brought to Dr. Murenzi's notice.

Dr. Murenzi was informed that COMSATS' publications are the organization's important means for outreach and information sharing. Among these, a special mention was made of COMSATS-TWAS publication series, 'Excellence in Science', covering the profiles of scientific institutions in the developing world.

Speaking on the occasion, Dr. Murenzi opined that longterm developmental benefits of science are dependent upon, low-cost scientific solutions to improve the living standards in the developing countries. Dr. Murenzi believed that there is a need to reach out to the politicians and government officials of the developing countries to sensitize them about the importance of science for development. He considered the monetary contributions of the member countries vital for the effective operations of organizations like COMSATS and TWAS.

Dr. Murenzi suggested that as member institutions of an organization working for sustainable development through Science & Technology, all the Centres of Excellence of COMSATS should adopt the concept of 'Sustainability' as their hallmark. He considered the emergence of the Pakistani scientific institutions visited by him earlier, CIIT, ICCBS and National Centre for Physics (NCP), an encouraging sign for science in the developing world.

At the conclusion of the meeting, the two Executive Directors exchanged some specific views on future prospects of cooperation between their organizations. Dr. Qureshi opined that COMSATS should be invited to TWAS' international meetings as observer and COMSATS' officials may be invited to participate in the trainings and conferences organized by TWAS. Other matters of mutual interest discussed on the occasion included cooperation under TWAS' Science Diplomacy programme and possibilities of creating COMSATS-TWAS fellowship, as well as TWAS' support for COMSATS' International Thematic Research Groups.

"I hope to see Rawanda's flag among the flags of COMSATS' Member Countries", says Dr. Murenzi as a parting note about his country of origin.

Before his visit to COMSATS' Secretariat, Islamabad, Dr. Murenzi accompanied by Dr. Qureshi called on the Minister



The Executive Directors of TWAS and COMSATS meeting the Minister for Science and Technology, Government of Pakistan

for Science and Technology (MoST), Government of Pakistan, H.E. Mr. Zahid Hamid, at his office in Islamabad. Matters of mutual interest, especially in the field of science and technology, were discussed by the two Executive Directors with the Minister. Federal Secretary MoST, Mr. Kamran Ali Qureshi, was also present during the meeting.

The Minister stated that Pakistan is keen to promote research in the field of science and technology. Taking note of TWAS' efforts in this direction, the Minister opined that the soft image of Pakistan would be projected at global level through promoting science diplomacy. Dr. Murenzi appreciated the role being played by Pakistan for S&T cooperation, and considered S&T an important tool for foreign policy in the world community.

# THE DIRECTOR GENERAL IAEA VISITS COMSATS' FOCAL POINT IN PAKISTAN

A delegation of International Atomic Energy Agency (IAEA) led by its Director General, Mr. Yukiya Amano, visited the Ministry of Science and Technology, Government of Pakistan (COMSATS' Focal Point in the host country) on March 12, 2014, to share information about the role of IAEA in promoting peaceful uses of nuclear technology. The honorable Minister for Science and Technology, H.E. Mr. Zahid Hamid, welcomed the delegation members and briefed them about the programmes of various R&D organizations, regulatory bodies, and the two universities, including the COMSATS Institute of Information Technology (CIIT), working under the Ministry.

In connection with the possible support of IAEA towards the Ministry's programmes, the Executive Director COMSATS, Dr. Imtinan Elahi Qureshi, informed Mr. Amano that CIIT offers graduate-level courses in Nuclear Sciences and has a well-equipped Radiation Physics laboratory. CIIT is also interested in setting up facilities of radiation sterilization using electron-beam technique. Dr. Qureshi observed that technical support of IAEA for the R&D programmes of CIIT would be highly appreciated.

Mr. Amano remarked that the major segment of IAEA activities, which are less well-known, is for peaceful uses of nuclear technology. He informed that a 'Programme of Action for Cancer Therapy' is being executed under the Department of Technical Cooperation of IAEA. Similarly, in partnership with UN Food and Agriculture Organization (FAO), the IAEA has established a 'Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture', which provides support in areas of pest control, plant breeding, soil and water management, food quality standards and preservation, and live-stock health and production. Mr. Amano expected that there would be about 17% increase in nuclear power production worldwide by 2030. He informed that, currently, 437 nuclear power plants are in operation and 72 are under construction, mainly in Asia. He believed that a safeguarded use of nuclear power would be a contribution towards the mitigation of climate change impact. The safety standards of nuclear industry, he added, are much higher than other industries, and these are being further enhanced after the experience gained in Fukushima Daiichi episode three years ago. While regarding nuclear energy as a safe option, he conceded that the long-time nuclear waste disposal requires more attention.

In connection with the role of universities in support of IAEA activities, the Dean, Faculty of Sciences, CIIT, Dr. Arshad Saleem Bhatti offered to provide IAEA prescribed radiation protection courses at CIIT, in collaboration with the Pakistan Nuclear Regulatory Authority (PNRA) and the Pakistan Institute of Engineering and Applied Sciences (PIEAS). It was decided that a list of projects requiring IAEA support will be submitted to the focal point of IAEA in Pakistan, for evaluation and onward submission to the Agency.

#### COMSATS CO-SPONSORS THE NCP-ICTP ISS-2014

From March 10-14, 2014, the 6<sup>th</sup> International Scientific Spring-2014 (ISS-2014) was organized in Islamabad, Pakistan, by the National Center for Physics (NCP), Pakistan, and the Abdus Salam International Centre for Theoretical Physics (AS-ICTP), Italy. COMSATS was one of the sponsors of the event that provided full air travel assistance for five international participants of the event. Elettra-Sincrotrone Trieste Other sponsors included: S.C.p.A., Basovizza, Italy, and Pakistan Academy of Sciences (PAS).

The ISS-2014 comprised of plenary and parallel sessions covering the following four activities/domains: Applications of Synchrotron Radiation; New Materials for Energy Applications (Nano-materials for energy applications); Plasma Physics; and Earth Systems. Over 150 lectures



A alimpse of the Inaugural Session of NCP-ICTP ISS-2014

were delivered and poster presented by foreign and local participants during the five-day proceedings of the ISS-2014. Twenty five foreign delegates from Algeria, Bangladesh, Czeck Republic, China, Indonesia, Irag, Italy, Japan, Jordan, Malaysia, Philippines, Saudi Arabia, Sweden, Turkey, Russia and United States, as well as over 350 local scientists, researchers and faculty from various Pakistani universities and research organizations participated in the deliberations of the event.

#### **VIEWS FROM ISS-2014 PARTICIPANTS** SPONSORED BY COMSATS

"This is the third of ISS Conferences held in NCP, Islamabad that I have attended. I observed that the level and guality of these conferences improves year by year. I am returning home from this conference with new knowledge, as I did after the other conferences at the international level".

Prof. Dr. Osman Adiguzel, Firat University, Turkey

"The ISS-2014 ... was scientifically well-organized in 4 different parallel groups. It also exhibits the scientific as well as the social face of Pakistan. As an individual, I initiated contact with some senior scientists at NCP, Elettra and SESAME".

Dr. Hanana M.A. Sa'adeh, University of Jordan, Jordan

COMSATS' sponsorship has "given us this chance to collaborate with others in doing research in (our) field of interest, I have contacted with a few participants and discussed how to collaborate. The event was very well organized, very beneficial to every participant".

Dr. Wang Jiasheng , Jiaotong University, China

"It is such a privilege for me to be at ISS-2014, especially because I can finally manage a research collaboration with NCP via Pro. Baig... The chance of being here is a valuable for me as well as for my country. I can share among others what we have achieved so far in my country as well as learning what should be done for further development.... Thank you very much COMSATS.'

Dr. Rinda, Perumahan Palem Semi, Indonesia

## **ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE**

#### ICCBS-PAKISTAN ORGANIZES THE 'IYCR2014 SOUTH ASIA SUMMIT MEETING ON VISTAS IN STRUCTURAL CHEMISTRY'

From 28<sup>th</sup> to 30<sup>th</sup> April 2014, the 'IYCr2014 South Asia Summit Meeting on Vistas in Structural Chemistry' was organized at COMSATS' Centre of Excellence in Karachi, Pakistan, the International Center for Chemical and Biological Sciences (ICCBS). Held under the auspices of the International Union for Crystallography (IUCr) and UNESCO, this was one of the three Summit Meetings, being held in connection with the International Year of Crystallography (IYCr2014). The Commission on Science and Technology for Sustainable Development in the South (COMSATS); Ministry of Science and Technology (MoST), Government of Pakistan; Pakistan Academy of Sciences (PAS); Chinese Academy of Sciences (CAS); and Indian National Science Academy (INSA), provided support for organization of the event in Karachi. The 2<sup>nd</sup> and 3<sup>rd</sup> Summit Meetings will take place in September (Brazil) and October (South Africa) this year.

The three-day event was inaugurated by Dr. Mukhtar Ahmed, Chairman Higher Education Commission (HEC) of Pakistan. Other distinguished guests attending the ceremony included: Prof. Dr. Gautam R. Desiraju, President IUCr; Prof. Dr. Atta-ur-Rahman, President Pakistan Academy of Sciences and Chairman Organizing Committee IYCr2014; Dr. Imtinan Elahi Qureshi, Executive Director COMSATS; Ms. Nadira Panjwani, the Founder and Managing Trustee of the Panjwani Charitable Foundation and Trusts; Prof. Dr. M. Qaiser, Vice Chancellor University of Karachi; Mr. Aziz Latif Jamal, Chairman, Husein Ebrahim Jamal (HEJ) Foundation; Prof. Dr. Iqbal Choudhary, Director, ICCBS; and Prof. Dr. Samar S. Hasnain, Editor-in-Chief of IUCr Journals. In his inaugural address delivered via video-conferencing, the Chairman HEC said that it is important for the developing countries to learn from each other. He pledged his organization's support to provide a platform for conducting regional conferences, workshops and seminars in different areas of interest. He said that he would be looking forward to the proceedings of the event in order to formulate an effective Medium Term Development Framework for HEC.

In his remarks on the occasion, Dr. Choudhary lauded the efforts of Prof. Dr. Atta-ur-Rahman and Prof. Dr. Desiraju for organizing the event, and gave a brief introduction to the format of the meeting. Prof. Dr. Hasnain noted that in today's world where international relations are experiencing a quantum shift, Science has an even more vital role to play in the global cooperative activities and diplomacy.

In a message read out on the occasion by UNESCO's International Basic Sciences Programme specialist, Mr. Ahmed Fahmi, the Director General UNESCO, Dr. Irina Bokova, called for stronger partnerships among Asian economies to contribute to the post-2015 development agenda debate. Considering large-scale brain drain, a challenge especially for the developing world, Dr. Bokova asserted that the developing countries need to build a critical mass of people in science and technology for them to be able to exploit the full potential of science.

Dr. Atta-ur-Rahman in his address said that the IYCr2014 Summit was a unique event due to the participation of Indian National Science Academy (INSA) for the first time. Also noting the participation of Chinese Academy of Sciences (CAS) in the event, he believed that the event would give the participating scientists an excellent opportunity to develop regional collaboration and linkages in the field of Crystallography.





Speaking on the occasion, Dr. I. E. Qureshi, Executive Director COMSATS, said he was impressed by the strong participation at the IYCr2014 by the Pakistani, Indian, Chinese and Sri Lankan academies of sciences. He said that COMSATS' partnership in the event was based on the fact that it was an intergovernmental organization dedicated to South-South Cooperation in Science and that ICCBS is one of the affiliated Centres of Excellence of the COMSATS' Network.

The South Asian Summit had participation of 380 senior scientists, researchers and scholars hailing from 22 countries, including Bangladesh, Cameroon, China, Egypt, France, Germany, India, Iran, Jordan, Malaysia, Nepal, Nigeria, Saudi Arabia, Sri Lanka, Sudan, Sweden, Turkey, United Kingdom, United States of America, and Yemen.

The Summit Meeting provided a platform to the scientists, mainly from the countries of the South Asian region, to share their findings with science administrators and industry representatives in order to develop a greater understanding about the tremendous benefits of structural chemistry. During the nine Technical and five Panel Discussion sessions, the speakers and panelists highlighted the significance of crystallography; explored current advances and frontiers in structural biology; and illustrated how highthroughput approaches in Crystallography in combination with hybrid methods using computational and other biophysical techniques can be used to tackle topical and challenging problems in molecular, cellular and chemical biology. During the three-day event, the participants of the meeting were also shown around the state-of-the-art laboratories of ICCBS.

On April 30, 2014, the Summit Meeting concluded on the note of making extensive regional and international cooperation in the field of X-ray diffraction, crystallography, drug design and discovery, in line with the objectives of the International Year of Crystallography. The concluding ceremony of the event was presided over by Prof. Dr. Attaur-Rahman, while the President IUCr, Prof. Dr. Gautam R. Desiraju, presented a vote of thanks on behalf of the organizers. During the ceremony, a letter signed by all the local and international participants was handed over to Prof. Dr. Desiraju, seeking his organization's support for initiating actions to promote regional scientific collaboration through holding of joint training workshops and video-based lectures; encourage mobility of researchers; promote joint research projects in crystallography; leverage national bodies and institutions through financial support; and facilitate regional conferences on the subject of X-Ray diffraction and its applications in South Asian and South East Asian regions.

#### ITI-SRI LANKA RECEIVES PRESIDENTIAL AWARD FOR INVENTION OF SAFE COCONUT HUSK FEEDING MECHANISM

Industrial Technology Institute (ITI) of Sri Lanka has been awarded the Presidential Award for inventing 'Safe Coconut Husk Feeding Mechanism during Fibre Extraction'.

Coconut coir fibre industry brings in a considerable amount of foreign currency and is the livelihood of many living in coconut growing areas in Sri Lanka. A survey carried out by ITI has revealed that the 'Traditional Knowledge' plays a major role in this industry. It further revealed that it was becoming difficult to find skilled workers to man the 'Traditional Needle Drums', which is used to open and comb the husk due to high incidence of injuries to fingers and palms of the workers when introducing the husk to the machine. Having identified the necessity of introducing a safer processing method to the industry for its development a team of researchers, led by Research Engineer, Mr. Anura Sooriyaarachchi, invented a 'Safe coconut husk feeding mechanism to extract Bristol fibre from traditional fibre extraction process'. This has been recognized as the best invention in the field of 'Industries and Technology' for the year 2012 in Sri Lanka, and received the Presidential Award at a ceremony held on 28<sup>th</sup> February 2014 in Colombo.



An official of ITI-Sri Lanka receives the Presidential Award

## BCSIR-BANGLADESH HOLDS A TRAINING PROGRAMME

The Pilot Plant Process Development Centre of Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh, has conducted a six-week Training Programme on 'Testing of Metal, Ceramic and Plastic Samples', from 23<sup>rd</sup> March to 1<sup>st</sup> May 2014. The programme was focused at training officials of Implementation Monitoring and Evaluation Division (IMED), Ministry of Planning, Government of the People's Republic of Bangladesh. Sixty officers of IMED benefited from the training.

The inaugural session of the training programme was chaired by Prof. Dr. Ahmad Ismail Mustafa, Chairman BCSIR, while Secretary IMED, Ms. Suraiya Begum graced the occasion as the Chief Guest.



## EXECUTIVE DIRECTOR TWAS VISITS THE ISLAMABAD CAMPUS OF CIIT- PAKISTAN

The Executive Director of The World Academy of Sciences (TWAS), Dr. Romain Murenzi, visited COMSATS Institute of Information Technology (CIIT), Islamabad Campus, on 29<sup>th</sup> April 2014, with an objective to follow-up on various agreements reached earlier between TWAS and CIIT, including one on TWAS-CIIT Visiting Scholar Fellowship Programme. Taking advantage of his presence, the International Office of the Institute also arranged a brief address of the visiting dignitary to highlight the opportunities available under the CIIT-TWAS agreement.

Dr. Murenzi's talk about the various TWAS' programmes was attended by a large group of young faculty members and PhD students from Islamabad, as well as from Lahore and Abbottabad through video conferencing. Dr. Murenzi left the Institute with words of commendation and looked



Dr. Murenzi addressing the faculty of CIIT during his visit to the Institute's Islamabad Campus (April 29, 2014)

forward to further engagement with the Institute.

# CIIT-PAKISTAN ORGANIZES CAPACITY-BUILDING EVENTS

The Department of Chemistry, of CIIT Abbottabad Campus organized a two-day workshop on 'Modern Techniques in Structural Chemistry and Structural Biology', in collaboration with International Center for Chemical and Biological Sciences (ICCBS), Pakistan, on April 17-18, 2014.

The aim of the workshop was to focus on a wide spectrum of modern techniques in structural chemistry and structural biology in order to address future challenges in the field and deliberate on their effective applications in industry, community services, education, enviroment, and other fields for sustainable development.

A three-day International Conference on 'Impact of Nanoscience on Energy Technologies' (NanoSET-2014) was organized by Physics Department of CIIT, Lahore Campus, on March 18-20, 2014. The purpose of the Conference was to bring together ideas from all over the world for developing environment-friendly and economically sustainable nanotechnologies in energy sector. Researchers, engineers, academicians, as well as professionals and representatives from industrials sectors, with diverse backgrounds, shared their thoughts during various sessions of the event.

The Conference highlighted the impact of nanotechnology in the areas of clean energy, solar, hydro, wind, biomass, fuel cell and energy storage. Experts from the international universities, in particular from Sweden, United Kingdom, Finland, Iran, Austria, Saudi Arabia, as well as various universities of Pakistan, participated in the event and shared their experiences and achievements.

## S&T INDICATORS OF MEMBER STATES

#### Hashemite Kingdom of Jordan

This section highlights the science and technology potential and vision of COMSATS' Member States and it will encompass interviews with relevant government officials.

The Hashemite Kingdom of Jordan is a West Asian Arab country having a population size of 6.38 million and a geographic area of 89,342 sq. km. According to the UNDP's Human Development Report 2013, Jordan stands at 100<sup>th</sup> position out of 187 countries and territories of the world, with an HDI value of 0.700 (2012). This value exhibits an increase of 18.2% or an average annual increase of about 0.82% when compared to the country's HDI value in 1990 (0.592), which speaks of its immense potential for development.

The 2012 GDP of Jordan, as divided into sectors, sets Agriculture as least contributing (3.2% of GDP); the Industry as a significant contributor (29.9% of GDP); and the Services Sector as the primary contributor to the economy (67% of GDP). With youth (15 to 24 years of age) literacy reaching 98.76% (2012), closely followed by Sri Lanka at 98.15%, Jordan stands out among COMSATS' Member States. Despite the soaring global oil prices in the last decade and the regional political turmoil in the Middle East, the Government of Jordan has maintained a steady state economy.

Jordan founded its principal national university, the University of Jordan, in 1962, and its main industrial research centre, the Royal Scientific Society, in 1970. However, the country adopted its National Science and Technology Policy no earlier than 1995. In 2009, Jordan was

Selected Development Indicators for Jordan			
Indicators	1990	2000	2010
Merchandise exports (current billion US\$)	1.06	1.9	7.03
High-tech exports (current million US\$)	7.45	53.16	122
High-tech exports (% of manufactured exports)	1.59	8.04	2.86
ICT goods exports (% of total goods exports)	-	2.69	1.29
Mobile cellular subscriptions (per 100 people)	0.04	8.06	106.99
Health expenditure per capita (current US\$)	-	169.22	370.01
School enrollment, primary (% gross)	101.58	102.39	98.79
School enrollment, secondary (% gross)	76.39	85.91	89.91
School enrollment, tertiary (% gross)	20.45	28.28	40.43
Trademark applications, direct nonresident	-	3266	4064
Trademark applications, direct resident	-	3307	1907
Scientific and technical journal articles	176	247	378
Source: The World Bank's Development Indicators, March 2014			



Map of West Asia showing the location of Jordan

in the process of launching El-Hassan Science Park as part of a major science project in Amman, the country's capital city, to encourage innovation and public-private partnership in science and technology.

To sustain its initiatives in Science and Technology, Jordan introduced company laws in 2005, whereby 1% of the net profit of public shareholding companies was to be transferred to a special R&D fund, and another that compelled public and private universities to allocate 5% of their budgets annually to research and development. Together with the funding made available by the Middle East Science Fund (launched in 2007), these measures will considerably raise Jordan's Gross domestic Expenditure on Research and Development (GERD) in the long run.

As part of defining S&T priorities, Jordan embarked upon a Solar Energy Research Programme in 1972. Jordan's

National Agenda adopted in 2005, stipulates that the projected share of solar energy in the country's total energy-mix should rise to 3% by 2015, by which time 80% of households ought to be using solar energy based water collectors (UNESCO Science Report, 2010). This is an achievable target for Jordan, which would reduce the national energy bill of imported oil by about the same percentage.

One major inter-disciplinary project that can stimulate regional cooperation in S&T and thereby drive output is the Synchrotron light for Experimental Science and Applications in the Middle East (SESAME) project, being undertaken in Jordan. Once fully operational by the end of 2014 with three initial beamlines, SESAME will offer the Middle East a world class laboratory for basic research and numerous applications in biology, medical sciences, material sciences, physics, chemistry and archaeology. This is an

Socio-economic Indicators and HDI of Jordan				
Years	Population (millions)	GDP per capita (current US\$)	Exports of Goods & Services (Billions US\$)	HDI Value
1990	3.170	1312.28	2.489	0.592
2000	4.797	1763.169	3.542	0.650
2010	6.046	4370.721	12.628	0.699
2012	6.318	4909.028	13.606	0.700
Source: CIA World Fact Book (March 2014); The World Bank Development Indicators (March 2014); UNDP Human Development Report 2013				

immense advancement in promoting regional scientific cooperation and UNESCO recognizes it as a 'Model Project'.

Among non-oil economies, Jordan also achieved highest score on the Knowledge Economy Index (KEI) at 5.54 in (2008) in the Arab World. Jordan spends no less than 4.3% of its GDP on higher education, but most of this comes from the private sector, according to the UNESCO World Science Report 2010. Jordan has a reputation for excellence in Medical Sciences and the Jordan University of Science and Technology was ranked 362<sup>nd</sup> among the Engineering and Technology faculties on the QS World Ranking of Universities (2013). There is a need to focus on emerging technologies, like ICTs and Nanotechnology, where Jordan can derive benefits from COMSATS' initiatives, and network with regional partners to improve its own capacity.

ICT goods related exports are one more area where Jordan may have potential to improve. Even though it ranks low (59<sup>th</sup>) on the Competitiveness for Innovation Index amongst 133 countries, its recent reforms are likely to play a crucial role in the future development of Science and Technology. Improving public spending on science in order to benefit from the knowledge economy is important for Jordan and its current spending of 0.43% of GDP may not be sufficient for a thriving Science and Technology base.

Jordan has a rich human resource with an exceptionally high literacy rate and could enhance its high-tech exports with suitable public-private ventures. Therefore, strategies need to be adopted in the country to encourage the private sector to collaborate with universities and research organizations, and increase private spending on R&D as well.

Human Capital employed in S&T Activities in Jordan (2003-2004)			
Human resources category	No.	% of total	
Scientists & engineers	15,799	37.6	
Technicians	6,352	15.1	
Technical staff	12,970	30.8	
Management	6,940	16.5	
Total	42,601	100.0	
Source: The Atlas of Islamic-World Science and Innovation Country Case Study: Jordan, 2013			

#### INTERVIEW WITH THE AMBASSADOR OF JORDAN TO PAKISTAN, H.E. NAWAF KHALIFA IBRAHIM SARAIREH



#### Please briefly introduce Hashemite Kingdom of Jordan as an important member of the world community; its current standing in terms of Human Development Index and other socio-economic indicators?

Although Jordan is a constitutional monarchy, the King holds wide executive and legislative powers. Jordan is classified as a country of "medium human development" by the 2011 Human Development Report, and an emerging market with the third freest economy in West Asia and North Africa, Jordan has an 'upper middle income' economy. Jordan has enjoyed 'advanced status' with the European Union since December 2010, and it is a member of the Euro-Mediterranean free trade area. It is also a founding member of the Arab League and the Organization of Islamic Cooperation (OIC).

Jordan's economic resource base centers on phosphates, potash, and their fertilizer derivatives; tourism; overseas remittances; and foreign aid. These are its principal sources of forex earnings. Lacking coal reserves, hydroelectric power, large tracts of forest or commercially viable oil deposits, Jordan relies on natural gas for 10% of its domestic energy needs.

#### What is the vision of the Government of Jordan for sustainable national development and the role it envisages Science, Technology and Innovation to play for its development?

The Government of Jordan reaffirms strong patronage and commitment to supporting education and science & technology in the country. It envisions achieving development by promoting ST&I through programs for strengthening R&D, scientific research funding, technology transfer and fostering industry-research collaboration. An effort to develop the national education system at all levels from primary and secondary education to Higher education is an important contribution towards building a knowledgebased economy in Jordan.

With its strong education system, well-educated young population, a rapidly developing ICT sector and wellestablished medical services industry, Jordan can make up for its deficiency of natural resources.

What major achievements have been made by the country in terms of Science and Technology during the last 10 years?

Jordan in this period has achieved development in S&T through:

- Improving the policy framework of STI
- Overcoming cultural barriers to entrepreneurship and innovation
- Reforming and aligning the education system
- Raising the level of innovative R&D
- Promoting a positive environment for entrepreneurship and business.

# What is the existing S&T capacity of the country in terms of skilled human resource, number of S&T/R&D institutions, scientific laboratories, scientific publication, revenues through patents, etc?

Jordan realizes the importance of capitalizing on its abundant human resources to foster economic growth and development, especially in these troubled times where the country has received almost 2 million refugees coming from the conflict-affected neighbours countries.

With a population of 6.2 million that is growing at approximately 2.2% per year, of which 80% is urban, Jordan boasts a relatively young population, with almost 70% under the age of 30. Capitalizing on its highly qualified graduate pool, Jordan has seen the emergence of several knowledge and skills centered industries, such as ICT, outsourcing,

pharmaceuticals, healthcare, clean tech and light manufacturing.

The national capacity and new knowledge are enhanced by human resources, in addition to R&D absorption, innovative systems and science and technology. This integration of local resources with technological opportunities promotes production and growth.

Jordan ranked 38.4/100 on the Global Innovation Index (2011), is falling short on institutions, human capital & research, infrastructure, market sophistication, business sophistication, scientific output and creative output.

#### What functions does the Higher Council for Science and Technology perform in achieving progress on S&T in the country?

The Higher Council for Science and Technology is mandated to:

Ratifying the General policy of science and technology in the Kingdom, defining research priorities, and drawing up related programs and plans for their implementation and follow up. It is also responsible for drawing up the strategies suitable for the development of scientific and technological potential in Jordan and providing the suitable scientific environment for its development.

Fostering institutions and units of scientific and technological research and providing the necessary funding for the support of scientific and technological research, services and activities is an exclusive mandate of the Council in order to contribute to the supply and training of manpower and enhancing technical potential of scientific research institutions.

Further the Council specifies conditions and requirements for the accreditation of scientific centers of excellence, assisting in their development, and ratifies the principles and basis on which it provides financial aid to scientific and technological research programs, services and activities so



Drivers and Challenges of Scientific Research		
Key area	Challenge	
Drivers and challenges of scientific research	Governance Sector disjointed as it lacks a clear governance structure and an effective strategy for prioritization	
Funding	<ul> <li>Low spending from private sector</li> <li>University financial resources are spread out too thinly</li> </ul>	
Information and cooperation	<ul> <li>Channels connecting Jordan's scientists to world scientific forums are underdeveloped</li> <li>Reference material is limited in availability</li> <li>Lack of university interconnectedness</li> </ul>	
Innovation culture	<ul> <li>Limited merit and financial incentives</li> <li>'Brain drain'</li> </ul>	
Innovation culture	Innovation culture lacking in both education and higher education teaching methods	
Source: The Atlas of Islamic-World Science and Innovation Country Case Study: Jordan, 2013		
Note: The National Agenda 2006–2015 (2005) assessed the ST&I base along five key drivers to identify challenges for its development, in terms of: governance; funding; information and cooperation; human resources; and innovation culture. Challenges identified in relation to each driver are summarized in the table.		

as to realize the aims of national policy in these fields.

The Council represents Jordan in regional and international forums and bodies concerned with science and technology, undertaking scientific and technological cooperation and concluding agreements related to scientific and technological research.

#### Jordan's performance in achieving some MDGs has been promising and the country seems to be on track for accomplishing the rest by 2015. What are Jordan's priorities on this front in the remaining timeframe of the MDGs?

The innovation strategy of Jordan is based on priority clusters, which are medical services and pharmaceutical industry; Information and Communication Technology; clean technology; architecture and engineering services; education and career guidance services; and banking and financial services. In prioritizing global drivers of change in the third millennium in the case of Jordan, a national consensus was reached that water, energy and food security are of top priority. A national study to identify the national R&D priorities for the coming 10 years has recently been finalized. This study aimed at determining scientific research fields by 14 sectoral committees, each comprising a group of experts representing various national institutions, such as public and private universities, and scientific

centers.

Jordan has cooperative ties with many developed countries and enjoys excellent working relations with the organization from the North, especially European Union. How does the Government of Jordan employ South-South Cooperation mechanism in its development agenda?

The National Agenda of Jordan represents an ambitious effort made to develop a master plan for the reform, future growth and development of Jordan in order to create a comprehensive strategy for social, political and economic transformation, which would put Jordan on a trajectory toward rapid, sustainable economic growth and greater social inclusion.

Jordan is recognized as one of the most globalized countries in the world in terms of political engagement, economic integration and its citizens' contacts with the rest of the world. Years of serious economic development and investment in education are paying off in terms of rapid growth, which plays a role in creating a favourable environment of investment, fiscal discipline, lower trade barriers, internal social solidarity, administrative development, justice, accountability, transparency, a more inclusive labour policy that builds up vocational training, employment support, and support for small and medium enterprises.

#### In which specific areas of Science and Technology does the Government of Jordan need support of international community?

The Government of Jordan is focused on developing collaborative learning and critical thinking among its citizens and seeks international assistance in areas of biotechnology and Information and Communication Technology.

# What role does the Government of Jordan expect COMSATS to play for the national development of Jordan and for promoting S&T in the country?

Jordan expects from COMSATS:

- Assistance in technology transfer and to find ways of mutual exploitation of resources while enhancing research and sharing results;
- Advice on appropriate Intellectual Property Rights regime and enhancement of potential for creating intellectual intangible assets;
- Contribution towards increasing e-Readiness of SMEs of the country;
- Providing latest information on latest technologies relevant to development of the country; and
- Offering distance-learning support and building innovative clusters and networks for learning.

## SCIENCE, TECHNOLOGY AND DEVELOPMENT

# A COMPREHENSIVE GENE ACTIVITY MAP DEVELOPED

According to a news published in *Science Daily* on March 26, 2014, a large international consortium of researchers has produced the first comprehensive and detailed map of the way genes work across the major cells and tissues of the human body. The findings describe the complex networks that govern gene activity, and the new information could play a crucial role in identifying the genes involved with diseases.

"Now, for the first time, we are able to pinpoint the regions of the genome that can be active in a disease and in normal activity, whether it is in a brain cell, the skin, blood stem cells or hair follicles", said Winston Hide, Associate Professor of Bioinformatics and Computational Biology at Harvard School of Public Health (HSPH), USA.

Researchers studied human and mouse cells using a new technology called Cap Analysis of Gene Expression (CAGE), developed at the Institute of Physical and Chemical Research (RIKEN), Japan, to discover how 95% of all human genes are switched on and off. These 'switches', called 'promoters' and 'enhancers', are the regions of DNA that manage gene activity. The researchers mapped the activity of 180,000 promoters and 44,000 enhancers across a wide range of human cell types and tissues and, in most cases, they were linked with specific cell types. "We now have the ability to narrow down the genes involved in particular diseases based on the tissue cell or organ in which they work", said Prof. Hide.

# PRE-CLINICAL TRIALS ON NEW HIV, HEPATITIS C VACCINE

Plans for a new type of DNA vaccine to protect against the deadly HIV and Hepatitis C viruses have taken an important step forward, with University of Adelaide researchers applying for a patent based on groundbreaking new research says news published in the *Science Daily* on March 25, 2014.

Professor Eric Gowans from the University's Discipline of Surgery, based at the Basil Hetzel Institute at the Queen Elizabeth Hospital, has focused on utilizing the so-called 'accessory' or 'messenger' cells in the immune system, called dendritic cells, to activate an immune response. These are a type of white blood cells that play a key role during infection and vaccination. Professor Gowans and his team have achieved this by including a protein that causes a little cell death at the point of vaccination. "The dead cells are important because they set off danger signals to the body's immune response. This results in inflammation and the dendritic cells become activated. Those cells then create an environment in which the vaccination can be successful", Prof. Gowans says. The research is still in the pre-clinical phase, with a patient study due next year.

#### ANTIBODIES AGAINST DEADLY MERS DISCOVERED

Scientists at Dana-Farber Cancer Institute, Boston, USA, have identified natural human antibodies against the virus that causes Middle East Respiratory Syndrome (MERS) – a severe respiratory disease with a mortality rate of more than 40 per cent. This discovery is a step toward developing treatments for the newly emerging and often fatal disease that was first reported in Saudi Arabia in 2012. Currently there is no vaccine or antiviral treatment for MERS.

The research was led by Wayne Marasco, MD, an infectious disease expert at Dana-Farber. The researchers found that these 'neutralizing' antibodies prevented a key part of the virus (MERS CoV) from attaching itself to protein receptors that allow the virus to infect human cells. Further experiments are underway that could lead to development of antibody preventives and treatments for MERS, according to the scientists, as published in the *Science Daily* on April 28, 2014.

## NATURAL BACTERIAL FILTERS TO DELIVER SAFE DRINKING WATER

Scientists from the Massachusetts Institute of Technology (MIT), USA, are working with their counterparts in developing countries to produce an 'economical and efficient' means of filtering out bacteria from water, using plant xylem that normally transports water and nutrients from soil, says a report published in *SciDev.Net* on March 18, 2014. The novel technology could provide a solution to the burden of water-borne diseases in East Asia and the Pacific, where, according to the UNICEF, about 180 million people lack access to safe water supply.

Dr. Rohit Karnik, Associate Professor of Mechanical Engineering at MIT, heads the Microfluidics and Nanofluidics Research Laboratory, where this new development has taken place. Dr. Karnik says that his team is interacting with water treatment experts in developing countries to produce a prototype of the xylem filter in the next 2 to 3 years. Xylem tissue works like pipes in which water and minerals move from the roots to the leaves. It was found that the xylem filter removed "at least 99 per cent" of the bacteria. The WHO standards require that safe drinking water contains "no detectable *E. coli* in every 100 ml sample".

The MIT study provides directions for further development of the xylem filtration technology. A possible design, Dr. Karnik suggests, could be a water container placed a few feet above a faucet that has a replaceable xylem filter inside no pumps required — that could filter four litres of water daily. A small stick around three centimetres long is sufficient to filter several litres of water a day, which is "sufficient to meet the clean drinking water needs of one person".

## **PROFILE OF HEAD OF COMSATS' S&T CENTRE OF EXCELLENCE**

#### PROF. MKUMBUKWA MADUNDO ANGELO MTAMBO, DIRECTOR GENERAL TIRDO, TANZANIA

Prof. Mkumbukwa Madundo A. Mtambo became the

Director General of the Tanzania Industrial Research and Development Organization (TIRDO) in December 2013. Before joining TIRDO, Prof. Mtambo served the Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha-Tanzania as the Deputy Vice Chancellor responsible for Academics, Research and Innovations. Prof. Mtambo also served the Sokoine University of



Agriculture from 1992 to 2013 in various positions, namely, Deputy Dean of Faculty of Veterinary Medicine, Head of Department of Veterinary Medicine & Public Health and Clinician In-Charge.

Earlier, Prof. Mtambo completed his Bachelor of Veterinary Medicine at the Sokoine University of Agriculture, Morogoro, Tanzania in 1987 and his Doctorate Degree in Veterinary Medicine (Ph.D) in 1992 at the University of Glasgow, United Kingdom. During his doctorate studies, Prof. Mtambo investigated the epidemiology of Cryptosporidium, a zoonotic parasite causing infections in animals and humans, in particular those with the Acquired Immunodeficiency Syndrome (AIDS). Prof. Mtambo has been involved in research activities on zoonotic water-borne protozoan parasites, other veterinary diseases of public health significance, wildlife diseases, poultry diseases, and medicinal plants. Prof. Mtambo has also been involved in providing consultancies on livestock-wildlife interactions, trans-boundary animal diseases, and poultry diseases.

Prof. Mtambo has served as the Principal Investigator for a number of research projects, including a regional project of Danish International Development Agency (DANIDA) and European Network for Religious Education in Europe through Conceptual Approaches (ENRECA), involving scientists from Denmark, Tanzania, Kenya, Uganda and Malawi, aimed at investigating the health and productivity of local chicken in East Africa. He led DANIDA sponsored two projects, 'Transformation of Smallholder Livestock Farming into Profitable Enterprises', and 'Challenges and Opportunities of Urban and Peri-urban Livestock Farming'. Prof. Mtambo has also been involved as a team lead in a project that developed a vaccine against Newcastle disease in chickens using indigenous virus isolate in Tanzania.

He is actively involved in research projects investigating on the efficacy of medicinal plants against various diseasecausing microorganisms. These resulted in development of three Patents under Business Registrations and Licensing Agency (BRELA) in Tanzania: TZ/P/10/00274 (2011),

#### About TIRDO

Tanzania Industrial Research and Development Organization (TIRDO) is a multi-disciplinary Tanzanian research and development organization established in 1979. TIRDO's vision is to become a centre of excellence in the region for conducting quality R&D and providing technological support to create internationally competitive industrial sector in the country.

The primary functions of TIRDO are to undertake applied research that leads to industrial utilization of local materials and support industry in technology transfer and technical services, in order for them to become locally and internationally competitive in industrial production; promote industrial development in Tanzania leading to the evolution and development of local materials to be used in industrial processes; and research on the local and foreign industrial techniques and technologies for adoption and use in industrial production. The Organization also renders its services for building human and infrastructural capacities for effectively carrying out applied scientific and industrial research. These functions are in line with the Tanzania's growth strategy to recover from its present position is embedded in its ability to improve market access within the continent and on the global stage by diversifying its agricultural products. This can be accomplished through value addition and optimal utilization of its natural resources.

The Organization has research programmes in the following fields: mineral value addition; food processing and biotechnology; energy efficiency and renewable energy; environment and pollution; and materials research.

#### TZ/P/10/00277 (2011) and TZ/P/10/00280 (2011).

As an academician, Prof. Mtambo has supervised and examined a number of Master and Ph.D. students at the Sokoine University of Agriculture; University of Dar-es-Salaam; University of Nairobi, Kenya; Makerere University, Uganda; and the Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania. He has also served as a visiting lecturer at the University of Zimbabwe, Zimbabwe, in 1995. Prof. Mtambo has published over 80 papers in peer reviewed journals and conference proceedings and reviewed a book on Cryptosporidium infection.

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## COMSATS' BRIEF AND ANNOUNCEMENTS

#### SELECTED FORTHCOMING SCIENTIFIC EVENTS IN COMSATS COUNTRIES

22-24 June 2014	2014 Climate Investment Funds (CIF) Partnership Forum Montego Bay, Saint James, Jamaica (www.climateinvestmentfunds.org/cif/event- partnership/2014)
30 June to 5 July 2014	International School in Advanced Research Methods, Data Analysis & Software Training, Abuja, Nigeria (www.nmcabuja.org/upcoming_events.html)
6-15 July 2014	2014 ICCES International Training Workshop on Asian Monsoon Variability and Predictability, Beijing, China (2014icces-trainingworkshop.csp.escience.cn)
8-11 September 2014	13 <sup>th</sup> CAS-TWAS-WMO Forum: International Symposium on Extreme Weather and Climate: Past, Present, Future, Beijing, China (2014ctwf-icces.csp.escience.cn)
29 Sept. to 3 Oct. 2014	Cartagena Protocol on Biosafety COP-MOP 7, PyeongChang, Republic of Korea (http://bch.cbd.int/protocol/e-doc/ ?notification=2036)
6-8 October 2014	Interamerican and Colombian Chemical Engineering Congress, Cartagena, Colombia (http://www.globaleventslist.elsevier.com/events/ 2014/10/interamerican-and-colombian-chemical- engineering-congress/)
14-17 October 2014	7 <sup>th</sup> International Conference and Exhibition on Nutraceuticals and Functional Foods, Istanbul, Turkey (http://www.isnff2014.org)
20-22 October 2014	International Training Workshop and Conference on Desalination Technology and IORA Members Perspectives for Cooperation, Tehran, Iran (http://www.irost.org/en/)

#### CALL FOR PAPERS FOR COMSATS JOURNAL SCIENCE VISION: VOL. 20

Science Vision is a biannual scientific journal of COMSATS. It primarily aims at highlighting the important scientific and technological developments that have a bearing on socio-economic conditions of the people by publishing research as well as review articles. Scientists, researchers, policy-makers and young scholars from S&T organizations and R&D institutions are encouraged to contribute articles on any scientific field of interest relevant to the focus of the journal.

COMSATS invites scholarly contributions for the Volume 20, Issue 1 (January to June 2014) of its journal. In view of 2014 being celebrated as the International Year of Crystallography, scholars are encouraged to send papers highlighting the potential and applications of the field. As per the policy of the journal, contributors are compensated for their time and efforts with a modest amount of honorarium. Contributions may be sent to the Managing Editor at: comsats@comsats.org. For more details, please visit the journal's website: www.sciencevision.org.pk.

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#### A BRIEF ON COMSATS

COMSATS is an inter-governmental organization, with its Secretariat located in Islamabad, Pakistan. Currently it has 21 countries as its members from Africa, Asia and Latin America. A network of 18 International Science and Technology Centres of Excellence is also affiliated with

#### COMSATS NETWORK





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