



A Group Photo of the Participants of the 19<sup>th</sup> Coordinating Council Meeting Islamabad, Pakistan (May 17-18, 2016)

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### From the Executive Director's Desk

The meeting of COMSATS Coordinating Council held in Islamabad on 17-18 May 2016, was an occasion of considerable significance (page 09). This get-together of Council Members, which takes place every year in one of the Centres of Excellence spread across four continents, came back to the host country of COMSATS Secretariat after a gap of 12 years. Back then the Network consisted of 14 Centres of Excellences that has since grown to 20 with addition of institutions from Sudan, Pakistan (second centre), Bangladesh, Sri Lanka, Senegal, Tunisia and Kazakhstan. The Council Members from the institutions outside Pakistan obviously visited the hometown of COMSATS Secretariat for the first time, but many other heads of organizations or their representatives were also here for their maiden visits. This is because the Council Membership is extended on ex-officio basis, rather than in personal capacity, which means that the Council gets a new member as and when there is a change of leadership in Network institution. All of them had the pleasure of visiting COMSATS Secretariat, COMSATS Internet Services and, of course, COMSATS Institute of Information Technology (CIIT), where all, except inaugural sessions were held amid the lively academic ambience of a modern university.

Some of the other special features of this year's meeting included the election of a new Chairperson of COMSATS Coordinating Council, approval of the Board of Management of COMSATS' Endowment Fund, and accession of a new Member State, Gambia (page 02). The newly elected Chairperson of the Council, Dr. Ashraf Shaalan, is the President of the largest research centre in COMSATS' Network the National Research Centre (NRC) of Egypt. He is an eminent scientist having long and meritorious services as administrator, researcher and medical practitioner. His predecessor from Colombia, whose services were highly lauded for steering the Council during the last six years, was also a prominent scientist. His active involvement in COMSATS' activities kept Latin American and Caribbean region engaged with COMSATS. His advice and practical support was important in negotiating the deaffiliation of a non-active member organization of the Network, in Bolivia. This action manifested the will of the Commission to remain vigilant about the commitment of Network Members towards South-South cooperation.

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

# Government Officials from Gambia, Sudan and Nigeria Visit COMSATS Secretariat

Senior government officials from Gambia, Sudan and Nigeria visited COMSATS Secretariat during May and June 2016. The Gambian officials visited the Secretariat on the sidelines of COMSATS' 19<sup>th</sup> Coordinating Council Meeting, while the Nigerian and Sudanese delegates availed the opportunity during their visit to Islamabad for participation in 15<sup>th</sup> General Assembly of COMSTECH. The visiting delegates discussed matters of mutual interest and cooperation.

The Executive Director briefed the visiting delegates about the organization and its programmes. The key points he raised during these meeting were:

- COMSATS is a unique organization having the mandate of S&T-led development of the South with 24 Member States, and an affiliated Network of International S&T Centres of Excellence spread across four continents.
- ii. COMSATS' organizational structure enables it to seek and maintain highest political patronage, support of civil administrations, as well as international oversight.
- iii. The affiliated Network provides the organization a strong technical base for its scientific programmes and South-South Cooperation. Supported by Technical Advisory Committee and represented by the Coordinating Council, the Network provides platform for real-time scientific exchange.
- iv. COMSATS' flagship projects including COMSATS Institute of Information Technology (CIIT) and COMSATS Internet Services (CIS) have transformed into full-fledged institutions over the years.
- v. COMSATS encourages its Member States to benefit from the standing offer of 100 postgraduate scholarships, whereby full fee-waiver and subsidized boarding and lodging is provided by the CIIT, and air travel by COMSATS.
- vi. Mechanism of COMSATS' International Thematic Research Groups (ITRGs) engages groups of scientists from COMSATS' Centres of Excellence for thematic research in key areas of development.

Specific accounts of the individual meetings are as follows.

### Visit by the Gambian Minister for Higher Education, Research, Science and Technology

H.E. Prof. Dr. Aboubacar Senghore, the Minister for Higher Education, Research, Science and Technology, Islamic Republic of the Gambia, visited COMSATS Secretariat, on 19<sup>th</sup> May 2016. The purpose of his visit was to hold consultations with the Executive Director, Dr. I.E. Qureshi, on matters related to Gambia's recent accession to COMSATS, making it the organization's 24<sup>th</sup> Member State. The Minister was accompanied by his Ministry's Director, Directorate of Science, Technology and Innovation (DST&I), Mr. Mucktarr M. Y. Darboe. Mr. Tajammul Hussain, Advisor (Programmes), COMSATS, and two other senior officials of COMSATS also attended the meeting.

After a briefing on COMSATS and its programmes by Dr. Qureshi, the Minister expressed delight on Gambia joining COMSATS as a Member State and considered it an important platform offering avenues of South-South S&T cooperation. Shedding light on how the Gambia can benefit from the membership of COMSATS, Dr. Qureshi elucidated on the composition, roles and functions of various statutory bodies of the organization. He informed that a relevant government department/ministry with S&T portfolio serves as COMSATS' focal point in the country. The functional heads of these focal points are the members of COMSATS Consultative Committee that secures the interests of these countries in COMSATS' operations.

Referring to the useful discussion he had with the Chairman Higher Education Commission (HEC) of Pakistan prior to the meeting, the Minister expressed interest in the scholarship offers available from COMSATS' platform, in particular the postgraduate scholarships offered by COMSATS Institute of Information Technology (CIIT).

Prof. Senghore sought COMSATS' support in developing strong international ties with its other Member States and partner organizations, like ISESCO and OIC, as well as in identifying resources and opportunities for cooperation in various fields of S&T. Dr. Qureshi assured the Minister of COMSATS all-out support to the Gambia as a Member State. Some areas mentioned in this regard included consultancy for its science, technology and innovation policy by COMSATS Panel of Experts on ST&I Policies.

The Minister was informed that Member States are obliged to make voluntary contributions towards COMSATS. These contributions are considered a trust fund, which is utilized for



Executive Director COMSATS briefing Gambian Minister, H.E. Prof. Dr. Aboubacar Senghore, about COMSATS' Activities

the benefit of the contributing country. He was informed that COMSATS adopts a number of innovative approaches to optimally benefit its Member States despite financial limitations, one of which is the resource-sharing with organizations having similar programmes/mandates, such as UNESCO, and ISESCO.

In view of the Gambia's need to develop scientific infrastructure and facilities with support from relevant institutions, the Minister was introduced to Pakistan Council of Scientific and Industrial Research (PCSIR) as an institution of the Government of Pakistan that can facilitate the Gambia with regard to scientific instrumentation. Dr. Qureshi offered COMSATS' intermediary role to liaise and coordinate the matter with PCSIR on behalf of the Government of the Gambia.

The meeting concluded on a note for greater cooperation and support for the Gambia. A major outcome of the meeting was the nomination of Ministry of Higher Education, Research, Science and Technology as COMSATS' focal ministry in the Gambia, and Director DST&I as the liaison officer for all the affairs related to COMSATS. While nomination of relevant Gambian institution to join

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

Whereas, COMSATS has always been assiduously sticking to its core mission of building S&T capacities in Member States and providing opportunities for bilateral and multi-lateral cooperation in this respect, a major handicap it faced all along was the lack of sufficient financial resources. Being an organization with no political umbrella and binding financial commitments, its operational expenditure is expected to be met through voluntary Annual Membership Contributions (AMC). It so happens that most of the Members do not pay monetarily, although their tributes to COMSATS in the form of letters of appreciation, acknowledging the positive impact of specific capacity-building activities in their respective countries, have been considerably motivational. The management of finances has been possible over the years through a combination of mechanisms, including: generosity of host country of COMSATS Secretariat, Pakistan, in meeting all establishment expenses of its Secretariat in Islamabad; payment of regular AMC by some countries, notably China; and, most importantly, through innovative ways in which maximum benefits are derived with limited financial inputs, relying on the abilities and hard work of less than a dozen team members of the Secretariat, and by joining hands with other international organizations, especially ISESCO. Thus, COMSATS has always managed to provide support to its Member States, which is disproportionately strong as compared to resources at its disposal. Nevertheless, the need for a baseline permanent source of income was felt strongly, which could be met by raising a reasonably handsome endowment fund. This proposal was floated in 2012 through an announcement of the then Chairperson COMSATS, the Prime

COMSATS Network of International S&T Centres of Excellence was urged by Dr. Qureshi in order for the Gambia to benefit from scientific interactivity taking place annually through COMSATS Coordinating Council.

### Visit by the Nigerian Minister for Science and Technology

The Honourable Minister for Science and Technology, Government of Nigeria, H.E. Dr. Ogbonnaya Onu, paid a visit to COMSATS Secretariat, Islamabad, on 2<sup>nd</sup> June 2016. His Excellency was accompanied by five Nigerian officials. Dr. Dan Azumi M. Ibrahim, Director General, National Office for Technology Acquisition and Promotion (NOTAP) was part of the Nigerian delegation.

The Nigerian delegation received a briefing on COMSATS by Dr. Qureshi, with special reference to Nigeria. Considering it a personal privilege to meet the Minister, Dr. Qureshi expressed satisfaction over Nigeria's active participation in COMSATS' programmes. The Minister reciprocated the warm welcome and expressed satisfaction about Nigeria's engagement with COMSATS. He showed keen interest in expanding cooperation with COMSATS.

Minister of Pakistan, Syed Yousaf Raza Gillani. It was a long haul to reach a point where seed monies were arranged and the bank accounts of the Endowment Fund were opened. The Rules and Regulations of the Fund were approved in the third General Meeting of the Commission held last year in Accra, Ghana. The Council, which itself is the Board of Governors of the Fund, was quick to nominate members of the Management Committee responsible for operating the Fund. Within a day of its constitution, the Management Committee met in Islamabad, and chalked out a plan of building the Fund up to a minimum of US\$ 20 M, apart from making broad outlines of the investment strategies.

The incremental consolidation of COMSATS' technical programmes, publications portfolio, functions of statutory bodies, and financial support system is being augmented with a steady increase in its State Membership. COMSATS was honoured to welcome the Minister for Higher Education, Research, Science and Technology, Islamic Republic of the Gambia, who signed the accession agreement on behalf of its Government to join COMSATS as a Member State, during a ceremony witnessed by a wide spectrum of audience, gathered in a local hotel to participate in the inaugural session of the Council meeting. All in all, the hopes are high and the resolve is firm on the part of all stakeholders of COMSATS to make it a sustainable and effective platform for achieving the laudable objectives enshrined in its Statutes. Needless to say that, in the long run, the extent to which success is achieved will depend on the political will of Member States.

Comments or advice given by the readers of this Newsletter on any matter related to COMSATS is most welcome.



Nigerian Minister for Science and Technology and Executive Director COMSATS with other Nigerian and COMSATS' officials

Elucidating the execution of some of COMSATS' projects and programmes, Dr. Qureshi categorized them in the following major categories: S&T Capacity-Building; South-South Cooperation; Postgraduate Scholarships; Consultancy on S&T Policy; Science Diplomacy; Scientific Publications; International Thematic Research Groups (ITRGs); and sponsorship of scientific activities.

Dr. Qureshi apprised the Minister that one of the ITRGs (Mathematical Modeling) is being led by COMSATS' Centre of Excellence in Nigeria, the National Mathematical Centre (NMC), Abuja. The group's joint research project, entitled 'Mathematical Modeling and Simulation of Air and Water Pollution: Effects and Remedies', also has the patronage of ISESCO. He stated that COMSATS' capacity-building events have a great impact on the development of its Member States in terms of practical usefulness. In this regard, he quoted the example of the workshop on 'Repair and Maintenance of Scientific Equipment', held on 23-27 May 2016, in Enugu, Nigeria. Dr. Qureshi presented the honourable Minister with a dossier on COMSATS' activities and engagements with Nigeria, as well as a list of equipment repaired in the Enugu workshop.

The Minister was pleased to learn about COMSATS' role in the scientific capacity-building of Nigerian scientists and institutions. His Excellency appreciated the working relations between COMSATS and NMC and hoped for further strengthening the existing relations with COMSATS. Indicating his willingness to expand scientific cooperation with other countries and institutions, the Minister shared the discussions he held with his Pakistani counterpart during his visit to Islamabad. The Executive Director informed that Pakistan's Ministry of Science and Technology (MoST) is COMSATS' focal ministry in the host country of its Secretariat, therefore, COMSATS maintains close working relations with the MoST, which has 17 scientific institutions under its umbrella. He noted that the expertise available in these institutions can be availed to benefit COMSATS' Member States. He further noted that for the series of workshops on Repair and Maintenance of Scientific Equipment, experts are mobilized from the Pakistan Council of Scientific and Industrial Research (PCSIR), which is an attached organization of MoST.

It was noted that under COMSATS Scholarship Programme, 18 Nigerian students graduated from COMSATS Institute of Information Technology (CIIT), which has a dual status of a public-sector university and an attached institution of MoST.

The meeting concluded with a pledge of stronger cooperation for future activities and presentation of COMSATS' publications to the honourable Minister, who reciprocated with presentation of his book entitled, "From Opposition to Governing Party: Nigeria's APC Merger Story", for COMSATS' Library.

### Visit by the Sudanese Undersecretary, Ministry of Higher Education and Scientific Research

Prof. Azhari Omer Abdelbagi, Undersecretary, Ministry of Higher Education and Scientific Research (MoHESR), Government of Sudan, visited COMSATS Secretariat on June 2, 2016, for a meeting with COMSATS' officials. Prof. Abdelbagi was accompanied by Prof. Ahmed Hassan Fahal, Director of Scientific Research, MOHESR; and Dr. Rashid A. Saeed, Associate Professor, Sudan University of Science and Technology.

The meeting was also attended by the following representatives of the Sudanese Embassy in Islamabad: Mr. Ahmed Abdel Rehman Muhammad, Charge d'Affaires and Ms. Ebtihal Mohamed, First Secretary. Also present on the occasion were senior COMSATS' officials, Mr. Tajammul Hussain, Advisor (Programmes); Mr. Sabih ur Rahman, Advisor (HCA); Mr. Irfan Hayee, Deputy Director (Programmes); and Mr. Nisar Ahmad, Deputy Director (Systems).

Speaking to the esteemed guests, Dr. Qureshi stated that COMSATS highly values its close ties with Sudan, which joined COMSATS in 1999 and noted the country's active participation in the programmes and activities of the organization. Dr. Qureshi elaborated the role of COMSATS as an organization working for the betterment of developing countries. He recalled his visit to Sudan in 2012 and holding meetings with the high officials of the Ministry of Science and Communication to strengthen S&T cooperation between COMSATS' Centre of Excellence in Sudan and other Centres of its Network.

Prof. Azhari informed that the portfolio of science and technology has been assigned to his Ministry due to recent changes in the Government. He further shed light on the existing hierarchy and government structure for managing S&T in the country. In this regard, it was agreed that necessary steps would be taken to designate MoHESR as



Meeting between Undersecretary, Ministry of Higher Education and Scientific Research (MOHESR) and Executive Director COMSATS

COMSATS' focal ministry in Sudan.

In the light of a presentation on COMSATS and its programmes, the visiting Sudanese delegation was apprised about the organization's engagements with Sudan. Dr. Qureshi noted that the Industrial Research and Consultancy Centre (IRCC), Khartoum, as a member of COMSATS' Network has been benefiting from the scientific programmes of COMSATS. It was also noted that IRCC is member of three of the active ITRGs conducting research in the areas of ICTs, natural products sciences, and agriculture, food security and biotechnology. He made a mention of the active participation of IRCC's Director General, Dr. Widad Hassan, in the last Council meeting held in May 2016, in Islamabad. Mr. Hussain added that the Director General IRCC during her visit to Islamabad held a meeting with the Chairman of the Pakistan Council of Industrial and Scientific Research (PCSIR). With COMSATS' facilitation, the two organizations inked an agreement in the area of industrial development.

Mr. Hussain informed the delegates that two Sudanese students graduated from COMSATS Institute of Information Technology (CIIT) under its Postgraduate Scholarship Programme, while another is pursuing his studies. Dr. Qureshi encouraged MoHESR to consider nominating more students from Sudan to avail scholarships offered through COMSATS' platform. He presented the Undersecretary with a set of COMSATS' publications and a copy of the prospectus of CIIT.

Dr. Qureshi informed that a number of capacity-building events were organized in Sudan in the recent years, especially two events on the theme of repair and maintenance of scientific equipment. He informed the delegates of the planned international conference in Khartoum this year in October with cooperation of ISESCO, on the theme of Agriculture, Food Security and Biotechnology. Dr. Qureshi sought nomination of a relevant institution to be the local host of the event in Sudan. In this regard, the Undersecretary pledged that his Ministry will take up the matter of supporting the upcoming conference in Sudan as well as of the nomination of a suitable Centre affiliated with his Ministry to join COMSATS' Network. Moreover, Mr. Tajammul Hussain and Prof. Ahmad H. Fahal were appointed liaison officers of COMSATS and MoHESR, respectively, to coordinate organizational matters of the conference.

# Capacity-Building Events in Jordan and Nigeria

As part of its capacity-building programme, COMSATS organizes a number of events in the Member States. During the reporting period, two such events were organized in Jordan and Nigeria, on the themes relating to ICTs and maintenance of scientific equipment, respectively. Brief accounts of these events are as follows.

### The 3<sup>rd</sup> International Workshop on Applications of ICTs, Amman, Jordan

The 3<sup>rd</sup> International Workshop on 'Applications of ICTs in Education, Healthcare and Agriculture' was held in Amman, Jordan, from 31<sup>st</sup> May to 1<sup>st</sup> June 2016 at the Royal Scientific Society (RSS), Amman, which is the largest applied research institution of the country and COMSATS' Centre of Excellence in Jordan. The third of its kind, the workshop was jointly organized by COMSATS; Islamic Educational, Scientific and Cultural Organization (ISESCO), the Inter-Islamic Network on Information Technology (INIT), and the United Nations Economic and Social Commission for Western Asia (UNESCWA).

The workshop aimed at strengthening the capacity of software and application developers, researchers and students involved in designing practical applications addressing development problems in the areas of education, health and agriculture from the common Member



Group photo of the Participants of  $3^{d}$  International Workshop on Applications of ICTs in Education, Healthcare and Agriculture, Jordan

States of the partner organizations. The objective was to understand as well as to possibly help develop ICT applications and policies conducive for improving governance structures in thematic areas of the workshop.

Mr. Daher Thabet, Director ICTs, RSS, presided over the inaugural session of the event held on May 31, 2016. Other distinguished participants of the session included Dr. Bilal Zaka, Director, CIIT-Virtual Campus and Representative INIT, Mr. Abdul Majid Qureshi, Research Scholar, COMSATS Secretariat, Dr. Ismail AbdelHamid, Programme Specialist, ISESCO and Engr. Nael Elmulki, Jordan National Officer, UNESCWA. Around 60 subject specialists and experts from Morocco, Pakistan, Tanzania, Egypt, Jordan and Palestine also participated in the inaugural function.

The technical proceedings of the workshop spread over six sessions comprising of 22 talks, case studies, and keynote lectures. These covered innovative applications being developed by students, researchers and government institutions for improving governance related problems in the areas of Health, Education and Agriculture. First two sessions of the first day focused on the theme of ICT applications in Education, and the third session focused on ICT applications in Agriculture. Three more sessions on second day covered talks under the theme of ICT applications in Healthcare. Several case studies of softwares developed and deployed in educational institutions and healthcare settings were shared, while some speakers presented applications with profitable and social models of marketing.

The discussions held during the event called for a favorable regulatory environment and patronage of public institutions for suitable adoption of many existing applications and continuous development of these applications. A need for greater awareness regarding the merits of certain ICT applications, particularly in the healthcare sector, as well as for addressing awareness of intellectual property (IP) issues

Institutions and Organizations Represented at the Jordan Workshop

- Al-Quds University, Palestine;
- COMSATS Institute of Information Technology (CIIT), Pakistan;
- Mohammadia School of Engineering (EMI), Morocco;
- Pay Attention Programme, Jordan;
- Alhodhud, Jordan;
- Princess Sumaya University of Technology, Jordan;
- Chinese Academy of Agricultural Sciences, China;
- Tanzania Industrial Research and Development Organization (TIRDO), Tanzania;
- Agricultural Research Centre, Egypt;
- Yarmouk University, Jordan;
- Electronic Health Solutions, Jordan;
- Seneca Associates Ltd; and
- NatHealth, Jordan.

among software developers were also taken up.

Mr. Thabet also presided over the closing ceremony of the workshop held on June 1, 2016. In his closing remarks, he opined that the developing countries need to strengthen their capacities to indigenously develop software applications to address local problems. Dr. Ismail AbdelHamid, in his vote of thanks, appreciated the strenuous efforts of the partner organizations for making the event successful and lauded the hospitality of the host institution.

The 3<sup>rd</sup> International Workshop on Applications of ICTs in Education, Healthcare and Agriculture 31<sup>st</sup> May - 1<sup>st</sup> June 2016, Amman, Jordan

"Thank you for a well-organized event and really the right people were chosen to talk about important topics in the field." *Mr. Marzouq Al-Zyoud, Member of Education Sector, Jordan National Commission for UNESCO, Jordan* 

"Many thanks to the organizers for their efforts and time for the successful organization of this great event and for selecting experienced presenters for this workshop."

Prof. Dr. Ahmad Al-Jaani, Professor, Yarmouk University, Jordan

"The workshop was important for exchanging experiences and to build networks. Thank you for your efforts."

Dr. Rashid Jayous, Dean of Digital Education, Al-Quds University, Palestine

"This workshop was of high quality and truly useful." *Mr. Emad Nassar, Network Administrator, Ministry of Agriculture, Jordan* 

"No one can deny the role of RSS in developing technological application, and this workshop comes today to encourage use of developed applications in health and education sectors. What we saw in the workshop is very good and of superior quality."

Mr. Abdur Raof Al Sharaiah, JFDA, Jordan

"I've gained from new experiences and valuable scientific knowledge exchange."

Mr. Muayyad Ghoul, Research Coordinator, Al-Quds Nutrition and Health Research Institute, Palestine

"Very good organization, excellent topics and speakers, and good hospitality."

Engr. Yahya Al-Satari, Researcher, NCARE, Jordan

"It was a very good workshop that provided partners a chance to share projects, applications and experiences."

Mr. Haitham Saleh, Sr. IT Specialist, RSS, Jordan

"The workshop was a great opportunity for exchanging experiences with experts both locally and globally." *Mrs. Nour AI Jaouni, Instructional Designer, Minds Lab* for Consulting and Training, Jordan Certificates were awarded to the participants during the closing ceremony. The participants expressed gratitude towards COMSATS, ISESCO and INIT for providing a platform to researchers for presenting their work.

### The 9<sup>th</sup> National Workshop on Repair and Maintenance of Scientific Equipment, Enugu, Nigeria

The 9<sup>th</sup> national workshop on 'Repair and Maintenance of Scientific Engineering Equipment in Universities, Research Institutions and Small Scale Industries' was organized on May 22-27, 2016, in Enugu, Nigeria. Held under the COMSATS-ISESCO Biennial Cooperation Programme 2016-17, the 5-day workshop was jointly organized by COMSATS, ISESCO; and the Federal Ministry of Science and Technology (FMST), Nigeria. The workshop was hosted by the Projects Development Institute (PRODA), Enugu, Nigeria.

The technical proceedings of the event, spread over 10 technical sessions, comprised of lectures on repair and maintenance and hands-on training for a number of scientific equipment used in laboratories. The resource persons from the Pakistan Council of Scientific and Industrial Research (PCSIR), Pakistan, Mr. Arif Karim and Mr. Faisal Ghazanfar imparted training to over 40 researchers, academics, technicians, and engineers from different organizations of Nigeria. During the course of the event, the participants also visited different labs of PRODA and National Orthopedic Hospital, Enugu, for consolidation of the knowledge acquired during the training sessions.

Using the knowledge and techniques learnt during the workshop, participants and experts of the workshop successfully repaired/made operative a number of expensive and important equipment. The approximate worth of instruments repaired/made operational during the workshop was more than US\$ 90,000. The repaired instruments were not only from the labs of PRODA but also



Participants of the Nigeria Repair and Maintenance Workshop receiving hands-on training in a laboratory of PRODA

Some of the Equipment Repaired during the Workshop		
Bomb Calorimeter	Electric Transversal	
	Machine	
Adept HPLC	Electric Vacuum	
X-ray Machine	Drying Oven	
Flue Gas Analyzer	Melting Point Apparatus	
Ultrasound Machine	Analytical Balance	
Melting Point Apparatus	Mixer and Shaker	
ViscoBath	Oscilloscope	
UV/Visible Scanning Spectrophotometer and a few other		
Spectrophotometers		

from other organizations, including UNIZIK University and National Orthopedic Hospital.

The closing ceremony of the event was held on May 27, 2016, with Mr. Abayoni Oguntunde, Director, FMST, Nigeria, as the Chief Guest. Mr. Oguntunde thanked both COMSATS and ISESCO and appreciated the experts for their hard work.

Mr. Nisar Ahmad, Deputy Director (Systems) COMSATS, presented the technical report of the workshop. Engr. Dr. Charles Agulanna, Director General, PRODA, gave vote of thanks acknowledging the support of COMSATS and ISESCO.

The Chief Guest awarded certificates to the participants who are expected to conduct similar trainings at their home institutions as master trainers.

"Being a participant, I say more power to your elbow as you continue this means of imparting expertise, skills and knowledge to others...My department also expresses her gratitude for the repair works done on some of our science equipment that were not working."

Dr. Nkechi H. Okoye, Department of Pure & Industrial Chemistry, Nnamdi Azikiwe University, Awka, Nigeria

"There is now hope for our laboratories and workshop to come alive again as the trained participants go back to their respective organizations to put to practice what they had learnt from the training workshop.... It is hoped that with COMSATS' cooperation more training workshops would be organized in Nigeria."

> Engr. Dr. C. N. Agulanna, Director-General/CEO (Coordinator), Projects Development Institute (PRODA), Nigeria

### Fourth Talk under COMSATS' Science Diplomacy Programme Held in Islamabad

The fourth lecture under COMSATS' Science Diplomacy Programme was held in Islamabad, on 26<sup>th</sup> May 2016. Dr. Seeme Mallick, from the Centre for Climate Research and Development, COMSATS Institute of Information Technology (CIIT), delivered the talk entitled 'Scientific Perspective on Sustainable Development Goals for Pakistan' which revolved around UN 2030 Agenda for Sustainable Development, adopted in 2015. The talk was hosted by the CIIT's Faculty Development Academy in which students, academics, researchers, doctorate scholars, as well as COMSATS' designated Science Ambassadors and other officials participated. Prior to the lecture, the Coordinator of the Science Diplomacy Programme, Dr. Arshad Saleem Bhatti, gave a brief introduction of the Programme.

In her lecture, Dr. Mallick emphasized adopting clean energy mechanisms to address several development issues facing Pakistan and other COMSATS' Member States. She was of the view that there was need to focus on the provision of clean energy and better pricing mechanism for rapid development. She opined that COMSATS' Member States need science and technology-based solutions and approaches for achieving Sustainable Development Goals (SDGs), and that these nations should engage their R&D organizations in the process for formulation of national development plans.

Dr. Mallick asserted that each of the SDGs has its own significance for Pakistan. These goals mainly include: No Poverty; Zero Hunger; Good Health; Quality Education; Gender Equality; Clean Water and Sanitation; and Reduced Inequality. For Pakistan to achieve the said goals, she proposed achieving sector-specific investment, macroeconomic stability, improved transport infrastructure, greener practices and processes in industry and agriculture,



Participants of the 3<sup>rd</sup> Lecture under COMSATS' Science Diplomacy Programme

and channeling scientific research at higher education centres towards SDGs implementation.

Dr. Mallick considered COMSATS as an important forum to design a plan for S&T based approach for achieving of SDGs in its Member States.

During an interactive session, the participants shared their thoughts on efficient use of renewable energy; need for action plan at national and regional levels for achieving the SDGs; involvement of science-based institutions for achievement of SDGs; prioritization of SDGs based on indigenous needs and resources; need for development of common fund for helping the resource-challenged countries in achieving the SDGs; effect of China-Pakistan Economic Corridor (CPEC) on energy situation and development; need to raise awareness on relevant issues; and on the use of 'reverse metering' to help optimize the energy available within the power systems without damaging the grid.

Advisor (Programmes) COMSATS, Mr. Tajammul Hussain, concluded the event by sharing his views on the implementation aspects of the SDGs. He advocated the need for having a focused plan and effective implementation for achieving the goals.

# A Group of Nigerian Students Call on the Executive Director COMSATS

On June 20, 2016, a group of four Nigerian students called on the Executive Director, Dr. Imtinan Elahi Qureshi, at the COMSATS Secretariat in Islamabad. These students were beneficiaries of COMSATS' Scholarship Programme who completed their postgraduate degrees in Mathematics and Information Security from COMSATS Institute of Information Technology (CIIT). The students visited the Secretariat before returning to their home country in order to express their appreciation and gratitude to COMSATS and its leadership, especially Dr. Qureshi for his personal attention and care.

The students thanked COMSATS for providing them an opportunity to earn Masters' degrees in very important fields of studies related to Nigeria's development. The selection and placement process of the students was facilitated by Nigeria's National Mathematical Centre (NMC), which is one of COMSATS' Centres of Excellence.

Congratulating the students on successful completion of their academic programmes, Dr. Qureshi hoped they would be able to make valuable contributions towards the development of Nigeria. He expressed gratitude to the Director/Chief Executive Officer NMC, Prof A. R. T. Solarin, for his remarkable contributions towards COMSATS' programmes and for facilitating the selection of the grantees of COMSATS' Scholarship.

# SPECIAL SECTION: THE 19<sup>th</sup> MEETING OF COMSATS COORDINATING COUNCIL, 17-18 MAY 2016, ISLAMABAD, PAKISTAN

The 19<sup>th</sup> Meeting of COMSATS Coordinating Council was held on May 17-18, 2016, in the scenic capital of the host country of COMSATS Secretariat, Islamabad, Pakistan. The meeting was hosted by COMSATS Institute of Information Technology (CIIT).

The Coordinating Council is an important organ of COMSATS' Network of International S&T Centres of Excellence, which comprises the Heads of these Centres. It is a vibrant platform for real-time South-South cooperation at the level of scientists and technologists in areas relevant to the needs of developing countries. The Council meets every year at one of the Centres to review and discuss COMSATS' international programmes for achieving sustainable socio-economic development in the Member States. The Network comprises 20 Centres that are located in Bangladesh, Brazil, China, Colombia, Egypt, Ghana, Iran, Jamaica, Jordan, Kazakhstan, Nigeria, Pakistan, Senegal, Sri Lanka, Sudan, Syria, Tanzania, Tunisia, and Turkey.

The two-day meeting comprised three technical sessions, in addition to inauguration and closing sessions. The representatives of the following 14 Centres participated in the meeting: ICCES-China, NRC-Egypt, CSIR-Ghana, RSS-Jordan, KazNU-Kazakhstan, NMC-Nigeria, CIIT-Pakistan, ICCBS-Pakistan, ITI-Sri Lanka, IRCC-Sudan, UCAD-Senegal, HIAST-Syria, TIRDO-Tanzania and CERTE-Tunisia. The officials of partner international organizations, UNESCO, ECO Science Foundation and SESRIC also attended the meeting as observers. Among the major outcomes of the meeting were:

- Selection of a new Chairperson;
- Approval of Board of Management of COMSATS' Endowment Fund;
- Offers of technical cooperation and scholarships among Network members in a number of fields;
- Renewed commitment of the Council Members towards COMSATS' programmes and assurance of enhanced



participation;

• Approval of financial matters and administrative actions.

A brief account of the Meeting is as below:

#### Inauguration

The meeting was inaugurated on May 17, 2016, in a graceful ceremony presided over by Mr. Fazal Abbas Maken, Federal Secretary, Ministry of Science and Technology, Government of Pakistan, which is the Focal Ministry of COMSATS in the host country of its Secretariat. Mr. Maken is the ex-officio Chairperson of COMSATS Consultative Committee. Over 150 participants attended the inaugural ceremony, including the Council members, representatives from government ministries and departments, S&T organizations, R&D institutions, and diplomatic missions of COMSATS' Member States in Islamabad.

During his inaugural address, Mr. Maken expressed confidence in the international operations of COMSATS and lauded its services in the domain of science and technology to Pakistan and other Member States.

"...the Government of Pakistan considers it an obligation to fellow developing countries to support COMSATS and will continue to bear the lion's share of its expenditures. It is a very useful platform, rendering its services most efficiently with minimum possible costs, resulting in tangible benefits to Member Countries. I appreciate the fact that the team at COMSATS Secretariat is small but efficient, sticking to their tasks with dedication and upholding high standards in all their activities. I am sure the COMSATS' community all over the world recognizes the worth of this unique organization and would use its various platforms for facilitating South-South Cooperation in the best interest of all Member States."

Mr. Fazal Abbas Maken, Federal Secretary, Ministry of Science and Technology, Government of Pakistan



Participants of the Inaugural Session

Speaking at the occasion, Dr. I. E. Qureshi, Executive Director COMSATS, highlighted the pivotal position the Council holds in coordinating international programmes with the help of other statutory bodies of the organization. In the light of COMSATS' achievements in the recent years and its various ongoing programmes, he expressed confidence in COMSATS' increasing role in S&T-led development of the Member States.

"...There are over 15,000 working scientists in COMSATS' Network. This is a big pool of human resource that is available to COMSATS for its international activities, which are geared towards two objectives: firstly, to enhance the research capacity of individual scientists; and second, to provide them opportunities of cooperation with other R&D organizations in developing countries. These activities are built around COMSATS' core mission of providing assistance for socio-economic development to the countries of the global South."

Dr. I. E. Qureshi, Executive Director COMSATS

A message of the outgoing Chairperson Coordinating Council, Dr. Eduardo Posada, was read-out on the occasion, Mr. Tajammul Hussain, Advisor (Programmes), COMSATS Headquarters. He noted that the dependence on developed countries for aid and intellectual support helps but is not sustainable and comes at a cost of national integrity and security.

"Thanks to its [COMSATS'] international composition and to the quality of member centres, COMSATS can be a great instrument for bringing change in the developing world. We must direct all our efforts to strengthen this institution and improve its visibility and influence the decision-makers in our countries."

> Dr. Eduardo Posada, Chairperson Coordinating Council

As the host of the meeting, Dr. S. M. Junaid Zaidi, Rector CIIT, welcomed the Council members and hoped that the meeting would serve as a catalyst for strengthening the South-South cooperation on exchange and creation of new knowledge.

COMSATS Institute has now firmly reached the threshold of breaking into a new era of growth and success with a vision to be among the best seats of higher learning within the COMSATS Network in particular and the world in general.

Dr. S. M. Junaid Zaidi, Rector COMSATS Institute of Information Technology (CIIT)

A major highlight of the inauguration was the signing ceremony of COMSATS' accession agreement by H.E. Prof. Dr. Aboubacar Senghore, Minister for Higher Education, Research, Science and Technology, Islamic Republic of the Gambia, and Dr. I. E. Qureshi, Executive Director COMSATS. By virtue of signing this agreement, the Gambia has become the 24<sup>th</sup> Member State of COMSATS.

While addressing the gathering, the honourable Minister noted that Government of Islamic Republic of the Gambia is making all out efforts in building relevant infrastructure in the country for the promotion of science and technology. He informed the audience that his government has taken several initiatives for national S&T policy and has established a polytechnic institution. He sought COMSATS' support in the area of higher education, in response to which the Rector CIIT pledged his institution's support by offering scholarships to the Gambian students, as well as expertise for developing Gambian human resources and academic institutions.

The speeches made in the inaugural session are available on COMSATS' website.

#### **Technical Proceedings**

The meeting deliberated upon an 11-point agenda, mainly focused at COMSATS' international engagements, activities of COMSATS' Centres of Excellence, existing programmes and new initiatives, as well as financial and administrative matters of the organization. Dr. G. A. S. Premakumara, Director General ITI, Sri Lanka, steered the first three agenda-items of the meeting, in place of Prof. Eduardo Posada F., who was unable to participate in the meeting. The remaining agenda-items of the two-day event were presided over by the newly elected Chairperson of the Council, President of National Research Centre (NRC), Egypt, Prof. Dr. Ashraf Shaalan.





A Technical Session of the Meeting being Chaired by Prof. Shaalan

As a regular feature of the Council meetings, the Executive Director COMSATS presented the organization's annual activity report for the period from May 2015 to April 2016. In view of the contents of the presentation, the Council admired the consistent efforts being made by COMSATS Secretariat for extending COMSATS' membership to other developing countries, and welcomed the accession of the Kingdom of Morocco, the State of Palestine, and the Islamic Republic of the Gambia to COMSATS as Member States. The Council was pleased to note the following achievements of COMSATS during the reporting period:

- approval of the COMSATS Statutes by the Commission during its third General Meeting;
- approval of the Rules and Regulations of COMSATS Endowment Fund by the 3<sup>rd</sup> General Meeting of COMSATS;
- continuation of the current 5-year strategy of COMSATS for the next five years (2016-2020), as advised by the 3<sup>rd</sup> General Meeting of COMSATS;
- launching of the fifth International Thematic Research Group (ITRG) on Agriculture, Food Security and Biotechnology;
- successful holding of 14 capacity-building events organized in collaboration with other international organizations, with the participation of scientists, engineers and technicians belonging to Centres of Excellence and Member States;
- continuation of COMSATS' Distinguished Professorship Scheme, COMSATS' Science, Technology and Innovation Policy Panel, and COMSATS' Science

#### Participants of the 19th Coordinating Council Meeting

- Mr. Zhang Haihua, First Secretary, S&T Section, Chinese Embassy in Islamabad, Pakistan
- Prof. Dr. Ashraf Shaalan, President NRC, Egypt
- Prof. Hosam El-Sayed, Assistant Vice President for Research, Head of Proteinic and Man-Made Fibres Department, NRC, Egypt
- Prof. Dr. Victor Agyeman, Director-General CSIR, Ghana
  Engr. Abeer Arafat, Manager, Communication and
- Engl. Abeer Ararat, Manager, Communication and External Affairs, RSS, Jordan
   Prof Tlekkabul Ramazanov, Vice-Rector for Research and
- Prof. Tlekkabul Ramazanov, Vice-Rector for Research and Innovative Affairs, KazNU, Kazakhstan
- Prof. Benjamin O. Oyelami, Professor NMC, Nigeria
- Dr. Farzana Shaheen, Professor ICCBS, Pakistan
- Dr. G.A.S. Premakumara, Director-General ITI, Sri Lanka.
- Dr. W. H. A. Halim Hassan, Director-General IRCC, Sudan
- Prof. Tahir Diop, Head, Laboratory of Fungal Biotechnologies, Department of Plant Biology, Faculty of Sciences and Technology, UCAD, Senegal
- Dr. Maher Suleiman, Director HIAST, Syria
- Dr. Lugano Wilson Mwansule, Director of Engineering Development, TIRDO, Tanzania
- Prof. Ahmed Ghrabi, Director-General, CERTE, Tunisia
- Ms. Vibeke Jensen, Director UNESCO Office, Pakistan
- Mr. O. Caglar, Technical Cooperation Specialist, Training and Technical Cooperation Department, SESRIC, Turkey
- Prof. Dr. Manzoor H. Soomro, President ECOSF, Pakistan
- Dr. S. M. Junaid Zaidi, Rector CIIT, Pakistan
- Dr. Haroon Rashid, Pro Rector, CIIT, Pakistan
- Dr. I.E. Qureshi, Executive Director COMSATS Pakistan
- Mr. Tajammul Hussain, Advisor (Programmes), COMSATS, Pakistan
- Mr. Farhan Ansari, Sr. Assistant Director (Programmes), COMSATS, Pakistan

Diplomacy Programme;

- increasing the utilization of postgraduate scholarships at the COMSATS Institute of Information Technology (CIIT), Pakistan, by Member States; and
- regular publication of COMSATS Newsletter, journal 'Science Vision' and other publications including information material about the organization.

As an integral part of the Agenda, the Heads/representatives of COMSATS' Centres of Excellence shared the updates on the scientific activities of their institutions with the view to identifying common areas for bilateral and multilateral cooperation. Major deliberations and outcomes of the corresponding sessions are as follows:

ICCES-China offered to collaborate and exchange





Technical session of the 19<sup>th</sup> Coordinating Council Meeting in progress

expertise with other Network members in the field of climate change, particularly climatic models to predict rainstorm patterns, summer rainfall anomalies, El Niño events, etc. ICCES also offered to host short-term visits of suitable scientists/researchers from other Centres.

- NRC offered to share the equipment and facilities in its 64 newly established laboratories with other Centres of Excellence. The Centre also expressed willingness to collaborate with ICCBS-Pakistan for cancer treatment using nano-gold particles, and with CSIR-Ghana in nanotechnology applications in biomedical and agricultural plants.
- CSIR-Ghana offered to share its expertise in the field of agriculture with other Centres of Excellence.
- IROST-Iran offered to organize the Regional Expert Meeting on 'Renewable Related Energy Focusing on Microalgae Technology Using Ocean Resources, including Solar and Fuel Cell' and the Foundation Meeting of COMSATS' ITRG on 'Renewable Energy' during 2016-17.
- RSS-Jordan expressed willingness to collaborate with other Centres of Excellence in the following areas: use of software 'LEAP' for climate change mitigation; prepare green house gases inventory; geothermal applications for heating and cooling; secure web applications; ground water modeling; occupational health and safety; and getting accreditation for ambient air quality measurements.
- KazNU-Kazakhstan expressed willingness to collaborate with other Network members in the areas of mutual interest. The university also agreed to provide support to TIRDO-Tanzania in coal technologies.
- NMC-Nigeria offered its expertise in simulation and mathematical modeling. It also pledged to explore the possibility, inter alia, of exchanging post-graduate students and doctoral fellows; establish research collaborations in renewable energy and mathematical finance.

- ICCBS-Pakistan offered training visits, online courses, technician training, and services to other Centres of Excellence. It also offered to undertake joint research projects, field surveys, joint projects on disease genomics, etc.
- CIIT-Pakistan reiterated its standing offer of 100 postgraduate scholarships to suitable students/researchers belonging to other Centres of Excellence and Member States.
- ITI-Sri Lanka expressed willingness to establish research and development collaborations with other Network members in food, herbal and materials technologies. The Institute also offered training facilities in the areas of metrology, ISO 17025, herbal cosmetics, etc., as well as transfer of herbal, food and material based technologies for SMEs, to other Centres of Excellence.
- UCAD-Senegal offered to jointly organize trainings in the fields of Renewable Energy, and Plant and Microbial Biotechnologies. UCAD also expressed willingness to host COMSATS-ISESCO national workshop on repair and maintenance of laboratory instruments.
- IRCC-Sudan offered its following facilities to other Centres of Excellence: fully equipped and integrated tannery, pilot plant for chemical, electronic quality control and testing lab, advanced industrial information centre, physical and mechanical testing lab, and engineering design lab.
- HIAST-Syria pledged to explore the possibility of exchanging students and faculty members with other Network members.
- TIRDO-Tanzania is continuing its collaboration with TUBITAK MAM-Turkey in the areas of energy technologies, environmental technologies, food and microbiology, and chemical technologies, which would be formalized through an agreement.
- TIRDO-Tanzania offered to initiate research collaboration with other Network members in the



Discussions taking place during the meeting

following fields: agro processing, food and microbiology; renewable energies; gas and petrochemical technologies; coal technologies; iron and steel technologies; textile and leather technologies; natural and medicinal products; biotechnologies; pollution prevention and control; and ICTs.

- CERTE-Tunisia offered trainings on the following topics: Management of Scaling in Water Supply Pipes; problems of calcium carbonate (limestone); wastewater treatment and reuse, local water management; desalination; low cost and sustainable technologies for small and rural villages.
- TUBITAK MAM-Turkey offered collaboration in the following fields: environment and clean production; energy; genetic engineering and biotechnology; food technology; chemical technology; materials; and earth and marine sciences. The Centres of Excellence were encouraged to avail scholarship opportunities available with TUBITAK, Turkey.

The presentations made by the Council members are available on COMSATS' website.

The representatives of UNESCO, SESRIC and ECOSF also made statements as Observer organizations, sharing their vision, operations and programmes.

Under the relevant agenda-item, the representatives of the Lead Centres of COMSATS' ITRGs on 'Climate Change & Environmental Protection', 'Information and Communication Technologies' and 'Mathematical Modeling' presented the progress made by their respective groups for the period from May 2015 to April 2016. The Council hoped that the ITRGs on 'Natural Products Sciences' (led by ICCBS-Pakistan) and 'Agriculture, Food Security and Biotechnology' (led by NRC-Egypt) will soon overcome challenges, and will resume their joint research activities. The Council considered the ITRG programme a major component of COMSATS' future programmes and activities.

The discussion on new initiatives resulted in a strong

commitment to expand and enhance the scope of Science Diplomacy Programme, Panel on ST&I Policy, and Distinguished Professorship Scheme. The Centres of Excellence agreed to inform COMSATS Secretariat regarding the ST&I policies and priorities of their respective countries, in order to ensure that the programmes and activities of COMSATS are in line with the development needs of Member States.

The Coordinating Council showed satisfaction on the administrative and financial affairs of COMSATS, and accorded approval of the actions taken and recommendations made by Management Committee of COMSATS. The Council unanimously approved the constitution of Board of Management of COMSATS' Endowment Fund, and selected/approved members of the Board in the following five categories: (i) Representative of the Coordinating Council; (ii) Eminent Scientist of Pakistan; (iii) Philanthropist; (iv) Representative of MoST, Pakistan; and (v) Representative of CIIT, Pakistan.

The Council issued a meeting Communiqué and a Resolution. The Resolution, among other things, recognized the outstanding achievements and services of Dr. I. E. Qureshi as Executive Director COMSATS (2008 to date).

#### **Closing Ceremony**

In his remarks at the concluding ceremony, Rector CIIT, Dr. S. M. Junaid Zaidi, appreciated the Executive Director COMSATS and his team for excellent secretarial support rendered to the organization and its programmes over the years. He hoped that the meeting arrangements made by his Institute were up to all the delegates' satisfaction. Speaking at the conclusion, Dr. Qureshi, thanked CIIT for suitably organizing the meeting and the newly elected Chairperson for befittingly steering its deliberations.

In his closing remarks, Prof. Shaalan lauded the efforts of COMSATS Secretariat in consistently pursuing the mission of COMSATS over the years and especially commended Dr.



Shields being distributed by Rector CIIT during concluding ceremony

Qureshi for his able leadership during his two tenures as the Executive Director.

It was decided that the next (20<sup>th</sup>) meeting of the Coordinating Council will be hosted by NRC-Egypt in 2017.

#### **Technical Visits**

The host institution, CIIT arranged visits of the participants of the meeting to its various departments and laboratories on 19<sup>th</sup> May 2016: Physics laboratory, Nanotechnology laboratory, Centre for Advanced Studies in Telecommunication, as well as Department of Student Affairs and Day Care Center. The participants learnt about the activities and available facilities of the afore-mentioned departments and laboratories. The visits were conducted by senior officials of these departments/laboratories, which facilitated the exchange of knowledge and information



Participants visiting CIIT labs during the campus tour

needed for enhanced scientific cooperation between CIIT and other Network members.

Subsequently, the Council members visited the new building of COMSATS Internet Services (CIS). During the visit, the Executive Director COMSATS inaugurated the new building of CIS. The Council members visited different sections of CIS and were informed about its technical facilities. Later, Mr. Muhammad Amir Malik, Chief Executive Officer, CIS, made a detailed presentation on the current operations and services being offered by CIS in various cities of Pakistan. He also shed light on the social services being provided, including the establishment of Telehealth Centres in different parts of the country. The visit was concluded with the distribution of souvenirs by Mr. Malik and a group photograph of the visiting Council members, as well as senior officials of COMSATS Headquarters, CIIT and CIS.



Technical facilities of CIS being observed by the Council Members

#### Communiqué of the 19<sup>th</sup> Meeting of COMSATS Coordinating Council (17 – 18 May 2016, Islamabad, Pakistan)

The participants of the 19<sup>th</sup> meeting of COMSATS Coordinating Council, comprising of fourteen Council Members or their representatives, after having deliberated upon the twelve-point agenda of the meeting on 17-18 May 2016, are pleased to adopt the following statement unanimously:

- The Members of COMSATS Coordinating Council appreciate the excellent arrangements made by the COMSATS Institute of Information Technology (CIIT) for holding the 19<sup>th</sup> Council meeting and for providing generous hospitality to its participants. The preparation of necessary documentation by COMSATS Secretariat and the administrative support provided to CIIT for the successful organization of the meeting is highly praiseworthy.
- 2. The Council Members are pleased to learn about the high quality educational programmes and research work being undertaken by CIIT faculty, and encourage the Institute to increase its enrolment of students from COMSATS Member Countries as well as enhance research collaboration with other Network Members.
- 3. The Council is pleased to learn about the successful organization of the 3<sup>rd</sup> General Meeting of COMSATS (27-28 October 2015) and the 3<sup>rd</sup> Meeting of COMSATS Consultative Committee (26<sup>th</sup> October 2015) in Accra, Ghana. The re-election of H.E. Dr. John Dramani Mahama, President of Ghana, as the Chairperson of COMSATS for the next three years' term (2015 2018) is highly welcome.
- 4. The outstanding leadership provided by Professor Dr. Eduardo Posada F., as the Chairperson of the Council during the period

(2010-2016) and his services for the cause of COMSATS are duly acknowledged and highly applauded.

- 5. The Coordinating Council warmly welcomes the election of Prof. Dr. Ashraf Shaalan, President, National Research Centre (NRC), Egypt, as its new Chairperson for the term of three years (2016 - 2019), and hopes that he will be able to provide a new thrust to the COMSATS' Network with regard to achieving its objectives.
- 6. The consistent efforts being made by COMSATS Secretariat for extending COMSATS' membership to other developing countries is noted with admiration. The Council welcomes the accession of the Kingdom of Morocco, the State of Palestine, and the Islamic Republic of The Gambia to COMSATS as Member States, and hopes that these new member countries will actively participate in the programmes and activities of the organization. In this regard, the Council requests the Governments of Palestine and The Gambia to nominate one of their renowned R&D organizations, each, for induction in COMSATS' Network of Centres of Excellence.
- 7. The Council is pleased to learn about the nomination of the Mohamed V University, by the Government of Morocco, for induction in COMSATS' Network of Centres of Excellence. It is desirable that the necessary formalities for induction of the Mohamed V University in COMSATS' Network are completed before the next Council meeting. COMSATS Secretariat is encouraged to continue its efforts to extend the membership of COMSATS' Network to all Member States.
- 8. The Council is pleased to note the approval of the COMSATS Statutes by the Commission during its third General Meeting. The efforts made by the Amendment Committee, constituted by the Coordinating Council, as well as COMSATS Secretariat with regard to the formulation of COMSATS Statutes, are highly appreciated.
- 9. The Council is pleased to note that the Rules and Regulations of COMSATS Endowment Fund, prepared by COMSATS Secretariat, have been approved by the 3<sup>rd</sup> General Meeting of COMSATS. The Member States are strongly urged to mobilize funds for the COMSATS Endowment Fund. In this regard, the release of US\$ 0.1 Million, by the Government of Pakistan, as the first instalment of its total commitment of US\$ 1 million towards the COMSATS Endowment Fund, is gratefully acknowledged.
- 10. The Council records with gratitude the financial and in-kind contributions by some Member Countries towards COMSATS' activities. The continuation of payment of Annual Membership Contribution (AMC) by Pakistan and China, and commencement by Kazakhstan is laudable. The Council encourages all other Network members to sensitize their respective governments regarding the benefits of regularly making AMC for the financial sustainability of COMSATS.
- The Coordinating Council will be pleased to continue the current strategy of COMSATS during the next five years (2016-2020), as advised by the Commission, with emphasis on technical cooperation projects employing, inter alia, the concept of International Thematic Research Groups in order to provide maximum socio-economic benefits to the member countries;
- 12. The Council appreciates the dedicated efforts of COMSATS Secretariat to fulfil the objectives of the organization, and takes note of the following additional achievements:
  - (i) Launching of the fifth International Thematic Research Group (ITRG) and continuation of the activities of four already operational ITRGs;
  - (ii) Preparations for launching one more ITRG during 2016;
  - (iii) Steady stream of capacity-building events, organized in collaboration with other international organizations, with the participation of scientists, engineers and technicians belonging to Centres of Excellence and Member States;
  - (iv) Continuation of COMSATS' Distinguished Professorship Scheme, COMSATS' Science, Technology and Innovation Policy Panel, and COMSATS' Science Diplomacy Programme;
  - (v) Increasing the utilization of postgraduate scholarships at the COMSATS Institute of Information Technology (CIIT), Pakistan, by Member Countries; and
  - (vi) Concerted efforts for the regular publication of COMSATS' Newsletter, journal 'Science Vision' and other information material about the organization.
- 13. The Council encourages the Network members to make concerted efforts for the following:
  - (i) Providing greater opportunities of graduate scholarships, doctoral fellowships, and short-term trainings to Member States.
  - (ii) Increasing interaction and cooperation with other members of the Network, including expert exchange, technology transfer, joint research projects, etc.
  - (iii) Launching of the remaining three ITRGs;
  - (iv) Keeping COMSATS Headquarters aware of new developments and major achievements of their organizations;
  - (v) Contributing scholarly scientific articles for publication in COMSATS' bi-annual journal, the 'Science Vision'; and
  - (vi) Placement of their officers at COMSATS Headquarters on secondment.
- 14. The Council is pleased to learn regarding the establishment of 64 new laboratories by NRC-Egypt. The generous offer of NRC-Egypt for sharing its equipment and laboratory facilities with other Centres of Excellence is highly appreciated. Also, the offer of graduate scholarships for The Gambia offered by CIIT is noted with high appreciation.
- 15. The Council encourages all the Network members to support the scientific community of Syria during its current crisis.
- 16. The Council members believe that the expansion of the scope of International Thematic Research Groups is desirable for the future success of the programme.
- 17. COMSATS Coordinating Council reiterates its recommendation for the Member States to increase their level of GERD component to a level of 2% of GDP and enhance financial support for international bodies that provide S&T capacity-building opportunities.

### **S&T INDICATORS OF A MEMBER STATE**

#### In Spectrum: The State of Palestine

Palestine is a state in the Middle East that was declared independent on 15<sup>th</sup> November 1988 by the Palestine Liberation Organization (PLO) in Algiers as a governmentin-exile. The State of Palestine comprises the West Bank and Gaza Strip, with East Jerusalem as the designated capital. Most of the areas claimed by the State of Palestine have been occupied by Israel since 1967 in the aftermath of the Six-Day War. The Palestinian Authority applied for United Nations (UN) membership in 2011, and in 2012 was granted status of a 'non-member observer state' – which amounts to a de facto, or implicit, recognition of statehood. Palestine is divided into sixteen administrative divisions.

According to the UNDP Human Development Report 2015, Palestine's HDI value for 2014 is 0.677, positioning it at 113 out of 188 countries and territories. Between 2005 and 2014, the HDI value increased from 0.658 to 0.677, an increase of 3 percent or an average annual increase of about 0.32 percent. Table-A indicates Palestine's progress in each of the HDI indicators. Between 1980 and 2014, Palestine's life expectancy at birth increased by 10.1 years, mean years of schooling increased by 1.3 years, and expected years of schooling increased by 2.6 years. Palestine's GNI per capita increased by about 69.0 percent between 1980 and 2014.

According to the CIA World fact book, the long standing Israeli closure policy continue to disrupt trade flow and the territory's industrial capacity, limit imports and exports and constrain private sector development in the West Bank. The security measures as well as Israeli aggression in the area continue to degrade economic conditions in the Gaza Strip as well. Israeli imposed border control have resulted in high unemployment, elevated poverty, sharp contraction of private sector which relies on export markets, as well as causing shortages of fuel, consumer goods and construction material in the territories. The housing and rehabilitation of at least 100,000 internally displaced persons remains of key concern for the government in the wake of poor donor support in the Gaza Strip. arts, were either organized by the government or by the United Nations Relief and Works Agency for Palestine Refugees in the near East (UNRWA). It is only since the 1970s that universities came into existence. Created during the Israeli occupation, these institutions were part of a collective



Palestinian effort to preserve their identity as well as to provide young Palestinians with the opportunity to pursue higher education. Since it has become increasingly difficult for Palestinians to go abroad for such studies. However, the higher education sector has expanded only since the transfer of education from Israel to the Palestinian National Authority (PNA) after the Oslo Accords of 1990s.

According to the European Commission's Education, Audiovisual and Culture Executive Agency (EACEA), the majority of the 49 Palestinian higher education institutions in the West Bank and Gaza Strip are relatively young; the oldest has only been in existence for 30 years. More than 213,000 students are enrolled in these institutions. It is estimated that the gross enrolment rate for students aged between 18-24 years is more than 25.8 %<sup>1)</sup>. This percentage is relatively high by international standards, especially in comparison to countries in the Middle East and developing countries in general. From the moment the Palestinian National Authority assumed command of the territories, it showed great interest in the development of a vocational and technical education and training system (VTET). The Ministry of Education and the Ministry of Higher Education were merged into one ministry in 2002.

Major export commodities of Palestine are agriculture centric and include olives, strawberries, carnations, vegetables, fish as well as limestone, while the major import commodities include, consumer goods, construction material, chemicals, fuel, and food items.

The development of higher education in the occupied Palestinian territory is relatively recent. Two-year colleges have existed since the 1950s. These institutions which focus on teacher training, technical education or liberal Table-A: State of Palestine's HDI Trends Based on Consistent Time Series Data and New Goalposts

Years	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2011 PPP\$)	HDI value
1980	62.8			2,781	
1990	68.1			2,896	
2000	70.8	11.5		4,710	
2005	71.5	12.9	7.6	4,831	0.658
2010	72.2	13.4	8.4	4,439	0.67
2014	72.9	13	8.9	4,699	0.677
Source: Human Development Report 2015					

The Palestine Academy for Science and Technology (PALAST) is an autonomous public, not-forprofit organization with its headquarters in Jerusalem and branches in Ramallah and Gaza. Established by the presidential decree in 1997 and reconfirmed by another presidential decree in 2004, the Academy is mandated to be the primary science and technology body in the country in charge of providing advice in formulating policies, programmes and projects to support national development and participate in the coordination of relevant scientific and technological activities. As a result, the

Socio-economic and S&T Indicators of State of Palestine					
Indicator Name	2000	2005	2010	2014	
Scientific and technical journal articles	39.7	55	123.1		
Mobile cellular subscriptions (per 100 people)	0	16	65	72	
Internet users (per 100 people)	1	16	37	54	
Exports of goods and services (% of GDP)	20.52	14.97	15.34	18.00	
Imports of goods and services (% of GDP)	67.12	73.97	59.06	60.95	
Agriculture, value added (% of GDP)	11.24	6.06	6.64		
Industry, value added (% of GDP)	24.95	26.82	24.07		
Services, etc., value added (% of GDP)	63.81	67.12	69.29		
Gross enrolment ratio, secondary, both sexes (%)	78.30	89.63	85.63	82.24	
Gross enrolment ratio, tertiary, both sexes (%)	23.92	40.92	47.85	44.01	
Researchers in R&D (per million people)			322		
Technicians in R&D (per million people)			72		
Population, total (million)	2.92	3.32	3.81	4.29	
High-technology exports (current US\$)	481716	523647	584958	1101491	
Source: World Bank Development Indicators (2015)					

Academy is the focal point and an umbrella organization for science and technology in the State.

In addition to its efforts to promote research in critical scientific issues, PALAST also seeks to promote science education, especially among students, and to foster public appreciation for science, particularly among adults<sup>2</sup>.

In 2012, there were sixteen scientific research centres in the Palestinian universities in the fields of agriculture, environment, water, energy and health. At governmental level, there are some research centres, such as the National Research Centre of the Ministry of Agriculture and Water Management Research Centre at the local Water Authority. Many NGOs established research centres which mostly focus on social studies and research. The private sector focuses on research activities on existing industries, such as the medical industry and some food industries. Insufficient funding is an on-going major concern and it is negatively impacting the quality and relevance of higher education in the occupied Palestinian territory.

About 60-70 % of the operating budgets of universities are covered by tuition fees. Since there is no regularity and consistency in the payment of tuition fees, budgets of universities suffer yearly deficits. Since 2002, an amount of USD 20 million has been allocated to higher education every year by the Palestinian National Authority. In 2009, this amount was raised to USD 34 million, and in 2010 the amount was increased to USD 40 million. In 2011, the higher education budget was significantly increased to USD 90 million<sup>1)</sup>. Since its accession to COMSATS in October 2015, 8 Palestinian researchers, academicians and officials, particularly from the Al-Quds University, have participated in COMSATS' joint series of international workshops on Applications of ICTs in Education, Healthcare and Agriculture. In order to fully benefit from COMSATS' programmes, it is imperative that the government of Palestine nominates a suitable S&T institution for induction in COMSATS Network of International S&T Centres of Excellence and avail research and human resource development opportunities thereof.

As Palestinians are currently struggling for their future viable state, the policy and decision makers need to formulate relevant science, technology, and innovation policies that encourage different national sectors to bank on the available innovation potential and the experience and support of other countries for developing a competitive economy. Conducting and analyzing a community innovation survey on two major Palestinian industrial sectors, namely quarrying and stone fabrication, and the food and beverages sector, show very promising indicators and there seems to be high innovative potentials in both sectors. Lack of cooperation between the industrial sector and the higher education and research and development institutions is found to be a major problem that need to be tackled in order to strengthen the enterprises' ability to innovate.

<sup>&</sup>lt;sup>1)</sup> Higher Education in the Occupied Palestinian Territory, Nedal Jayousi and Daoud Zatari, July 2012. http://eacea.ec.europa.eu/tempus/ participating\_countries/overview/oPt.pdf (Education, Audiovisual and Culture Executive Agency (EACEA))

<sup>&</sup>lt;sup>2)</sup> TWAS Newsletter, Vol. 22 No. 4, 2010.

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

# CIIT-Pakistan Expands its International Cooperation with Universities of the World

COMSATS Institute of Information Technology (CIIT), Pakistan, a chartered university, is growing its international collaboration at a fast pace. During the last two months, the Institute has reached agreements for cooperation with Turkey's Yasar University and Istanbul University, Iran's Balochistan-Sistan University, Oman's Sultan Qaboos University and China's Beijing University of Technology (BJUT).

A four-member delegation from Yasar University of Turkey was hosted by CIIT, on June 2, 2016. The purpose of their visit was to seek cooperation between CIIT and Yasar University and explore possible avenues of collaboration for student exchange and summer schools. Both sides signed a Memorandum of Understanding (MoU) to formalize cooperation in this regard. On the same day, another delegation from Beijing University of Technology (BJUT) led by Prof. Liu Gonghui, President BJUT, visited CIIT. This meeting also culminated in the signing of an MoU between the two institutions.

In a yet another interaction, held from 16<sup>th</sup> - 19<sup>th</sup> May 2016 in Islamabad, Turkey's Istanbul University and CIIT agreed to start cooperation in faculty and student exchanges and scholarship possibilities for international students. Both sides signed an MoU for implementation and achievement of mutually-agreed proposals.

A high-level delegation of Iran led by Prof. Dr. Alireza Bandani, Vice Chancellor of the University of Balochistan-Sistan visited CIIT on 26<sup>th</sup> May 2016 to explore possibilities of cooperation between higher education institutions of both countries.

A delegation from Oman led by Minister of Higher Education, H. E. Dr. Rawya Al-Busaidiah and H. E. Dr. Ali Saud Al Bimani, the Vice-Chancellor of Sultan Qaboos University visited CIIT on May 31, 2016. H.E. Dr. Ali Saud Al Bimani expressed desire to initiate collaboration with CIIT.

#### Collaboration between North Dakota State University, USA and CIIT-Pakistan

The North Dakota Water Resources Research Institute has joined hands with CIIT Lahore Campus for a US State Department funded project, which aims to remove chemical contaminants from groundwater and wastewater, to make it safe to consume, at different locations in Pakistan. The principal investigator for the project from CIIT is Dr. Asad Khan, Head and Chairman of Department of Chemical Engineering. Dr. Eakalak Khan, Director NDSU and Coordinator of ND Experimental Programme to Stimulate



Senior officials of COMSATS Institute of Information Technology during a meeting with a delegation from University of Balochistan-Sistan, Iran

Competitive Research (EPSCoR), visited Pakistan from 9<sup>th</sup>-14<sup>th</sup> May to examine groundwater contaminated sites in Vehari, Faisalabad, Sahiwal, and Bahawalpur. He also visited CIIT's campuses in Lahore, Vehari, Sahiwal and Islamabad.

# **RSS-Jordan holds International Seminar on Islam and Science**

International Seminar on Islam and Science was held on May 5, 2016, at the Royal Scientific Society (RSS) in Amman, Jordan. Scholars from various parts of the Muslim world participated in this seminar.

Speaking at the opening of the seminar, President RSS, HRH Princess Sumaya, highlighted the need for a peaceful reconciliation of progress with faith and noted that despite the difficulties, reconciliation is possible through dialogue. "Knowledge must be free. It must be sought honestly and analyzed wisely. It must be unshackled by those who seek ownership of minds through misinterpretation of religion," she said.

At the occasion, the Director of the UN Economic and Social Commission for Western Asia's Technology Centre, Mr. Fouad Mrad, highlighted the role of the Amman-based Centre in technology transfer and development in 18 Arab countries, adding that the Centre works towards regional integration and cooperation in technology and innovation.

Dr. Moneef Zou'bi, Director General of the Islamic World Academy of Sciences, said that a key challenge facing Member States of the Organization of Islamic Cooperation and scholars today is how to develop a viewpoint on modern science that hamronizes Islam with the ability of modern science to address socioeconomic problems and catalyse development.



Officials of University of Lahore and KazNU after Signing Agreement

#### Al-Farabi Kazakh National University, Kazakhstan Signs Cooperation Agreement with University of Lahore, Pakistan

Al-Farabi Kazakh National University (KazNU), Kazakhstan, and University of Lahore (UOL), Pakistan have entered into an agreement for mutual cooperation in different academic areas. The said agreement was signed on June 22, 2016 at KazNU.

Speaking on the occasion, the Vice-Rector KazNU, Dr. Muhambetkali Burkitbayev expressed KazNU's interest in the development of strong bilateral relations with the Pakistani university and outlined prospects for joint work and the range of priorities.

The visiting delegation of the University of Lahore comprised of the Chairman UoL, Mr. Awais Raoof, and Dean Faculty of Allied Health Sciences, Prof. Syed Amir Gilani. They praised the achievements and the pace of KazNU's growth, as well as the level of implementation of the research projects, which will extend the university's status as the Global Hub for Sustainable Development of the UN Programme "Academic Impact" until 2018.

Both sides discussed bilateral cooperation in the areas of student exchange, training in languages, and doctoral programmes in fields, such as computer engineering, social sciences, medicine, and media.

#### Researchers from TÜBİTAK MAM-Turkey Visit TIRDO in Tanzania to Strengthen Collaboration

Three researchers from TÜBÍTAK Marmara Research Center (MAM), Turkey, visited Tanzania Industrial Research and Development Organization (TIRDO), Tanzania, from 25<sup>th</sup> to 28<sup>th</sup> May 2016 to strengthen cooperation in different areas of science, technology and research. These include: environment and cleaner production, energy, genetic engineering and biotechnology, food, chemical technology, materials technology, and earth and marine sciences. The Turkish team also met the Management of the Tanzania National Development Corporation (NDC) and State Mining Corporation (STAMICO).

# IRCC-Sudan Continues S&T Capacity Building Activities

Under a continuing national programme of industrial development in Sudan, the Industrial Research and Consultancy Centre (IRCC) organized a number of trainings and other activities which mainly included: Textile Dyeing and Processing, Safety Management for Industrial Chemistry, Evaluation of Milk Quality and Dairy Products, General Electronics, and Mining. The number of participants for these workshops, which were held in May and June 2016, was 158.

During the same period, 10 IRCC researchers participated in training events and seminars which mainly included workshops on Food and Safety, Microbial Biotechnology and the Global Positioning System (GPS).

# ITI-Sri Lanka, signs an Agreement with Chinese Scientific Institution

An agreement was signed between Sri Lanka's Industrial Technology Institute (ITI) and China's Department of Science and Technology of Yunnan Province, for coestablishing China - Sri Lanka Technology Transfer Centre in order to promote science and technology cooperation and technology-transfer between the two countries. The agreement was signed during the  $2^{nd}$  forum on China – South Asia Technology Transfer and Collaborative Innovation, held from  $12^{th} - 14^{th}$  June 2016, in Kunming, China.

# Embrapa Agrobiologia-Brazil Software to Study Production System Impact

The Embrapa Agrobiologia and the Pecege Institute (I-Pecege) of Brazil recently signed a technical cooperation agreement which resulted in the enrichment of a software, Beng, that serves as a database to calculate the energy balance of sugarcane crop. A specific aim of the cooperation is to build a model that can help study how a production system is impacting the environment, based on a database of field information on machinery, raw materials, fuels, fertilizers, managements and cultures. The database of I-Pecege that was earlier used to study economic concepts, market flows, studies, and projections, will be used to understand the energy expenditure of each item in a production system.

I-Pecege has already shared necessary data with Embrapa Agrobiologia, while the software is being finalized.

### OPINION: INQUIRY-BASED SCIENCE EDUCATION (IBSE) - KEY TO S&T INNOVATION AND ECONOMIC DEVELOPMENT

#### Manzoor Hussain Soomro\*

Economic well-being has been and remains the target and priority of every community and country around the globe; however, the ways of thinking and action to achieve it have changed. In the present global scenario with countries at varyingly different levels of development, the need of the hour is 'Cooperation and Collaboration', may it be bilateral or multilateral. Even in the corporate world, companies and business enterprises cooperate with one another and seek mergers and acquisitions to remain competitive in the market settings. They benefit from each other's strengths, achieve mutual learning and safeguard the interests of all stakeholders.

The concept of forming alliances enables communities and countries to perform better in view of the growing competition around the world. There are many examples of regional and global economic cooperation forums (e.g., G-8, G-20), unions, federations as well as those political, cultural (ASEAN, ECO, EU, OIC, Arab League, G-77, etc.) and even religious in nature. Even the airlines, Information and Communication Technology (ICT) companies and other service providers around the globe are forming alliances to better handle their corporate affairs and improve their international outreach. Trends of establishing franchises and branching out across the world of various companies, schools and institutions of higher learning are increasing. For example, the British Council for the last few years has been conducting Policy Dialogues in Higher Education-South Asia series.

In all the aforementioned scenarios, science and technology (for good or bad) does play a major role – though S&T as a pursuit of knowledge and a driver of development is never "bad", its abuse could have resulted in outcomes that can be safely categorized as bad.

Nevertheless, the idea of science, technology and education for achieving economic development or a 'knowledge economy' should be promoted for overall good of the people in the present and for making a better future. S&T and education play a major role for economic development by way of creating and sustaining the critical masses of thinkers and innovators. To nurture scientific and technological innovation it is vital to inculcate, critical thinking, and the concept of "inquiry", in the society especially the young children. Thinkers and scientists around the globe have been promoting "Inquiry-Based Science Education (IBSE)", which, in turn, instills innovative thinking among children. Thus, there are programmes and institutions around the world which bring in even the Nobel Laureates for promoting IBSE for their future generations, particularly for teaching of Science, Technology, Engineering and Mathematics (STEM) subjects at primary and secondary school levels. IBSE approach is also used in Arts and Social Sciences at school as well as at degree level educational institutions. IBSE emphasizes on activity-based education in line with the concept of "Learning by Doing", which cannot be achieved without necessary training of teachers.

Not just in formal educational institutions, the IBSE approach is also being used in non-formal educational settings and even for educating illiterate adults. The Food and Agriculture Organization (FAO) of the United Nations in early 1980s had developed a methodology for training and education of small farmers even if they were not able to read or write. The approach is called Farmer Field School (FFS) approach, which is exactly same as IBSE, whereby the learners are trained to make hypotheses, set up experiments, take observations, collect and analyze data, and finally draw conclusions and present them, just like scientists. The participants work in small groups and learn from one another as well. The presenters also rotate, thereby promoting the leadership among almost every participant.

Presently, IBSE, in one way or the other, is being promoted by national academies of sciences and engineering, as well as NGOs and government organizations around the globe. Examples are: USA (Smithsonian Institute, Intel Corporation, Society for Science and the Public, etc.), France (La main a la pate Foundation), Australia (Primary Connections), China (China Association of Science and Technology-CAST), and many more with different local names and brands.

Thus the Inter-Academy Partnership (IAP) – a global network of over 130 National Academies of Sciences, Engineering & Medicine – has initiated a Science Education Programme (SEP) for promoting science education and science literacy. UNESCO also promotes 'enquiry learning' under its Education for Sustainable Development programme, as means to enhance the skills necessary for

\*About the Author: Prof. Dr. Manzoor Hussain Soomro is President of ECO Science Foundation (ECOSF), Pakistan and a member of Governing Body of ISTIC Malaysia and the Global Council of Science Education Programme (SEP) of the Inter-Academy Partnership (IAP). He launched Inquiry Based Science Education (IBSE) program for schools in Pakistan in 2010 and Travelling Science Expos in collaboration with French institutions. Email: manzoorhsoomro@gmail.com



dealing with the world problems. Enquiry learning is a learner-centred approach that emphasises higher order thinking skills. It may take several forms, including analysis, problem solving, discovery and creative activities, both in the classroom and the community (www.unesco.org). These initiatives address the UN Sustainable Development Goals (UN SDGs) as well, especially the SDG # 4, which says, "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". It may be pointed out that the 17 UN SDGs, are successors of UN Millennium Development Goals (MDGs) for the next 15 years (2016-2030). UN SDGs are also called the 'UN Development Agenda 2030'.

It is in this context that ECO Science Foundation (ECOSF) is supporting S&T research projects of applied nature with collaboration among its 10 member countries: Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Iran, Pakistan, Tajikistan, Turkmenistan, Turkey and Uzbekistan. ECOSF is also promoting IBSE and linking it with advanced research and development to ensure a sustainable supply of talent to aid the process of development in line with UN Development Agenda 2030. The Foundation envisions that this linking can lead to economic development in the region.

ECOSF is also encouraging international cooperation on the basis of two common goals: advanced S&T research and IBSE. It has partnered with International institutions, such as UNESCO, ISTIC (Malaysia), La main a la pate Foundation (France), Turkish World Educational and Scientific Cooperation Organization (TWESCO) - better known as International Turkic Academy, Ev-K2-CNR Foundation (Italy), and some Pakistani institutions, ECOSF would appreciate the cooperation of other governmental, intergovernmental as well as non-governmental organizations, especially universities, for promoting synergies, with respect to its aforementioned goals. Professional institutions can play a major and lead role for promoting synergies and patronizing schools and NGOs, as well as by bringing industry to contribute for the good of people at large. ECO Science Foundation with its sister institutions; ECO Educational Institute (Ankara, Turkey) and ECO Cultural Institute (Tehran, Iran), national academies of sciences, and international partners: IAP SEP, ISTIC, La main a la pate



Children learn science by experimentation as scientists

Foundation, and TWESCO, can facilitate linkages among the ECO Member States for a socio-economic and cultural cooperation.

In order for the Government of Pakistan to effectively reform its education sector and promote knowledge-based economy, it must reform the whole education system and strengthen the science base by preparing and properly training the teachers, revising curricula and changing the methodology of teaching. A better option would be to implement IBSE across the school systems. There has been reasonably good progress in higher education after the establishment of Higher Education Commission (HEC) of Pakistan, but the primary and secondary education sectors have been deteriorating across the country as shown by surveys and reports by various institutions/organizations, such as Pakistan District Education Rankings (2015) of Alif Ailaan and Pakistan Education Statistics (2016) of the Government of Pakistan, which indicate total number of school-going children (aged 5-16 years) at over 51 million, among which only a little over 27 million are enrolled in some sort of school; whereas, over 24 million are out of school.

One needs to think critically and imagine, if all the 51 M plus school-going children (between 5-16 years), which is around 25% of Pakistan's present population, were educated and groomed to become visionary and responsible young citizens and engaged in strengthening the country, what a development revolution they could bring about in the country in the next 20 years. However, given the prevalent multiple systems of education in Pakistan, which indirectly nurture a "class system" rather than providing universal quality "compulsory and free education" to all children as per the Constitution of Pakistan (Article 25 A), and the fact that over 24 million children remain out of school is alarming. This is because those 24 million plus children, presumably from the poverty-stricken family backgrounds grow up directionless, can go astray, becoming liabilities for their nation and the world on the whole.

There are numerous examples from around the world where the youthful but jobless poor people without much education were lured, brainwashed, patronized, financed and armed with automatic weapons for pursuing vested interests of their shady financiers, ultimately became part of terrorist activities. A lot has been written on these issues with reference to Taliban, ISIS, etc. Articles by Jeffery Sachs can be viewed for details (www.jeffsachs.org).

Of course, the Federal and Provincial governments of Pakistan are trying to bring about reforms in the school education sector; a report in the *Daily Dawn* of July 12, 2016, entitled, "Is our education system 'too broken' for reforms", speaks volumes on this dilemma! Nevertheless, the ECO Science Foundation can help in promoting IBSE in Pakistan and has already initiated efforts in this regard.

### SCIENCE, TECHNOLOGY AND DEVELOPMENT

# Safety Trial of CRISPR Based Treatment to Undergo in the USA

An advisory committee at the US National Institute of Health (NIH) approved a proposal to use CRISPR–Cas9 to help augment cancer therapies that rely on enlisting a patient's T cells, a type of immune cell, says a report by Sara Reardon published in *Nature News* on  $22^{nd}$  June 2016.

This first trial will be focused on assessing the safety of CRISPR technology for use in humans rather than its efficacy in treating cancer.

The researchers will remove T cells from 18 patients with

various types of cancer and perform three CRISPR edits on them. T cells are the functional units of the cell-based immunity of the human immune system. The researchers will then infuse the edited cells back into the patient.



Although CRISPR is easier to use than other techniques, and better at editing multiple genes at once, the main challenge will be overcoming CRISPR's propensity for 'offtarget' edits. A concern, despite all the precautions, is that the immune system may still attack the edited cells.

#### **Innovative Devices from Africa Win Accolades**

A portable heart diagnostic invention has won its developer, Cameroonian Arthur Zang, the Africa Prize for Engineering Innovation on 26 May 2016 in Tanzania, according to the UK's Royal Academy of Engineering (RAEng), organiser of the competition.

Cardio-Pad, Zang's innovation, which won him the £25,000 prize, is a device that helps medical professionals, especially those in rural communities, diagnose heart problems and send the results through mobile phones to heart surgeons for interpretations, says a report by Samuel Hinneh published in *SciDev.Net* on June 3, 2016.

The engineering innovations that were voted as runners-up are: a device developed by Eddie Aijuka from Uganda that prevents electricity theft by alerting authorities and cutting off the power supply; a web-based tool created by Kenyan Felix Kimaru that provides life-saving advice to mothers and pregnant women; and a tool developed by Matt Wainwright from South Africa that boosts rural electrification and cuts energy costs.

#### Rain Forecast Mobile Application Helping Raise Agriculture Yield

"A mobile phone-based innovation that can predict rain is helping farmers in six sub-Saharan Africa countries sow, fertilize and harvest crops at the optimum time." reports Sven Torfinn for *SciDev.Net*.

The mobile weather forecast innovation created by Swedenbased Ignitia, a high-technology company and a social enterprise, was placed second and won US\$5,000 prize at the USAID and partners' first Agricultural Innovation Investment Summit, held in Washington D.C. in the United States on June 1-2, 2016.

Farmers in six African states, Cote d'Ivoire, Ghana, Mali, Niger, Nigeria and Senegal, are using this application to improve their crop output and enhance food production through ICT-based weather forecasting model that uses global positioning system for accurate weather information. The company claims that its innovation has a weatherprediction accuracy rate of 84 per cent and it now wants to expand into West Africa using a \$2.5 million grant from the Securing Water for Food (SWFF) funded by the governments of the United States, Sweden, South Africa, and the Netherlands.

As reported by *SciDev.Net*, Enoch Addo, a cocoa farmer from Ghana claims that the forecasts have helped him double the agriculture yield as compared to last year's produce.

# New Alloy to Double USB Memory Device Storage

Scientists at Hokkaido University, Japan, have developed a

device that employs both magnetic and electronic signals, which could provide twice the storage capacity of conventional memory devices, such as USB flash drives, according to a story published in the *Science Daily* on June 24.



The scientists investigated two forms of strontium cobalt oxide (SrCoOx): one is an insulating non-magnet while the other is a metal magnet. By changing the oxygen content in this compound, the team could cause it to switch between the two forms. Making the device smaller would shorten the time needed for the compound to switch between an insulator and a magnet and this would allow the storage of an even larger amount of data in mobile phones, etc.

### **PROFILE OF MEMBER COMSATS' TECHNICAL ADVISORY COMMITTEE**

#### **PROF. DATIN PADUKA KHATIJAH YUSOFF**

Prof. Datin Paduka Khatijah Yusoff, a Colombo Plan scholar and an esteemed microbiologist from Malaysia became the member

of COMSATS Technical Advisory Committee in May 2014. She is held in high esteem by the academic fraternity for her research and high impact publications in Malaysia and abroad that has won her many accolades from around the world. She has worked extensively on the molecular biology of Newcastle disease virus (NDV). Her contribution on NDV has been acknowledged by the UK-based Houghton Trust for its impact on the poultry industry worldwide.



Prof. Khatijah was born in Penang, Malaysia. She obtained a first class honours in Microbiology in 1979 and Ph.D. in 1983 from La Trobe University, Australia. She then joined Universiti Putra Malaysia (then known as Universiti Pertanian Malaysia (UPM)) as a lecturer and became a full Professor in 2001. Since then, she has held various administrative positions, including the Dean of Faculty of Biotechnology and Biomolecular Sciences (BioTech) in 2006, before she was appointed as UPM's first woman Deputy Vice-Chancellor (Academic & International Affairs) in 2007. From 2008-2010, she was seconded to the Malaysian Ministry of Science, Technology and Innovation as the Deputy Secretary-General (Science). Prof. Khatijah is presently the Dean of Biotech, UPM, where she has resumed her teaching and research work.

She is a UNESCO Science Laureate being the second Asian to win the UNESCO's Carlos J. Finlay Prize for meritorious work in Microbiology. She was awarded the Distinguished Alumni Award from La Trobe University, Melbourne, Australia, the ninth person to receive this accolade from among its over 120,000 alumni. In 2010, La Trobe University further honoured her by awarding the Doctor of Science (honoris causa). Last year, she won the coveted Merdeka Award 2015 (Malaysia) in the 'Health, Science and Technology' category. This Award was sponsored by PETRONAS, ExxonMobil and Shell.

Earlier, Prof. Khatijah was listed by Muslim-Science.com as one of the top 20 most influential women in science in the Islamic World for 2014. Earlier during the year, she had received the Australian Education Achievement Award 2013 by the Australian Government and the Zakri Award by the Malaysian Genetics Society. She was conferred the Royal Award "Dato' Sultan Sharafuddin Idris Shah" (D.S.I.S) bestowed in 2006 by the Sultan of Selangor, which carries the title "Datin Paduka".

Prof. Khatijah's research has now further expanded into the understanding of virus-cancer cell interactions. NDV is usually not harmful to normal human cells but it has a certain proclivity to home in on human cancer cells. She is now directing her research to focus on the novel use of NDV as an anti-cancer agent as well as a carrier for anti-cancer drugs in targeted chemotherapies. The clinical trials of her research have entered phase II and phase III in the United States and Europe, testing

the use of NDV as adjuvant chemotherapy. This would, of course, tremendously advance the treatment of cancers as directing anticancer drugs to specifically target cancer cells has hitherto been a formidable challenge. In doing so, she is unravelling exciting mechanisms of NDV-cell interactions in the use of NDV in the treatment of cancers. She is developing various forms of delivery systems into cancer cells through recognition of surface display of tumour associated antigens. This treatment regime is not only safe but it will be plausibly affordable to many and will conceivably mitigate the need to use current chemotherapeutic agents with their usual devastating side effects.

Prof. Khatijah is also one of those rare scholars who served in Malaysia's public service where she had a hand in charting the nation's science and technological development. In her capacity as the Deputy Secretary-General (Science) at the Malaysian Ministry of Science, Technology and Innovation (MoSTI), she has been instrumental in developing a number of national policies in science, technology and innovation, her latest being Malaysia's National Policy for Science, Technology and Innovation (2013-2020), and the establishment of the National Science and Research Council, the National Bioethics Council, and the Office of Science Adviser to the Prime Minister. She understands the pressing needs to make improvements in existing Science System in the country. Her latest projects aim at bringing research out of the laboratory into the society on effective platforms. This will achieve for Malaysia a high income, innovation-challenged economy, thus ensuring a sustained economic advantage for the nation.

Prof. Khatijah has published extensively, filed several patents and trademarks, and currently holds a US patent. Together with her colleagues, she has supervised over 125 postgraduate students, 105 of whom have graduated. She enjoys teaching and mentoring students, and through the interest instilled in them, many have continued their studies to become academicians.

Prof. Khatijah has served on various committees and editorial boards, and participates actively in many professional bodies. In addition to being on the Board of Directors for A-Bio, Malaysia GreenTech Corporation, Steinbeis Malaysia, she is also a member of the National Bioethics Council and Chairman of GreenTech Ideas lab Sdn Bhd. Both organizations are very much into translation of science into solutions for alleviating poverty. She is a Fellow and Council member of the Academy of Sciences Malaysia; the Islamic World Academy of Sciences (Jordan), and The World Academy of Sciences (TWAS, Italy). She was recently appointed as the Vice President of TWAS (East and Southeast Asia). She also sits on La Trobe Asia External Advisory Board.

#### **Contact Details:**

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### COMSATS' BRIEF AND ANNOUNCEMENTS

#### Selected Forthcoming Scientific Events in **COMSATS'** Countries

1 September 2016	Conference: "Applying Canadian Models to Kazakhstan", Astana, Kazakhstan (www.kaznu.kz/en/14951/news/one/10519)
19-24 September 2016	15 <sup>th</sup> CTWF International Symposium on Atmospheric Aerosol 15 <sup>th</sup> AeroCom and 4 <sup>th</sup> AeroSAT Workshops Beijing, China (2016ctwf.csp.escience.cn)
28-30 September 2016	23 <sup>rd</sup> WAITRO Biennial Congress, Medellin, Colombia <i>(waitro.co)</i>
17-18 October 2016	2 <sup>nd</sup> International Conference on "Agriculture, Food Security and Biotechnology", Khartoum, Sudan (www.comsats.org)

#### Scholarships offered by the COMSATS' Centres of **Excellence for Member States**

COMSATS Institute of Information Technology (CIIT), Pakistan, offers 100 scholarships for students/researchers for post-graduate studies in all disciplines offered by the university at its 7 campuses, as well as five post-doctoral fellowships.

The Iranian Research Organization for Science and Technology (IROST), Iran, offers 7 Ph.D scholarships [4 fully paid and 3 partially paid (50%)] and five-postdoctoral fellowships in disciplines offered by the Organization.

The International Center for Chemical and Biological Science (ICCBS), Pakistan, offers scholarships for MS and Ph.D studies in disciplines offered by the Center.

For more details, please write to Mr. Tajammul Hussain, Advisor Programmes, COMSATS Secretariat at hussient@comsats.net.pk.

#### Recent Joint Publications of COMSATS



Joint Publication with TWAS Excellence in Science: International Centre for Integrated Mountain Development (ICIMOD)



Joint Publication with ICTP One Hundred Reasons to be a Scientist (Urdu translation)

SUSION

These books can be viewed online at: www.comsats.org

#### **Science Vision - Call for Papers**

COMSATS invites scholarly contribution for Volume 21 of its biannual journal Science Vision, which aims at highlighting the important scientific and technological developments that have a bearing on socio-economic conditions of the people.

For more information, visit the journal's website: www.sciencevision.org.pk

#### **A BRIEF ON COMSATS**

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

COMSATS, currently, has 24 developing countries as its members, spread across three continents, i.e., Latin America, Africa and Asia. A Excellence, is also affiliated with COMSATS to 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.

#### **COMSATS NETWORK**









BCSIR-Bangladesh www.bcsir.gov.bd

biologia-Brazil cnpab.embrapa.br





**CIF-Colombia** 

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ICCBS-Pakistan

**CIIT-Pakistan** 



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HIAST-Syria www.hiast.edu.s



**CERTE-Tunisia** 





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