



COMSATS Newsletter

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Minister for Science and Technology, Government of China, H.E. Dr. Wang Gang with COMSATS' officials (8th July 2017)

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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.

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From the Executive Director's Desk

Since inception, COMSATS has been proactively facilitating science-led cooperation among its Centres of Excellence and Member States. The organization took on a rather ambitious and challenging task of bringing together countries and scientific institutions of the South for pooling scientific expertise and lab resources leading to socio-economic progress. It now aspires to accentuate the need for getting help from the North to uplift institutions of the South to better meet their national and regional developmental challenges.

A few constant desirables for COMSATS over the years and corresponding engagements have been the expansion of country and Network membership; improve quality and scope of its programmes; seeking cooperation from institutions and organizations of similar mandates; and sustained finances to ensure due pursuit of all that needs to be done to achieve its mission. These challenges are uphill tasks, and would continue to define a lot of COMSATS' direction and way forward in the coming years. However, the organization has to be ready for new paradigms, and newer and better goals and objectives. This naturally calls for more dynamism and re-alignment of its future course of action.

An established advocate and facilitator of South-South and North-South Cooperation, COMSATS has been holding consultations with a number of diplomatic and foreign missions, international and scientific organizations from

North as well as government functionaries from member states over the last few months for a number of reasons. These include: creating awareness and ownership about the noble and arduous mission of COMSATS, seeking support, cooperation, expertise and good will of all the stakeholders and relevant scientific organizations from the North and the South, and expanding the membership, scope and outreach of the organization. Corresponding pages of this newsletter would provide a glimpse at the steps taken in this direction.

The noble dignitaries and officials from the foreign missions of Bangladesh, China, Kyrgyz Republic, Pakistan, Palestine, South Africa, Tajikistan, Thailand, Turkmenistan, Vietnam, and Yemen, met during the reporting period were all receptive of the proposals with regard to strengthening the organization with their support. Moreover, outreach to some UK-based organizations and EU in Pakistan have opened to us possibilities and hopes for enhancing the role of institutions from the North in COMSATS' endeavours. Meanwhile, consultation and cooperation continued with existing partners like TWAS, UNESCO, ICTP, ICGEB as well as with Focal Points in Member States and COMSATS Network members.

COMSATS would remain steadfast in its mission of science-led sustainable development. Any sincere feedback and suggestions on the organization's views and pursuits are welcome.

NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

The Republic of Turkey Joins COMSATS as its 25th Member State

The Republic of Turkey has joined COMSATS, as intimated by a letter from Turkish Embassy received by COMSATS Secretariat on 17th August 2017. The 'Agreement to join COMSATS as Member State', signed earlier by the Ambassador of Turkey to Pakistan, His Excellency Babür Hızlan, has been ratified by the Government of Turkey on 29th May 2017.



In addition to the country's already existing participation in COMSATS' Coordinating Council, Turkey will be represented at the Heads-of-State level Commission and the ministerial Consultative Committee of COMSATS by virtue of its State membership. The Scientific and Technological Research Council of Turkey (TUBITAK) now serves as the Focal Point of COMSATS and will be represented in COMSATS Consultative Committee. The Council is also the parent organization of COMSATS, Centre of Excellence in Turkey, TÜBİTAK Marmara Research Center (MAM). Turkey's membership is expected to serve as a window for effective North-South cooperation owing to the country's representation in other regional and international organizations, as well as its geographical location.

Meetings with Foreign Missions from Member Countries

Meetings were held with foreign missions and Government officials of COMSATS' member states to keep them abreast and sensitized about the organization's undertakings and future aspirations. Presentations were made on COMSATS to the Ambassador of Palestine to Pakistan, Chinese Minister for Science and Technology, and the High Commissioner of Bangladesh during separate meetings.



Meeting with the Chinese Minister for Science and Technology

Meeting with Minister for Science and Technology, Government of China, H. E. Dr. Wan Gang (8th July 2017)

A meeting was held between the delegations of the Government of China and COMSATS on 8th July 2017, in Islamabad. The Chinese delegation was led by the Chinese Minister for S&T.

Dr. Zaidi hoped that COMSATS member states on the route of One Belt One Road (OBOR) would benefit well from the project. He informed that CIIT is actively participating in China-Pakistan Economic Corridor (CPEC) program. He also informed Dr. Gang about the Pak-China Business Forum being organized annually by CIIT for last few years. Dr. Gang informed that China is planning to collaborate with COMSATS in the following areas: joint trainings in developing countries; seminars and forums; Chinese researchers' participation in COMSATS' activities; and participation in international research projects.

Meeting with the Ambassador of Palestine, H. E. Mr. Walid Abu Ali (7th July 2017)

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, met the Palestinian Ambassador at his office in Islamabad. Also present during the meeting were the First Secretary/Cultural and Educational Attaché of the Palestine Embassy, Mr. Husni Muhammad Mustafa; and Admin Attaché, Mr. Khalil Abu Ghalyoun.

His Excellency expressed his Government's support towards participation in international fora. He appreciated the induction of Al-Quds University as Centre of Excellence in COMSATS Network. Dr. Zaidi proposed a visit of a 10-member delegation comprising of faculty from Pakistan's leading university to Al-Quds University and other relevant academic institutions of Palestine to explore avenues of mutual cooperation.



The Ambassador of Palestine with COMSATS' Officials

High Commissioner of Bangladesh, H. E. Mr. Tarik Ahsan (11th July 2017)

During the meeting, with the Bangladeshi High Commissioner, discussions were held to enhance and further strengthen the existing cooperation between COMSATS and Bangladesh. Dr. Zaidi stated that COMSATS highly values its ties with Bangladesh and noted the active participation of Bangladesh Council for Scientific and Industrial Research (BCSIR) in the programmes and activities of the organization. Dr. Zaidi requested Mr. Ahsan to encourage Bangladeshi students to avail the offers of postgraduate and post-doctoral scholarships by CIIT, Pakistan, and other Centres of Excellence. Dr. Zaidi assured the High Commissioner of COMSATS' continued assistance in strengthening its Member States' S&T capacity. He further apprised the honourable High Commissioner about the COMSATS' efforts for initiating collaboration programmes between BCSIR and other members of the COMSATS' Network of Centres of Excellence.



Meeting with the High Commissioner of Bangladesh to Pakistan

Meetings with the Foreign Diplomats from Non-Member Countries

The process of consultation with foreign missions of non-member countries continued during reporting period, whereby representatives of foreign missions in Islamabad were met. These belonged to: Uzbekistan, Turkmenistan, Kyrgyz Republic, Vietnam, Yemen, South Africa, and Tajikistan. These officials were apprised about mandate, scope and international projects of COMSATS as well as the benefits and obligations of COMSATS' membership. To encourage them for joining COMSATS, the Ambassadors were also acquainted with various programmes that have benefitted the member states. Other aspects related to COMSATS, including its finances were also highlighted. Some specific points discussed during the meeting are given below.

Meeting with Ambassador of Uzbekistan, H. E. Furkat A. Sidikov (2nd August 2017)

During the meeting, the Ambassador expressed keen interest in learning about the programmes of the organization, especially in the area of agriculture. He highlighted the potential of cooperation between Uzbekistan and COMSATS member states, such as Pakistan. He considered COMSATS an effective platform to enhance cooperation between developing countries. Regarding COMSATS' offer of membership, Mr. Sidikov proposed that a letter of invitation for the Republic of Uzbekistan to join COMSATS with all necessary documents may be provided for onward submission to the Chairman of the Council for Coordination of Science and Technology, Uzbekistan. The Uzbek Ambassador assured to personally follow-up the case of Uzbekistan's membership to COMSATS.



Dr. Zaidi presenting a shield to the Uzbek Ambassador

Meeting with Ambassador of Turkmenistan, H. E. Movlamov Atajan Nurlyevich (2nd August 2017)

Mr. Nurlyevich assured that the proposal of Turkmenistan's accession to join COMSATS will be taken up with the



Ambassador of Turkmenistan in a meeting with Dr. Zaidi

Government of Turkmenistan. He also suggested that the proposal should be sent to the Foreign Office in Turkmenistan. The Ambassador added that the Academy of Sciences and Ministry of Education, Turkmenistan, can be contacted for collaborations in respective areas. It was further informed that the Academy of Sciences in Turkmenistan is best-placed to provide support to COMSATS in identifying institutions as potential Network Members.

Meeting with Ambassador of Kyrgyz Republic, H.E. Erik Beishembiev (4th August 2017)

During the meeting, Dr. Zaidi informed the Ambassador that COMSATS would be sending a membership proposal along with relevant documents for consideration of Kyrgyz Embassy and the Ministry of Science and Technology in Kyrgyz Republic. Dr. Zaidi also expressed that COMSATS is willing to provide all kinds of support for establishing new universities in member countries. A discussion was carried out on the experience of establishment and progress of CIIT, which could serve as a model of academic excellence for other member states. The Ambassador praised the facilities offered by CIIT to the students and also showed interest in visiting the institute's Islamabad campus.



COMSATS' Officials with Ambassador of Kyrgyz Republic

Meeting with Ambassador of Vietnam, H.E. Nguyen Xuan Luu (18th August 2017)

The Vietnamese Ambassador shared his Government's interest in building universities in collaboration with countries like Australia, Russia, and Germany. The Ambassador highlighted cooperative relationships between Vietnam and Pakistan, spanning over 45 years. The Ambassador was requested to take the offer of COMSATS' membership, through a formal letter of invitation handed to him by the Executive Director to the relevant government officials. It was decided that COMSATS would later reach out to the

respective Ministry of Education and Academy of Sciences in Vietnam for a follow up. The Ambassador pledged to take up the matter with the Ministry.



Ambassador of Vietnam in a meeting with COMSATS' Officials

Meeting with Ambassador of Yemen, H.E. Mohammed Motahar Alashabi (18th August 2017)

Referring to COMSATS' earlier invitations to Yemen to join COMSATS, Dr. Zaidi urged the Ambassador to take up the matter with the relevant officials of the Government of Yemen. Highlighting the benefits and obligations of COMSATS' state membership, Dr. Zaidi opined that Yemen could greatly benefit from COMSATS' projects and programmes. Underscoring the success of CIIT, Dr. Zaidi informed the Ambassador that COMSATS could help Yemen establish similar top-class higher education institutions in the country. Mr. Alashabi welcomed the opportunities offered by COMSATS. He recalled efforts of outreach from COMSATS to the Government of Yemen. He welcomed the renewed invitation to Yemen to join COMSATS, and hoped to duly take it up at relevant fora.



Ambassador of Yemen receiving a presentation at COMSATS Secretariat

Meeting with the High Commissioner of South Africa, H. E. Mpendulo Jele Kumalo (24th August 2017)

The High Commissioner was accompanied by Ms. M. S. Mkhwebane, First Secretary (Corporate Services). His Excellency was informed about the number of benefits that the Republic of South Africa can avail by joining COMSATS that include: postgraduate, doctoral and postdoctoral scholarships at COMSATS' Centres of Excellence in China, Egypt, Bangladesh, and Pakistan; participation in technology-transfer programmes as well as Collaborative Research Programmes (CRP) in partnership with COMSATS' partner international donor/development agencies; training programmes at selected CoEs; participation in International Thematic Research Groups (ITRGs); help and advice by a panel of experts on ST&I policy; and exchange visits of scientists for exploring bilateral cooperation avenues between institutions having common research interests.



COMSATS' Officials meeting the Ambassador of South Africa at his office in Islamabad

The honourable High Commissioner appreciated COMSATS' programmes aimed at South-South cooperation and scientific capacity-building of its Member States, and pledged to approach the South African Ministry of Science and Technology.

Meeting with Ambassador of Tajikistan, H. E. Mr. Sherali S. Jononov (30th August 2017)

Speaking during the meeting, the Ambassador noted with concern a huge gap in technical cooperation between Pakistan and Tajikistan, which he had been trying to address by meeting with relevant Pakistani officials recently. He advised to have meetings between high officials of COMSATS and government officials at relevant Ministries of Tajikistan, such as Ministry of Education, as well as having interactivity on the ground level and cultural exchange, e.g., through holding exhibitions in Tajikistan.

Appreciating the worthy inputs from the Ambassador, the Executive Director assured him of taking due actions.



COMSATS' Officials with Ambassador of Tajikistan

Avenues of Cooperation with Institutions from the North Explored

In line with COMSATS' efforts to expand the scope of its programmes and its international partnerships, COMSATS has been exploring avenues of cooperation with some institutions from the UK. Their officials in Pakistan and UK were met to look for potential areas of cooperation.

Meeting with EU Charge d'Affaires, Ms. Anne Marchal (28th August 2017)

A meeting at COMSATS Secretariat was held with Ms. Marchal, who was accompanied by Mr. Husnain Iftakhar, Senior Economist. The main purpose of the engagement with EU is to explore the possibility of expanding COMSATS' membership to European countries and scientific organizations, in order to strengthen the North-South dynamic of its efforts for S&T-led socio-economic development.



EU Charge d'Affaires with COMSATS' Officials

Dr. Zaidi expressed his vision for having European institutions to join the COMSATS Network, which would be beneficial for the existing Network members. Ms. Marchal was of the opinion that some avenues of cooperation with EU already exist and can be explored by COMSATS right away, e.g., Horizon 2020. Currently, this programme includes 7 projects with Pakistani partners, and one each with Sri Lankan and Nepalese partners. Other cooperative project that is readily available for all partners for cooperation noted by Ms. Marchal was Erasmus programme, which offers exchange of faculties as individual scholarships to students. It was noted that there is no limit of collaborative proposals from partner countries and organizations.

In addition to the aforementioned projects, any other cooperative arrangement with EU, Ms. Marchal noted, would need further consultations and high-level meetings. In this regard, she offered to discuss the matters with her colleagues which might be followed up with a formal letter seeking collaboration from COMSATS Secretariat. She believed that EU-COMSATS partnership could be useful, given the due channels are used and right resources mobilized in the regional office and EU HQ in Brussels.

COMSATS' Officials Visit Institutions in the United Kingdom

A delegation from COMSATS Secretariat led by the Executive Director COMSATS visited UK from 5th August 2017 to 13th August 2017. He was accompanied by Ambassador (R) Shahid Kamal, and Dr. Arshad Malik, of CIIT. During this visit, the delegates held meetings with officials from Universities UK International; Lancaster University; Commonwealth Secretariat; High Commission of Pakistan in UK; Association of Commonwealth Universities; and British Council London.

Lancaster University: The officials from COMSATS Secretariat held a meeting with Prof. Mark E. Smith, Vice Chancellor, and Prof. Steve Bradley, Pro-Vice Chancellor (International), Lancaster University on 9th August 2017. During the meeting, possible collaborations between COMSATS and Lancaster University were discussed. The officials pledged to provide support to COMSATS for its projects and activities in Member states. They also agreed to work with COMSATS for providing support in setting up the Centres of Excellence in member states.

Universities UK International: On 10th August 2017, the delegates held meeting with Mr. Sean O'Connor, Head of International Engagement (Non-EU) and Mr. Joseph Taylor, Policy Manager, Asia, at Universities UK International. These officials agreed to extending all kinds of support to COMSATS Secretariat for its projects and increased involvement of Centres of Excellence.

Commonwealth Secretariat: The delegation held a meeting with Dr. Nabeel Goheer, Director Strategy, Portfolio and Partnerships Division in Commonwealth Secretariat on 10th August 2017. The Secretariat agreed to provide all kinds of support for these projects.

Pakistan High Commission: COMSATS' officials met the High Commissioner, Mr. Ibne Abbas, Deputy High Commissioner, Mr. Zahid Hafeez Chaidhri, and First Secretary, Mr. Muazam Ali on 10th August 2017. The CIIT projects that have been funded and supported by the High Commission of Pakistan were discussed while also seeking support for future projects of COMSATS.

Association of Commonwealth Universities (ACU): The delegates visited ACU on 10th August 2017 and held a meeting with Dr. John Kirkland, Deputy Secretary General, Ms. Liberty Oberlander, Director Membership Development, and Mr. Ben Halls, Director Programmes. The senior officials from the Association agreed to provide support for COMSATS' Centres of Excellence. The ACU officials also welcomed the involvement of more universities from Pakistan and COMSATS Member states in the association.

British Council London: The officials also conducted a meeting in British Council London with Dr. Shaun Holmes, Science Advisor (Research and Partnership); and Daniel Korbel, Acting Global Director of Science. During the meeting, the officials discussed possible areas of



Discussion with Country Director British Council held at COMSATS Secretariat

collaboration with the British Council. The British Council agreed to provide technical advices, expertise as well as financial support for different programmes of COMSATS. Earlier, in Pakistan the Executive Director also met the British Council's Country Director for Pakistan and discussed the possibilities of collaborations with the British Universities.

Meeting with the Country Director British Council for Pakistan

A meeting with the country director of the British Council Pakistan, Ms. Rosemary Hillhorst, was held at COMSATS Secretariat on 2nd August 2017. Ms. Hillhorst was accompanied by Ms. Nishat Riaz (Director of Education, Pakistan). Dr. Zaidi introduced COMSATS, and the main activities and notable achievements of the organization since its inception, including establishment of CIIT. Dr. Zaidi acknowledged and appreciated the role of the British Council in introducing him to prominent higher education professionals in the UK. He underscored his desire for the British Council to, once again, partner with COMSATS in order to establish universities and research centers in its 25 Member States.

Ms. Hillhorst showed interest in COMSATS Centres of Excellence and their focus on particular subject areas, which sparked a discussion about research collaboration between centers. The Executive Director shared his intent to create an international climate change center in the Global South and the need for funding for the project. Ms. Hillhorst expressed the UK's shifting policies towards focusing on commonwealth countries, as evidenced by an intergovernmental meeting between members of the commonwealth that is to be held in the UK next year. She also inquired about COMSATS' linkages with international research centers, such as CERN.

Dr. Zaidi expressed the shifting policy of COMSATS from an exclusive focus on South-South cooperation towards gradually increasing North-South cooperation on Science and Technology.

New Activity of COMSATS Tele-Health Programme

During the year 2017, COMSATS eHealth Programme made efforts to strengthen its new collaboration with Midland Doctor Medical Institute (MDMI), which offered its hospital in Muzaffarabad, Azad Jammu and Kashmir for the first Telehealth setup under MDMI-COMSATS collaboration for Telehealth. In this connection, a team from COMSATS

visited Muzaffarabad on 10th August 2017. The purpose of the visit was to ascertain existing health and IT facilities at the MDMI for setting up a Telehealth clinic which will be linked with COMSATS Resource Centre and the medical practice facility in Dubai.

Later during the month, the Principal Medical Officer of COMSATS' telehealth team, Dr. Azeema Farid, attended a Premier international health event named "Health Asia", held in Karachi from 22nd to 24th August 2017. This event included workshops and seminars on various topics related to health and also showcased products and services by Hospitals & Dental Clinics, Medical & Dental Colleges, Software Houses/MT Companies, Pharmaceutical Companies and e-Health & Consultancy Companies.

Participation of COMSATS' Delegation in Training on Excellence in Change and Impact Evaluation, Bangkok, Thailand

A three-member delegation of COMSATS comprising of Mr. Bilal Chouhan, Director (A&E); Mr. Laeeq Hassan Jaswal, Assistant Professor; and Mr. Shahzad Ahmed, Manager (IR) visited Bangkok, Thailand, from 16 to 23 July 2017. The visit was undertaken to attend training on "Excellence in Change and Impact Evaluation" jointly organized by International Development Research Centre (IDRC) and Sustainable Development Policy Institute (SDPI) and United Nation Economic and Social Commission for Asia and the Pacific (UNESCAP). The training was meant for productive learning experience and interaction with technical experts, speakers and participants from other think tanks and policy institutions. The workshop had also extended an opportunity to build synergies and to develop a pool of MEAL professionals' under the MEAL leadership programme. The training facilities were provided by UNESCAP office in Bangkok.



COMSATS' Officials at SDPI Training in Thailand

THE 4TH INTERNATIONAL WORKSHOP ON ‘APPLICATIONS OF ICTS IN EDUCATION, HEALTHCARE AND AGRICULTURE’, ABUJA, NIGERIA

The 4th International Workshop on ‘Applications of ICTs in Education, Healthcare and Agriculture’ was held from 25th to 27th July 2017, in Abuja, Nigeria. Hosted by the National Space Research and Development Agency (NASRDA), Federal Ministry of Science and Technology (FMST), Nigeria, the event was jointly organized by COMSATS; the Islamic Educational, Scientific and Cultural Organization (ISESCO); and the Inter Islamic Network on Information Technology (INIT). The workshop was attended by about 250 participants belonging to Egypt, Jordan, Nigeria, Pakistan, Palestine, Sudan, and Sri Lanka.

The primary objective of the workshop was to expand knowledge-base and capabilities of the participating scientists, researchers and professionals, belonging to developing countries, particularly Nigeria, regarding the cutting edge innovative ICT-based technologies and techniques used in Education, Healthcare and Agriculture sectors.

Inauguration

The workshop was inaugurated by H.E. Dr. Ogonnaya Onu, Federal Minister for Science and Technology, Government of Nigeria, on 25th July 2017. The inaugural ceremony was attended by distinguished guests belonging to universities, R&D organizations, and government departments of Nigeria. Mr. Asim Ali Khan, Head of Chancery, High Commission of Pakistan in Abuja, was

Most of the developed countries do not have abundant natural resources, however, these countries have been able to make up for the same through informed decision making and achieving excellence in science and technology.

H.E. Dr. Ogonnaya Onu, Federal Minister for Science and Technology, Government of Nigeria



COMSATS' Representative presenting a shield to Dr. Onu

among the distinguished guests at the ceremony.

During his keynote address, the honourable Minister stated that the major difference between the developed and the developing countries is the effective utilization of science, technology and innovation. He considered the information and communication technologies (ICTs) an effective tool for creation of wealth, strengthening economies, and achieving sustainable growth. The honourable Minister highlighted the recent initiatives of the present Government of Nigeria for the promotion of science, technology and innovation for achieving economic progress, including Nigerian Economic Recovery Roadmap (2017-2030). He thanked COMSATS, ISESCO and INIT for selecting Nigeria to host this important event, and pledged that the Nigerian Federal Ministry of Science and Technology (FMST) will continue collaboration with these organizations in future.

It would require a collective vision and commitment to transform the socio-economic landscape in the developing countries. ICTs have the potential to play a transformative role towards achieving the sustainable development goals.

Mrs. Belema Wakama, Permanent Secretary FMST, Nigeria

Earlier, Mrs. Belema Wakama, Permanent Secretary, FMST, Nigeria, warmly welcomed the local and foreign speakers and participants. She informed that the internet and mobile penetration is constantly increasing in Nigeria as well as other developing countries. She praised the efforts of the honourable Minister for Science and Technology for strengthening the S&T sector in Nigeria.

Mr. Farhan Ansari, Sr. Assistant Director (Programmes), COMSATS Headquarters, conveyed the Message of Dr. S.M.



A Technical session of the Workshop underway

Applications of ICTs, including e-Government, e-Commerce, e-Education, e-Health and e-Environment, are enablers for socio-economic development, as these technologies can provide an efficient channel to deliver a wide range of basic services in remote and rural areas.

Dr. S. M. Junaid Zaidi, Executive Director COMSATS

Junaid Zaidi, Executive Director COMSATS. In his message, Dr. Zaidi stated that during the last five decades, ICTs have brought a revolution in every sphere of life. ICT applications can facilitate in achieving the sustainable development goals, including reduction in poverty and elevation of health and environmental conditions in developing countries. Dr. Zaidi introduced COMSATS as an intergovernmental organization striving for science-led sustainable socio-economic uplift of the developing countries. He shed light on the ongoing activities of COMSATS to develop and strengthen linkages among the countries of the South for the exchange of resources, technology, and knowledge. These activities include organizing and sponsoring scientific capacity-building events and coordinating research activities. He informed that one of the biggest achievements of COMSATS is the establishment of a public-sector university in Pakistan, COMSATS Institute of Information Technology (CIIT), which now has fully functional campuses in 7 cities of Pakistan. CIIT is at top most position in the field of 'Computer Science and Information Technology' in Pakistan. He thanked ISESCO, INIT and NASRDA (FMST) for joining hands with COMSATS to organize the workshop.

The message of the President INIT, Prof. Dr. Raheel Qamar, was delivered by Dr. Khalid Latif, Associate Professor, CIIT, Pakistan. In his message, Prof. Qamar stated that today's era is the pinnacle of human evolution, which has

witnessed the zenith of technological advancement and modernity. He informed that INIT has always been mindful of all necessities for the achievement of this ambition and the present workshop is a transpiration of a series of efforts by INIT focusing particularly on the needs of Education, Healthcare, and Agriculture sectors.

ICTs are constantly evolving both in terms of outreach and applicability, which can only lead to the advent of an age where technology is accessible to all, readily understood by all, and most importantly beneficial to all.

Prof. Dr. Raheel Qamar, President INIT

The ceremony was concluded with the Goodwill Messages delivered by the representatives of Nigerian Federal Ministry of Education, Federal Ministry of Health and Federal Ministry of Agriculture, while the vote of thanks was delivered by Pharm. A. Oguntunde, FMST (COMSATS-Nigeria Liaison Officer).

Technical Deliberations

The three-day event included three technical sessions, one each on the applications of ICTs in Education, Agriculture and Healthcare, which featured 16 technical presentations and invited lectures.

The presentations made during the event, inter alia, related to: Optimizing Computer Based Test at all Levels of Education; Graduation Tracking System; Leveraging ICTs for Distance Learning and Capacity Utilization; Evaluation of information usage with reference to the evolution of ICT at Information Services Center of ITI/CISIR in Sri Lanka; Using



Group photo of the participants of the 4th International Workshop on Applications of ICTs in Education, Healthcare and Agriculture, Abuja, Nigeria



A few speakers of the workshop during presentation

ICTs in Management of Universities: Experiences from Egypt; Actualizing Precision Agriculture in the Developing World; Role of Cognitive Automation in Education and Agriculture Sector; Improving the Use of GPS, GIS as Tools to help Agriculture Production; Integration of Satellite and RFID Solutions for Livestock Production and Management; Emerged Wireless Sensor Technologies and Monitoring Systems in Precision Agriculture Field; Environmental Information and Management systems; ICTs for agricultural development in Sudan; Role of ICT in Malaria Eradication; Irrational Use of Medicines among Patients in Sudan (Problems and Solutions); and Telemedicine and HealthCare Delivery in the South.

Each of the three technical sessions included a discussion session for assessing the present state of the use of ICTs as well as to formulate specific recommendations for the governments of the Member States of COMSATS and OIC for employing ICTs as a tool to strengthen the aforementioned sectors.

Event Recommendations

Based on the presentations, discussions and deliberations during the meeting, the participants of the workshop, inter alia, made the following recommendations to the Member States of COMSATS and OIC:

- An integrated framework for ICTs deployment for distance-learning, and off-site teaching should be developed and implemented.
- Relevant sensitization and capacity building for leaders, policy makers and educators in the field should be done.
- ICT infrastructure development and sustainability should be given priority for improvement in the educational sector.
- Strategies for adopting ICTs in health management

International Speakers

- Mr. Ibiguro Asawo, Cinfores, Nigeria
- Mr. Munther Ahmad Mohammad Salahat, Ministry of Education and Higher Education, Palestine
- Mr. Chinenye Mba-Uzoukwu, InfoGraphics, Nigeria
- Ms. Subashine Isanka Edirisuriya Maddumage, Industrial Technology Institute, Sri Lanka
- Dr. Mahmoud Mohamed Mahoud Hassan, Information Technology Department, Faculty of Computers and Information, Helwan Univeristy, Egypt
- Dr. John Momoh, Department of Engineering and Space Systems, NASRDA, Nigeria
- Dr. Khalid Latif, COMSATS Institute of Information Technology, Pakistan
- Mr. Justine Nwazurike, GIS National Emergency Management Agency, Abuja, Nigeria
- Dr. Daniel Onibhade Omofoman, RFID Research Center, Nigeria
- Dr. Saleem Iqbal, PMAS-Arid Agriculture University, Pakistan
- Ms. Islam Mamdouh Abdelmunaim Ahmad, Center for Information and Communication Technology, Royal Scientific Society, Jordan
- Mohamed Ahmed Abd Elmawla Mohamed, New Halfa Agriculture Corporation, Department of Agricultural Engineering Irrigation and Water Management Section, Sudan
- Prof. Dr. Prince Philip Chidi Njemanze, Chidicon Medical Center, International Institutes of Advanced Research and Training, Nigeria
- Ms. Esraa Bashir Mohamed Elyas, Industrial Research and Consultancy Center, Sudan
- Dr. Akeem Abolade Oyerinde, University of Abuja, Nigeria
- Prof. Seidu O. Mohammed, National Space Research and Development Agency, Abuja, Nigeria

system should be developed.

- The three components of healthcare system, i.e. research, therapy and prevention should be promoted.
- Education of farmers through short videos about the use of technology and farm inputs and techniques should be put in place and sustained.
- Farmers should be equipped with Android phones with Long Term Evolution (LTE) applications to enable them to follow the trend of e-agriculture in a relatively cheaper and easier manner.
- Adequate planning should be done to reduce the cost of technology (GPS, RFID, Sensors, Satellite Systems, etc.) through local production and manufacturing.
- Monitoring of the environment through air quality, weather, geo-hazard and waste management, etc. should be institutionalized and made obligatory for the industrial and manufacturing sector.

The event successfully facilitated the exchange of knowledge and expertise among the participants belonging to various developing countries related to emerging ICT applications as a tool to attain socio-economic progress.

S&T INDICATORS OF A MEMBER STATE

In Spectrum: The Republic of Turkey



The Republic of Turkey commonly known as Turkey is a trans-continental country which mainly lies in Western Asia. A smaller portion of Turkey, the Balkan peninsula, is located in Southeast Europe. The country shares borders with Greece and Bulgaria at northwest; Georgia at north-east; Armenia, the Azerbaijani exclave of Nachchivan, and Iran at east; and Iraq and Syria in south. Three sea banks encircle the country at three sides. These are the Aegean sea to the west; Black sea to the north; and the Mediterranean sea to the south. The Turkish strait which divides Thrace and Anatolia, and separate Europe and Asia, comprises of the Bosphorus, the sea of Marmara, and the Dardanelles.

The country has a total area of 783,562 sq km. The capital of Istanbul is Ankara which is the largest city as well as the main cultural and commercial center. About 70 to 80% population of the country's citizens are ethnic Turks including 20% Kurds. Other ethnic groups which exist in the country include Americans, Greeks, Jews, Arabs, Circassians, Albanians, Boniaks, and Georgians.

Modern Turkey was founded in 1923 from the remnants of defeated Ottoman Empire by Mustafa Kamal, who was later honored with the title Atatürk or 'Father of the Turks'. Under his leadership, the country adopted radical, social, legal and political reforms (CIA World Factbook).

Turkey experiences a temperate climate with hot to mild dry summers, and wet and harsh winters. The country's extraordinary ecosystem and habitat diversity has produced considerable number of species. The Turks have preserved their biodiversity by enhancing natural habitats, efforts for which have resulted in 40 national parks, 189 nature parks, 31 nature preserve areas, 80 wildlife protection areas, and 109 nature monuments in the country.

Turkey is considered as one of the most popular tourist destinations. Its shores are laced with beaches, bays, coves, ports, islands and peninsulas. Blessed with majestic mountains, valleys, rivers, lakes, and waterfalls, Turkey is considered a tourists' paradise. The country is also rich in natural resources.

The country has a total population of 80,845,215 as of July 2017. Around 99.8% of the Turkish population follows Islam. The largest segment of country's population (43.21%) is between the age 25 to 54 years followed by the population segment (24.68%) aged under 14 (CIA World Factbook).



As per the constitution, the government has a parliamentary system with 81 provinces. The land has a civil law system based on various European legal systems, notably the Swiss civil code.

According to the Human Development Index, Turkey ranks at 71 out of 188 countries with an HDI value of 0.767 (UNDP Human Development Report, 2015). Between 1990 and 2015, Turkey's HDI value increased from 0.576 to 0.767, an increase of 33.2%. Table - A indicates Turkey's progress in each of the HDI indicators. Between 1990 and 2015, Turkey's life expectancy at birth increased by 11.2 years, mean years of schooling increased by 3.4 years and expected years of schooling increased by 5.7 years. Turkey's GNI per capita increased by about 78.2 percent between 1990 and 2015.

Turkey's largely free market economy is driven by its industry and, increasingly, service sectors, although its traditional agriculture sector still caters to about 25% of the employment needs of the country. The automotive, petrochemical, and electronics industries have risen in importance and surpassed the traditional textiles and clothing sectors within Turkey's export mix. Major agriculture products of the country

Table-A: The Turkey HDI Trends Based on Consistent Time Series Data and New Goalposts

	Life Expectancy at Birth	Expected Years of Schooling	Mean Years of Schooling	GNI per Capita (2011 PPP\$)	HDI Value
1990	64.3	8.9	4.5	10,494	0.576
1995	67	9.6	4.8	11,317	0.604
2000	70	11.1	5.5	12,815	0.653
2005	72.5	11.9	6	14,976	0.687
2010	74.2	13.8	7.2	16,482	0.737
2011	74.4	14.3	7.4	17,630	0.75
2012	74.7	14.4	7.6	17,703	0.754
2013	75	14.5	7.7	18,074	0.759
2014	75.3	14.5	7.9	18,312	0.764
2015	75.5	14.6	7.9	18,705	0.767

include tobacco, cotton, grain, olives, sugar beets, hazelnuts, pulses, citrus, and livestock, while its major industries are textile, food processing, automobiles, electronics, mining (coal, chromate, copper, boron), steel, petroleum, construction, lumber, and paper. Industrial production growth rate of the country is 1.3%.

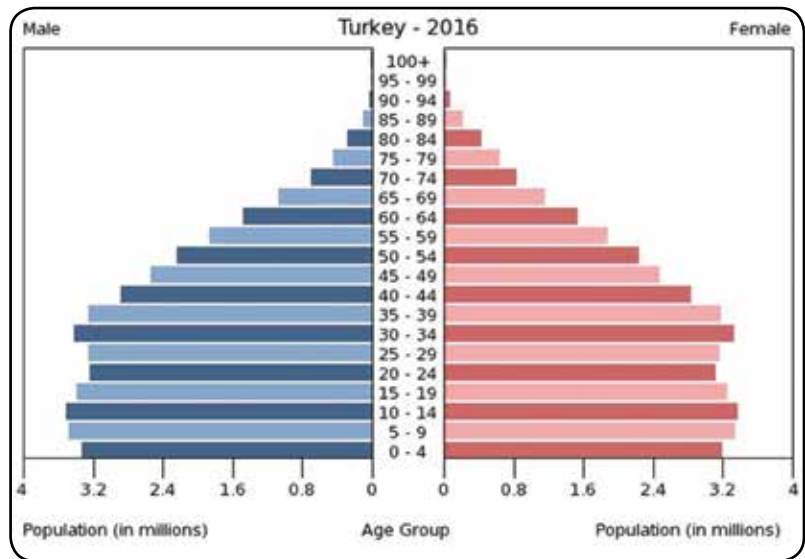
Exports are largely based on apparel, food stuffs, textiles, metal manufactures, and transport equipment. The country is in trading relationship with Germany, United Kingdom, Iraq, Italy, United States, France, China, and Russia. Primary imports of the country include machinery, chemicals, semi-finished goods, fuels, and transport equipment. Turkey has the world's 13th largest GDP by PPP and 18th largest nominal GDP.

The Scientific and Technological Research Council of Turkey (TÜBİTAK) is the leading agency for developing science, technology and innovation policies in Turkey. The Turkish Academy of Sciences (TUBA) is an autonomous scholarly society working to promote scientific activities in Turkey.

The Turkish Atomic Energy Authority (TAEK) is the official nuclear energy institution of Turkey. Its objectives include academic research in nuclear energy, and the development and implementation of peaceful nuclear tools. TÜBİTAK Marmara Research Center, one of the R&D organization's working under TÜBİTAK, is a Center of Excellence of COMSATS.

The government based companies for research and development include Turkish Aerospace Industries, Aselsan, Havelsan, Roketsan, and MKE. The Turkish Ministry of National Defence owns a spacecraft production and testing facility named Turkish Satellite Assembly, Integration and Test Centre (UMET) operated by Turkish Aerospace Industries. The Turkish Space Launch System (UFS) is a project to develop the satellite launch capability of Turkey. It consists of the construction of a space port for the development of satellite launch vehicles as well as the establishment of remote earth stations. Türksat is the sole communications satellite operator in Turkey and has launched the Türksat series of satellites into orbit. Göktürk-1 and Göktürk-2 are Turkey's earth observation satellites for reconnaissance, operated by the Ministry of National Defence. BLSAT-1 and RASAT are the scientific earth observation satellites operated by the TÜBİTAK Space Technologies Research Institute.

The Ministry of National Education is responsible



for pre-tertiary education in the country. The overall adult literacy rate in Turkey is 94.1%, 97.9% for males and 90.3% for females. As of 2017, there are 190 universities in Turkey.

Turkey is a member of European Higher Education Area and actively participates in Bologna process (ministerial meetings and agreements). The country also has representation in regional and international organizations, such as UN, OECD, OSCE, BSEC, D-8, G-20, ICSU, ICGBE, ECO, IEA, KEİ, APSCO, and OIC; as well as various European research programmes, such as COST, ESF, ESA, EuroHORCS, EUREKA, and EMBC.

Turkey is the country with great infrastructure for research in Science and development in technology which has led the country towards prosperity.

Key Development Indicators of Turkey				
Development Indicator	1990	2000	2010	2016
Population, total (millions)	53.92	63.24	72.33	79.51
Urban population growth (annual %)	4.5	1.9	1.3	-
Rural population growth (annual %)	4	2.3	2.2	2.2
Agriculture, value added (% of GDP)	18	11	10	7
Industry, value added (% of GDP)	32	30	28	32
Services, etc., value added (% of GDP)	50	59	62	61
Exports of goods and services (% of GDP)	13	19	20	22
Imports of goods and services (% of GDP)	18	23	25	25
Mobile cellular subscriptions (per 100 people)	0.1	25.5	85.6	96
Individuals using the Internet (% of population)	0	3.8	39.8	53.7
High-technology exports (% of manufactured exports)	1	5	2	2
Merchandise trade (% of GDP)	23	30	39	40

Source: World Bank Indicators, 2016

ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

EMBRAPA Agrobiologia-Brazil Research Group on Food & Nutritional Security Founded

On 1st July 2017, the National Council for Scientific and Technological Development (CNPq) and Rural Agriculture for Food and Nutrition Security research group of EMBRAPA Agrobiologia, Brazil, held the first meeting in order to prepare a plan for food and nutrition security. The research group is working on the approximation between production and consumption. Currently, food production areas, both urban and rural, face great difficulty in establishing a concrete process of agroecological transition, since they are associated with conventional marketing processes, which force the simplification of crops, seeking volume rather than diversity. The means of commercialization accessible to organic farmers, in turn, do not represent a viable alternative, since they only accept producers already certified.

The intention of the working group is to initiate a process of documentation of experiences on direct marketing, in order to bring this information to groups of farmers with difficulties in this process. The idea is to document technical videos, knowledge and forms of organization that facilitate this agro-ecological transition.



A meeting of EMBRAPA Agrobiologia Research Group in progress

EMBRAPA Agrobiologia Produces Inoculant for Enhanced Cowpea Production

Researchers in EMBRAPA Agrobiologia developed a bacterial inoculant which promotes biological fixation of nitrogen resulting in increase in productivity of cowpea by up to 33 percent, which is more than the production achieved using commercial inoculants. The results of the study, conducted over a period of three years, were published on 22nd August 2017. The farmers can make their own nodulated roots. It is a simple technique, with the

use of domestic blender, the liquid is extracted from the nodulated fine roots of cowpea and the extract is applied to seeds before re-planting them. Around 800 grams of seeds can be inoculated using 250 ml extract.

Besides the advantage of not having costs for the producer, as the practice takes advantage of the bacteria that are already well adapted to the conditions of the area of production, the possibility of success is even greater, according to the researchers. The effectiveness of the alternative inoculation is due to the natural process of selection and also the presence of microbial diversity that performs a number of functions beneficial to the plant such as phosphate solubilization and root surface increase.

A Symposium on Environmental Chemistry for Securing Water Quality at BCSIR-Bangladesh

A Symposium on 'Environmental Chemistry for Securing Water Quality' was held at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, on 30th July 2017. About 200 local and foreign experts attended the symposium and presented 89 research articles on water pollution and purification. The experts expressed their concern and findings about water pollution across the world including Bangladesh and safe drinking water for all.



Chairman BCSIR presenting a shield to a Symposium participant

The symposium was inaugurated by Architect Yeafesh Osman, Honorable Minister of Science and Technology, Government of the People's Republic of Bangladesh. The programme was presided over by Mr. Md. Faruque Ahmed, Chairman BCSIR.

A Delegation from ICES-China visits Tajikistan Academy of Sciences

Under the Belt and Road Initiative programme on Climate

Change Research and Observation, supported by Chinese Academy of Sciences (CAS), a delegation from ICCES and other CAS Institutes visited Tajikistan Academy of Science and Meteorological observation stations in Khujand, Tajikistan, from 1st to 9th July 2017.

ICCES scientists visited several research laboratories of the Institute of Geology, seismological construction and seismology, Tajikistan, and the Institute of Water Problems, hydropower engineering and ecology, and had extensive exchanges with scientists from these two institutes afterwards. ICCES delegates expressed hope to conduct collaborative research in the field of glacier melting and its impacts.

The overall objective of this programme is to build a climate change research network and integrate the data sets for climate change research among the Belt and Road neighboring countries, in order to provide technical support to the relevant countries for the implementation of strategic plans to address and adapt to climate change.

CSIR-Ghana Governing Council Inaugurated

The Minister of Environment, Science, Technology and Innovation (MESTI), Ghana, Professor Kwabena Frimpong Boateng, has inaugurated the Governing Council for Scientific and Industrial Research (CSIR), Accra, Ghana, on 18th July 2017. On the occasion, the Minister said that the Government of Ghana is committed to developing scientific research because it is a key driver of developmental agenda.

Prof. Frimpong Boateng expressed that the Government has identified the scientific research sector as an integral part of technologically-driven Ghana beyond aid vision.

He underscored the need for all stakeholders, particularly, the CSIR, to position themselves to help run the country and take its economy beyond dependence on aid. He also announced the setting up of science innovation center at CSIR with super scientific computers installed. The center would be made

accessible to all universities and research institutions.

CIIT-Pakistan Strengthens Linkages with Foreign Institutions

A 4-member Japanese delegation from Information Technology Industry visited CIIT Islamabad campus on 24th July 2017. The visit was made to help expand Information Technology collaboration with CIIT and to engage young talent in the IT industry. The delegation was warmly welcomed by the Head International Office and other officials.

The Japanese delegation expressed interest in hunting young talent outside Japan for software development owing to the acute shortage of qualified Japanese youth in the field because of the negative population growth. Another agenda of their visit was to evaluate the infrastructure, and the governmental support provided to the IT sector in Pakistan. The future of IT Industry in Pakistan also came under discussion.

On 18th July 2017, a 5-member delegation from China Association of Higher Education (CAHE), led by Ms. Xiaomei Wang, Deputy Secretary General CAHE, visited CIIT Islamabad campus with an objective to expand educational collaboration with CIIT. The delegation held a meeting with senior officials of CIIT and was briefed about the administrative structure of CIIT and its ongoing research collaboration with many Chinese universities. A kind invitation to visit China was extended by the delegates to CIIT officials before departure.

From 4th to 10th July 2017, CIIT hosted the Specialist/Coordinator, International Office, Duzce University, Mr. Mehmet Mert Kaleci to further cement the professional association between both the institutions. Duzce University is a public-sector university in Turkey, with which CIIT has a close professional association since 2013, when an MoU was signed for promotion of exchanges and other joint activities. Since then a number of mobilities/exchanges, workshops, study trips, departmental engagements and visits of senior officials have taken place between



Inauguration of CSIR Governing Council

both institutions. Mr. Kaleci held a series of meetings with faculty members who had earlier visited Duzce University. These included officials of International Office, CIIT Business Incubator, and Office of Research, Innovation and Commercialization with the aim of enhancing cooperation with CIIT.

CIIT Holds 7th International Conference on Environmentally Sustainable Development (ESDev)

The International Conference on Environmentally Sustainable Development (ESDev) of CIIT brings together academicians, scientists, engineers, researchers, students, practitioners, developers and other professionals to address and discuss emerging environmental issues, consequences and remedies.

The 7th ESDev 2017 held in Abbottabad, Pakistan, was aimed at promoting research and developmental activities in the field of Environment and Development. The Conference was inaugurated on 26th August 2017. A large number of foreign professors as well as professors from almost all renowned universities of Pakistan participated in the event.

During the two day Conference, a series of papers and talks focusing on areas related to Environment were presented by the speakers and students of different universities. Discussions regarding joint research collaborations and faculty/students exchange were also carried out among the participants.

Rice Research Center inaugurated at ICCBS-Pakistan

The Sino-Pakistan Hybrid Research Center (SPHRR) was inaugurated at the International Centre for Chemical and Biological Sciences (ICCBS). The research center has state-of-the-art research facilities, including NMR Spectroscopes, Plant Tissue Culture Technology, Genomics, and Green Houses, etc.

Speaking on the occasion, the Chinese consul general noted the high quality of Pakistani rice, and that China is a great importer of high quality Pakistani rice. Talking about the hybrid rice center, he said that ICCBS owns highly qualified scholars and state-of-the-art research equipment. He expressed that the opening of the research center was a very significant event, which shows the deep roots of Pak-China bilateral relations.

The setup of Sino-Pakistan Hybrid Rice Research Center has the objective to help conduct research for the development of new high yielding and high quality rice.

The rice research center has two branches, one is in ICCBS and another branch has been setup in China.

ICCBS-Pakistan signs Memorandum of Understanding with Research and Development Institutions

During the reporting period, ICCBS signed an MoU with Beijing Institute of Genomics (BIG) of Chinese Academy of Sciences (CAS), China. Both the institutions aim to join their strengths in the fields of Life Sciences, and wish to strengthen their relationship for the benefit of their students and researchers. The MoU was signed by Director BIG - CAS and Director ICCBS.

ICCBS also signed an MoU with the Hamdard University (HU). According to the agreement, HU offers land to grow mutually agreed medicinal plants leading to drug development. Both the institutions aim to initiate official coordination between the two organizations especially in the field of chemical, toxicological, bioassays and pharmacological studies on *Unani*/Eastern medicine and nutraceuticals.

According to the MoU, both the parties will endeavor to encourage, promote, and facilitate collaboration between both the institutions and interested research groups within the institutional set-up of both the parties.

Exchange of scientists, technicians and students, and organization of joint workshops are part of this agreement.



PROMOTING INNOVATION ECONOMY THROUGH INDUSTRY-ACADEMIA LINKAGES

Fahim Qureshi *

During the span as brief as a human lifetime, we are witness to several paradigm shifts in development of human societies and economies. In the modern era, factor-based economies have given way to industrialization due to advances in management and technology. In 21st century, we are experiencing another shift where economies are being driven by their capacity to create knowledge and innovate on existing knowledge to create wealth, and thus improve livelihoods. Process of creation and innovation also helps to spread wealth, from few fortunate ones to the masses.

It can be safely said that knowledge creation and generation holds the key for a prosperous future for a country. We also see that economic rise of a country, a region, and continents is closely tied to the rise of research done in Universities, the seats for generation of knowledge. In the process of creating knowledge, universities become centers of knowledge creation and take the center stage for creating knowledge-based economies. Depending upon vision and mission of the university, its setting, geographical location, and available pool of researchers, different type of knowledge creation occurs and, therefore, a diverse university setup is required by any given country to continuously innovate.

Universities hold a continuous supply of raw and creative human capital. The challenge for Pakistan has been to convert abundant raw talent into well trained knowledge creators and innovators. The conversion of abundant raw talent in to well-trained innovators has been a challenge for most developing countries. However, based on Global Innovation Index report of World Intellectual Property Organization, the trend among developing countries to increase knowledge based output from its innovators is increasing.

More mechanisms and measures are being put in place by individual governments and policy makers to add value to raw input for the benefit of all in the value-chain, say, from a farmer to the consumer chain.

As can be seen from the Global Innovation Index report, the Middle and Upper Middle-income countries are gradually coming up as top innovators of the world. Countries such as Rwanda which had been in a state of civil war until about a decade ago and have very low export profile, have now come into the top half (ranked 99) as innovative countries. Rwandan innovation has been in the field of horticulture and coffee exports. Innovation in all fields of trade is rising and policy-makers must, therefore, look for innovators and knowledge creators in all fields of trade.

Opportunities for innovation should be supported proactively and with support from relevant government bodies with minimum bureaucratic barriers.

An established University or any research based organization should perform objective-based research and transfer knowledge through hands-on approach of its researchers to next generation of students. In the process, the knowledge creators should emphasize innovation of existing processes such that the learners learn to innovate upon the existing body of knowledge. It is the continuous art of knowledge creation and transfer to next generations that encourages, and at times forces, innovations. The innovations are taken up by private sector for mainstreaming/commercialization spreading their benefits to the masses.

Objective of pushing knowledge creation and innovation across all disciplines is to instill confidence in young generation and, in the process, make the young generation create opportunities rather than seek jobs after graduating from universities. Successful implementation of such a “new” mindset is expected to create multiple benefits at national level. The benefits include creation of an ecosystem that supports innovation based on latest technology, as innovations coming from university are expected to be based on objectivity.

Secondly, with the creation of an eco-system, it is expected that traditional manufacturing and industrial sector will embrace innovations as required by the “new industry” and will upgrade their existing practices thus bringing about a

*** About the Author:** Fahim Qureshi is an active researcher, IP Professional, academician, and a research manager. He received his doctoral training at Washington State University, Pullman, WA and has presented his research at various national and international Chemistry conferences. He is currently looking after the management and development of Intellectual Property from research as General Manager of Research Development within Office of Research, Innovation and Commercialization (ORIC), COMSATS Institute of Information Technology, Pakistan. Dr. Qureshi's IP practice focuses on patent draft review, filing and prosecution, and litigation support. As an academic, Dr. Qureshi has spent the last decade in research of Biochemical Kinetics and Statistical Optimization of Bioprocesses. **Email:** qureshifa@comsats.edu.pk



change within their respective business practices to cater to “newer” industry needs.

Fitting industry requirements to suit new industry was seen in South Korea that shifted itself from primarily an agricultural economy in 1970s to being an innovative and high-technology economy within a short span of approximately 25 years. South Korea is now among the top 20 most innovative economies of the world. In the process, South Korean economy has now completely transformed the livelihoods of its citizens and is considered a role model for developing countries.

Another important aspect for pushing entrepreneurial mindset is to promote university-industry linkages. When the industry is provided with a research-based solution, a researcher benefits by learning about industry’s problems. When solutions are provided by university/research organizations, the industry develops confidence on researchers’ ability to solve the industry problems and thus a two-way information flow takes place. When newer solutions are proposed by university/research organizations and the industry implements the proposed solutions, the flow of information created promotes innovations across industry. This pushes industry to implement knowledge-based innovative solutions that are based on solid research.

COMSATS Institute of Information Technology provides a good case study in this regards, where we have accepted the challenge of steering research in the direction of creating an impact and indigenization of research to address and solve local problems. This degree awarding institution is dedicated to advancement of learning and extending the frontiers of knowledge. Its mission is to support and promote knowledge creation in academically diverse disciplines and to apply this knowledge to benefit the masses.

As part of an institution wide push to encourage entrepreneurial mindset, CIIT is actively pursuing protection of Intellectual Property. Patents, an integral part of any research-intensive organization, play an integral part in generating licensing revenue for the organization thus sustaining financial viability to conduct innovative research. Researchers’ interest in pursuing patents should be encouraged and in order to further innovate, they must be allowed rewards of the research.

CIIT has implemented an Intellectual Property policy that shares the rewards with innovators. Currently, over 40 patent applications are pending at United States Patents and Trademark Office and the Patent Office, Karachi. Office of Research, Innovation and Commercialization facilitates CIIT researchers in filing for patents worldwide and also

provides a turnkey basis solution for patent applications. By providing turnkey facilitation in protecting their research, the faculty researchers are helped to utilize maximum amount of time on their research, thus increasing overall efficiency of the system to promote innovations.

Establishment of Technology Parks is culmination of a setup that starts with innovation. Technology Parks create an industrial environment to support innovation and propagate innovative culture. However, the Technology Parks bear fruit only with support from policy makers who should have a clear vision about future needs and requirements of an innovative economy.

As can be witnessed from Iran’s example, the Government of Iran took a visionary approach towards creating Technology Parks while keeping the ground realities in check in addition to providing an impetus for local availability of talent and meeting the needs of the industry. The Government of Iran supported establishment of Technology parks with liberal policies for innovative industries and supporting small and medium enterprises that support bigger industries in creating an ecosystem that supported innovation.

Technology-transfer opportunities to small and medium industry always exist around major industries and this Technology-transfer pushed the culture of innovation among the new SME in the Technology Park setup in Iran. Central High-end technology support enabled the innovation culture and currently, Isfahan Technology Park is ranked among the top entities of its type among developing countries.

Incubation Centers and Student Startups are proving to be an important means of converting ideas into commercial products/services thus making significant economic and technological contributions to several nations across the globe.

There is a need to harness and utilize the aforementioned ideas and practices for the benefit of developing countries to improve their global competitive and innovation rankings.



SCIENCE, TECHNOLOGY AND DEVELOPMENT

Ghana Launches First Satellite

GhanSat-1, the first satellite of Ghana, was released and deployed in the orbit at an altitude of 420 km (*BBC News*, July 7, 2017). The satellite has been developed by students at All Nations University, Koforidua. The satellite was launched at International Space Station on 10th June 2017 by Space X and was later sent into the orbit on 7th July 2017. The first signal from the satellite was received shortly after its deployment. Japan Aerospace Exploration Agency (JAXA) supported this project which spanned over 2 years.



It is a CubeSat, a type of a miniature satellite, which typically weighs less than three pounds. The satellite will not only be used to monitor Ghana's coastline for mapping illegal mining, water use and deforestation, cellphone and television reception, but also to increase the capacity in the field of space science and technology. After the successful launch of the satellite, the Government of Ghana has committed to supporting Space Systems and Technology Lab. President of Ghana, H.E. Nana Akufo-Addo, personally congratulated the team and has promised to support the next venture of GhanaSat-2.

Desalination of Water through Graphene Membrane

A research has been conducted by Shinshu University (Japan), in which a graphene based coating has been developed to be used as desalinating membranes. This graphene coating is more robust as well as scalable as compared to currently used nano-filtration membrane technologies. The graphene coating developed can not only be used for clean water solutions, but also for protein separation, waste water treatment, pharmaceutical applications, and food industry applications (*ScienceDaily*, August 30, 2017). This hybrid membrane uses a spray on technology for coating a mixture of graphene oxide and multi layered graphene in solution with a backbone support membrane of polysulfone. The supporting membrane increases the robustness of hybrid membrane which makes it stand in intense cross flow, high pressure and chlorine exposure.

The membrane is in early stages of development, where it easily rejects 85% of salt and 96% of dye molecules helping to achieve a level of water purification, which is adequate for agriculture. The idea is to enhance the smart membrane

so that it can combine high flow rates, high efficiency, long life time, self-healing, and elimination of bio and inorganic fouling, in order to provide clean water to the parts of world where drinking water is scarce.

New Adaptation Strategy to Climate Change

A study published in *Nature* suggests that the production of Ethiopian coffee farms has reduced due to climate change. This could be enhanced by up to four folds by moving the Ethiopian coffee fields to higher altitudes to cope up with the climate change (*SciDev.Net*, July 27, 2017). Shifting of coffee fields to higher ground because of climate change could increase the resilience of the farms. Coffee farming in Ethiopia has been confined to altitudes between 1200 and 2,200 metres. The researchers predict that upto 60 percent of the country's current production area could become unsuitable for agriculture before the century ends.

Ethiopia is world's 5th largest coffee producer. Coffee provides about quarter of the export earnings to the country. The critical factors in coffee farming are rainfall and temperature. Coffee can tolerate higher temperature, if the rainfall increases. The best coffee growing regions in the country are going to disappear soon given the present rate of climate change. Hence coffee farming is to be shifted to higher areas coupled with forestation.

Cocoa Compounds for Delaying Onset of Type 2 Diabetes

Brigham Young University, Utah, United States, researchers have discovered that certain compounds, found in cocoa can help the body in releasing insulin and posing a response to blood glucose level. The release of insulin manages glucose in the blood (*ScienceDaily*, August 28, 2017). When a person is suffering from diabetes, enough insulin is not prepared by the body which is due to the unhealthy beta cells of pancreas. The study finds that beta cells work better and remain stronger with an increased presence of epicatechin monomers, compounds found naturally in cocoa. The epicatechin monomers basically protect the beta cells by enhancing their ability to deal with the oxidative stress. The mitochondria of beta cells produce more ATP which results in release of more insulin. This helps to maintain normal blood glucose control and potentially even delay or prevent the onset of type-2 diabetes.



PROFILE OF MEMBER COMSATS' TECHNICAL ADVISORY COMMITTEE

PROF. SAHALU JUNAIDU BALARABE, AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

Prof. Sahalu Junaidu is a Professor of Computer Science and Director, Institute of Computing & ICT (ICICT), at Ahmadu Bello University, Zaria, Nigeria. He also holds the position of Head, Department of Computer Science at Ahmadu Bello University, Zaria, Nigeria.



During his career, he has been a lecturer, researcher and administrator in the university system for over thirty years. In the past, he has also worked at Universiti Telekom Malaysia, King Fahd University of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia, and Ahmadu Bello University, Zaria.

Some positions and roles held by Prof. Junaidu in the past include:

- Head, Computer Science Unit, Department of Mathematics, Ahmadu Bello University, Zaria from 2008 to 2016;
- Director, Iya Abubakar Computer Center, Abu Zaria from 2009 to 2014;
- Chairman, Science Complex G including Faculty of Science, Faculty of Pharmaceutical Sciences, Center for Energy Research and Training, Center for Biotechnology Research and Training, and Iya Abubakar Computer Center from 2009 to 2015;
- Chairman, Ministerial Implementation Committee for the Conversion of Kaduna Polytechnic to City University of Technology from October to November 2010;
- Pioneer Director, Institute of Computing and ICT, Abu Zaria from 2014 to date; and
- Pioneer Head of Department of Computer Science, ABU, Zaria, from 2016 till to date.

At King Fahd University, Prof. Junaidu co-led the design, development and delivery of the first successful online courses in that university, in early 2000s. These multimedia-rich online courses with carefully developed animations and students activity were used as the opportunity for mentoring other lecturers, leading to the proliferation of blended online courses at KFUPM. He has also served in University of Petroleum and Minerals, Saudi Arabia, from 1998 to 2008.

Later he came back to Nigeria and became a visiting Professor in YarAdua University, Katsina, where he is working till date. At Ahmadu Bello University, Prof. Junaidu led and guided a team of over two dozen personnel in

developing over a dozen different software applications for automating various processes in a university setting. These applications (including students and staff portals, examination processing software, payroll, CBT software) have been in use in the University since 2011, saving the University hundreds of millions of naira annually. The applications are also deployed in other institutions, generating revenue for the University.

Prof. Junaidu served as Principal Investigator or Member of a number of funded research projects at KFUPM. In Nigeria, he attracted software development research projects from the National Information Technology Development Agency and the Nigeria Communications Commission. He sourced an intervention, in 2011, from the Universal Service Provision Fund, for refurbishing of the Iya Abubakar Computer Center and supply of four hundred computer systems to the Center. He also sourced another intervention, in 2015, from the Nigeria Communications Commission for building and furnishing a 250-sitting-capacity Computer-Based Testing (CBT) Center for Ahmadu Bello University, Zaria.

Among the distinctions he had won in his student life was award from the ODASSS (Overseas Development Association Shared Scholarship Scheme) for M.Sc. under which he studied in the University of London. He also got a scholarship from the Nigerian Government for Ph.D. study to St. Andrews University, Scotland. He also won an Instructional Technology Award at KFUPM in 2004 and the Vice-Chancellor's Merit Award in 2014 at Ahmadu Bello University, Zaria.

Prof. Junaidu has published over forty articles in refereed journals and conference proceedings. He has supervised the research work of thirty five graduate and post-graduate students.

He is a Life-time Member of the ACM (Association of Computing Machinery), a Member of IEEE, CPN (Computer Professionals Registration Council of Nigeria) and NCS (Nigeria Computer Society).

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COMSATS' BRIEF AND ANNOUNCEMENTS

7th ISESCO-COMSATS-INIT International Workshop on Internet Security: Enhancing Information Exchange Safeguards

COMSATS is organizing the 7th International Workshop on Internet Security: Enhancing Information Exchange Safeguards in collaboration with Islamic Educational, Scientific and Cultural Organization (ISESCO), and Inter Islamic Network on Information Technology (INIT), from 19th to 23rd December 2017. Being organized in Almaty, Kazakhstan, the event's local host is Al-Farabi Kazakh National University (KazNU). Young researchers, practitioners, academicians, executives, system administrators, system programmers, and students working in the field of Internet/information security and cryptography are invited to participate in the workshop. For more information, please visit: www.comsats.org and write to tajammul@comsats.org.

Scholarships offered by COMSATS' Centres of Excellence

Students from COMSATS' Member States are welcome to benefit from the following offers from COMSATS Centres of Excellence:

- Hundred scholarships for students/researchers for postgraduate studies and 10 scholarships for post-doctoral fellowships at all campuses of COMSATS Institute of Information Technology (CIIT), Pakistan.
- Seven Ph.D scholarships [4 fully paid and 3 partially paid (50%)] and five-postdoctoral fellowships at the Iranian Research Organization for Science and Technology (IROST), Iran.
- Ten doctoral scholarships/post-doctoral fellowships at the International Center for Chemical and Biological Science (ICCBS), Pakistan.
- Five post-doctoral fellowships at the National Research Centre (NRC), Egypt, and International Centre for Climate and Environment Sciences (ICCES), China, each.
- One post-doctoral fellowship at Bangladesh Council for Scientific and Industrial Research (BCSIR), Bangladesh.

Contact for more information: Mr. Tajammul Hussain, Advisor-Programmes (tajammul@comsats.org)

Selected Forthcoming Scientific Events in COMSATS' Countries

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| 11-12 October 2017 | 1 st International Congress on Viruses and Vaccines in Tropical Areas, Sere Kunda, The Gambia
(www.comsats.org) |
| 2-4 November 2017 | 3 rd International Conference on Advanced Oxidation Process, Hammamet, Tunisia
(www.certe.rnrt.tn) |
| 15 November 2017 | 2 nd Meeting of COMSATS Technical Advisory Committee, Trieste, Italy
(www.comsats.org) |
| 1 to 3 December 2017 | The International Conference on Microbiology, Virology and Immunology, Sanya, China
(www.engji.org/conference/CMVI/) |

A BRIEF ON COMSATS

The Commission on Science and Technology for Sustainable Development in the South (COMSATS) is an intergovernmental organization, with its Secretariat located in Islamabad, Pakistan.

COMSATS, currently, has 25 developing countries as its members, spread across three continents, i.e., Latin America, Africa and Asia. A network, of 21 International S&T Centres of Excellence, is also affiliated with COMSATS to contribute to scientific development of its Member States. The mission of COMSATS is to help create a world where all nations are at peace with one another and capable of providing good quality of life to their populations in a sustainable way using modern S&T resources. For detailed information, please visit COMSATS' website: www.comsats.org.

COMSATS NETWORK

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