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Patron

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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.



Executive Director COMSATS addressing the audience at the inauguration of International Workshop on Applications of ICTs, 15-16 December 2014 (page 08)

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From the Executive Director's Desk

The world at large is in the throes of change. This process is expected to continue into the year 2015 of the Gregorian calendar. What we are witnessing is a transformation taking place at several levels: political, social, economic and environmental. The centre of gravity of political influence is tilting towards the East, the existing economic world order is showing signs of decadence, societies are adopting new patterns of behavior under the influence of new communication technologies, and rapidly expanding industrialization is pushing the ecological and environmental balance towards the critical point of instability. Before equilibrium is reached, there could be upheavals, resulting in conflicts and chaos. This scenario is not inevitable, provided the conditions to avert the socio-environmental catastrophes are met with international cooperation. The essential components of a painless transition towards a sustainable world order are two-fold. Firstly, the realization by the rich countries and their citizens that equitable utilization of world resources is in their long-term interest and, therefore, the policies of neo-colonialism through the projection of power, militarily and diplomatically, would be counter-productive. Secondly, the widening horizon of human knowledge, especially in science and technology has to be harnessed for the welfare of mankind as a whole and not just for a select group of populations. Both conditions require determined actions on the part of developed as well as developing countries. The former group would have to be more

accommodative in sharing their prosperity with the rest of the world and the latter would have to adopt effective measures to achieve self-reliance in all sectors of socio-economic activity.

Fortunately, there exist international institutions that are founded on the premise of sovereign equality of all nations and undifferentiated rights to human development for all communities. COMSATS is proud to be one of such organizations, which strive to contribute towards world peace and development using the vehicle of science and technology. In 2014, COMSATS was honoured to interact with Heads of four major international organizations that are working for the common causes of mankind. The Director-General UNESCO visited Islamabad last February, followed by Director-General International Atomic Energy Agency (IAEA) in March and Executive Director The World Academy of Sciences (TWAS) in April. Finally in December 2014, the Director-General European Organization for Nuclear Research (CERN) was kind enough to meet the senior officials of COMSATS during his visit to Islamabad in connection with the signing of an agreement to induct Pakistan as Associate Member of CERN. On all occasions, the presentations about COMSATS activities were made and the visiting dignitaries were apprised of COMSATS' role in promoting S&T cooperation among its Member Countries. As

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NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

MEETINGS OF TWO COMSATS' ITRGs HELD IN NIGERIA AND PAKISTAN

COMSATS International Thematic Research Groups (ITRGs) form the lynchpin of COMSATS strategy. These Groups were created to undertake well-defined joint research projects in various S&T fields with the participation of researchers and scientists belonging to different R&D institutions from COMSATS Member Countries and other developing countries. As of December 2014, four of these Groups are active. A brief account of the two meetings held in the reporting period is given below:

Foundation Meeting of ITRG on 'Mathematical Modeling'

The Foundation Meeting of the ITRG on 'Mathematical Modeling' was organized by COMSATS with the support of its Centre of Excellence in Nigeria, National Mathematical Centre (NMC), which is also the designated Lead Centre of the Group. The meeting took place on December 02, 2014, in Abuja, on the sidelines of International Conference on Modeling and Simulation of Climate Change and Environmental Protection (December 1-2, 2014) (Page 12). In addition to COMSATS' representative, the meeting was attended by eight researchers and scholars from COMSATS Centres of Excellence in Nigeria, Tanzania, Sri Lanka, and Pakistan, as well as, Obafemi Awolowo University, Nigeria and Federal University of Agriculture, Nigeria.

The participants of the meeting deliberated extensively to identify the common challenges and areas of research interest of the participating organizations/countries, in order to serve as a basis for a joint research project in the field of mathematical modeling. The meeting being the very first for the Group, primarily engaged itself in streamlining the matters related to the membership of the Group; working out an action plan and distribution of responsibilities among the members; as well as formulation of a strategy for steering and monitoring research efforts to achieve the desired results.

The meeting was inaugurated by Prof. Adewale Roland Tunde Solarin, Director/Chief Executive, NMC, Nigeria, who considered COMSATS ITRG programme an innovative and unique initiative, which provides a strong technical base to the organization for the promotion of South-South

cooperation in Science and Technology. He assured the participants of NMC's full support towards the activities of the Group, and pledged to organize quarterly meetings of the Nigerian scientists taking part in the project, as well as an annual meeting of all active researchers of the Group.

In his message read out on the occasion by Mr. Farhan Ansari, Sr. Assistant Director (Programmes), COMSATS Headquarters, Dr. I.E. Qureshi, the Executive Director COMSATS, noted that the launching of the Group on Mathematical Modeling was a major milestone for COMSATS. He hoped that the activities of the ITRG on Mathematical Modeling will play a constructive role in lessening the hardships of the developing world relating to environmental pollution.

The technical session of the meeting was chaired by the designated Group Leader, Prof. B. O. Oyelami, NMC-Nigeria, who made a detailed presentation on the various components of the joint research project related to assessing the effects of air and water pollution. Other participating researchers also made presentations on their current research activities, which made it possible to identify their common areas of expertise and interest. The participants also identified specific segments of the project for which they were willing to contribute having necessary expertise. The meeting discussions led to the initiation of a joint research project, entitled 'Mathematical Modeling and Simulation of Air and Water Pollution: Effects and Remedies'.

An action plan was agreed during the meeting along with time-line for the execution of the

project during the next three years entails studying the transportation and distribution of pollutants in air and water; determining effects of air pollution; using models to study factors that contribute to carcinogenic and allergic diseases and those that lead to environmental problems; determining how chemicals in the air lead to greenhouse effects and the associated global warming, using models to estimate the effects of combustion of hydrocarbon fuel and greenhouse gases; developing models to predict the distribution of pollutant in water, using quality control models/charts; developing and implementing simulation experiments, including Monte Carlo (MC) Simulation; and jointly publishing a book/monograph on the subject. The participants also agreed to make arrangements to share their organizations' laboratory resources for the project, as



Prof. Solarin, Director NMC, addressing ITRG Group Members during the inaugural session of the meeting

well as expressed strong commitment to actively participate in the joint research project under the supervision of the Group Leader. The distribution of tasks was formalized through a Memorandum of Understanding that was signed by the representatives of five participating organizations belonging to Nigeria, Pakistan, Sri Lanka and Tanzania. The next meeting of COMSATS ITRG on 'Mathematical Modeling' will be hosted by the Lead Centre, NMC, on December 1-2, 2015.

2nd Meeting of COMSATS' ITRG on ICTs

The 2nd meeting of the ITRG on Information and Communication Technologies (ICTs) was held on 16th December 2014, at the Group's Lead Centre, COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan. The event was held in conjunction with the International Workshop on Applications of ICTs in Education, Healthcare and Agriculture, held on 15-16 December 2014 (Page 08).

The meeting was attended by fifteen participants representing seven Centres of Excellence of COMSATS in Sudan, Bangladesh, Iran, Jordan, Tanzania, Egypt, and Pakistan, as well as University Alioune in Senegal. Moreover, Mr. Tajammul Hussain, Advisor (Programmes) and Mr. Farhan Ansari, Sr. Assistant Director (Programmes) represented COMSATS Headquarters as programme coordinators.

Dr. I.E. Qureshi formally opened the meeting. In his inaugural speech, Dr. Qureshi considered the joint research project, entitled 'e-Solutions for Community using Low-Cost Connectivity', extremely important for the developing



Executive Director COMSATS addressing the meeting of COMSATS' ITRG on ICTs

countries. He informed that the uniqueness of the COMSATS ITRG programme lies in its membership of research scientists belonging to various developing countries working at their home institutions, complementing the traditional method of conducting joint research. He urged the participants to create knowledge networks and commit themselves for jointly working out cost-effective solutions addressing the common problems of the developing world.

The Group Leader, Prof. Dr. Sajjad Mohsin, Dean Faculty of Information Sciences and Technology (FIST), CIIT, chaired the meeting and shared the progress made by the Group in terms of the project components related to setting up Wi-Fi connectivity and developing e-Health solutions. He informed that the Group has completed the prototype deployment of Wi-Fi connectivity across the targeted region in Pakistan and noted that such cost-effective Wi-Fi connectivity solution can be replicated in the countries of the collaborating institutions. It was further informed that the e-Health component of the project, which is related to curing brain tumor in children through image/psychological therapy using video games has also been completed. During the discussion session, the participants of the meeting agreed to add a new component to the joint research project, which is

related to image-based scientific and analytical evaluation of water that was earlier proposed by Dr. Zafar Iqbal, Principal Research Officer, CIIT. Dr. Iqbal also gave a brief demonstration of this research idea. Subsequent to detailed deliberations, the Group members distributed different research tasks among themselves for coordinated execution of the proposed project, based on their expertise and research experiences. The Group also considered taking up another project activity in future

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

a follow-up, UNESCO Executive Board approved the signing of an MoU between COMSATS and UNESCO; the IAEA acknowledged the training opportunities available at COMSATS Institute of Information Technology (CIIT) in the field of Radiation Physics; UNESCO Chair in Water Research was awarded to CIIT and the Membership of CIIT in the ALICE collaboration of CERN was strengthened.

COMSATS is privileged to have an affiliated Network of Centres of Excellence spread across four continents, encompassing expertise in major areas relevant to socio-

economic development. The Heads of these Centres bear the national and international obligation to deliver the benefits of the investment made in their institutions by their respective Governments to the public in their own countries and in other fellow developing countries. COMSATS is a platform with a capacity to facilitate this laudable enterprise. It is, therefore, all the more necessary for all Centres to strengthen interactivity with COMSATS Headquarters. We are looking forward to receiving the words of encouragement or advice from our worthy Members of the Coordinating Council. These comments will be published on COMSATS Newsletter pages along with feedback from interested readers, in general. COMSATS wishes all its stakeholders a very happy New Year.

related to developing Industrial Mobile-Health Service Platform, which was proposed by Dr. Shervin Amiri, Associate Professor, Head of Electrical and Information Institute, IROST, Iran. While discussing the financial matters of the research project, Mr. Tajammul Hussain, encouraged the Group members to make efforts for securing funding for their research assignments from their respective organizations and governments, and pledged the support of COMSATS in advocating such requests to their respective governments or international donor agencies.

The meeting concluded with a resolve to direct the efforts of COMSATS ITRGs towards benefiting the masses in the developing countries using modern ICTs.

COMSATS HOLDS WORLD SCIENCE DAY SEMINAR

COMSATS being a proponent of Science for Development, observed the World Science Day for Peace and Development 2014 in Islamabad, Pakistan, by holding a half-day seminar, in collaboration with ECO Science Foundation (ECOSF) and UNESCO country office, on November 12, 2014.

Dr. Ishfaq Ahmad, the renowned physicist and former Advisor to the Prime Minister of Pakistan on Science & Technology, graced the occasion with his presence as the Chief Guest. The event had a mixed gathering of over one hundred participants, including science students, representatives of scientific institutions, academicians, as well as policy makers and members of the diplomatic community in Islamabad. Welcoming the participants of the Seminar, President ECOSF, Dr. Manzoor Hussain Soomro emphasized the importance of Inquiry Based Science Education (IBSE) at schools as the most important tool for development of nations.

In her remarks on the occasion, the incumbent Director of UNESCO Office Islamabad, Ms. Vibeke Jensen, noted that

quality science education for all is an essential requisite for sustainable development. She urged all young women and men to take interest in science, and invest in educational materials and equipment, teachers training in sciences and inquiry-based learning. She expressed optimism in the fact that encouraging critical thinking and creativity in students at all levels can enable them to contribute to environmental, economic and social development. She informed that UNESCO has launched its World Library of Science (WLoS) to make scientific concepts easy to understand.

The Executive Director COMSATS, Dr. I.E. Qureshi introduced COMSATS as an intergovernmental forum dedicated to promoting scientific collaboration using the mechanism of South-South cooperation effectively. He noted that COMSATS has cooperation ties with UNESCO on multiple levels that resulted establishing UNESCO Chair on Knowledge for Integrated Water Resources Management at CIIT Wah campus. As an initiative taken by COMSATS for the promotion of quality education in the country, CIIT was quoted as an example of academic excellence a reputed university with seven campuses and over 35,000 enrolled students. Dr. Qureshi also noted the life-long services of Dr. Ishfaq Ahmed for S&T.

In his address, Dr. Ishfaq Ahmad called for reducing gender disparity, particularly in tertiary education, which he deemed a significant problem facing developing countries economy. During the technical session of the seminar, talks were given by Dr. Tariq Mahmood, Advisor, Higher Education Commission (HEC) of Pakistan; Dr. Faisal F. Khan, Director, Institute of Integrative Biology, CECOS University, Peshawar; Dr. Fayyaz A. Faize, Assistant Professor CIIT, Islamabad; and Mr. Salman Naveed Khan, Campaign Manager (Political Advocacy) of Alif Ailaan. These talks, respectively, deliberated upon the role of HEC in improving the standard of education and research in the country; new trends in life sciences; interdisciplinary and entrepreneurial nature of modern science education; ensuring ethical



Distinguished guests at the World Science Day Seminar held in Islamabad



Poster Exhibition held at the World Science Day Seminar to highlight role of Science and Technology

disposition; quality teaching; as well as, challenges of providing quality science education in schools of Pakistan. Speakers expressed their concern for a high number of out-of-school children and urged the government and the civil society to take note of the situation.

A poster exhibition was also held as side event of the seminar, whereby 40 posters on various themes, including agriculture, health, biosciences, nanotechnology and computational sciences, highlighted the role of science for society.

AMBASSADOR OF CHINA TO PAKISTAN BRIEFED ABOUT COMSATS' PROGRAMMES

The Executive Director COMSATS, Dr. Imtihan Elahi Qureshi, held a meeting with the Ambassador of China to Pakistan, H.E. Mr. Sun Weidong, on November 19, 2014, in order to brief him about COMSATS wide ranging international programmes and activities, its international mandate, structure, and functions of various statutory bodies. The meeting was held at COMSATS Institute of Information Technology (CIIT), Islamabad, on the occasion of the inauguration of the China Study Centre established at the Institute. Rector CIIT, Dr. S. M. Junaid Zaidi; Advisor (HCA) COMSATS Headquarters, Mr. Sabih ur Rahman; Deans and Heads of Departments of COMSATS Institute, as well as officials of the Chinese Embassy attended the meeting.

Speaking to the Ambassador, Dr. Qureshi highlighted the significance of China as a Member State of COMSATS. He noted that China has representation on all the organizational bodies of COMSATS through its Ministry of Science and Technology; Center of Excellence, the International Center for Climate and Environment Sciences (ICCES); and a representative of the Chinese Embassy in Islamabad. He expressed satisfaction over the active participation of ICCES at the Coordinating Council meetings, held regularly

every year. He also appreciated the proactive role of Prof. Dr. Lin Zhaohui, Director ICCES as the Group Leader of COMSATS ITRG on 'Climate Change and Environmental Protection'. Highlighting the cordial relations that COMSATS has with China as a Member State, Dr. Qureshi hoped for further strengthening the relations during the tenure of the incumbent Chinese Ambassador. He sought Mr. Weidong's support in ensuring China's continued participation in COMSATS programmes.

Mr. Weidong thanked Dr. Qureshi for apprising him on the role of COMSATS for the promotion of Science and Technology. Emphasizing the need for regional networking in science and technology, he said that COMSATS Member States must support each other academically, intellectually and financially. Mr. Weidong underlined the need for stronger regional ties and noted that China has a firm policy to promote South-South cooperation in the region. He pledged his full support towards COMSATS future programmes and activities.

COMSATS AND CERN TO SHARE RESOURCES FOR SCIENCE TEACHERS' TRAININGS

A delegation of COMSATS comprising the Executive Director COMSATS, Dr. I.E. Qureshi, and senior officials of COMSATS Institute of Information Technology (CIIT), including Rector CIIT, Dr. S.M. Junaid Zaidi, met the Director-General CERN, Prof. Dr. Rolf-Dieter Heuer, on 19th December 2014. Dr. Heuer was on a two-day visit to Pakistan, in connection with the signing of Pakistan's accession agreement as CERN Associate Member. The delegation offered full support in fulfilling the requirements of Pakistan-CERN collaboration. In his capacity as the member of Joint CERN-SESAME Steering Committee (JCSSC), Dr. Qureshi informed Dr. Heuer about the collaboration between CIIT and ALICE (A Large Ion Collider Experiment) of CERN. He noted that CIIT has established GRID computing facilities for ALICE collaboration, which will be enhanced to reach tier-2 level. Dr. Heuer was kind enough to accept invitation to visit CIIT (Page 12).

Dr. Heuer appreciated the efforts of COMSATS in promoting S&T in its 21 member countries, including Pakistan. He emphasized that good science education is the key to producing sufficiently motivated students for taking up higher studies in particle and high energy physics. In this connection he offered CERN support for training science teachers. He informed that Science Teachers Training Programme has been going on in CERN for the last many years and is highly popular in all CERN Member Countries. Dr. Qureshi offered the support of COMSATS to conduct the CERN training courses in Pakistan and also in other COMSATS Member Countries. In principle, it was agreed to chalk-out specific plans for undertaking this programme jointly by CERN and COMSATS.



Dr. I.E. Qureshi presenting a set of COMSATS' Publications to the Chinese Ambassador

SPECIAL SECTION: COMSATS' INTERNATIONAL CAPACITY-BUILDING EVENTS IN EGYPT, MOROCCO, AND PAKISTAN

S&T capacity-building events constitute a significant component of COMSATS activities for the development of the countries of the South. These events provide opportunities to the members of the scientific community, development-experts, donor and development agencies, and the decision-making bodies to interact with one another, share their views and experiences on issues of contemporary concern. In the last quarter of the year 2014, three international capacity building activities were held in three different developing countries: Egypt, Morocco, and Pakistan. These events were organized in collaboration with the Islamic Educational, Scientific and Cultural Organization (ISESCO). Inter Islamic Network on Information Technology (INIT) collaborated for the two events held in Pakistan and Morocco. The local hospitality for the events in Pakistan and Egypt was provided by COMSATS Centres of Excellence in these countries. The themes of these events (nanotechnology, national innovation systems, ICTs) have a great relevance to the developmental needs of these as well as other developing countries. The following sections of the newsletter give a glimpse of these events.

REGIONAL CONSULTATIVE WORKSHOP ON NIS & IP (AFRICAN REGION), RABAT

Although Morocco is not a member country of COMSATS, it appears from time-to-time in the organization's activity calendar and reports. This is owing to two facts: a) COMSATS mandate to help the developing countries through S&T goes beyond the member countries; and b) Morocco is the host country of ISESCO, which is one of the most active partner organizations of COMSATS. In the recent past, joint activities relating to repair and maintenance of scientific equipment and the meeting of coordinators of IWSN have been held in the country.

The second COMSATS-ISESCO Regional Consultative Workshop on National Innovation System (NIS) and Intellectual Property (IP) (African Region) was successfully held in Rabat, Morocco, from November 25-27, 2014. The event benefited 30 policy practitioners, academicians and government functionaries working in the field of National Innovation System and Intellectual Property from 15 countries, including Benin, Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Guinea, Niger, Pakistan, Senegal, Tanzania, Togo and Uganda.

This series of workshop is aimed at strengthening the capability of senior academicians and planners from the common Member States of COMSATS and OIC to understand and possibly help develop national policies for improving innovation and IP frameworks, as well as to enable them to respond effectively to the challenges of building competitive economies during rapid globalization and technological change.



The Guests of Honour of the Workshop on NIS and IP

The inaugural session of the event was held on November 25, 2014, and was presided over by the Deputy Director-General of ISESCO, Dr. Amina Al Hajri. During the inaugural session, Mr. Tahir Naeem, Executive Director INIT, personally delivered his remarks, while the message from the Executive Director COMSATS was read by Mr. Tajammul Hussain, Advisor (Programmes) COMSATS.

"In this globalized world, Science, Technology and Innovation (ST&I) have become a key element for industrial competitiveness amid intense competition and a fast changing market environment."... it is hoped that this workshop will be instrumental in sharing best practices, and highlighting strengths and weaknesses in the areas of national innovation system and intellectual property in ISESCO's African Member countries.

Deputy Director-General ISESCO, Dr. Amina Al Hajri

Knowledge production and its valorization are crucial for transformation into a stable intellectual property regime, and South-South cooperation could provide a good mechanism in this regard.

Executive Director INIT, Mr. Tahir Naeem

Rapid development in all areas of science and technology has created a greater need for understanding and modeling national innovation processes and systems... COMSATS has always promoted scientific cooperation for the socio-economic development of its member countries. Regional linkages aimed at building effective national innovation systems are important.

Executive Director COMSATS, Dr. I.E. Qureshi

The six technical sessions of the event comprised of talks and presentations that introduced innovation; highlighted the impact and effect of innovation on national economies, particularly those of Africa; and presented intellectual property as a means to securing the future of smaller economies. Several models of African innovation systems and frameworks of intellectual property, and their role in making an economy knowledge-driven with strong linkages among universities, industries and R&D institutions were



discussed. Key issues relating to patent filing, indigenous knowledge and need for greater awareness of IP rights were also highlighted.

It was agreed during the meeting that a holistic and open economic policy for building a national innovation system, technology policies, and relevant education are desirable. Each country should try and develop strategies to build relevant skills required to instill a culture of learning. ISESCO and COMSATS were urged to encourage the parliaments of the Member States to establish Commissions on National Innovation System to better ensure advocacy on ST&I in all member countries. A need for greater awareness regarding IP was called for and it was recommended to include modules on IP in the curricula of middle and high schools. An insight into the innovation policies of developing countries was also provided during the event through the country-specific presentations made by participants from Burkina Faso, China, Ghana, Niger, Pakistan, Senegal, Tanzania and Uganda. A round-table discussion touched upon and endorsed various aspects of the themes and discussions of the event.

The developing countries will have to support and strengthen their intellectual property organizations in the light of the existing regional models, to improve the delivery mechanism of their National Innovation System.

Head of ICPSR-ISESCO, Mrs. Wafa El Alami

Head of ICPSR-ISESCO, Mrs. Wafa El Alami, presided over the closing ceremony of the event held on November 27, 2014. The event was closed with notes of appreciation from the collaborating organizations and a pledge to hold the 3rd workshop of the series for the Middle East region.

4TH INTERNATIONAL WORKSHOP AND CONFERENCE ON NANO-MATERIALS AND NANO-DEVICES, CAIRO

On December 8-9, 2014, COMSATS and ISESCO organized the fourth International Workshop and Conference on Nano-materials and Nano-devices (IWCN-2014) in Cairo, Egypt. The event was hosted by COMSATS Centre of Excellence in Cairo, National Research Centre (NRC). More than 300 scientists, researchers, engineers and academicians from the field of nanoscience and nanotechnology attended the Conference.

The Conference was officially inaugurated on December 08, 2014, by Prof. Dr. Ashraf Shalaan, President of NRC and Prof. Dr. Maged Al-Kreme, President of Cairo University, who in their remarks on the occasion hoped that the event will open new avenues of fundamental research and application-oriented programmes in the Islamic and Arab countries. In his welcome address, Prof. Dr. Mohamed Hashem, NRC Vice President for Research & International Relations and also the Conference Chairman, applauded the efforts made by COMSATS and ISESCO in organizing the Conference. Dr. Ismail Abdel-Hamid, Expert at Science Directorate ISESCO, read-out the message from Director-General ISESCO, while the message of the Executive Director COMSATS, Dr. I.E. Qureshi, was read out by Dr. Arshad Saleem Bhatti, Dean Faculty of Science, COMSATS Institute of Information Technology (CIIT), Pakistan.

As per the mid-term and long-term action plans of ISESCO, the intergovernmental organization seeks to enhance the capacities of its Member States, enabling them to innovate and develop new technologies with the objective to achieve socio-economic development.

Director-General ISESCO, Dr. Abdulaziz Othman Altwajiri

Nanoscience and nanotechnology are forming a bridge between all disciplines of science and engineering... even though the Islamic countries have embarked upon ambitious research programmes in nanotechnology, the full potential of this field is yet to be realized.

Executive Director COMSATS, Dr. Imtihan Elahi Qureshi



The Inauguration of the Nano-science Event at NRC, Egypt

Nine subject-experts belonging to renowned academic institutions of Bangladesh, China, Jordan, Malaysia, Pakistan, and Saudi Arabia delivered lectures on key topics related to the theme of the event. Key areas touched upon during the 35 technical talks delivered during eight working sessions of the event included: Nanoparticles and Applications; Carbon Nano structures and devices; Environmental application; Nano-medicine; Drug Delivery and Therapeutics; Composites and Interfaces; Micro and Nano Fluidics; Bionano Materials and Tissues; Modeling Micro/Nanosystems; Nanotechnology for oil and gas industry, as well as Micro and Nano Fabrication.

The participants of the Conference agreed that an adequately trained scientific workforce in Islamic countries is essential for creating and transforming the industries to realize the benefits of nanotechnology. Extensive research on the process of innovation and diffusion of nanotechnology development was strongly urged. A number of suggestions were made by the participants and experts of the Conference with regard to basic and applied research for applications of nano-material and nano-devices.

The Conference helped scientists, researchers, technologists and faculty members update their knowledge of recent developments in the field of nano-materials and nano-devices; supported building and strengthening linkages among R&D organizations working for developing new materials and devices while adopting the South-South cooperation mechanism; as well as recommended ways to enhance scientific capacity in Islamic and COMSATS Member States.

WORKSHOP ON APPLICATIONS OF ICTs, ISLAMABAD

The International Workshop on Applications of ICTs in Education, Healthcare and Agriculture was held in Islamabad, Pakistan, on December 15-16, 2014, in collaboration with ISESCO, INIT, and COMSATS Institute of Information Technology (CIIT). Over 50 scholars,

Some specific recommendations made during the event included:

- winter/summer schools on nano-science and technology as an annual activity for students and young researchers;
- increased number of scholarships for graduate students in the field of advanced materials and nanotechnology by the funding organizations;
- research institutions and governments of the common Member States of COMSATS and ISESCO to form 'nanotech societies' and hold joint meetings with the nanotechnologists of industrially developed countries;
- institutionalizing ISESCO-COMSATS annual prize for the organizations/institutions with highest achievement in one of the fields of nanotechnology.

researchers, subject-experts and academicians from Bangladesh, Egypt, Iran, Jordan, Morocco, Pakistan, Senegal, Sudan, and Tanzania participated in the workshop.

The workshop was aimed at highlighting the potential of ICTs in revolutionizing various sectors of the economy. In all 17 presentations were made in the three thematic sessions of the workshop spread over two days, which focused on the applications of ICTs in Education, Healthcare and Agriculture. Deliberations focused on different ways of building competitiveness amid growing challenges of globalization and rapid technological advancements. The presenters shared their experiences and expertise in the light of their successful projects and initiatives in their respective countries.

The inauguration of the workshop, held on December 15, 2014, was presided over by Dr. Tahir Hijazi, Member (Governance, Innovation and Reform), Ministry of Planning, Development & Reforms, Government of Pakistan. Other guests of honour at the inauguration included, Dr. I.E. Qureshi, Executive Director COMSATS; Dr. S. M. Junaid Zaidi, Rector CIIT and President INIT; and Mr. Ismael Abdel Hamid, Expert, Science Directorate ISESCO.

In his address as the Chief Guest, Mr. Hijazi acknowledged the efforts being made by organizations like ISESCO and



Working session of the ICTs Workshop in progress



The guests and participants of the ICTs Workshop



COMSATS in promoting the use of latest technologies in its Member States. While noting the growth attained by COMSATS university over the last 15 years, Dr. Hijazi expressed pleasure and deemed it an exemplary Institute for a developing country like Pakistan. Speaking on the occasion, Dr. Qureshi noted with satisfaction his organization's strong working relations with ISESCO and INIT. Sharing some key aspects of IT revolution the world has experienced in the recent years, he believed there are three major aspects to it: the IT ecosystems, accessibility, and the content.

The technological revolution is bringing a paradigm shift in today's world. If a nation wishes to develop and grow at a fast pace, it has to opt for latest technologies that are creating headways.

Dr. Tahir Hijazi, Member (Governance, Innovation and Reform), Ministry of Planning, Development & Reforms, Govt. of Pakistan

The IT revolution is dominated by the developed countries and the starting point for the developing countries to gain from this revolution would be to contribute to the content element, which is in conformity with the local needs and social values.

Dr. Imtihan Elahi Qureshi, Executive Director COMSATS

Mr. Ismael Abdel Hamid, Expert, Science Director ISESCO, appreciated the support and cooperation of COMSATS in jointly organizing a number of international capacity-building events over the years. He considered these events good examples of the South-South cooperation benefiting the common Member States of the two organizations. In this context, he particularly made a mention of the success of regional consultative workshop on National Innovation System and Intellectual Property, held in Morocco (November 2014) in partnership with COMSATS. Dr. Zaidi noted that the organizers have very wisely chosen the theme of the workshop, which can help improve the socio-economic conditions of masses. Earlier, an introduction to the event, its various themes, and expected outcomes were touched upon by Dr. Sajjad Mohsin, Dean, Faculty of Information Sciences and Technology, CIIT.

The presentations made during the first technical session ICTs in Education focused on ICTs for modern skill acquisition; diffusion of ICTs in early schooling; digital watermarking system for e-Education; monitoring and learning education scenarios in Senegal; and persuasive techniques for effective education. Presentations on the use of mobile phone technology for healthcare; COMSATS Tele-health project; Tanzanian Tele-health case study; Dengue monitoring in Pakistan; as well as psychotherapy through digitization, were made during the second technical session titled ICTs in Healthcare. The participants of the workshop benefited from technical deliberations of the third session focusing on decision support system for agriculture; digital soil mapping of newly reclaimed areas for agricultural uses in Egypt; irrigation optimization for improving crop production; use of agriculture research management information system in Bangladesh, as well as the various ICT applications in agriculture in Sudan.

The event concluded on the note of commitment to exploit the full potential of ICTs for improving the day-to-day life of a common man in the developing world. The inspiration gained from the technical talks and experiences of subject experts, strengthens our belief in the multifaceted ways ICTs can be beneficial in education, healthcare and agriculture, said Mr. Tahir Naeem, Executive Director INIT, in his Vote of thanks at the conclusion of the event.



Rector CIIT giving away certificate to a participant

S&T INDICATORS OF MEMBER STATE

In Spectrum: The United Republic of Tanzania



The United Republic of Tanzania is an East African country located in the African Great Lakes region. The United Republic of Tanzania was formed in 1964 when Tanganyika and Zanzibar merged after achieving independence from Britain in the early 1960s. Tanzania is endowed with a number of natural resources, including tin, phosphates, iron ore, coal, diamonds, gemstones, gold, natural gas, nickel, as well as hydropower. Tanzania is currently ranked 159th out of 187 countries on the Human Development Index (UNDP, 2014).

Socio-economic Perspective

Although the country is one of the world's poorest economies in terms of per capita income, it has overall achieved high growth rates based on gold production and tourism. Tanzania has largely completed its transition to a liberalized market economy, however, the government maintains control over sectors such as, telecommunications, banking, energy, and mining. The economy depends on agricultural sector, which accounts for more than one-quarter of GDP, provides 85% of exports, and employs about 80% of the national work force.

According to the World Bank data, total population of Tanzania was 49.25 million in 2013. Almost 44.8 percent of the population is under 15 years of age, which could be an asset in the coming years. Based on the data of 2010, the literacy rate in Tanzania for persons aged 15 and over was estimated to be 67.8 percent. Education is compulsory until the age of 15 years. In 2010, the literacy rate of Tanzanian youth (aged 15-24 years) was 74.56%.

According to the World Bank, the Tanzanian economy expanded in 2012 and 2013 at an annual economic growth rate of approximately 7%, which continues to be driven by growth in sectors like ICT, financial services, construction, trade and mining. Except for mining, activities within these sectors are largely concentrated in urban areas. According to the Bank, if Tanzania is to follow the example of successful emerging countries, it will need to improve policy aspects in the areas of human development.

Tanzanian Economy in Brief	
GDP	\$33.23 billion (2013)
GDP Growth	7.0% (2013)
Inflation	7.9% (2013)
<i>The World Bank Data (accessed on 30th December 2014)</i>	

Tanzania's performance in terms of exports was weak in 2013, largely due to lower commodity prices on international markets. Lower average global gold prices have led to a

decline in the value of Tanzania's gold exports by almost 20% since 2012. The volume of exports of cotton, sisal and tobacco all declined by more than 30%.



Fortunately, the decline in the value of agricultural exports was compensated for by an increase in the value of re-exports, demonstrating the significance of Tanzania's role as a hub for seven neighboring countries. At the same time, the value of revenues derived from tourism also increased.

Human Development Key to Progress

The Big Results Now initiative (BRN) of Tanzania took off in 2013. The initiative aims to facilitate the achievement of Tanzania's Development Vision 2025 by focusing government efforts on accelerating growth in eight priority areas: education, energy, agriculture, water, transport, health, business environment and resource mobilization, with emphasis on leveraging private-sector investment through public-private partnerships. The inclusion of education as a priority area under the BRN is appropriate as poor outcomes at the primary and secondary education levels remain a major concern. Nevertheless, a key challenge with the initiative will be attaining a fine balance in the use of public expenditure to promote economic growth while maintaining fiscal and debt sustainability over time.

Science and Technology

Tanzanian Ministry of Communication, Science and Technology (MCST) coordinates S&T at national level owing to its role as Chief Advisor to the Cabinet on all related matters. The Tanzania Commission for Science and Technology (COSTECH), is the implementation arm of the national science and technology policies, and works in collaboration with nine R&D Advisory Committees and their associated national R&D institutions. COSTECH is a parastatal organization, established by an Act of Parliament in 1986, with the mandate to advise government on all matters relating to scientific research and technological development. COSTECH's mission is to foster knowledge-based economy through promotion, coordination of research, technology development and innovation for sustainable development in Tanzania.

Tanzania s HDI trends based on consistent time series data

Year	Life expectancy (at birth)	Expected years of schooling	Mean years of schooling	GNI per capita (2011) PPP\$	HDI value
1980	50.5	7.3	2.5	1,396	0.377
1990	50.5	5.5	3.6	990	0.354
2000	50.0	6.2	4.6	1,035	0.376
2010	59.2	8.4	5.1	1,525	0.464
2013	61.5	9.2	5.1	1,702	0.488

UNDP Human Development Report (Accessed on 30th December 2014)

Tanzania has a reasonably high number of research institutions, (approximately 47 to date), some of which date back to the early 20th century. Research output in peer-reviewed journals is steadily increasing. Nevertheless, this high scientific production is not reflected in the number of patents registered. The country's R&D expenditure as percentage of GDP was 0.52 in 2010.

Issues in ST&I and Higher Education

As part of its strategy to increase national economic growth, Tanzania has indicated in the newly produced National Strategy for Growth and Poverty Reduction that it intends to utilize science, technology and innovation (ST&I) as tools to enhance the performance of its four main growth drivers: agriculture, manufacturing, mining and tourism.

Tanzanian businesses are mainly producers of raw materials, and the level of business sophistication is low. International agencies such as UNIDO and FAO work with the private sector in the country, especially small and medium enterprises, to improve the performance of value-chains. However, a poor ability to add value lies in the dearth of skills and readiness to adopt technologies, and hinders performance and the visibility of results in terms of new businesses and spin-offs. With the support of funds from Finland, managed by the World Bank, the COSTECH has recently started a Business Incubator for SMEs within the information and communication technology sector to try to improve its competitiveness.

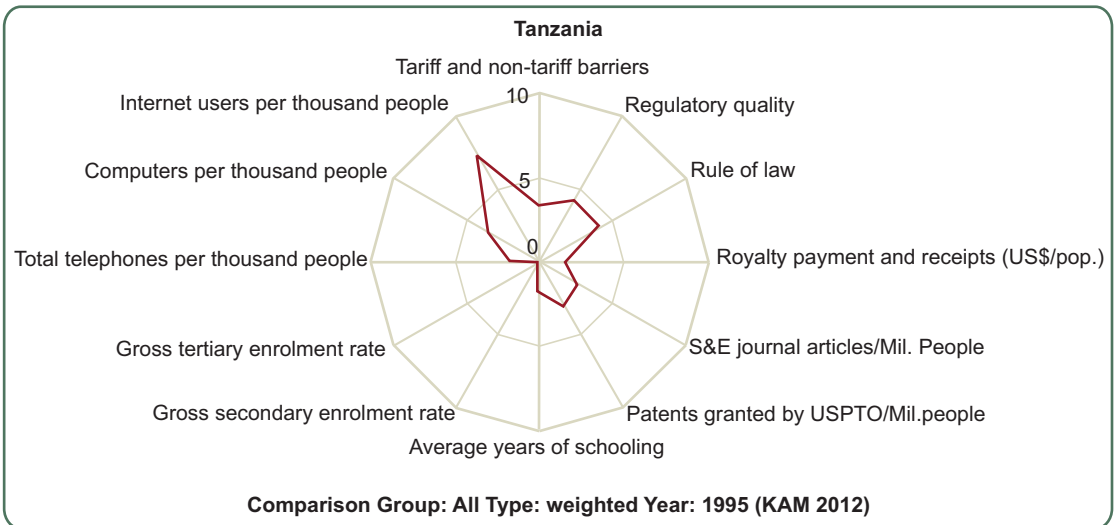
Tanzania's last science and technology policy was produced in 1996. A Master Plan of Action for implementing science, technology and innovation policies was prepared in 2006. Later in 2008, the

science and technology policy was updated to an ST&I policy, which is yet to receive the Tanzanian Cabinet's approval. Several sectoral policies have also been developed to assist the country in defining its objectives in the application of ST&I for national development. In order to get the needed support from the political leaders of Tanzania, the ST&I policy of a country should be aligned with the needs of its economy. Governance of the national innovation system in the country is still weak, and it is not contributing significantly to economic development. The country has no institutional or national mechanism for assessing research performance.

The Review and Evaluation of the Performance of Tanzania's Higher Education Institutions in ST&I published by UNESCO, in June 2011, states that quality higher education and training will be crucial for Tanzania to move up the value-chain beyond simple production processes and products. The report observes that, although policy instruments exist at the institutional level, there is little recognition of the importance of research and a marked resistance to change. This weak relationship between research and postgraduate studies affects the credibility of universities in the eyes of external academic bodies and development agents.

Tanzania ranks 128th on the Knowledge Economy Index (KEI). According to the World Bank, the country dropped two places on KEI ranking in 2012. Compared to the other Lower Middle Income Group countries, Tanzania has to make progress in the sectors of education, innovation and ICTs to reap benefits of the knowledge economy.

The country has considerably low scores on the KEI and KI Indices compared to many Lower Middle Income countries. This calls for investments in education, and science and technology, to enable the growing young population to be able to contribute to the national economy.



ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

NMC-NIGERIA HOLDS INTERNATIONAL CONFERENCE ON MATHEMATICAL MODELING

The National Mathematical Center (NMC), Nigeria, organized and hosted a two-day NMC-COMSATS International Conference on Mathematical Modeling and Simulation of Climate Change and Environmental Problems, on 1-2 December, 2014, in Abuja. The conference focused on the theme: Solving Climate Change Problems and Protecting our Environment through Mathematical Modeling and Simulation.

The event sought to develop capacity to predict occurrences of natural disasters and put in place strategies to control anthropogenic activities contributing to these, and disaster management. Mathematicians, researchers, scientists, engineers, meteorologists, environmentalists, policy makers and other stakeholders, from Africa and other parts of the world, working for mitigating the negative effect of climate change attended the conference.

The event was inaugurated by Director/Chief Executive of the National Mathematical Centre, Prof. A.R.T Solarin on December 1, 2014. There were paper presentations and lectures by seasoned academicians, as well as discussions and good will messages from distinguished heads of organizations, including the Executive Director, COMSATS, Dr. I.E. Qureshi, whose message was read out by Mr. Farhan Ansari, Sr. Assistant Director (Programmes), COMSATS Headquarters.



The Chairperson, Prof. Peter Onumanyi, Deputy Director NMC, and Moderators of the first technical session of the conference

Notable organizations participating in the conference included: National Space and Research Development Agency (NASRDA), Nigeria Meteorological Agency (NIMET), Nigerian Communication Satellite Limited (NigCOMSAT), Federal Ministry of Water Resources, Federal Ministry of Agriculture.

IROST-IRAN HOLDS 16TH KHWARIZMI YOUTH AWARD

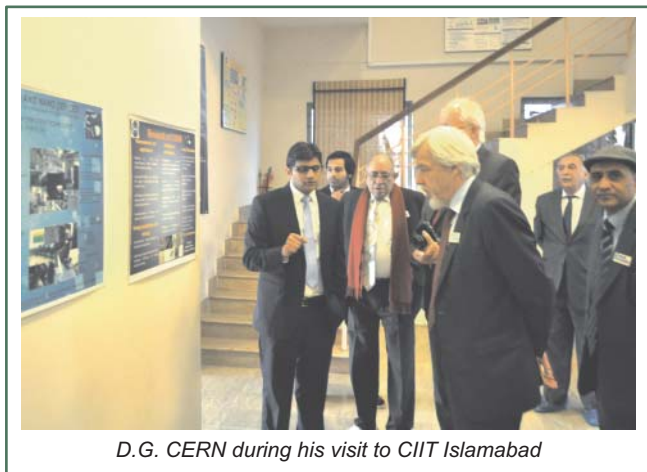
The 16th Khwarizmi Youth Award was held by Iranian Research Organization for Science & Technology (IROST), Iran, on December 16, 2014, at the International Conference Center of Shahid Beheshti University. The event was attended by high-ranking government officials and dignitaries, including the Iranian Minister of Science, Research and Technology and the Minister of Education, as well as a number of scientists, academics and industrialists. It is worth mentioning that IROST has been recently selected as the top exhibitor at the 15th Exhibition on Iran's Latest Scientific and Technological Achievements that was held at Tehran International Permanent Fairground, during December 14-17, 2014.

TIRDO-TANZANIA CONDUCTS FEASIBILITY STUDY OF OILS DISTILLATION PLANT

Tanzania Industrial Research and Development Organization (TIRDO), Tanzania, carried out a feasibility study and restructuring of a distillation plant of essential and clove stem oils at WAWI Pemba in Zanzibar. The aim was to come up with an optimal business model and structure in order to boost economic and financial turn-around of the plant to ensure profitability and sustainability. The study covered human resource analysis, farm practices and management, essential oil production and quality, energy source and its impact to the surroundings, and market of products and financial analysis. TIRDO also signed a contract with Songas Ltd. for a non-destructive testing (NDT) inspection of a 240 km long gas pipeline. The inspection will only cover the faulty joints to avoid leaks and other damages to the environment and the surrounding neighborhood.

DIRECTOR-GENERAL CERN VISITS CIIT-PAKISTAN

Prof. Dr. Rolf-Dieter Heuer, Director-General, European Organization for Nuclear Research (CERN), visited COMSATS Institute of Information Technology (CIIT) on 20th December 2014. He was accompanied by Dr. Rudiger Voss, Head of International Relations CERN. During the visit, the delegates were shown around the academic and technical facilities at the Institute, including Nanotechnology laboratory, Radiation laboratory, RF laboratory, and the ALICE Grid node at the Department of Computer Science. Senior faculty members of CIIT accompanied the delegates during these visits. CIIT is a full member of ALICE - A Large Ion Collider Experiment which is one of the four major experiments at the Large Hadron Collider at CERN. A joint team of Physics and Electrical Engineering departments of CIIT is working on Technology Computer Aided Design (TCAD) simulation of Si Pixel detectors to be used in the Inner Tracking System (ITS) of the ALICE particle detectors. Around 20 physicists and students are currently involved in Particle Physics related research at CIIT, Pakistan.



D.G. CERN during his visit to CIIT Islamabad

During his meeting with Dr. S. M. Junaid Zaidi, Rector CIIT, Dr. Heuer appreciated the professional work being carried out by CIIT in collaboration with CERN. The meeting was also attended by department heads and senior faculty members of the Institute. The Institute is a part of the team that is developing the Inner Tracking System (ITS) for the next round of experiments, and is participating in the simulation of Silicon pixel detectors to be incorporated in the first seven layers of the ITS in ALICE detector. In addition, CIIT team is developing serial communication protocols from the sensor chip to the first data acquisition board. The Director-General assured CERN's full support to CIIT. CERN's donation of valuable servers and hardware equipment to CIIT is a clear testimony of the growing cooperation between the two institutions. Dean, Faculty of Information Sciences and Technology, CIIT, Dr. Sajjad Mohsin, informed that COMSATS Data Centre is expected to be functional within 3 to 4 months. The D.G CERN happily accepted the invitation to inaugurate the Centre and offered to give a live video-lecture on the occasion.

CIIT STRENGTHENS INTERNATIONAL TIES

A three member Chinese delegation led by Prof. Dr. Yao Xin, Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing, China, visited CIIT Islamabad campus on December 12, 2014. Dr. Yao Xin was accompanied by two other eminent Chinese scientists from the same department. On the occasion, an MoU was also signed between the department of Earth Sciences, CIIT Abbottabad, and the department of Geomechanics, Chinese Academy of Geological Sciences.

Earlier, a delegation of CIIT led by the Head of its International Office, Dr. Arshad S. Malik, visited the University of Malaya, Kuala Lumpur, Malaysia, on December 2, 2014. The delegation first visited the Institute of Educational Leadership, where it met the Director and Deputy Director of the Institute, Prof. Alma Harris and Dr. Michelle Jones, respectively. Later the delegation held

meeting with Deputy Dean/Director of Faculty of Business and Accountancy, Prof. Dr. Suhaiza Zailani. The CIIT delegation used this visit to learn about the faculty of various disciplines at the university and its prospective center for professional training and management.

On November 20, 2014, a delegation from Royal Norwegian Embassy in Islamabad visited CIIT Abbottabad. The delegation comprised of the following members: Mr. Lars Nordrum, Minister/Counsellor; Mr. Jorgen Martinussen, First Secretary; and Mr. Abdul Aziz Usmani, Programme Advisor. The purpose of the visit was to learn about the progress and impact of the ongoing research and academic collaboration between CIIT Abbottabad and the Norwegian University of Life Sciences, (NMBU), Norway.

EMBRAPA AGROBIOLOGIA, BRAZIL CONTRIBUTES TO A NATIONAL PROJECT

A project to establish a Center for Agroecology was recently approved by the Ministry of Agrarian Development (MDA), Brazil. The initiative would in due course include ten more state institutions, including the Association of Biological Farmers (ABIO), the Federal Rural University of Rio de Janeiro (UFRRJ), Embrapa and the Agricultural Research Corporation of Rio de Janeiro (RJ-Pesagro). The project will take effect in early 2015 and is expected to last for two years.

The Rio de Janeiro node of the project would be led by Dr. Jose Antonio de Azevedo Espindola, a researcher at Embrapa Agrobiologia (Seropédica / RJ). The project is expected to benefit both researchers and farmers due to the exchange of knowledge between the institutions and the community. It also has strategic importance for Embrapa, as it will help learn about the community's demands to encourage more applied research.

MAM-TURKEY ORGANIZES A WORKSHOP ON BIOCOMPATIBILITY AND BIOMATERIALS

The Genetic Engineering and Biotechnology Institute of TUBITAK Marmara Research Center (MAM), Turkey, organized a workshop on Biocompatibility and Biomaterials, on November 18, 2014. The workshop was organized in coordination with three other institutes of MAM, namely Chemistry Institute, Materials Institute, and Food Institute. Subject specialists and resource persons shared their expertise on topics such as regulations on medical devices, problems faced by medical device and supplies manufacturers during the CE certification process, regulatory requirements for pharmaceuticals and medical device agencies, licensing issues, ISO-10993 biocompatibility testing, risk assessment and management of medical devices, medical technology markets in the world, particularly in Turkey, as well as TUBITAK-TEYDEB grant supports for medical devices industries to facilitate improvement/development of new products.

SCIENCE, TECHNOLOGY AND DEVELOPMENT

MOSQUITO CONTROL USING PLANT CHLOROPHYLL

According to *SciDev.Net* report (November 6, 2014), researchers are exploring a new method to have effective mosquito control that involves sprinkling powdered plant extracts on swampy mosquito habitats. The method involves adding a derivative of the plant pigment, chlorophyll, to wetlands infested with the aquatic larvae of mosquitoes. The larvae climb to the surface of the water for oxygen and feed on the powder, which has been manufactured to float on the surface. Chlorophyll in living plants absorbs sunlight and passes on its energy so that carbon dioxide can be utilized to make sugary fuel. But in its powdered form, the chlorophyll instead transfers the sun's energy to dissolved oxygen inside the larvae. The resulting form of oxygen is unstable and so reacts with the cells' components, damaging them and ultimately killing the larvae by a process called 'oxidation'. The technique is reportedly successful in killing between 85 to 100 per cent of larvae, including *Anopheles*, *Aedes* and the *Culex* species of mosquitoes that are disease vectors for malaria, dengue fever and filariasis, respectively.

Egyptian researchers, belonging to the Innovative Research and Development (InRaD-Egypt), recently signed an agreement with South Sudan government to implement the technique in the country.

VIRUS RESISTANT WHEAT TO IMPROVE YIELDS

Wheat crop growers can lose up to 5 to 10 percent or even more of the yield due to a number of viruses (including wheat streak mosaic, triticum mosaic, soil-borne mosaic and barley yellow dwarf). To address this issue, a major advancement in developing broad disease-resistant wheat is said to be on the horizon, reports *Science Daily* in its edition of November 18, 2014. Scientists from Agricultural Research Services of U.S. Department of Agriculture, and Kansas State University, USA, have led an effort to develop a genetic engineering technology that builds resistance to certain viruses in the wheat plant itself. The approach involves developing transgenic wheat lines that contain small pieces of wheat streak mosaic virus and triticum mosaic virus RNA integrated into the genome of the wheat. This prevents further entry of the pathogenic virus and enables the plants to develop immunity against it.

GREEN METHOD TO HELP CUT SLEEPING SICKNESS

Using cheap by-product from the cashew nut industry as the base material, chemicals can be produced as 'attractants' to trap tsetse flies, which are vectors for sleeping sickness also known as African *trypanosomiasis*. This new method, published in *Green Chemistry*, and reported by Adole Abuto in the December 24, 2014 edition of *SciDev.Net*, can provide a sustainable and cost-effective means for producing the much needed chemicals (3-ethylphenol and 3-propylphenol).

More than 300,000 tonnes of this by-product material is generated every year by cashew nut producers of Sub-Saharan African countries, including Côte d'Ivoire, Nigeria and Tanzania. The liquid contains the chemical cardanol, which can be used to make the attractants. These countries can produce the chemicals needed for this new method locally; lowering the cost incurred by the prevalent expensive ways of dealing with the tsetse flies.

NEW METHOD TO AID QUICK VIRAL SURVEILLANCE

An open access journal, *Genome Biology*, has published a new method for examining the Ebola and Lassa virus genomes, which could make surveillance quicker and cheaper for West African nations, and will help detect new forms of the viruses, says a report published in *Science Daily* (November 18, 2014).

Detecting the RNA genomes of these deadly hemorrhagic viruses in suspected fever patients helps confirm diagnosis, which is crucial for quick decision-making to quarantine patients and begin tracing their contacts. Yet sequencing viral genomes directly from blood samples holds many challenges. The new method, developed by an international team led by scientists from Broad Institute, USA, to sequence genomes of the Ebola and Lassa viruses lowers risks of contaminating human RNA and has been proven to work through rapid sequencing of nearly 100 Ebola patients' blood samples from the recent outbreak. With a turnaround time of 10 days, this improved sequencing approach reduced the normal length of the process three-fold. The method also lowered costs by sequencing and assembling more viral genomes using fewer steps with a higher success rate. The new approach does not rely on using previously known genome sequences, which means it has also been able to uncover the RNA sequences of uncommon genetic variants of the virus. The tools and protocols that the group developed are now being shared to enable laboratories in West Africa and around the world to rapidly sequence clinical samples from Ebola patients.

CLOTHES DEVELOPED TO MONITOR AND TRANSMIT HEALTH INFORMATION

Researchers have developed smart textiles to help monitor and transmit wearers' biomedical information via wireless or cellular networks. This breakthrough, reported by *Science Daily* (December 3, 2014) is based on an article in the scientific journal, *Sensors*, clears a path for a host of new developments for people suffering from chronic diseases, elderly people living alone, as well as firemen and police officers. Researchers under the supervision of Prof. Younès Messaddeq, Université Laval, Faculty of Science and Engineering, created the smart fabric by successfully superimposing multiple layers of copper, polymers, glass, and silver. The surface of the fiber can also be adjusted to monitor a range of information, such as glucose levels, heart rhythm, brain activity, movements, and spatial coordinates.

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

PROF. DR. MOHAMED BEN YOUSSEF, DIRECTOR GENERAL – CERTE, TUNISIA

Dr. Mohamed Ben Youssef is the incumbent Director General of the Water Researches and Technologies Centre (CERTE)*, Tunisia, which was inducted to COMSATS Network of International S&T Centres of Excellence in 2014. CERTE is an affiliated Centre of the Tunisian Ministry of Higher Education and Scientific Research, and an important component of the Borj Cedria Science and Technology Park, located 25 kms South of the Capital city of Tunisia. By virtue of being the head of COMSATS Centre of Excellence, Dr. Ben Youssef is a member of COMSATS Coordinating Council.



Born in Chebba, Tunisia, in 1953, Dr. Ben Youssef is a geologist by profession, who started his career as research assistant in 1981 upon joining the National Institute of Technical and Scientific Research (INRST). Over the years, Dr. Ben Youssef has developed expertise in micro-paleontological determination for geologic mapping; monitoring of hydrogeological and oil drilling; as well as biostratigraphic study of drill core for mining and oil investigation.

Having developed interest in geology in early years of his life, Dr. Ben Youssef did his Bachelors in Sciences and Techniques of Geology in 1977 from the Faculty of Sciences of Tunis, Tunisia. Later, he proceeded to France to acquire his Master's degree in Geology from the University of Nice in 1978, and a Doctorate in Geology in 1980 from the same institution prior to returning to Tunisia and joining INRST. His significant contributions in the field earned him Doctorat ès-Sciences in Geology from the Faculty of Sciences of Tunis, in 1999.

Since April 2011, Dr. Ben Youssef is also the Director of Georesources Laboratory of CERTE, which is one of the three research laboratories of the Centre. He had earlier held this important position from 2007 to 2009. Over the years, Dr. Ben Youssef has also made important contributions to the administrative affairs of the Centre.

*About CERTE Borj Cedria, Tunisia

As an important component of Borj Cedria Science and Technology Park, CERTE focuses on research in water resources and has three well-equipped laboratories for research on Geo-resources, Wastewater Treatment and Natural Water Treatment. There are separate units of pilot plants, valorization of research results and information and documentation. The Centre also provides facilities for conducting water related research leading to MS and Ph.D Degrees. CERTE has more than 300 staff members, including 78 researchers with excellent laboratory equipment.



At national level, he served on the panel of a committee developing prospective national strategy on water (2011). He was a member of the recruitment committee for engineers of the National Office of Mines (2012), established under the Tunisian Ministry of Industry, Energy and Small/Medium Companies. He also represents the Tunisian Ministry of Higher Education and Scientific Research on the Board of Directors of the National Mapping and Remote Sensing Center (CNCT) as a member.

In view of his expertise, Dr. Ben Youssef has been a part of important national and international programmes. From 1981-1983, he was one of the participants in the implementation process of geological maps of Southern Tunisia under UNDP Programme. Later, he made contributions to the projects on Phosphate Basin of Gafsa (1985-1988) and Sahel (1999-2002). He has also been a member of the research programmes on salt bodies in Northern Tunisia (CMCU; 1998-2000). From 2002-2005, he headed the research programme Palaeo-environment of continental ecosystems of the Mesozoic in the South of Tunisia (2002-2005) during the Lower Cretaceous (CMCU 2001-2003). He has also been a technical member of a training workshop on Geology of the Sahel Region, held in Tunis (2002).

As an academic, he has supervised nine Ph.D theses and 3 theses defense. He has also supervised several Masters level theses. Dr. Ben Youssef has conducted various teaching courses for undergraduate and masters level students at various academic institutions, including: Faculty of Sciences of Tunis; Faculty of Sciences of Sfax; Faculty of Sciences of Bizerte; Faculty of Lettres, Art and Humanities of Manouba; and Faculty of Lettres and Sci. Human Science, 9 Avril, Tunis. He has also administered various academic activities as an examiner of doctoral level studies, for university authorization, as a jury member for masters-level programs, as a supervisor of dissertations, and undergraduate and master students supervision.

He has more than twenty papers published in indexed journals and has made more than 70 oral and poster presentations in national and international conferences. He has also contributed to the development of several geological maps and four booklets on geologic field trips.

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COMSATS BRIEF AND ANNOUNCEMENTS

SELECTED FORTHCOMING SCIENTIFIC EVENTS IN COMSATS COUNTRIES

30 March - 1 April 2015	International Wireless Symposium, Shenzhen, China (iws-ieee.org/)
14 - 15 April 2015	International Conference on Environment, Climate Change and Renewable Energy, Harare, Zimbabwe (10times.com/iceccre)
12 - 15 May 2015	ICIT15: 7 th International Conference on Information Technology, Amman, Jordan (www.icit.zuj.edu.jo)

18TH COORDINATING COUNCIL MEETING 12-13 May 2015, Colombo, Sri Lanka

COMSATS is pleased to announce the convening of its 18th Coordinating Council Meeting in Colombo, Sri Lanka, from 12th to 13th May 2015. The meeting is being hosted by the COMSATS Centre of Excellence in Sri Lanka, the Industrial Technology Institute (ITI). The Members of the Council will meet in order to review the present activities of the Network, as well as to deliberate on its future course of action.

On behalf of COMSATS and ITI, Sri Lanka, I take this opportunity to invite the Members of Council to join us in Colombo. We look forward to the active participation and valuable contributions from the Members and the Observers of the meeting.

Advisor (Programmes), COMSATS Secretariat (husseint@comsats.net.pk)

OBITUARY: DR. FARIDA SHAH FORMER MEMBER OF COMSATS TECHNICAL ADVISORY COMMITTEE

COMSATS mourns the sad demise of a former member of its Technical Advisory Committee (TAC), Dr. Farida Shah, who passed away on November 1, 2014. Dr. Shah, a Malaysian molecular biologist, had been a leading figure in both TWAS and the Organization for Women in Science for the Developing World (OWSD). She took close interest in science education and in mainstreaming of women in science and other fields. Dr. Shah will be remembered for her clear vision of the importance of science, and her hard work in bringing the vision to life.

*Courtesy: Edward Lempinen, Public Information Officer TWAS
(from the article In Memoriam: Farida Shah)*

CALL FOR PAPERS FOR COMSATS JOURNAL SCIENCE VISION: VOL. 21(1)

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 in line with the focus of the journal.

COMSATS invites scholarly contributions for the Volume 21, Issue 1 (January to June 2015) of Science Vision. 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.

Acknowledgment of Contributions

Editorial Support: Mr. Abdul Majid Qureshi & Ms. Narmeen Khurram
Designing and Development: Mr. Imran Chaudhry

A BRIEF ON COMSATS

COMSATS is an inter-governmental organization, with its Secretariat located in Islamabad, Pakistan. Currently it has 21 countries as its Member States and an affiliated Network of 19 scientific institutions.

COMSATS NETWORK



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