



# COMSATS Newsletter

Commission on Science and Technology for Sustainable Development in the South (COMSATS)

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*On October 4-5, 2019, COMSATS completed 25 years of its establishment in Foundation Meeting, held in Islamabad, in 1994.*

The celebrations of this landmark include a Silver Jubilee event held at COMSATS Secretariat attended by officials of COMSATS Secretariat, COMSATS Internet Services and COMSATS University Islamabad. (Details on page 02)

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## From the Executive Director's Desk

The increasing vulnerability especially of the developing countries to the impact of climate change has emerged as a critically important development issue. Most COMSATS member countries are exposed to the climate induced socio-economic challenges. Therefore, COMSATS is acutely cognizant of this debilitating factor in their progress and prosperity. Since its establishment in 1994, one of the core objectives of the Organization has been fostering sustainable development through the application of science and technology. It is a matter of satisfaction for me that a great deal of effort has gone into building the R&D capacity related to climate action. In addition to the dedicated international thematic research group on Climate Change and Environmental Protection, COMSATS has recently set up a virtual network called COMSATS Centre for Climate and Sustainability (CCCS). It is designed to provide a platform to exchange scientific information and data for better research and coordination in the field of climate change. I look forward to this Centre's contribution towards addressing some of the climate related issues.

COMSATS' climate and sustainability related initiatives are modest steps in line with the global efforts such as Sustainable Development Goals particularly Goal 13. The 2019 UN Climate Action Summit held during the United Nations' General Assembly session this year on the theme "Climate Action: A Race We Can Win. A Race We Must Win" reflects the urgency for global efforts for reversing the climate change impacts. The December 2019 COP25 meeting to be held

in Madrid will further provide a much needed opportunity for discussions on the dynamics of climate change and various urgent and effective measures. I am sanguine that the collective will demonstrated at global, regional and national levels will go a long way in diminishing the extinction challenges feared because of sustainability, climate change and environmental degradation threats.

After the successful completion of its 25 years this October, COMSATS' resolve is even firmer in becoming a contributing player in the international and regional development processes. In this endeavor, COMSATS heavily relies on the strength of its member countries and the Centers of Excellence. The patronage of Chairperson of the Commission, H.E. Nana Addo Dankwa Akufo-Addo, is significant in this regard. The abiding commitment of the Chairman of the Consultative Committee, H.E. Mr. Chaudhry Fawad Hussain, Minister for Science and Technology of Pakistan, gives further impetus to the actualization of COMSATS' vision fully grounded in the demands of the current times. I am thankful for their support and remain convinced that COMSATS' even greater and brighter future is ahead taking it into its next 25 years.

I am pleased that COMSATS Secretariat was also engaged in other important activities during the period under review. Brief reports on all the activities adorn the pages of this Newsletter. I take this opportunity to convey my season greetings and best wishes for the year 2020.

## HIGHLIGHTS FROM COMSATS SECRETARIAT

### COMSATS Celebrates its Silver Jubilee

COMSATS celebrated its 25th Anniversary in a simple ceremony held at its Secretariat. Mr. Parvez Ahmed Butt, Founding Executive Director of COMSATS, graced the occasion with his presence as the Chief Guest. Also present during the ceremony were officials from COMSATS Secretariat, COMSATS University Islamabad (CUI) and COMSATS Internet Services (CIS). The Rector of COMSATS Centre of Excellence in Pakistan, Dr. Raheel Qamar, was also present on the occasion.



The event featured curtain-raiser of a COMSATS Silver Jubilee commemorative postal stamp issued by the Government of Pakistan that has graciously hosted the organization's secretariat since inception.

Executive Director COMSATS, Dr. S.M. Junaid Zaidi, lauded the efforts of the present and past leaders of COMSATS Statutory bodies and COMSATS Secretariat, who have contributed to COMSATS' consistent pursuit of its mission of S&T-led sustainable

It is indeed a matter of great pleasure for me to congratulate all the member states of COMSATS on the 25th Anniversary of COMSATS. I highly appreciate and congratulate all COMSATS Member States for helping the Commission pursue its objectives and uphold the principles and high standards of work. We greatly appreciate the Commission's focus on education, health and capacity building at the national, regional and global levels. We also support COMSATS' efforts at strengthening South-South and Triangular Cooperation in these fields.



**H.E. Mr. Chaudhry Fawad Hussain**  
Federal Minister for Science and Technology, Government of Pakistan  
Chairperson COMSATS Consultative Committee

development in the South.

Speaking on the occasion, Mr. Butt highlighted a major flagship project of COMSATS, COMSATS Internet Services, founded in 1996. This project, he noted had further enabled ICTs application in the country in the fields of IT, education and health.

In his remarks on the occasion, Prof.

We cherish our membership in the Network of International S&T Centres of Excellence for developing effective cooperation with a particular focus on the South. For the last 25 years, COMSATS has upheld the founding principle of science and technology for sustainable development in the South. It is through this perspective that TÜBİTAK foresees the upcoming 25 years and more as being filled with new opportunities for collaboration across the COMSATS' community.



**Prof. Dr. Hasan Mandal**  
President of the Scientific and Technological Research Council of Turkey (TÜBİTAK)  
COMSATS Focal Point in Turkey

Dr. Raheel Qamar, Rector CUI, greatly acknowledged the hard work and efforts of Dr. Zaidi in taking COMSATS University Islamabad (CUI) forward as its Founding Rector.

Also on the occasion, Dr. Arshad Saleem Bhatti (Dean Faculty of Sciences of CUI), considered organizations like COMSATS, ICTP and TWAS important in bringing developing countries together for important S&T linkages.

### Cooperation with Member States and Partner Organizations

#### Colombia

A delegation of COMSATS Secretariat, led by Ambassador (R) Fauzia Nasreen, Advisor (SDGs), visited Bogota, Colombia, from 1st to 6th September 2019. The delegation comprised of Ms. Huma Balouch (Senior Assistant Director Programmes) and Mr. Laeeq Hassan Jaswal (Manager Strategic Partnerships). Former Chairperson COMSATS



Ghana is honoured to have the Chair of an enterprise serving as a persistent conduit of scientific and technical cooperation among developing countries for mutual cooperation for S&T-led development. The mission of COMSATS is challenging as much as it is noble.



COMSATS' outreach to the organizations of North and the credibility it has gained in the last few years could not have come at a better time than the organization's silver jubilee. As the focal point under the Chair of COMSATS, I urge other members of COMSATS Consultative Committee to make available all possible faculties and resources to strengthen the organization.

**Prof. Kwabena Frimpong-Boateng**  
**Minister of Environment, Science, Technology and Innovation (MESTI)**  
**COMSATS Focal Point in Ghana**



his support for setting-up of COMSATS' Regional Office in Bogota.

COMSATS' officials also visited Focal Point in Colombia, COLCIENCIAS. Here, opportunities of furthering the collaboration were explored in a meeting with Ms. Sonia Esperanza Monroy and other members of COLCIENCIAS' international office. It was communicated that in view of the Colombia's development plan (2018-2022), the country is attaching great importance to STI for national development. As a result, the COLCIENCIAS, the highest level scientific forum, is being upgraded to Ministry (to be renamed as MINCIENCIAS).

Later, a visit was made to National University of Colombia, where the delegates met with Dr. Luz Teresa Gomez (Vice Rector of Research) and Prof. Melba Libua Cardenas (Director of Office of External Affairs).

### UNESCO, Paris

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, along with Mr. Tajammul Hussain, Advisor (Programmes), COMSATS Secretariat, visited UNESCO Headquarters, Paris, on 10th and 11th October 2019.

A meeting with Dr. Shamila Nair-Bedouelle, Assistant Director-General for Natural Sciences; and Dr. Peggy Oti-Boateng, Director of the Division for Science Policy and Capacity-Building was held on 10th October 2019. Also present during the meeting was Dr. Yoslan Nur, Programme Specialist, Science Policy Studies and Foresight Section, UNESCO; and Dr. Neelofer Shahzad, Deputy Permanent Delegate, Permanent Delegation of Pakistan to UNESCO, Embassy of Pakistan in France.

Some key points discussed during the meeting, inter alia, pertained to establishment of COMSATS' Centre for Climate and Sustainability; possibility of jointly instituting a Science Park by UNESCO, COMSATS University Islamabad (CUI) and relevant institutions in Ghana; and offer of UNESCO's experience for research commercialization.

The UNESCO officials were appreciative of COMSATS' undertakings particularly in the African region and suggested linking UNESCO's Network with COMSATS' Network of Centres of Excellence to help increase COMSATS' membership.

A meeting was also held with Dr. Firmin Edouard Matoko, Assistant Director-

Coordinating Council, Dr. Eduardo Posada who is the director of COMSATS Centre is Excellence in Colombia, International Centre of Physics (CIF), accompanied the delegation for most of their engagements within Colombia.

On 2nd September 2019, a meeting was held with Ms. Maria Piedad Villaveces, Executive Director of Colombian Association for the Advancement of Science (CAAS). Ms. Villaveces showed great interest in replicating COMSATS University Islamabad (CUI) model in Colombia.

Later during the day, the delegation visited Colombian Academy of EXACT, Physical and Natural Sciences, where they met with the Academy's President, Dr. Enrique Ferero. The meeting resulted in identification of following areas for bilateral cooperation: tele-health, climate education and curricula development. Dr. Ferero also offered



General for Priority Africa and External Relations Programme; Dr. Andrei Chevelev, Chief of Asia and Pacific Unit, Priority Africa and External Relations Programme; and Mr. Daulat Kasymov, Liaison Officer at Asia and Pacific Unit, Priority Africa and External Relations Programme. Possibility of the two organizations collaborating under Africa Priority Programme was also explored.

In a meeting held with him on 11th October 2019, Mr. Moez Chakchouk, Assistant Director-General for Communication and Information informed about various initiatives of UNESCO aimed at building knowledge societies through open educational resource and access to scientific information. He appreciated COMSATS' strength in the field of information technology and expressed willingness to work jointly on smart cities for Sustainable Development.

On the evening of 11th October 2019 in a one-to-one meeting with Dr. Neelofer Shahzad, proposals for initiating awards such as "Dr. Abdus Salam Award for Best Scientist" and "COMSATS-UNESCO Edhi Humanitarian Award" were considered.

### European Union

Ms. Anne Marchal, Deputy Head of

Mission, Delegation of the European Union to Pakistan was invited to COMSATS Secretariat. Held on 3rd October 2019, the meeting with COMSATS' officials was steered by the Executive Director COMSATS, Dr. S. M. Junaid Zaidi.

It was communicated by Ms. Marchal that the Delegation of the European Union to Pakistan is undertaking projects in various areas of global concern, including Climate Change, Biotechnology, Agriculture and Food Security. She proposed that a meeting may be held with the newly appointed European Union Ambassador Designate to Pakistan, Ms. Androulla Kaminara, for reciprocal briefings on the operations of the two organizations for better identification of areas of mutual interest.



## Observances and Talks

### Talk on the occasion of South-South Cooperation Day

On 12th September 2019, Prof. Jibin Sun delivered a talk COMSATS Secretariat in connection with the United Nations South-South Cooperation Day. During the talk, he underscored the importance of South-South Cooperation for achieving excellence in science, technology and innovation.

His talk also highlighted ways in which three dimensional R&D organization model is facilitating TIB's mission of achieving biotechnological innovation system for the promotion of eco-friendly development of industrial sectors. Further, he introduced means through which Industrial Biotechnology could help achieve United Nations Sustainable Development Goals, in particular, Goal 1, 2, 3, 7, 9, 11, 13 and 17.

During his visit, Prof. Jibin also met with H.E. Mr. Chaudhry Fawad Hussain, Federal Minister for Science and Technology, Government of Pakistan, and explored the possibilities of bilateral cooperation between TIB and academic institutes in Pakistan, establishment of R&D laboratories through joint collaboration as well

as training of scientific and technical human resource.

### Talk on Denmark's Green Transition and Sustainable Practices

With a view to learn best practices from the North for creating green economies, a talk on "Denmark's Role in the Promotion of Global Climate Sustainability Solutions" was arranged by COMSATS and the Institute of Peace and Diplomatic Studies (IPD) at COMSATS Secretariat, Islamabad, on 25th September 2019. Delivered by H.E. Mr. Rolf M. Hay Pereira Holmboe, Ambassador of Denmark to Pakistan, the talk attracted members of the diplomatic community, academicians, students as well as stakeholders from public and private sector organizations.

In his talk, Mr. Holmboe shared best practices and sustainable solutions that have aided Denmark's transition towards green economy. He stated that the Government of Denmark has resolved to reduce carbon dioxide emissions and eliminate the use of fossil fuels in automobiles before 2030. In accordance with this, Denmark is investing heavily in R&D for finding sustainable solutions to climate change driven challenges. He also noted 50 percent increased growth in Denmark's economy since 1990 coupled with proportional decrease in carbon dioxide emissions in the country.

The Ambassador enumerated four aspects imperative for green transition, i.e., energy, water, resources, and cities. In this connection, Mr. Holmboe informed that Denmark is leveraging the potential of renewable energy sources since 1970s when it became the first country in the world to install wind turbines.

He informed that Copenhagen is a part of City40 (C40) which is a cooperative initiative involving capitals and largest cities of the world for finding innovative sustainable solutions and sharing them with economically less stable cities within the C40 group. The Ambassador considered sustainable production and consumption, waste-to-energy conversion, and effective management of resources important for a country to gain economic competitiveness. He considered initiatives relevant for developing countries battling with the challenge of extensive waste production and plastic pollution. Denmark is soon to go from recycling 90 percent of its waste to a 100 percent.

Mr. Holmboe expressed Denmark's willingness to assist Pakistan in adopting sustainable practices in various sectors, in particular, energy and waste management.



### Seminar on 'Pakistan China Industrial Cooperation'

A seminar on 'Pakistan China Industrial Cooperation' was organized by COMSATS and the Institute of Peace and Diplomatic Studies (IPD) at COMSATS Secretariat, Islamabad, on 9th October 2019. The seminar had the participation of the diplomatic community, academicians and students. Ms. Pang Chunxue, Chargé d'Affaires, Embassy of China to Pakistan, graced the occasion as the Guest of Honour.

While addressing the audience, Ms. Chunxue stated that during the past year, collaboration between Pakistan and China has strengthened in domains like Special Economic Zone (SEZs), education and technology, under China-Pakistan Economic Corridor (CPEC). She further noted the increasing investment of Chinese companies in Pakistan.

In his presentation, Mr. Raja Amer Iqbal, Former President of Rawalpindi Chamber of Commerce and Industry and Chairman, All Pakistan Chamber of Commerce and Industry on CPEC, highlighted the prospect of the second phase of CPEC. He considered industrial development crucial for economic growth and development of Pakistan. Mr. Shahnawaz Mahmood, Deputy Managing Director of Pakistan-





China Investment Company, remarked that Pakistan and China are cooperating in diverse economic domains and are deepening their ties through developing business-to-business linkages.

## Engagements with Diplomatic Missions in Islamabad

### Meeting with Representatives of Foreign Missions

A hi-tea was arranged in honor of the Ambassadors/High Commissioners and other members of the diplomatic community of COMSATS' member countries on 20th September 2019, in Islamabad. The gathering comprised of Ambassadors/High Commissioners of Azerbaijan, Morocco, Nigeria, Palestine, Sri Lanka, Tunisia and Yemen; Political Secretary of UAE, and Romania, as well as other officials from US Embassy and German companies in Pakistan.

The esteemed guests were apprised of two major events upcoming events of COMSATS, the 4th General Meeting and Accra Forum on S&T for Sustainable Development to be hosted by the Government of Ghana.

Briefing on the 4th General Meeting of COMSATS, Executive Director of COMSATS, Dr. S. M. Junaid Zaidi, introduced the august gathering with

the mission, structure, membership, ongoing activities and future plans of the organization. While in his briefing on the Accra Forum, Ambassador Kamal stated that Accra Forum would give an opportunity to COMSATS' member countries to make connections, create stronger network, share insights, and learn from one another on using science and technology to strengthen their response to the needs and challenges related to SDGs.

A cake-cutting ceremony was also held to commemorate the 25th Anniversary of COMSATS.

### Meeting with the Ambassador of UAE to Pakistan

The Executive Director, Dr. S. M. Junaid Zaidi, paid a visit to the Ambassador of the United Arab Emirates (UAE) in Islamabad, H.E. Mr. Hamad Obaid Al Zaabi, on 24th September 2019.

It was highlighted during the meeting that COMSATS provides a forum to the countries holding its membership for bridging scientific and technological cooperation with other members of the Organization. It was noted that UAE could foster collaborative ties with a number of countries through COMSATS. UAE's geographical location could help grow COMSATS' family to Gulf and Arab region.

In view of the UAE's strong global standing in Artificial Intelligence, proposal of instituting a regional hub in the said field was put forth.

H.E. Mr. Al Zaabi was appreciative of COMSATS' undertakings geared towards the realization of its mandate of promoting science-led sustainable development in the South. The Ambassador deemed it important to hold meetings with the office bearers of UAE's Government to stimulate bilateral cooperation in areas of mutual interest.

### Meeting with the Ambassador of Denmark to Pakistan

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, accompanied by COMSATS' officials, called upon H.E. Mr. Rolf Michael Hay Pereira Homboe, Ambassador of Denmark to Pakistan, on 25th September 2019.

During the meeting, the Honourable Ambassador was acquainted with COMSATS' programmes and activities that are crucial for meeting the various aspects of sustainable development. Denmark was invited to establish working relations with COMSATS through attaining country membership of the Organization.

Appreciating COMSATS' undertakings, H.E. Mr. Homboe informed that Denmark has a very strong development programme in Africa and COMSATS' activities in the African Member States can be supported through the various diplomatic missions of Denmark based in these countries. The Ambassador extended Denmark's support to COMSATS Member States for expert-exchange and capacity-building.

### Meeting with the Ambassador of Hungary to Pakistan

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, along with COMSATS'

officials met with His Excellency, Mr. Istvan Szaboi, Ambassador of Hungary to Pakistan, at the Embassy of Hungary, on 26th September 2019. Also present during the meeting was Mr. Tivadar Takes, Deputy Head of Mission at the Embassy. During the meeting, the two sides discussed matters related to enhancing scientific and technological cooperation between Hungary and COMSATS' Member States through various joint ventures.

Dr. Zaidi gave a briefing in which he apprised the Ambassador of COMSATS' programmes and activities aimed to address the socio-economic challenges in Member States.

Appreciating COMSATS' initiative for enhancing student exchange among its Member States, Mr. Szaboi noted the scholarship programme of Government of Hungary. The said programme, it was informed, is available for students of COMSATS Member States, including Pakistan, where it is being managed by Higher Education Commission (HEC).

### **Meeting with the Ambassador of Jordan to Pakistan**

The Ambassador of Jordan to Pakistan, H.E. Maj. Gen. (Retd) Ibrahim Yala Al Madani, along with Dr. Maen Khareasat, Deputy Head of Mission/Minister Plenipotentiary at the Embassy of

Jordan in Islamabad, visited COMSATS Secretariat, on 22nd October 2019.

The Executive Director COMSATS made a brief presentation on COMSATS covering the mandate, organizational structure, on-going and future programmes, international outreach as well as COMSATS' flagship projects. He highlighted COMSATS' efforts towards expansion of its membership, particularly to Gulf Cooperation Council (GCC).

Dr. Zaidi also acknowledged the active participation of the Royal Scientific Society (RSS), COMSATS' Centre of Excellence in Jordan, in COMSATS' activities. The Ambassador took keen interest in the activities of COMSATS' Network and desired to explore potential avenues of cooperation in areas of mutual interest.

Furthermore, the discussions during the meeting focused on enhancing collaboration between Jordanian universities and their counterparts in COMSATS Member States. Jordanian students were invited to benefit from the scholarship opportunities available at COMSATS University Islamabad (CUI).

### **Meeting with Delegation from Ethiopia**

A ten-member Ethiopian delegation led

by H.E. Dr. Markos Tekele, State Minister of Foreign Affairs, Government of Ethiopia, visited COMSATS Secretariat on 11th September 2019. During the meeting, the delegates held discussions with officials from COMSATS and representatives of Ministry of Foreign Affairs, Government of Pakistan.

During the meeting, the Executive Director COMSATS, Dr. S. M. Junaid Zaidi, briefed the delegates about COMSATS' programmes and activities tailored to meet the scientific and developmental needs of its twenty-seven (27) member states. The Organization, it was informed, has established linkages with relevant agencies in the North, in view of the emerging needs and global trends in development cooperation. Dr. Zaidi urged the delegates to encourage Ethiopian S&T/R&D institutions to join COMSATS Network of Centres of Excellence. Dr. Zaidi noted that Ethiopia's state membership to COMSATS will reap benefits for the Organization and its Network and will also help expand COMSATS' membership to East African countries.

The Ethiopian delegation expressed willingness to collaborate with COMSATS host country, Pakistan, for strengthening its agriculture sector. Further, they agreed upon the proposal for the establishment of top-class



higher education institute in Ethiopia with the patronage of COMSATS and international donor agencies.

## Participation in the Launch of the United Nations Global Sustainable Development Report 2019 in Ghana

On a special invitation from Dr. Eugene Owusu, Special Advisor to the President of Ghana on SDGs, COMSATS' delegation comprising of Mr. Nisar Ahmad, Deputy Director (Systems) and Mr. Farhan Ansari, Senior Assistant Director (Programmes) participated in the launching ceremony of Global Sustainable Development Report 2019, entitled "The Future is Now: Science for Achieving Sustainable Development", held at the United Nations Information Centre (UNIC) in Accra, Ghana, on 31st October 2019.

The launching ceremony was attended by representatives of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and UNIC in Ghana; Office of the President of Ghana; Forestry Research Institute, Council for Scientific and Industrial Research (CSIR); University of Ghana, Accra; Kwame Nkrumah University of Science and Technology (KNUST), Ghana; and Ghanaian Ministry of Planning, among others.

In his statement on the occasion, Mr. Cletus Alengah, Office of the President of Ghana for SDGs, informed that the Honourable President of Ghana, H.E. Nana Addo Dankwa Akufo-Addo, in his capacity as the Co-Chair of the United Nations SDGs Advocate Group is also facilitating the implementation of SDGs on a global scale.

Mr. Abdulrahmane Diallo, Head of Office and Representative of UNESCO in Ghana, and Dr. Ernest G. Foli (Forestry Research Institute of CSIR),

also spoke on the occasion.

## Consultative Meeting on Forum on S&T for Sustainable Development

A consultative meeting on COMSATS' upcoming "Accra Forum on S&T for Sustainable Development" and fourth General Meeting of the Commission, was arranged at the Secretariat of the Organization. The aim was to engage experts and scientists from academia, higher education and IT sector to share their experiences, views and thoughts to help rationalize plan of the said Forum and Meeting.

After a briefing on COMSATS, Dr. Zaidi introduced Nana Addo Dankwa Akufo-Addo, President of Ghana and Chairperson of COMSATS, as a strong personality of global prominence in various circles including those relating to SDGs.

The discussions during the meeting focused on identification of problems specific to the developing world that need strategic focus and judicious backing from high-level bodies. It was suggested, there is an increasing need to develop roadmaps for the translation of SDGs identified in accordance with the indigenous problems and challenges of the developing world.

A more coherent mapping of social needs in various professions was advised to help regulate policies for effective placement and distribution of human resource.

It was emphasized that developing countries need to invest in product development; innovation; value added products and services; wealth creation; linkages between R&D institutions and industry linkages. Universities, it was agreed, should be encouraged to collaborate with industries to

facilitate start-ups that would help build knowledge economy.

Other points discussed during the session pertained to: democratization and monetization of Artificial Intelligence (AI); data mining; rightful projection of R&D; means to harness the potential of North-South Cooperation; and government's interventions for developing coherent and well-integrated systems.

## COMSATS Telehealth (CTH) Participates in Workshop on Digital Health Strategy Organized by WHO

Dr. Azeema Fareed, Principal Medical Officer at COMSATS Secretariat, participated as an invited speaker in the "National Stakeholder Workshop on Developing a National Digital Health Strategy", held from 26th – 27th September 2019, in Islamabad. The Workshop was first of the series being held by the World Health Organization (WHO) in collaboration with the Ministry of National Health Services, Regulation and Coordination (NHRC), Government of Pakistan, to promote the use of digital technologies in healthcare and to streamline efforts for devising National Digital Health Strategies.

The event attracted a number of stakeholders from the Federal and Provincial Health Ministries; development and donor agencies, including UNICEF, USAID and GIZ; public and private sector organizations as well as NGOs working in the field of digital health.

During the Workshop, Dr. Fareed also shared COMSATS' experience in the field of telemedicine and elucidated the impact and various challenges faced by CTH in meeting the goals and targets of the Programme in Pakistan.

## SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

### ITI-Sri Lanka becomes Sri Lanka's First Accredited Proficiency Testing Provider

The Industrial Technology Institute (ITI), Sri Lanka, has been granted ISO/IEC 17043: 2010 Accreditation for Proficiency Testing, by Sri Lanka Accreditation Board (SLAB). As the first institute to offer this service in Sri Lanka, ITI will provide Proficiency Testing to National Quality Infrastructure.

ITI currently serves a large number of laboratories to prove evidence to their competency through Proficiency Testing programmes in water microbiology, food microbiology, and chemical and physical testing for cement.

### Scientists at ITI-Sri Lanka Develop Honey Quality Detection Kit

Scientists at Industrial Technology Institute (ITI), Sri Lanka, have developed a simplified low cost honey quality detection kit that will help farmers test the quality of honey on-field. In Sri Lanka, the quality of honey depends on various factors (storage time, temperature, adulteration with sugar, moisture content, etc.).

The Sri Lanka Standards Institute mandates that honey for human consumption should meet SLS 464:2016 standards. The current method of quality testing performed in laboratories is too time consuming and poses problems for farmers in sample shifting. ITI developed kit will be able to provide a cost and time effective alternative.

### Al-Farabi KazNU-Kazakhstan to Receive a Supercomputer from China

Under the umbrella of an Agreement signed between the Governments of the

Distinctions of ITI-Sri Lanka Scientists	
Award	Awardees
Gold Medal in the Commercialized Category under Technical Field of Food Technology for the Development of Ready-To-Serve beverage from Aloe vera at "Sahasak Nimavum - National Invention Exhibition 2019"	Dr. Ilmi Hewajulige, Ms. Sachini Jayawardana Ms. Ramya Pitipanaarachchi
Gold Medal in the Commercialized Category under Technical Field of Agriculture for the Development of Natural Pest Control, MASSAK NP at "Sahasak Nimavum - National Invention Exhibition 2019"	Dr. R. M. Dharmadasa
SLCARP Award for excellence in Agricultural Research 2019 - 1st Prize in plantation sector in consideration of the research project on "Bioactivity of Ceylon Cinnamon"	Dr. Kaushalya Abeysekera Dr. G. A. S. Premakumara
SLCARP Award for excellence in Agricultural Research 2019 - 1st Prize in non-plantation sector in consideration of the research project on "Enhancing preservation of fruits using nanotechnology"	Dr. Ilmi Hewajulige, Dr. Shanthi Wilson, Mr. Nisala Gunasekara, Ms. Yoga Milani, Ms. Shiranthi Perera, Mr. Dineth Samarawickrama, Mr. Anura Sooriyaarachchi Ms. Manori Wijemanna
SLCARP Award for excellence in Agricultural Research 2019 - Certificate of Commendation in non-plantation sector in consideration of the research project on "Formation of a para-pheromone from local varieties of Ocimum sanctum L. for the control of local fruit and melon flies"	Dr. R. M. Dharmadasa Dr. L. Nugaliyadda Dr. C. Manoratne Mr. A. M. L. Aththanayake

Republic of Kazakhstan and the People's Republic of China, a supercomputer shall be provided by the latter to the Al-Farabi Kazakh National University (KazNU), Kazakhstan.

The Agreement was signed during a



state visit of H.E. Mr. Kassym-Jomart Tokayev, President of Kazakhstan, to China. The supercomputer will be installed in the High-Tech Zone of KazNU that houses IT Technopark and the Center of Supercomputer and Cloud Computing created on the model of Silicon Valley.

Being a part of the government delegation to China, Rector of Al-Farabi Kazakh National University (KazNU), Prof. Dr. Galym Mutanov, met with the representatives of well-known high-tech companies and signed a Memorandum of Cooperation in high technologies with Inspur, Chinese IT enterprise.

Both sides explored prospects for the implementation of a joint project on the production of high-performance servers, data storage systems and personal computers in Kazakhstan, as well as the transfer of advanced digital technologies and scientific research.



## Scientific Events at Al-Farabi KazNU-Kazakhstan

Al-Farabi KazNU organized a Global University Summit from 19th to 21st September 2019, with an aim to improve the competitiveness of local higher education and the export potential of educational services. The three-day event included plenary meetings, panel discussions, business meetings, signing of Memoranda of Cooperation, and exhibition of the achievements of the world leading universities.

The event was attended by over 800 reputable academicians, scientists and experts from more than 50 countries, including representatives of the United Nations, United Nations Educational, Scientific and Cultural Organization (UNESCO) and other international organizations. Representatives of Microsoft, BBC, Elsevier, Springer Nature, YODAK, and AKSON, members of the SUN, USRN, the IREG Observatory on Academic Ranking and Excellence, as well as experts of the European Network for Accreditation of Engineering Education (ENAE), also participated in the event.

Another event, the international scientific conference on "Inverse Problems in Finance, Economics and Life Sciences" was held at KazNU, Kazakhstan, from 31st August to 4th

September 2019. The Conference brought together well-known scientists and young researchers working in the field of Natural Sciences for the exchange of experience and discussing joint scientific activities and project results. More than 90 scientists from China, Kazakhstan, Kyrgyzstan, Russia and other countries attended the event.

## AQU-Palestine Builds Ties of Cooperation with Varsities in Turkey and UK

An agreement has been signed

### International Recognition

Prof. Dr. Galym Mutanov, Rector of Al-Farabi Kazakh National University (KazNU), Kazakhstan, has been elected as the President of the International Association UNION (Universities Open Network). Dr. Mutanov was unanimously elected as the President at the grand opening of the QS Worldwide Forum, held in Almaty, Kazakhstan, from 19th to 20th September 2019.



between Al-Quds University (AQU), Palestine, and Marmara University, Turkey, for joint collaboration in scientific research and other areas of mutual interest. Prof. Imad Abu Kishek and Prof. Erol Ozvar, Presidents of AQU and Marmara University, respectively, signed the Agreement in Istanbul.

Under this Agreement, a peer-reviewed journal focusing on the Jerusalem issue will be launched and the two sides will co-organize an annual joint academic conference. Discussing the prospects of collaboration, Prof. Kishek expressed interest in collaboration in the field of medical sciences, such as clinical training at Marmara University for medical students of AQU.

In the similar vein, AQU has established collaboration with the International School for Government at King's College London, for development of academic programs at AQU. The collaboration was established during a meeting held between Prof. Imad Abu Kishek, President of AQU and Mr. Alexander Downer, Executive Chair of the International School for Government at King's College London.

## International Recognition of Director and Patron-in-Chief of ICCBS-Pakistan

Hunan University of Chinese Medicine (HUCM), Changsha, has established "Academician Professor Atta-ur-Rahman One Belt and One Road TCM Research Center" to honour the scientific contributions of renowned Pakistani scientist, Prof. Dr. Atta-ur-Rahman, Patron-in-Chief of the International Center for Chemical and Biological Sciences (ICCBS), Pakistan, in the field of traditional medicine.

The Centre was inaugurated on the sidelines of the 5th Annual Bio-TCM International Conference, held at



the Hunan University of Chinese Medicine (HUCM), on 24th October 2019. Apart from Prof. Dr. Atta-ur-Rahman, the ceremony was attended by H.E. Mr. Chaudhry Fawad Hussain, Federal Minister for Science and Technology, Government of Pakistan; Chinese Government officials; Mayor of Huanhua; and Prof. Dr. M. Iqbal Choudhary, Director ICCBS, among others.

On the other hand, Prof. Dr. M. Iqbal Choudhary, Director of ICCBS, has been elected as the member of the Executive Management Group (EMG) of the 'A Global Network of the Tropical

Neglected Diseases (NTD)'. Prof. Choudhary's extensive contribution towards Leishmaniasis research has earned him this credential.

### ICCBS-Pakistan Launches its Virology Center

ICCBS launched the National Institute of Virology at the Dr. Panjwani Center for Molecular Medicine and Drug Research (PCMD) ICCBS, Pakistan. H.E. Mr. Shafqat Mahmood, Federal Minister for Federal Education and Professional Training, Government of Pakistan, inaugurated the Centre, which is equipped with state-of-the-



art technologies for cutting-edge instruments for facilitating scientific research on viral and other diseases.

### Second Phase of TEST Project Launched by RSS-Jordan

Royal Scientific Society (RSS), Jordan, launched the second phase of the EU-funded project Transfer of Environmentally Sound Technology (TEST), on 11th September 2019. The launching ceremony was attended by officials of RSS, United Nations Industrial Development Organization (UNIDO), EU Delegation in Jordan, relevant Jordanian ministries, national institutions as well as industrial sector.

Being in line with the Jordan's national priorities and Sustainable Development Goal 9, TEST project aims at implementing the principles of resource efficient and cleaner production (RECP) in industrial sectors, companies and service providers in Jordan.

RSS will implement the second phase of the project in partnership with the Amman Chamber of Industry and in cooperation with UNIDO, national focal points from the Ministry of Industry, Trade and Supply as well as the Ministry of Environment. During the second phase, cooperation with academia, vocational training centers, university professors/master students, and financial institutions will be intensified to raise awareness on RECP.

### RSS-Jordan Holds Training on GHG Inventory and Analysis

RSS, Jordan, in collaboration with the United Nations Environment Programme (UNEP), held a workshop from 23rd to 24th September 2019, in Baghdad, Iraq, to train Iraqi officials on various aspects of the preparation of the Second National Communication and the First Biennial Report.



The two-day training workshop focused on providing in-depth training in following areas: Greenhouse gases (GHG) inventory system and IPCC software; IPCC 2006 guidelines in various sectors (energy, industry, waste, agriculture, forestry and land use); GHG mitigation analysis; and overview of Monitoring, Reporting and Verification (MRV) system.

### Project Meetings and Consultative Sessions held at RSS-Jordan

First National meeting of the "Local Community Initiatives to Preserve the Environmental and Cultural Heritages in Jordan", was held at RSS, Jordan, on 2nd October 2019. The meeting highlighted different initiatives by the local communities aimed at conserving the natural resources and cultural heritages, and recommended documenting all local practices, cultural heritages and indigenous knowledge being practiced in natural resources conservation.

Representatives from the Ministry of Agriculture, Ministry of Environment, Ministry of Culture, Ministry of Tourism and Antiquities, as well as community-based organizations, attended the meeting.

Furthermore, consultative sessions

on the implementation of the two regional projects: COOL-ME and BUILD-ME, were held at RSS, Jordan, from 3rd to 5th September 2019. The sessions held in cooperation with NAVIGANT, Germany, were attended by representatives from government bodies, commercial, industrial and private sectors.

The former project aims to meet the requirements of the KIGALI Convention in addition to improving energy efficiency in cooling systems, whereas, the latter one aims to improve the energy efficiency of buildings and promote the use of high energy efficient devices and equipment.

### TÜBİTAK MAM-Turkey Hosted Pharmacology Meeting

A meeting was held at TÜBİTAK



Marmara Research Center (MAM), Turkey, with a view to exchanging foresights on innovations in pharmaceutical sciences as well as to institute linkages between relevant Turkish stakeholders working in the field. The meeting had representation from Kocaeli University, Turkish Ministry of Industry and Technology, Kocaeli Chamber of Industry, as well as sector-leading pharmaceutical companies.

During the meeting, presentations were made by Dr. Osman OKUR, Director of TÜBİTAK MAM Institute of Chemical Technology; Prof. Şaban TEKİN, Director of Genetic Engineering and Biotechnology Institute; and Prof. Hüsnü EFENDİ from Kocaeli University.

### Environmental Labeling and Nitrate-Sensitive Zones Project Meetings Held at TÜBİTAK MAM-Turkey

The opening meeting of the Project on "Setting Environmental Label Criteria for the Service Group of Tourist Accommodation Facilities to ensure Sustainable Application and Raising Awareness of Environmental Label System in Turkey" was held at TÜBİTAK Marmara Research Center (MAM), Turkey, with the support of the Turkish Ministry of Environment and Urban Planning. The project will set environmental labeling criteria to



enhance environmental responsibility and quality of "Tourist Accommodation Facilities", in accordance with the requirements of the Eco label Regulation no. 66/2010/EU. The facilities meeting high performance and environmental quality standards will be conferred "Environmental Label Certificate" giving them an advantage in the competitive market. The meeting was attended by relevant stakeholders from public institutions and organizations, as well as NGOs.

Also, the second Working Group meeting of the "Project for Determining Nitrate-Sensitive Zones and Making Action Plans", coordinated by TÜBİTAK Marmara Research Center (MAM), Turkey, was held. The Project, owned by the Turkish Ministry of Agriculture and Forestry, will determine nitrate-sensitive zones in all the river basins of Turkey to develop relevant action plans.

### **TÜBİTAK MAM-Turkey Develops Turkey's First Submarine Active Sonar System**

TÜBİTAK MAM's Materials Institute Underwater Acoustic Laboratory (SAL) has successfully manufactured Turkey's first Active Sonar System for submarines (composed of transducers, power and electronic units) for the first time in Turkey. The integration and acceptance

procedures of the Sonar System have been completed on two submarines and the systems have been commissioned.

Being the first and only accredited infrastructure in the field of underwater acoustics, SAL conducts national and international scale studies in Turkey. The laboratory operates as an internationally "Designated Institute" in the field of underwater acoustics.

### **TIB-China Bridges R&D Cooperation with COMSATS' Centres of Excellence in Pakistan**

From 11th to 15th September 2019, Prof. Jibin Sun, Deputy Director General of Tianjin Institute of Industrial Biotechnology (TIB), China, visited Pakistan and had useful interactions at COMSATS Secretariat (Page 04) and two of COMSATS' Centres of Excellence in Pakistan, CUI, Islamabad, and ICCBS, Karachi.

At COMSATS University Islamabad (CUI), Pakistan, Prof. Jibin signed a Document of Understanding (DoU) between TIB and CUI, in the field of Industrial Biotechnology.

Prof. Jibin Sun also paid a two-day visit to the International Centre for Chemical and Biological Sciences (ICCBS), Karachi, for furthering collaboration

established earlier during the year between the two Centres through signing of an Agreement.

Accompanied by Mr. Farhan Ansari (Senior Assistant Director, Programmes at COMSATS Secretariat), Prof. Jibin met with Prof. Atta-Ur-Rahman (Patron-in-Chief of ICCBS) and Prof. Dr. M. Iqbal Choudhary (Director of ICCBS). Also present during the meeting were senior officials and scientists of ICCBS. During the meeting, presentations highlighting research facilities, ongoing projects and future plans of the two Centres were made to find common grounds for cooperation. During the discussions, Prof. Choudhary expressed interest to benefit from TIB's expertise in the field of industrial biotechnology and sought support for scaling-up the production of anti-epileptic compounds synthesized by ICCBS.

Some important areas identified during the meeting for future collaboration between two sides were: natural products sciences, traditional medicines, bio-transformation, bio-waste management, and indigenous development of raw materials for pharmaceutical industries. Prof. Choudhary invited researchers and scientists from TIB to visit ICCBS in order to benefit from the various technologies and facilities available with ICCBS.

A lecture on "Designing Cell Factory for Green Bio-industry" was also delivered by Prof. Jibin to the scientists and students of ICCBS.

### **Meeting of COMSATS' Delegation at CIF-Colombia**

A meeting was held at the Centro Internacional de Física (CIF), Colombia, between officials of CIF and COMSATS Secretariat during the visit of the latter to Colombia (Page 03). During



the meeting, Dr. Eduardo Posada, Director of the Institute highlighted multidisciplinary research work being undertaken by CIF in diverse fields and proposed conducting short courses on various topics in developing countries in collaboration with COMSATS. Discussions regarding operationalization of COMSATS' Regional Office in Bogota were also a feature of the meeting.

Subsequent to the meeting, the delegates were shown around various facilities and laboratories of the Institute, including Chip design laboratory, Cellular Bio Laboratory, Microbiology and Biochemistry Laboratories, Spectroscopy and Ranging (LIDAR) system, and Genetic Research Institute of National University.

### **CUI-Pakistan Signs Agreement with ICTP in Mathematical Sciences**

On 17th September 2019, Prof. Dr. Raheel Qamar, Rector of COMSATS University Islamabad (CUI), Pakistan, and Dr. Fernando Quevedo, Director of International Centre for Theoretical Physics (ICTP), Italy, signed an Agreement for the launch of first International Masters of Science (MSc) in Mathematics at Lahore Campus of CUI.

As part of this MoU, ICTP will support

outstanding students from around the globe for studying at CUI and facilitate Pakistani students to travel to ICTP to interact with leading scientists from around the globe. Design of curriculum and research proposals, as well as international faculty nominations for the program will also be carried out by ICTP.

### **Research Developments at CUI-Pakistan**

CUI has established a Rapid Prototyping Facility at its Islamabad Campus. The Facility inaugurated by Rector of the University, Prof. Dr. Raheel Qamar, houses major mechanical and electrical equipment required to fabricate products. The Facility will benefit university students and faculty members as well as collaborating industries to

help materialize product design into fully functional prototypes for their further testing.

In another development, students at COMSATS University Islamabad (CUI), Pakistan, have fabricated a cheap artificial skin for the treatment of burn and trauma patients as well as acid attack victims. This artificial skin will cost 22 cents per square inch compared to its imported version costing US\$22 for the same size.

### **Lahore Campus of CUI-Pakistan, held 7th PCBF-Industrial Expo 2019**

CUI Lahore Campus in collaboration with the Federation of Pakistan Chambers of Commerce & Industry (FPCCI) jointly organized the 7th Pak-China Business Forum- Industrial Expo 2019, from 2nd to 4th September 2019. The Forum, being held regularly since 2012, focused on Renewable Energy Technologies, New Energy Technologies, Information & Communication Technologies (ICT), Water Conservation, Purification & Sanitation, and Biomedical Materials. The event was inaugurated by the Honorable Federal Minister for Science and Technology, Mr. Fawad Hussain Chaudhry, who is also holding the Chair of COMSATS Consultative Committee.



Apart from business enterprises in South Asian market, renowned Chinese firms and companies, academia members, Pakistani business houses/SMEs, and R&D organizations, the event had the participation of several dignitaries, including Mr. Long Dingbin (Chinese Lahore Consul General) and Mr. Abdul Rauf Mukhtar (FPCCI Regional Chairman).

### **CUI-Pakistan Expands Academic Linkages to China and United Kingdom**

During the reporting period, delegations from Chinese academic institutions visited COMSATS University Islamabad (CUI) with the purpose to build academic linkages in areas of emerging sciences and bilateral interest.

During various meetings held at Islamabad and Lahore Campuses of CUI, the delegates from Beijing Technology & Business University (BTBU), College of Architecture and Urban Planning, Tongji University, Yunnan Academy of Social Science, and Chongqing Industry Polytechnic College (CQIPC) were briefed about University's academic programmes and outreach activities.

In the similar vein, a four-member delegation from the University of Kent, United Kingdom, visited CUI, Pakistan, and explored areas for collaboration between two sides apart from delivering awareness talks on study and scholarship opportunities available at the University of Kent.

### **CSIR-Ghana Organized Climate-Smart Regional Workshop in Collaboration with FAO**

Food Research Institute (FRI) and Science and Technological Policy Research Institute (STEPRI) of the



Council for Scientific and Industrial Research (CSIR) organized a two-day training workshop on "Climate-Smart, Innovative Food Preservation and Processing Technologies Applied by Women in Rural Area in Sub-Sahara Africa" in Accra, Ghana, in collaboration with the Food and Agriculture Organization (FAO) of the United Nations.

Prof. Victor Kwame Agyeman, Director General of CSIR, Ghana, in his welcome remarks, assured his institute's support towards efforts for reducing climate change impact on farmers and farmlands.

Mrs. Levina Owusu, Acting Chief Director of the Ghanaian Ministry of Environment, Science, Technology and Innovation (MESTI), while speaking on behalf of the Minister, appreciated the workshop's cause and pledged her Ministry's support towards activities geared at empowering rural woman in the efforts for reducing the impact of climate change.

During the workshop, innovative climate smart technologies applied by women in rural areas were identified for fostering their effective uptake, adoption and sustained use.

### **ICCES-China Hosts Researcher from University of Tehran-Iran**

On invitation by Prof. Lin Zhaohui, Director of the International Centre for Climate and Environment Sciences (ICCES), China, Dr. Omid Alizadeh-Choobari, Associate Professor at the Institute of Geophysics, University of Tehran, Iran, visited ICCES to present findings of study on the "Frequency of extreme El Niño and La Niña events under Global Warming".

In his presentation, Dr. Alizadeh-Choobari elucidated that due to global warming, eastern equatorial Pacific is warming faster than surrounding ocean waters accompanied with an increase in rainfall in the region.

It was shown that changes in the mean state of the tropical Pacific climate are indicative of El Niño pattern. Further, the study used various indices to find the number of extreme El Niño and La Niña events under global warming.

Dr. Alizadeh-Choobari also actively interacted with the researchers and students, and expressed his interest in pursuing potential collaboration with Chinese scientists.

## S&T AND DEVELOPMENT NEWS FROM MEMBER STATES

### Chinese Institutions are Making Headways in Medical Research

A research team at the Sun Yat-sen University Cancer Centre, Guangzhou, China, has developed a Gastrointestinal Artificial Intelligence Diagnostic System (GRAIDS) to aid the early and accurate diagnosis of upper gastrointestinal cancers (Xinhuanet, 10th October 2019). This AI-assisted screening model, developed on the basis of more than 50,000 and 120,000 endoscopic images selected from cancer patients and healthy individuals, respectively, can diagnose the upper gastrointestinal cancers with accuracy of more than 90 percent.



In another study, scientists at Fujian Medical University, China, have developed a sensitive DNA-based diagnostic test for Hepatitis B virus (HBV) that can distinguish between mutant strains of the virus (Asian Scientist, 31st October 2019). By combining two molecular techniques, i.e., co-amplification at lower denaturation temperature polymerase

chain reaction (COLD-PCR) and probe-based fluorescence melting curve analysis (FMCA), the scientists not only detected multiple HBV mutants at once but also distinguished different phases of HBV infection from the type of mutations found in HBV DNA. This method can also be used to predict patient's response to antiviral therapy based on HBV genotype.

### Morocco and Spain to Cooperate for Educational and Cultural Exchanges

Morocco has entered into an agreement with Spain for the advancement of education and cultural exchange between two sides. The agreement, "Promoting Spain-Morocco Cooperation in the New Programming Period 2021-2027", was signed by H.E. Mr. Karima Benyaich, Ambassador of Morocco to Spain, and Mr. Francisco de la Torre, Mayor of Málaga, respectively, at OMAU Málaga (Morocco World News, 30th September 2019). The Agreement will strengthen cooperation between Málaga, Spain, and municipalities in Morocco.

### Ghana Becomes the 3rd Country to Join WEF's Global Plastic Action Partnership (GPAP)

Ghana has planned to join Global

Plastic Action Partnership (GPAP), a public-private partnership of World Economic Forum (WEF), aimed at reducing plastic waste and pollution. After Vietnam and Indonesia, Ghana becomes the third country to join GPAP (Chemical Watch, 23rd October 2019).

Under the umbrella of this partnership, Ghana will develop a national plan for sustainable management of plastics, pollution reduction, and prevention of hazardous substances from leaking into the environment. The country will launch two initiatives with the aim to shift towards circular plastics economy: (i) National Plastic Management Policy for improving sustainability and reusability at every step of the plastic lifecycle; and (ii) Multi-Stakeholder Waste Recovery Platform to facilitate exchange of data and information on recycling.

#### Colombian PhD: It is Possible with Colciencias By: Mrs. María Piedad Villaveces

With great satisfaction, I should mention that the constitutional changes, which undertook in 2017 to improve the procedure for financing science and technology through royalties, are improving. Colciencias has opened a call for doctoral fellowships in Colombian Universities.

The conditions offered in this call with resources from royalties can be summarized as follows:

- Financial support for tuition: up to COL\$81,500 million;
- Financial support while undertaking studies: \$3 million per month for up to 48 month;
- International internship: 12 million pesos: 6 million for airfare, 1 for insurance and the rest for travel expenses for 3 to 6 months;
- The student acquires a debt that becomes forgivable once s(he) obtains PhD.

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# COMSATS AND PROMOTION OF BIO-ECONOMY

by Ambassador Fauzia Nasreen

Since its inception in 1994, the Commission on Science and Technology for Sustainable Development in the South (COMSATS) has endeavoured to consolidate linkages among the developing countries through scientific and technological cooperation with the end objective of promoting sustainable development and socio-economic transformations. In this context cooperation with the countries of the North have played a catalytic role because of rapid growth in science and engineering. The concept of Triangular Cooperation has further provided space for organizations like COMSATS in taking advantage of the new and emerging development

paradigms. COMSATS' scientific international Centres of Excellence play a pivotal part in addressing some of the development challenges confronted by COMSATS' member countries in such fields as education, ICT, health, climate change, water resources and food security and agriculture. Inter disciplinary approach to scientific and technological fields constitute the foundation of mutual collaboration.

All stakeholders in the scientific community are cognizant of a) the demands imposed by the fourth industrial revolution; and b) the increasing importance of Bio-economy. Critical breakthroughs

in technology and innovation are bringing about major transformations in every aspect of the planetary existence. The adaptation to and management of the challenges posed by the scientific and technological advancement are dependent on knowledge generation, adequate governance framework and the requisite resources (both human and material). Deficiency in these areas is not only widening the gap between developed and the developing world but is also creating disparities among the countries and regions of the South. Notwithstanding the inspirational goals of the 2030 Global Development Agenda of "reducing inequality" among and within countries and "leaving no one behind" the risks are enormous. These risks are compounded by climate change and environmental degradation within the vicious cycle of poverty, hunger, disease and institutional capacities.

In view of the growing vulnerability because of food insecurity and adverse impact on energy generation and progressive resources depletion, the field of Bio-economy has gained increasing traction. Understood as "an approach aiming to substitute conventional synthetic functions by applying innovative technologies which rely primarily on biological processes..."<sup>1</sup> Bio-economy requires a sound governance structure involving policy guidelines, strategic direction and institutional support. International collaboration, cooperation and sharing of experiences also on the basis of indigenous and traditional technologies can contribute significantly. "The term Bio-economy encompasses biotechnological activities and processes that translate into economic outputs, particularly

## Continued from page 16

I had only known this type of conditions in European countries or in Canada where there is an understanding of the importance of doctoral degrees to encourage citizens that are capable of promoting scientific knowledge in their countries. A particularity of this strategy is to strengthen doctoral programs offered by Colombian universities. That implies an effort to attract doctoral students to work for Colombian scientific needs prioritized by regions, according to the royalties financing scheme for Science and Technology.

With this call, Colciencias team (renamed as the Colombian Ministry for Science, Technology and Innovation) is pushing hard to promote public policies able to respond to needs of the country, such as:

- The use of science to respond to local problems;
- Strengthening doctoral capacities in

Colombian Universities impacting its international recognition;

- University capacity to attract the best students to stay in Colombia undertaking research;
- Economic incentives for Colombian students; and
- Social recognition that science can promote local development based on knowledge.

Now it is time for Colombian universities to respond to the call individually or in collaboration with facilitators of knowledge that can help in the management of the fellowships. The path is ready for applying to funds from Royalties for promoting research and innovation in Colombia for PhD students. From the Colombian Association for the Advancement of Science, we will be vigilant of the work done by universities applying to those funds to offer alternatives to students interested in applying to PhDs in Colombian Universities.

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those with industrial application.”<sup>2</sup>

In addition to the role of state, organizations like COMSATS are of paramount importance in pooling of resources and in providing stimulating environment to various stakeholders including societies and communities in making the transition towards innovative solutions and ways of conducting their day-to-day lives in a productive and sustainable way.

Bio-economy is deeply entrenched in the idea of sustainability, i.e., reliance on renewable resources and conversion of natural resources into food, feed, fibre and other bio-based products as well as bio-energy. There are several factors responsible for declining resources necessitating a shift towards Bio-economy pressing the need for innovative approaches to the sustainable use of natural resources. These include degraded ecosystems and loss of ecosystem services, land degradation and over exploitation of ocean fisheries and damage to biodiversity. In all the processes involving a shift towards Bio-economy, science and technology has a critical role. Therefore, it is heartening to note that in so many different ways COMSATS has paid attention to this field taking into account the dividends, it can bring to the societies and communities of its member countries. The world today is confronted with many challenges

that have serious repercussions for the sustainable survival of mankind and the planet, earth. There are urgent and decisive reasons for bringing about meaningful transformations that would arrest the negative implications through realistic and new methods of changing lifestyles, consumption and production patterns. The world population has increased manifold over the last few decades emphasizing the need to analytically look at the compulsions it would impose on adapting to the changes in several ways. Having crossed 7 billion, it is projected to touch 9 billion by 2043. The increase is not uniform region-wise. Some are witnessing rapid growth, the others aging population burdening the societies to provide for them. Because of conflict, war, hunger and disease, and dwindling economic opportunities the world is facing complex migration problems as well. Bio-economy could be an effective vehicle for minimizing and mitigating some of the effects particularly in the context of population matrix.

Moreover, Sustainable Development Goal 12, addresses the impact of population growth in relation to lifestyles and industrial growth. Captioned as “Responsible Consumption and Production” it outlines “promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent

jobs and better quality of life for all” as urgent goals. Similarly a UN report of 2018<sup>3</sup> underscores “the circle of consumption does not guarantee socially inclusive and sustainable outcomes.” In order to make the benefits of industrialization inclusive, incomes must flow to the bottom of the pyramid and environmental mitigation be addressed through changes in approaches and processes. The need, therefore, is for Bio-economy transformations that also involve entrepreneurs and businesses as well as behavioral change among the consumers. In the 21st Century due importance is being attached to “the contribution of Bio-economy in the management of natural resources in which bio-technology and bio-mass based production to generate economic output will continue to grow.”<sup>4</sup>

Policy coherence and comprehensive framework that has holistic approach is important in transformation to Bio-economy. The education system, research and development, reorganization and reorientation of existing institutions are some of the measures that could deliver the outcomes. Government of Pakistan’s two important initiatives: Poverty Alleviation Programme Ahsaas and Kamyab Jawan Pakistan for youth if aligned with the overall strategies such as SEZs, for SMEs, HEIs deserve special attention in this regard.

1. Iwa Issa et al, “Bio-economy from Experts’ Perspective-Results of a Global Survey”, 1 May 2019, <http://doi.org/10.1317/journal.pone.0215917>

2. The Bio-economy Strategy, Science and Technology” Department of Science and Technology, Government of South Africa, 2013, IBN No. 978-1-919966-9, [www.dst.gov.za](http://www.dst.gov.za)

3. United Nations Industrial Development Organization (UNIDO), Industrial Development Report of 2018, <https://www.unido.org>

4. Leito, Alexander, “Bio-economy: The Challenge in the Management of Natural Resources in the 21st Century”, Scientific Research, JSS Vol.4, 11 November 2016, <https://m.scrip.org/papers/72335>

**About the Author:** Ms. Fauzia Nasreen is a former diplomat with an extensive experience as a practitioner of diplomacy, researcher, trainer and manager. Her area of expertise is public policy, policy analysis, peace and conflict resolution and defence and strategic issues. Previously, she has served in various capacities in a number of missions. She has been ambassador to Nepal and Poland and High Commissioner for Australia. Ms. Nasreen has also been teaching as visiting faculty at prestigious higher education institutes of Pakistan. **Email:** [fauzia.nasreen@comsats.org](mailto:fauzia.nasreen@comsats.org)



## SCIENCE, TECHNOLOGY AND DEVELOPMENT

### Scientists Develop Tools to Predict Ozone Levels and Address Water Insecurity Crisis

An artificial intelligence-based ozone predicting system has been designed by researchers from the University of Houston, Texas, to predict ozone levels. The model has been developed using a convolutional neural network that predicts ozone levels for the next day by taking information from current conditions (Source: University of Houston News, 29th October 2019). Such a model can help improve health alerts for people in areas at heightened risk of developing problems because of high ozone levels. In comparison, this AI-based model predicts ozone levels in less time with greater accuracy. In the future, the model is expected to predict other pollutants as well.

In another development, an international team of more than forty researchers at Northwestern University, Illinois, has developed a Household Water Insecurity Experiences Scale (HWISE) scale to help policy development for addressing global water crisis (Source: Science Daily, 30th September 2019). The HWISE Scale generates water insecurity score based on responses of the householders, hence measuring multiple components of household water insecurity, such as adequacy, reliability, accessibility and safety. The team is partnering with UNESCO and Gallup to set HWISE Scale as a benchmark for global household water insecurity as well as to guide national and regional policy development regarding management of water crisis.

### Cost-Effective Soil Moisture Sensor Engineered to Aid Sustainable Agriculture

A team of engineers from the University

of Connecticut, Connecticut, have developed a soil moisture sensor to regulate water consumption in agriculture (Source: Innovation Toronto, 29th September 2019). This cost-effective sensor, designed and tested on the University's farm, is small enough to insert into the soil and costs far less than currently available sensors.

Accurate soil moisture sensing is essential to ensure a water level that produces the most robust crops while not wasting the natural resource and, in this connection, this sensor is expected to save nearly 35% of water consumption.



### Nanoparticles-aided Reduction of Carbon Dioxide

Scientists at Ruhr-Universität Bochum, Germany, and the University of New South Wales, Australia, have synthesized metallic nanoparticles (nanozymes) that can convert carbon dioxide into ethanol and propanol. By adopting enzymes principle of producing complex molecules in multi-step reactions, the team synthesized silver core nanozymes encapsulated in porous copper layer to catalyze electrochemical reduction of

carbon dioxide (Source: AZoNano, 2nd October 2019).

The team would further continue research for production of more chemicals such as ethylene or butanol using this cascade principle.

### Breakthroughs in Medical Science Have Paved Way for Real-time Testing of Drug Resistant Infections and Skin Cancer

Beta-lactam antibiotics are one of the most important classes of antibiotics. However, bacteria commonly develop resistance to this class of antibiotics by producing enzymes that break down beta-lactams. A group of scientists from University of York, England, tested the presence of these resistance enzymes by attaching the modified antibiotic to a sensor surface which enabled them to detect whether or not the drug was broken down (Source: PhysOrg, 9th September 2019). The team believes that this modified antibiotic can be applied to a variety of different bio-sensing devices for point-of-care use. This study has paved way to development of tests for drug resistant infections.

Using millimeter-wave rays, researchers at Stevens Institute of Technology, New Jersey, have developed a technique for detecting skin lesions apart from determining their malignancy (Source: LabRoots, 22nd September 2019). As cancerous cells reflect more energy than healthy skin cells, this technology can help identify diseased tissue making millimeter-wave reflectivity a reliable marker for cancerous tissue detection. This technology can be employed in a handheld device to be used directly on the skin for instant diagnostic reading of specific kinds of skin cancer based on their individual reflectivity signatures.

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

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

- Hundred (100) scholarships for students/researchers for postgraduate studies at all campuses of COMSATS University Islamabad (CUI), Pakistan.
- Five (05) post-doctoral fellowships at the International Center for Chemical and Biological Science (ICCBS), Pakistan.
- Five (05) post-doctoral fellowships at the National Research Centre (NRC), Egypt.
- Postgraduate Scholarships and Post-doctoral Fellowships at International Centre for Climate and Environment Sciences (ICCES), and Tianjin Institute of Industrial Biotechnology (TIB), under PIFI programme.
- One (01) post-doctoral fellowship at Bangladesh Council for Scientific and Industrial Research (BCSIR), Bangladesh.
- Five (05) Ph.D scholarships at Al-Farabi Kazakh National University (KazNU), Kazakhstan.

For further details on the scholarships, please visit [www.comsats.org](http://www.comsats.org) or write to [tajammul@comsats.org](mailto:tajammul@comsats.org) and [farhan@comsats.org](mailto:farhan@comsats.org).

## Selected Forthcoming Scientific Events in COMSATS' Countries

- 24-25 Feb. 2020 International Conference on Nano science and Nanotechnology, Gulu, Uganda  
(<http://conferencefora.org/Conference/4670/IC2N/>)
- 27-28 Feb. 2020 International Conference on Green Energy and Technology - ICGET 2020, Manila, Philippines  
(<http://researchfora.com/Conference2020/Philippines/1/ICGET/>)
- 2-4 Mar. 2020 International Conference on Innovative Technologies in Textile Industries Sustainability, Water and Energy Challenges, Cairo, Egypt  
([www.comsats.org](http://www.comsats.org))

## COMSATS Network of Centres of Excellence



BCSIR-Bangladesh  
[www.bcsir.gov.bd](http://www.bcsir.gov.bd)



Embrapa Agrobiologia-Brazil  
[embrapa.br/grobiologia](http://embrapa.br/grobiologia)



ICCES-China  
[english.icces.ac.cn](http://english.icces.ac.cn)



TIB-China  
[english.tib.cas.cn](http://english.tib.cas.cn)



CIF-Colombia  
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NRC-Egypt  
[www.nrc.sci.eg](http://www.nrc.sci.eg)



CSIR-Ghana  
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[www.iccs.edu](http://www.iccs.edu)



NMC-Nigeria  
[www.nmcabuja.org](http://www.nmcabuja.org)



CUI-Pakistan  
[www.comsats.edu.pk](http://www.comsats.edu.pk)



AQU-Palestine  
[www.alquds.edu/en](http://www.alquds.edu/en)



UCAD-Senegal  
[www.ucad.sn](http://www.ucad.sn)



ITI-Sri Lanka  
[www.iti.lk](http://www.iti.lk)



IRCC-Sudan  
[www.ircc.gov.sd](http://www.ircc.gov.sd)



HIAST-Syria  
[www.hiast.edu.sy](http://www.hiast.edu.sy)



TIRDO-Tanzania  
[www.tirido.org](http://www.tirido.org)



CERTe-Tunisia  
[www.certe.rnr.tn](http://www.certe.rnr.tn)



TÜBİTAK-Turkey  
[www.tubitak.gov.tr/en](http://www.tubitak.gov.tr/en)

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