COMSATS Newsletter

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

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COMSATS Telehealth (CTH) expands its Telemedicine services to District Jhelum, Punjab, through launch of a new Clinic.

H.E. Mr. Chaudhry Fawad Hussain, Federal Minister for Science and Technology, Government of Pakistan, inaugurated on 26th August 2019, the thirteenth CTH Clinic recently established in Pind Sawika, District Jhelum of Punjab. (Details on page 2)

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From the Executive Director's Desk

The world is in the midst of major transformation where technological revolution is affecting every aspect of our lives. Digital technology and broadband has provided access at a wider scale making it possible for people to share knowledge and ideas. Traditionally, Information and Communication Technologies (ICTs) have played a key role in fostering innovation driven initiatives. These technologies are now at the core of the current wave of transition that has international, regional, national and societal characteristics. These technologies have an essential relevance for implementing the Sustainable Development Goals (SDGs) and in devising new and effective means for overcoming the challenges that the world confronts today.

The complex science that is spurring innovation in the developed world depends on knowledge, financial resources, quality education and institutional capacity. Because of several constraints, the developing countries find themselves caught in a vicious cycle. As an institution, COMSATS draws satisfaction from the fact that it has endeavored to overcome this drawback through advancement of scientific and technological cooperation among its members from the South. At the cusp of COMSATS' Silver Jubilee I am heartened to see that the several initiatives of COMSATS, especially those related to health, education and capacity building have been flourishing. The use of ICTs nurtured over the last 25 years has translated the potential of ICTs in health and education meeting the societal needs in a befitting manner.

In order to avoid further increase in the scientific, technological and innovation gaps between the developed and the developing worlds, COMSATS remain sanguine of the need to harness North-South and Triangular Cooperation. This challenge has been duly recognized in the 2030 Global Development Agenda. Partnerships, technology transfer, financial support and other forms of institutional cooperation have been considered imperative for achieving the SDGs as outlined in Goal 17. Towards this end, COMSATS continues to engage with relevant agencies from across the globe to help achieve its mission. Under this framework, delegates from COMSATS continuously participate in international forums such as ICT and Innovation held in London and South-South Cooperation Conference held in Fiji during the reporting period.

Our ongoing initiatives to connect with the foreign missions in Islamabad included meetings with H.E. Mr. Danila Ganich, Ambassador of Russia and H.E. Mr. Paulo Neves Pocinho, Ambassador of Portugal. COMSATS also had the pleasure of receiving Dr. Sri Fatmawati, President of Organization for Women in Science for the Developing World (OWSD), Indonesia National Chapter. These meeting were useful in outlining the priorities of COMSATS for useful possible cooperation.

The highpoint was the visit of H.E. Chaudhry Fawad Hussain, Federal Minister for Science and Technology, Government of Pakistan, to COMSATS. The inauguration of another node of COMSATS' Telehealth in the district of Jhelum is indicative of COMSATS attention to the use of ICT for providing health services to wider communities. COMSATS remains conscious of its socio-economic commitments and its efforts in this direction would continue with vigor.

We are highly thankful to our partners as well as members of our Network for their continued support towards our programmes and activities, and welcome feedback from all stakeholders.

New CTH Clinic in District Jhelum receives Patronage from Government of Pakistan

H.E. Mr. Fawad Chaudhry, Federal Minister for Science and Technology, Government of Pakistan, inaugurated COMSATS Telehealth services at Basic Health Unit (BHU), Pind Sawika, District Jhelum, on 26th August 2019.

The clinic will benefit the residents of Pind Sawika and nearby communities in District Jhelum, through provision of live tele-consultations from COMSATS Resource Centre housed at COMSATS Internet Services (CIS). Speaking on the occasion, Mr. Chaudhry appreciated COMSATS teleheath programme and the role of COMSATS in development of information technology and its good application in the country. Speaking on the occasion, Dr. S.M. Junaid Zaidi, Executive Director COMSATS, highlighted the need for better and prompt access to healthcare facilities and considered telehealth a valuable means in this connection.

Later on August 30, Mr. Chaudhry inaugurated the telehealth clinic at the other end (BHU, Pind Sawika of District Jhelum). Chief Executive Officer (District Health Authority) and District Health Officer of Jhelum District along with other notable figures were also present during the inauguration. Speaking at the inaugural, Mr. Chaudhry lauded CTH for helping the local communities through provision of free-consultancy and ultrasound service.

Meetings with representatives from Foreign Missions and Official of OWSD

Portuguese Ambassador (25th July 2019)

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, paid a courtesy call to the newly appointed Ambassador of Portugal to Pakistan, H.E. Mr. Paulo Neves Pocinho, at his office in Islamabad on 25th July 2019. Dr. Zaidi was accompanied by Ambassador (R) Fauzia Nasreen and Mr. Qaiser Nawab.

In the brief meeting, the Ambassador was apprised of COMSATS' programmes and activities along with international collaboration and partnerships that the organization has cultivated during the span of its 25 years of existence. In particular, COMSATS' association with the European Union (EU) was underscored which the organization is endeavoring to capitalize on for the expansion of its membership to European countries and scientific organizations. Further during the meeting, possibility was explored for the nomination of a leading Portuguese S&T organization to join COMSATS Network of International S&T Centres of Excellence.

The Ambassador was appreciative of COMSATS' undertakings and assured his support for future programmes and activities of the Organization.

Russian Ambassador (12th July 2019)

A delegation of COMSATS led by the Executive Director COMSATS, paid a courtesy call on the newly appointed Ambassador of Russian Federation to Pakistan, H.E. Mr. Danila Ganich, on 12th July 2019, at his office in the Embassy of

Russia in Islamabad.

Discussions were held about building and enhancing cooperation between COMSATS and Russia in various domains, especially academics. Dr. Zaidi expressed desire to enhance exchange of faculty and students between the two sides and to foster cooperation in S&T. To this end, H.E. Mr. Danila Ganich recommended participation in Pak-Russia Intergovernmental Commission (IGC) on trade, economic, scientific and technical cooperation scheduled to be held in December 2019, in Islamabad.

President OWSD, Indonesia

Dr. Sri Fatmawati, President of Organization for Women in Science for the Developing World (OWSD) – Indonesia National Chapter, and Assistant Professor at Institut Teknologi Sepuluh Nopember (ITS), Surabaya, Indonesia, visited COMSATS Secretariat, on 23rd August 2019.

Dr. Fatmawati gave a detailed account on her institute's faculties, human resource and programmes along with the research collaborations that ITS has forged since the time of its establishment in late 1950s. The services available include: Science Techno Park, Product Innovation, and Professional Workforce Development. It was informed that the Institute has been hosting OWSD – Indonesia National Chapter since 2018. It aims to promote a culture of scientific excellence among Indonesian women through various training and capacity-building programmes and activities.

In response to a briefing by Dr. Zaidi on COMSATS, Dr. Fatmawati expressed willingness to institute bilateral cooperation with 22 Centres of Excellence (CoEs) of COMSATS in areas of mutual interest. She informed that ITS is already working in collaboration with one of the CoEs of COMSATS, i.e., the International Center for Chemical and Biological Sciences (ICCBS), Pakistan, in the field of natural product sciences.

Further during the meeting, the matter of Indonesia's state membership to COMSATS and affiliation of any S&T/R&D Indonesian institute with COMSATS as a CoE, were also discussed.

Engagements with the Officials of the Host Government

Mr. Muhammad Ehsan Ullah Tiwana, Chairman National Assembly Standing Committee on Foreign Affairs, Pakistan

Mr. Muhammad Ehsan Ullah Tiwana visited COMSATS Secretariat, Islamabad, on 22nd August 2019, and received a briefing on COMSATS' undertakings aimed at achieving sustainable development of the South through due utilization of S&T.

Mr. Tiwana appreciated COMSATS' efforts for the capacity building of scientific community in developing countries. In particular, he was appreciative of COMSATS' activities in the field of education. He also identified agriculture as an important area in Pakistan in which there is a need for building and sustaining capacities; and

underscored the need for adopting latest technologies for increasing crop yield and agriculture production.

Mr. Tiwana's pledged his support for COMSATS' on-going and future initiatives.

Ms. Andleeb Abbas, Parliamentary Secretary, Ministry of Foreign Affairs (MoFA), Pakistan

Ms. Andleeb Abbas, Parliamentary Secretary, Ministry of Foreign Affairs (MoFA), Pakistan, visited COMSATS Secretariat, Islamabad, on 8th August 2019.

She was apprised of COMSATS' undertakings, membership and international partnerships. COMSATS, she was informed, is mandated to cultivate and promote S&T culture in the 27 developing countries of the South that are member to COMSATS. The briefing given to her, inter alia, highlighted COMSATS' role as one of the advocates of South-South and Triangular Cooperation.

Ms. Andleeb appreciated the mandate with which COMSATS is operating and contributing to the well-being of the developing world. She considered S&T the backbone of any developmental activity and driver of knowledge economy and innovation. She shared the vision of the current government to have the Universities as major contributors towards making Pakistan a knowledge economy.

Ms. Andleeb assured her full support towards COMSATS' operations for improving its national and international stature.

Observances and Talks on Important Issues

COMSATS Commemorates International Nelson Mandela Day

COMSATS Secretariat and Institute of Peace and Diplomatic Studies (IPD) organized a talk in order to commemorate Nelson Mandela International Day, with a theme: "Nelson Mandela's Legacy: Lessons for Today and Tomorrow". It attracted participation from members of diplomatic community, members of civil society as well as students.

The talk delivered by H.E Christo Janse Van Noordwyk, Acting High Commissioner, South African High Commission in Pakistan, highlighted the various aspects and characteristics of Nelson Mandela's leadership.

He underscored the strong affiliation of Nelson Mandela with Pakistan and its struggle for independence. He noted Pakistan's support to South Africa during its Liberation Struggle. Mr. Noordwyk stated that Nelson Mandela promoted African philosophy of Ubuntu (humanness) for the advancement of unity in South Africa as well as globally, irrespective of race, creed and orientation. He said that Nelson Mandela always supported the cause of freedom of the people through peaceful means and didn't support violence in any form and manifestation.

Speaking on the occasion, Amb (R) Fauzia Nasreen underscored the recognition that Nelson Mandela had received globally as a true statesman. Further, she brought to light the association and recent accreditation of COMSATS with Commonwealth of which South Africa also holds membership.

The South African Deputy Head of Mission appreciated COMSATS for its untiring work to narrow the gap between the developed and developing countries through technological and

scientific tools of knowledge sharing.

Talk on "Community Building in ASEAN"

A talk on "Community Building in ASEAN" was organized jointly by the Institute of Peace and Diplomatic Studies (IPD) and COMSATS on 16th July 2019, at COMSATS Secretariat, Islamabad. The event was attended by a number of diplomats, faculty members, media representatives, civil society members and students.

H.E. Mr. Daniel Ramos Espiritu, Ambassador of Philippines to Pakistan, while delivering the talk underscored the pillars on which strong building of ASEAN rests especially the values and norms set forth by the leaders of the countries in the historical past. He stated that in its seven magnificent decades of existence, ASEAN has provided assistance to all the member countries. To further bridge the development gap between the ASEAN members, developed economies are working towards the progress of the less-developed ones.

The Ambassador noted that apart from economic connectivity, human connectivity holds great significance for the ASEAN community. ASEAN though inspired from other regional groupings of the world, he added, has its own pace of growth and set its course through consensus among its members.

Talk on "Peaceful Cohabitation in Rainbow Islands: A Case Study of Mauritius"

A talk on "Peaceful Cohabitation in Rainbow Islands: A Case Study of Mauritius" was jointly organized by COMSATS and the Institute of Peace and Diplomatic Studies (IPD) at COMSATS Secretariat, Islamabad, on 11th July 2019. The lecture was attended by members of the diplomatic community, students and officials of COMSATS and IPD.

H.E. Mr. Soobadar Rashidally, High Commissioner of Mauritius in Islamabad, while presenting Mauritius' case history, presented his country as an isolated island with a population of 1.2 million that has set an example of peaceful coexistence of multi-culturalism and multi-ethnicity. Mauritius was established in 1968 on Fabian socialism and has a strong democratic system that unites and harmonizes its diverse nation. He considered Mauritian constitution pivotal in safeguarding the political as well as social interests of Mauritius.

His Excellency enumerated meritocracy,

rule of law, and democracy as key factors resulting in the socio-economic development of his country.

He informed that Mauritius is a 'unique welfare state' that derives its strength from democracy, fair distribution of wealth, cultural competence, diversity, social inclusion, unity, strong political system, and meritocracy. The Ambassador informed that provision of free high-quality education and health is state's responsibility in Mauritius.

The country, he stated, was awarded Mo. Ibrahim prize in 'Good Governance', stands 1st in Africa and 20th in the world in terms of ease of doing business; 1st in Africa and 21st in the world in terms of economic liberalism; 1st in Africa and 49th in the world in terms of global competitiveness; and 1st in Africa and 16th in the world with respect to democracy index.

Participation in International Fora

Commonwealth ICT and Innovation Open Day, London

Ambassador (R) Shahid Kamal, Advisor (Environment and Climate Change) at COMSATS Secretariat, participated in the 1st Commonwealth

ICT and Innovation Open Day, held at Marlborough House, London, on July 29, 2019. The Open Day focused on one of the themes (ICT and innovation) of the forthcoming Commonwealth Heads of Government Meeting (CHOGM) scheduled to be held in Kigali, Rwanda in 2020.

The event provided a platform to members of the diplomatic communities, Commonwealth organisations and partners to understand, appreciate, and reflect the work on data, digital transformation and innovation; showcase new products and services; as well as to increase the potentials for co-creation and innovation in the future.

Speaking on the occasion, Secretary General, H.E. Patricia Scotland, stated that Commonwealth has entered into partnerships with Bloomberg, GSMA and Global Innovation Fund in the backdrop of organization's motive to expand and sustain its capacity for undertaking wide-ranging tasks.

Various sessions of the event covered briefing on Commonwealth Innovation Hub and Data Platform along with presentations by representatives of GSMA (United Kingdom) and Bloomberg (United States). Briefings on online services, including Commonwealth Consultants database, OCCJR, Meridian and i-Library, were also a part of the event. The example of Rwanda's successful digital transformation and the setting-up of Kigali Innovation City as a leading innovation hub in Africa were also underscored during the event. As part of the Commonwealth-Bloomberg collaboration, Commonwealth Connected workspace was also launched. The facility will provide cutting-edge analysis and data on trade, economics and finance, and will be used for video conferencing, meetings and training.

During his sideline meeting with H.E. Patricia Scotland and Dr. Nabeel

Goheer (Assistant Secretary General at Commonwealth), Ambassador (R) Kamal explored the possibility to further the bilateral cooperation between the two organizations through joint activities.

South-South Cooperation Conference of PIDF

COMSATS' delegation, comprising of Dr. Azeema Fareed (Principal Medical Officer) and Ms. Farhana Saleem (Senior Publications and Communication Officer), participated in the second Pacific Islands Development Forum (PIDF) Leaders' Summit and Conference 2019, held from July 29 – 30, 2019, at Nadi, Fiji.

The Conference was themed "South-South Cooperation for a Resilient Pacific", and attended by country representatives from Fiji, Federated States of Micronesia, Kiribati, Marshal Islands, Nauru, Palau, Solomon Islands, Timor Liste, Tonga, Tuvalu, and Vanautu, who reviewed the achievements and challenges of PIDF since the last Leaders' Summit held in July 2016.

The event was inaugurated on July 29, 2019, in a ceremony featuring welcome remarks of PIDF Secretary General, H.E. Mr. François Martel, in which he stated that PIDF in the backdrop of global developmental challenges serves as the platform for South-South Cooperation in the Pacific Islands with a focus on sustainable development and poverty eradication. The premiers of Solomon Islands, Nauru, Tuvalu, and Seychelles, also delivered keynote addresses during the ceremony.

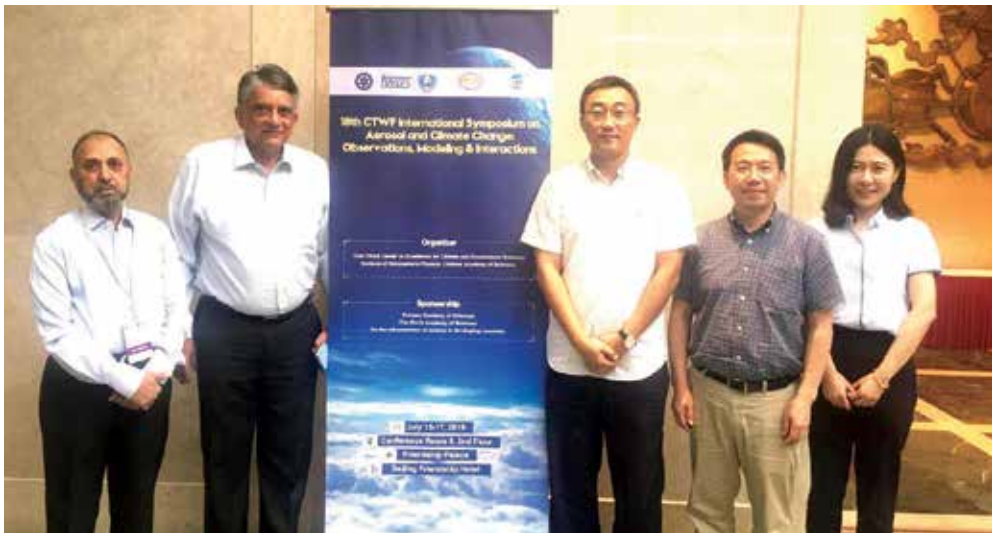
The inaugural was followed by eight plenary sessions spanning two days. As a panelist of the first session themed "South-South Cooperation: The Global Experience and Relevance to the Pacific", Ms. Saleem made a statement wherein she highlighted COMSATS' focus on South-South Cooperation and Sustainable Development. She featured COMSATS' role in: (i) Advocacy and harnessing political will for development activities; and (ii) Science communication and finding indigenous solutions. She linked COMSATS' undertakings with the main theme of the event, i.e., Climate Change. Other panelists of the session included representatives from United Nations Office for South-South Cooperation (UNOSSC), United Nations Development Programme (UNDP), Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP), Melanesian Spearhead Group Secretariat, and China International Centre for Economic and Technical Exchanges (CICETE).

Subsequent sessions focused on: best practices of South-South and Triangular Cooperation from Pacific Island Countries; public and private sector engagement strategies to capitalize on the potential of blue/green economy; multi-stakeholder partnerships for Islands resilience; and leveraging scalable and replicable innovative solutions from the Global South for building resilience.

Representatives from Fiji Ministry of Employment, Fiji Ministry of Forests, Pacific China Friendship Association, Chinese Ministry of Agriculture and Rural Affairs, China Oceanic Development Foundation, Asian Development Bank, Pacific Centre for Environment and Sustainable Development, Pacific Island Farmers Organization Network (PIFON), Pacific Islands Private Sector Organization, United Nations Office for the Coordination of Humanitarian Affairs, International Bamboo and Rattan Organization, Pacific Blue Foundation, Huawei, Suntech, Fiji Ministry of Economy, 350, USP Law School, and Pacific Island Students Fighting Climate Change (PISFCC) participated during the subsequent sessions.

The event focusing on Climate change resulted in Nadi Bay Declaration on the Climate Change Crisis in the Pacific. The Declaration, adopted on 30th July 2019, entailed all parties and relevant stakeholders, inter alia, to:

- Taking immediate actions for addressing climate change and sea level rise in the Small Islands Developing States (SIDS);
- Ceasing coal mining and production;
- Relinquishing the subsidies to fossil fuels;
- Adopting renewable energy for electricity generation and transport;



and

- Support mitigation and adaptation efforts through deployment of Green Climate Funds.

On the sidelines of the Conference, COMSATS' delegates held meetings with representatives of PIDF, UNOSSC, SunTECH, Huawei, Pacific China Friendship Association, and Pacific Islands Universities Research Network (PIURN).

International Events in China

A two-member delegation of COMSATS comprising of Mr. Tajammul Hussain, Advisor (Programmes), and Gen (R) Muhammad Tahir, Advisor (China Desk), visited People's Republic of China from 14th – 18th July 2019. The purpose of the visit was to participate in two international scientific events on atmospheric aerosol and climate change, organized by ICCES, China (Details on Page 9), as well as to reinforce ongoing collaboration with COMSATS' focal point and Centres of Excellence in China.

On the sidelines of the symposium, COMSATS' officials held a meeting with the senior officials of the Bureau of International Cooperation – Chinese Academy of Sciences (CAS), and the International Centre for Climate and Environment Sciences (ICCES), China, on 17th July 2019.

Present during the meeting were Mr. Yan Zhuang, Director, Division of International Organizations, Bureau of International Cooperation, CAS; Prof. Zhaohui Lin, and Ms. Scarlett Hao, Secretary of International Collaboration, ICCES, China. The two sides discussed bilateral international programmes tailored to meet the scientific needs of COMSATS member states.

It was informed that a Technology Park has been set up by CAS in COMSATS host country, Pakistan, in collaboration with the Chinese Ministry of Science and Technology (MoST). Furthermore, the possibility of replication of China-Pakistan Earth Science Center (ESC) in other member states of COMSATS was also discussed.

The matter of COMSATS' membership to the Alliance of International Science Organizations in Belt and Road Region (ANSO) was also touched upon during the meeting.

In order to enhance cooperation in academics, it was proposed that COMSATS University Islamabad (CUI) may collaborate with the University of Chinese Academy of Sciences (UCAS) and University of Science and Technology of China (USTC) for short-term visits, mutual exchanges and various collaborative programs.

COMSATS' member states and Centres of Excellence were encouraged to avail the various opportunities available under CAS President's International Fellowship Initiative (PIFI) and ANSO fellowship and scholarship program.

COMSATS Sponsors Chinese Scientist for Participation in International Events in Nigeria

Prof. Ming Zhang from Peking University, Beijing, participated as keynote speaker in the 4th TYAN International Thematic Workshop and 1st African Symposium on Big Data, Analytics and Machine Intelligence for Financial, Health and Environmental Inclusion in Developing Countries, held from 10th – 12th June 2018, in Akure, Nigeria. The participation was realized through COMSATS sponsorship of Prof. Zhang under COMSATS' sponsorship and fellowship activities to help build capacities of and facilitate exchanges between member countries, in this case, Nigeria and China.

Prof. Zhang's work presented during the event focused on 'Learning the Joint Representation of Heterogeneous Temporal Events for Clinical Endpoint Prediction' and 'Knowledge Graph/ Representative Learning'.

The thematic workshop was jointly organized by TWAS Young Affiliates Network (TYAN) and Federal University of Technology Akure (FUTA), Nigeria, and had representation from 17 developing countries particularly of African region.

SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

ICCES-China hosted the 18th CTWF International Symposium and Launching of International Network on Climate and Environment Sciences (INCES)

The 18th CTWF International Symposium on Aerosol and Climate Change: Observations, Modeling & Interactions was held in Beijing, China, from 15th – 17th July 2019. The Symposium was jointly organized by CAS-TWAS International Centre for Climate and Environment Sciences (ICCES), Institute of Atmospheric Physics (IAP) – Chinese Academy of Sciences (CAS), and The World Academy of Sciences (TWAS).

Prof. Jiang Zhu, Director-General, IAP; Ms. Kai Feng, Bureau of the International Cooperation, CAS; and Professor Xiaohong Liu, University of Wyoming, USA, spoke at the inaugural session. The technical proceedings of the event comprised of following three sessions: Aerosol-Climate Interactions, Aerosol Observations, and Aerosol Representation and Modelling in ESMs. Around 41 distinguished scientists and researchers from Australia, USA, China, Egypt, Ethiopia, Germany, Indonesia, Israel, Iran, Vietnam, Palestine, Sri Lanka, Thailand, Pakistan, Kazakhstan, Nepal, Nigeria, and Senegal presented their scientific papers during the Symposium. The Symposium was followed by the launching of the International Network on Climate and Environment Sciences (INCES) on 17th July 2019. Speaking on the occasion, Prof. Zhaohui Lin, Director, ICCES, stated that INCES aims to provide a collaborative platform to the network members in Belt and Road Countries. He added that the Network will facilitate data sharing, training of young scientists for capacity building, and foster scientific collaboration for the study of climate change impacts, observation, and prediction of climate and environmental extremes.

The Network will consist of four regional groups, i.e., African, Central & Middle East Asian, South-East Asian, and South Asian Group. At present, the following six (06) COMSATS Centres of Excellence are members to the Network: Council for Scientific and Industrial Research (CSIR), Ghana; National Research Centre (NRC), Egypt; University Cheikh Anta Diop of Dakar (UCAD), Senegal; Al-Farabi Kazakh National University (KazNU), Kazakhstan; Al-Quds University (AQU), Palestine; COMSATS University Islamabad (CUI), Pakistan; and Industrial Technology Institute (ITI), Sri Lanka.

ICCES-China Hosts International Workshop on Atmospheric Aerosol

International Training Workshop on

Atmospheric Aerosol: Observation, Modelling and Impact, was held from 18th – 20th July 2019, in Beijing, China. The Workshop was jointly organized by ICCES, Chinese Academy of Sciences (CAS), Chinese Ministry of Science and Technology (MoST), COMSATS, and the National Satellite Meteorological Centre (NSMC). The workshop was organized with the objective to build capacity of students and young scientists from developing countries, including COMSATS' member states, with a view to engaging them in aerosol observation and related issues.

The inaugural ceremony was presided over by Prof. Lin Zhaohui, Director of ICCES-China, and attended by Mr. Tajammul Hussain, Advisor (Programmes), COMSATS Secretariat; Major Gen (R) Muhammad Tahir, Advisor (China Desk), COMSATS Secretariat; Ms. Kai Fneg, Deputy Director, Division of International Cooperation Bureau of International Cooperation, CAS; and Ms. Lu Zhang, Director of Department of Science Planning, Institute of Atmospheric Physics (IAP).

Speaking on behalf of the Executive Director COMSATS, Gen (R) Muhammad Tahir considered aerosol pollution the most significant factor contributing to the global changes in climate and emphasized studying the causes and impact for generating solutions and mitigation strategies. He appreciated the R&D activities being undertaken at ICCES under the stewardship of Prof. Zhaohui Lin.

In his welcome remarks, Prof. Lin considered the workshop extremely important in context of meeting the scientific needs of the developing countries, in particular the Belt and Road Countries. In her inaugural remarks, Ms. Fneg stated that CAS attaches great importance to international cooperation and considers it an effective platform to maximize potentials and resources worldwide to advance science for addressing global challenges.

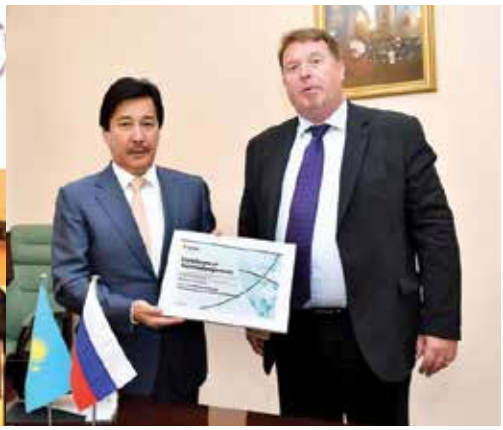
During the four technical sessions that followed, subject-experts and eminent scientists provided training on the following topics: Aerosol-Climate Interaction; Aerosol Observation; Air Pollution Forecast; and Aerosol Observation Platform. The training benefited around 80 Chinese and foreign scientists including more than 40 foreign representatives from Egypt, Ethiopia, Ghana, Indonesia, Iran, Kazakhstan, Pakistan, Palestine, Senegal, Sri Lanka, Thailand, Vietnam, Nigeria and Nepal.

The training was followed by on-site visits to the various facilities of National Satellite Meteorological Centre of China Meteorological Administration (CMA) and the Institute of Atmospheric Physics of Chinese Academy of Sciences (CAS).

RSS – Jordan Organizes Regional Workshop on Entrepreneurship for Scientists and Engineers

The iPARK of the Royal Scientific Society (RSS) , Jordan, and the Islamic Educational, Scientific and Cultural Organization (ISESCO), Morocco, jointly organized a Regional Workshop on "Entrepreneurship for Scientists and Engineers in Member States" from 4th – 5th August 2019, under the patronage of Her Royal Highness Princess Sumaya





bint El Hassan, President of RSS, Jordan. The workshop was aimed at developing skills of the participating scientists and engineers in the fields of innovation as well as raising awareness regarding the role of intellectual property, technology transfer, and commercialization.

The workshop attracted scientists and engineers from Saudi Arabia, Kuwait, Oman, Egypt, Lebanon, and Jordan.

RSS – Jordan Holds First NLA Meeting about Waste water Reuse in Agriculture

RSS, Jordan, held the first National Learning Alliance (NLA) meeting for the "Reuse of Reclaimed Waste water for Agricultural Purposes and Its Contribution to National Water Security", on 17th July 2019. The meeting was held as part of the regional project "Waste water Reuse in the MENA Region: Addressing the Challenges" that is being implemented in Jordan by RSS in collaboration with the International Management Institute (IWMI) and with the patronage of the Swedish International Development Cooperation Agency (Sida).

Different sessions of the event highlighted the challenges and opportunities associated with wastewater reuse in Jordan, particularly in Jordan Valley, along with the importance of studying the long term impacts of wastewater reuse on soil and plant.

Held under the framework of SDG6, the meeting was attended by stakeholders from governmental bodies, academia, NGOs, international donors as well as farmers.

KazNU-Kazakhstan to Establish Joint Centres in Collaboration with Turkish and Canadian Universities

Al-Farabi Kazakh National University (KazNU), Kazakhstan, has entered into an Agreement with the McGill University, Canada. Under the MoU, signed in the field of medicine, the two sides will establish a joint Neuro-Rehabilitation Center within the City Central Clinic Hospital, Almaty.

McGill University will transfer new technologies for the treatment and rehabilitation of neurodegenerative diseases along with providing ongoing consultancy and assistance regarding the establishment of the Centre. As part of the signed Agreement, students at medical faculty of KazNU will be provided training and both sides will conduct collaborative research work.

On the other hand, Al-Farabi KazNU and Antalya Bilim University, Turkey, signed a Memorandum of Cooperation for bilateral faculty and student exchange, scientific internships and implementation of research projects. Under this MoC, the two sides will cooperate in the fields of tourism, hotel business, medicine, modern technologies, and will also establish a Joint Modern Dental Center at KazNU, Kazakhstan.

KazNU-Kazakhstan Co-organizes International Event on Nanomaterials

Al-Farabi KazNU, Kazakhstan, in collaboration with the Nazarbayev University, Astana; Institute of Batteries LLP, National Laboratory Astana, Nazarbayev University; and National Laboratory Astana, Nazarbayev University, organized the VII International Conference on Nanomaterials and Advanced Energy

Storage Systems (INESS-2019), from 7th – 9th August 2019.

The Conference focused on innovation nanomaterials, energy storage systems, materials for electrochemical sensor and electro-analytical applications, security and utilization of batteries, development of batteries for electronic transport, instruments for modeling in material sciences, and systems of energy transformation.

The event attracted researchers and scientist from Turkey, Canada, United Arab Emirates, Japan, South Korea, China, Russia, United Kingdom, and France.

ICCBS-Pakistan Sets up R&D Facilities for Forensic DNA Testing and Viral Diseases Research

The International Center for Chemical and Biological Sciences (ICCBS), Pakistan, has set-up a state-of-the-art Forensic DNA and Serology Laboratory at the Jamil-ur-Rahman Center for Genome Research of Dr. Panjwani Center for Molecular Medicine and Drug Research (PCMD). The laboratory has been established under the patronage of Sindh Forensic Authority and is equipped with modern research equipment and R&D facilities.

In view of the rapidly evolving strains of viruses and the increasing incidences of viral diseases in Pakistan, ICCBS, in collaboration with the University of Tübingen, Germany, is setting-up a Virology Center at PCMD. The research facility is aimed to advance the virology research, contribute knowledge policies and good practices.

Apart from studying the viruses, this Bio-Safety Level-3 (BSL-3) Laboratory will help determine the anti-viral activity of various compounds for vaccine development.

Senior Faculty Member of CUI-Pakistan Honored with Star of Excellence

In recognition of his contribution to the field of Nanotechnology, Nanoscience and Applied Physics, Prof. Dr. Arshad Saleem Bhatti, Dean of Faculty of Science at COMSATS University Islamabad (CUI), has been conferred Pakistan's Third Highest Civilian Award, *Sitara-i-Imtiaz* (Star of Excellence), on 14th August 2019. The President of Pakistan confers the Award each year to acknowledge meritorious contribution to the national interests of Pakistan, world peace, cultural or other significant public endeavors.

CUI-Pakistan Campuses Organize Events on Nanomaterials & Sustainable Development

The Department of Chemical Engineering, Department of Physics, and Interdisciplinary Research Centre for Biomedical Sciences (IRCBM), of CUI Lahore Campus, jointly organized the "First Functional Nanomaterials Summer Camp under Mega Summer School", from July 29 – August 02, 2019.

The Camp consisted of hands-on training modules on characterization equipment, including Potentiostat, Impedance Spectroscopy, Atomic Force Microscopy, Scanning Tunneling Microscopy, Conductivity, IV measurements for energy device, RF measurements using Vector Network Analyzer (VNA) and wet chemical synthetic procedures for films and nanoparticle growth. During the various modules, the participants were also provided training on the use and potential applications of data analysis softwares.

On the other hand, 8th International Conference on Environmentally Sustainable Development (ESDev) was held at Abbottabad Campus of CUI, from 21st – 23rd August 2019. The Conference was aimed at promoting research and developmental activities in the field of Environmental Science and Development. The three-day event covered presentations on various aspects of environmental sustainable development given by international speakers from Canada, Italy, Greece, China, Japan, Turkey, Tajikistan, and Malaysia.

AQU-Palestine Establishes Ties with German Institutes

Professor Imad Abu Kishek, President of Al-Quds University (AQU), Palestine, visited Germany with a view to expand academic and scientific bilateral cooperation as well as promote student exchanges and training. In connection with this, Prof. Kishek signed agreements of joint cooperation with a number of German universities and institutions. During a meeting with Mrs. Bellma Manchai, Marketing Director of Ortel Mobile, Düsseldorf, Prof. Kishek stressed the importance of engaging the students into the market, both locally and abroad, to allow them to gain practical experiences, which will in turn help promote the Palestinian economy.

Later, a delegation from Heinrich Heine Universität Düsseldorf (HHU), Germany, visited AQU, Palestine, to further the established cooperation between two varsities. During the meeting, progress of Dual Studies Master's Program, sponsored by the German government and jointly implemented by both universities, was discussed. Under this program, students of Al-Quds University will be provided the opportunity to exchange experiences with European peers and utilize modern international knowledge in education and research.

UNIDO-IRCC-Sudan Joint Project Concludes Successfully

The Industrial Research and Consultancy Center (IRCC), Sudan, under the Five-Year Plan (2015-2019) with United Nations Industrial Development Organization (UNIDO), has successfully executed the project titled: "Reduction of Persistent Organic Pollutant chemicals (POPs) in Leather Industry". The project was aimed at introducing eco-friendly alternatives to Persistent Organic Pollutant chemicals (POPs) which are used in tanning process so as to support the Sudanese leather industry in a sustainable manner. The closing ceremony of the project was held on 21st July 2019, at the National Leather Technology Center (NLTC) of IRCC.

TÜBİTAK-MAM Organizes Workshop on Tools and Indicators to Assess Black Sea's Environmental Status

Within the framework of the ANEMONE Project for Joint Monitoring of the Black Sea, TÜBİTAK Marmara Research Center (MAM), Turkey, organized a Workshop on "Tools and indicators for the integrated assessment of the Black Sea's environmental status" , from 19th to 20th June 2019. The Workshop was aimed at sharing of experience regarding application of indices for making a regional status assessment for the Black Sea, as well as evaluate the suitability of NEAT (Nested Environmental status Assessment Tool) and CHASE (Chemical Status Assessment Tool) for use in environmental assessment of the Black Sea marine environment.

The workshop attracted participants from Bulgaria, Georgia, Romania, Ukraine, and Russian Federation as well as speakers from international organizations including Black Sea Commission (BSC), the European Commission Joint Research Center (EC JRC), the Hellenic Center for Marine Research (HCMR) and specialists from Spain (AZTI) and Denmark (NIVA).

Textile Industries Research Division National Research Centre (NRC), Cairo, Egypt

Textile Research Division (TRD) is one of the most important divisions in National Research Centre (NRC). It now has about 180 professional members that specialise in textile science, technology and manufacture. TRD is involved in industrial planning, management, implementation, supervision and evaluation of R&D projects, industrial auditing, and textile testing. These are aimed at development of textile industry and wet processing.

A lot of research work was conducted in the division to explore industrial-scale applications. Several textile factories from public and private sectors are expected to be included in this division for improving industrial applications. Some are already cooperating with the Division in various activities.

Some applications of emerging technologies of special interest to the Division are as follows:

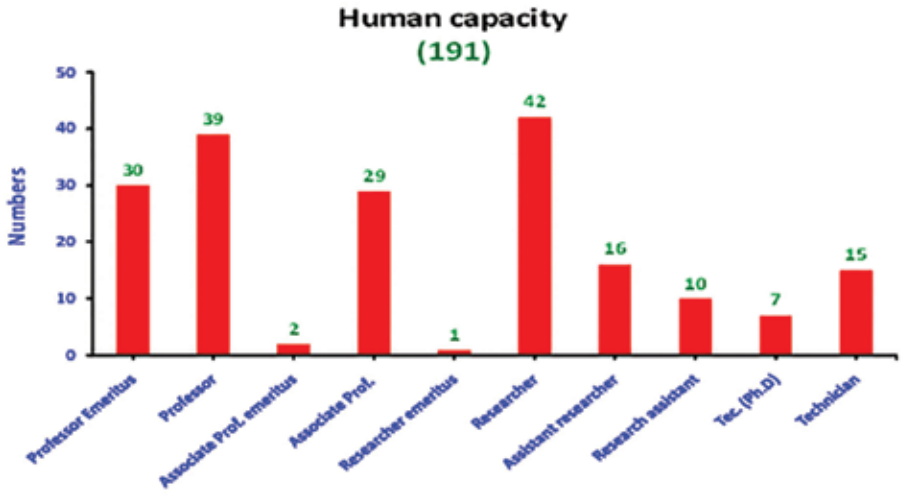
- Nano-coating technology and smart coatings for material reinforcement, protective clothing, medical textiles, as well as creating self-cleaning fabric;
- Biotechnology;
- Plasma technology;
- Electrospining technology for producing nanofiber;
- Microencapsulation of chemical finishes and fragrances including phase-change materials for thermoregulation, aromatherapy/ fragrance release and cosmeto-textiles and skin care benefits, insects repellent textiles;
- Microwave technology;
- Supercritical carbon dioxide in dyeing process; and
- Green chemistry and Eco-textiles.

Human Resource at TRD		
Research Publications of TRD (2018)		
Scopus (Top 10)	Scopus	Scopus (Top 10) %
27	113	23.89%

Unit of Special Status

The unit was established in 1987 with the concept of avoiding the routine and prolonged procedures to offer best possible services to industrial and government companies and authorities, universities and research centers and various commercial sectors.

TRD also has a Center of Excellence for Innovative Textile Technologies and Products, which has the objective to facilitate the transition from academic



TEXTILE INDUSTRIES RESEARCH DIVISION (TRD)

Research Facilities and Equipments

UV/Vis spectrophotometer

Hunter-Lab spectrophotometer

Spectrofluorometry

IR Spectroscopy

Scanning Electron Microscope

Atomic Absorption Spectroscopy

knowledge into industrial applicable technologies. Strengthening the partnerships between the textile industry and R&D institutions to provide innovative solutions are a key priority.

The unit provides the following services: consultancies; industrial and environmental auditing; testing and analysis of textile materials; establishment of control labs; qualifying mills for eco-labels; and training programmes.

In addition, the unit aims to aid the plan of developing and modernization of Egyptian textile industry to increase its competitive edge.

Lab facilities

TRD is well-equipped with instruments and equipment for treatment and analysis of the textile materials. Beside many others, the central labs of the TRD are equipped with plasma discharge, freeze-dryer, nozzle-less electro-spinneret, SEM, TEM, pilot-scale spinning and weaving machines, spray-coater, and contact angle.

Most of the equipment needed for analysis and testing of textile materials is available in the TRD laboratories.

Capacity Building Activities by TRD

The Division has held a number of workshops on: spinning and weaving; pretreatment and finishing of cellulosic fibers; protein and synthetic fiber; coloration technology; knitted and ready-made garments. Besides, TRD has organized the 8th round of the International Conference on September 24th – 26th (2017).

Prizes and Awards

Several professors of TRD were honored African Union Kwame Nkrumah Scientific Awards (AUKNSA). These include: Prof. Dr. Ali Hebeish (2016) and Prof. Dr. Nabil Abdelbaset (2012).

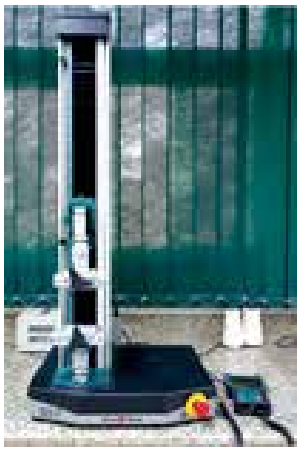
Moreover, some professors of TRD received other prizes including the Nile Awards, State Merit Awards, State Awards of Excellence, and State Encouragement Awards.

TEXTILE INDUSTRIES RESEARCH DIVISION (TRD)

Research Facilities and Equipments

Air Permeability Tester

Contact Angle



Tensile Machine

UPF Measurement

DIGITAL HEALTH – AN OVERVIEW OF COMSATS MEMBER STATES

by Dr. Azeema Fareed

Since the advent of the era of ICTs, the global interest in digital health and its various offshoots has increased manifold. World Health Organization (WHO) is determined to harness the positive potential of digital technology to promote good practices in healthcare and improve relevant outcomes.

The Global Observatory for ehealth (GOe) was launched by WHO in 2005, for the study of usage and evolution of ehealth as well as its impact on general health of people in different countries. A survey was carried out by GOe in 2015 on the use of ehealth in support of universal health coverage and was published in the form of an atlas comprising profiles of 125 member states of WHO (https://www.who.int/goe/publications/atlas_2015/en/).

An analysis of profiles of COMSATS' member states shows that currently the use of IT in health and the prospects of it being used in these countries are less than desirable. However, huge potential exists in these countries for the development of ehealth to be utilized as a means for health systems improvement. A glance at the relevant stats is given in the following paragraphs.

The average physician density in COMSATS' member states per 1000 population is 1.04 with 44% member countries having less than 1 doctor per 1000 population. The situation of LDCs within COMSATS is even bleaker with

> "Harnessing the power of digital technologies is essential for achieving universal health coverage," says WHO Director-General Dr Tedros Adhanom Ghebreyesus. "Ultimately, digital technologies are not ends in themselves; they are vital tools to promote health, keep the world safe, and serve the vulnerable."

only 0.155 physicians available per 1000 people. Besides low physician density for the population, the uneven distribution of the available physicians within these countries further exacerbates the situation. Most of the doctors prefer to stay in urban areas due to more prospects of jobs, better facilities for provision of care and continuous education opportunities. Such situation renders the rural population deprived of adequate healthcare of which human resource is the central need.

Similarly, availability of hospitals/health facilities is also a major issue in these member countries. The burden of disease in COMSATS' member countries is high while the number of beds available per 10,000 patients remains quite low; an average of 22 beds available for 10,000 persons. This further makes the optimal utilization of resources even more challenging. Overall, there is a huge disparity ranging from 132 beds in North Korea to just 3 beds available to 10,000 persons in Bangladesh and Senegal. The average for LDCs among COMSATS' member countries is 3.6.

Since early 2000s, there have been efforts to introduce ehealth into the mainstream healthcare all over the world, including COMSATS' member countries. As per WHO survey, 12 member states (48%) of COMSATS have a national ehealth policy that indicates the growing recognition of the importance of ehealth in the South. On average, 58% and 22% WHO member states have a national ehealth and a separate telehealth policy, respectively. However, none of COMSATS' member countries have a separate specific telehealth policy. According to WHO, countries with no specific policy can incorporate telehealth as a component of their national ehealth policy.

A vital factor in the successful implementation of ehealth is ICT trained health workforce; therefore, training of healthcare professionals in ICTs use in health is crucial. It is encouraging to know that more than half member countries provide ehealth training to healthcare students in some form with most of them continuing in-service training in ehealth.

Integration of telehealth in the mainstream healthcare systems, particularly in the remote regions is still an elusive idea in many parts of the world, with silo programs and projects mushrooming world-wide

About the Author: Dr Azeema Fareed has been working in the field of Digital Health and eHealth for past 18 years. She is a proud member of the team that initiated Telehealth at COMSATS and has been in the forefront in all the related activities of the organization. She is a medical doctor by profession and holds Master's degree in Health Informatics from COMSATS University Islamabad (CUI).
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and in developing countries. More than 50% of COMSATS' member countries report to have tele-radiology programme, most of which are established programs. While in tele-dermatology, less than 50% member countries of COMSATS' report to have implemented programs, out of which half are in the pilot phase.

Despite tele-psychiatry being the most convenient telehealth program only one-fourth of the member states implement it, most of them in pilot phase. In COMSATS' member states, various telehealth programmes are implemented at the subnational level, including district or provincial levels or below, with a few operating at the international level.

Electronic health records (EHR) of the patients are an important feature of ehealth. It supports and assists provision of healthcare both in conventional health systems and through telehealth, thus helping in building database of patients and their ailments which can be easily assessed in terms of available and required resources. This helps increase efficiency of any healthcare service.

The numbers of applications and softwares that maintain patient records have increased manifold over the years but most of them are vertical projects used for working in a particular environment. This makes such information systems useless when it comes to referrals of the patients in remote areas and urban settings or for use in early disease warning.

A holistic national level EHR is the solution. Only one fourth of the member countries of COMSATS have a national EHR system. Out of these countries usage of the national EHR within the three tiers of health system,

namely primary, secondary and tertiary care facilities, is still low. Out of these countries, only China, Kazakhstan and Turkey have EHR applied at 75 % or more health facilities of primary, secondary or tertiary levels.

Owing to the increase in the usage of Internet, e-learning is becoming more widely spread and accepted mode of learning. Telehealth, though primarily focuses on clinical care, provides an additional benefit of capacity building of health professionals, especially those residing in rural areas. In COMSATS' member states, eLearning is being used in one form or another in at least one of all fields of health, including medicine, dentistry, public health, nursing, etc.

Mobile health (mhealth) provides leverage over other means of communication because of its vast coverage of populations. With an average of 87% mobile subscription coverage in COMSATS' member countries, cell phones can be used to access the health services, provision of healthcare, provision of health information and collection of patient information. The GOe survey reveals that all COMSATS' member countries have at least one mobile health program covering the above-mentioned uses of mobiles in health. Most of these programs are at regional, district or local levels.

Smart phones have also paced up the use of social media by users. Use of social media by individuals and communities for learning about health issues is common in more than half of COMSATS' member countries hence providing a good base for mobile health (mhealth) interventions.

Despite the differences in their socio-economic status, all COMSATS' member countries have many similar challenges in healthcare. Nonetheless, they are adopting digital health in a variety of ways. This has become the driving force behind foremost agenda of COMSATS telehealth that telehealth can become a tool for these developing countries to address relevant issues by integrating telehealth into their health systems.

Colombian Institute Co-develops High Precision AI Tool to Curb Panama Disease

Researchers have put artificial intelligence (AI) to use by developing an app for mobile phones to help fight diseases affecting banana plants, including Fusarium wilt, or Panama disease. The soil-borne fungus threatens the Cavendish banana, a variety that constitutes half of the global banana production and vastly exported globally (SciDev.Net, 21st August 2019). This development is especially important as the Tropical Race 4 (TR4) strain of the disease was causing havoc in Colombia.

The app, which has acquired a 90 % precision, was designed by scientists from the Colombia-based International Center for Tropical Agriculture (CIAT), the Imayam Institute of Agriculture and Technology (IIAT), in India, and Texas A&M University, in the US. The app helps obtain data from small farmers who do not have necessary means to collect it otherwise and make it available for scientists. Through the app, the pictures taken by farmers can be scanned and sent to a global database that would help map the state of pests. The early stage detection thus made possible could help farmers deal with the disease timely and more effectively.

Ghana and Germany collaborating on RE Plants and TVET

On July 29, 2019, an agreement was reached between Germany and Ghana on a five million euro grant facility to build a 400-kilowatt demonstration hybrid waste to energy plants. The overall objective of the project is to develop waste into energy using hybrid solar PV, biogas and a pyrolysis plant (Ghana News Agency).

The project would help advance Ghana's quest to attain the Sustainable Development Goals (SDGs) agenda. Professor Kwabena Frimpong-Boateng, the Minister of Environment, Science, Technology and Innovation, and COMSATS Focal Point in Ghana signed the agreement on behalf of Ghana, while Madam Anja Karliczek, the Federal Minister of Education and Research of the Federal Republic of Germany was the signatory from German side.

The project (2019-2023) would involve three German Research Partners, six Ghanaian Research Centres, two industrial partners from Germany, three partners from Ghana, among others. The project is expected to put to good use the 12,000 tons of waste generated in Ghana on a daily basis. Apart from producing biogas for use as fuel, the project would help ensure a cleaner environment; and slow transmission of deadly diseases.

On July 30, Ghana signed an agreement with Germany for support to develop the skills of its youth in the Technical, Vocational and Educational Training (TVET) sector (Ghana Web). Under the agreement, Germany will support Ghana in the establishment of skills training centres par excellence. Dr Mathew Opoku Prempeh, the Minister of Education signed the agreement on behalf of Ghana. He highlighted The Government of Ghana's "One District, One Factory" programme.

He laid special emphasis on improving youth's skills training to support various sectors of the economy. He urged Germany to help Ghana assess and improve its skills training. In this regard, Ms. Anja Karliczek, the German Federal Minister of Education and Research, pledged due assistance to Ghana.

Jordan houses the UN-affiliated Regional Centre for Space S&T Education for West Asia

On August 21, 2019, HRH Princess Sumaya bint El Hassan inaugurated the headquarters of the UN-affiliated Regional Centre for Space Science and Technology Education for West Asia. The centre is the first of its kind in Jordan and fifth in the world and is an indicator of Jordan's international stature in the field of astronomy (The Jordan Times).

At the launching, Brig. Gen. Awni Khasawneh, Director General of the Regional Centre for Space Science Education, shared the Centre's plans to launch academic programmes on space science and its application, space weather and space communication.

Scientists Develop Device to Convert Wasted Thermal Energy into Electricity

The thermal radiation wasted from electronics and other machinery can now be utilized to produce electricity. Mathieu Francoeur, Associate Professor of Mechanical Engineering at University of Utah, USA, and his team have fabricated a 5mm-by-5mm chip from thin silicon wafers that can convert the wasted thermal energy back into electricity *(Nature Nanotechnology, 1st July 2019)*.

The team believes that further development of the chip could also increase the battery life of the laptops and photovoltaic solar panels as well as help heat-emitting technologies operate at cooler temperatures.

Model Developed To Predict Floods

A novel physically based Bayesian network model for the inference and prediction of flood duration has been developed by an international research team at The City College of New York, USA *(Science Daily, July 15, 2019)*. The model also accurately examines the timescales of flooding. It is also able to mitigate potential risks imposed by longer duration floods on critical infrastructure systems such as flood control dams, bridges and power plants.

The model is based on 50 years' data of Missouri River Basin and it is a part of Devineni's DOE Early Career project funded by the United States Department of Energy.

Breakthroughs in Nanomaterials and Synthetic Biology Could Help Treat Damaged Heart Tissue and Cancer

Scientists at Texas Heart Institute (THI), Houston-Texas, and Rice University, have been able to restore conductivity to damaged hearts by using thin, flexible and biocompatible fibers made of carbon nanotubes (CNTs) as electrical bridges *(Physicsworld, 16th August 2019)*.

The team found that the fibres were able to restore myocardial conduction across scar without controlled external pacing in an acute electrophysiology study on rodents. The fibres maintained conduction for one month after atrioventricular nodal ablation but required atrial pacing in a chronic study.

The study did not find any gross or histopathologic evidence of toxicity. This research has opened doors for the drug-free restoration of electrical conductivity of heart damaged due to congestive heart failure, dilated cardiomyopathy, or a heart attack.

In another development, scientists at Imperial College London have created artificial cells that mimic biological cells by responding to external chemical changes through activation of an artificial signaling pathway *(Science Alert, 3rd August 2019)*. Response to external chemical changes is a vital function of natural cells to synthesize certain proteins, boost energy production, coordinate a response, send a signal (such as a pain impulse) or to communicate with neighboring cells.

In this study, published in the Proceedings of the National Academy of Sciences, scientists created a porous membrane enclosed artificial cell bearing smaller cells ('vesicles') inside. The cell senses the calcium ions in the surroundings allowing them to enter inside and activate enzymes that cause the vesicles to release particles that fluoresce.

The team believes that such synthetic biological structures could be used to sense cancer markers or dangerous heavy metals in the environment to synthesize a drug within the body or release selective sponges to clean the heavy metals, respectively.

Biofuel Production by Cyanobacteria from Solar Energy

Cyanobacteria – the most efficient photosynthetic organisms on Earth – have been modified by a research team at Uppsala University, Sweden, to efficiently produce high levels of alcohol butanol by using carbon dioxide and solar energy, without using solar cells (Innovation Toronto, 28th July 2019).

The butanol produced can be used in the automotive industry as fourth generation biofuel thereby replacing fossil fuels.

This research was a part of EU Photofuel project coordinated by vehicle manufacturer VW that aims to develop the next generation of techniques for sustainable manufacture of alternative fuels in the transport sector.

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 or write to tajammul@comsats.org and farhan@comsats.org.

Selected Forthcoming Scientific Events in COMSATS' Countries

20 Nov. 2019	Eurasia International Conference on Tissue Science and Regenerative Medicine (ICCTS), Aleppo, Syria (http://eurasiaweb.com/Conference/353/ICCTS/)
24 Nov. 2019	International Conference on Mechanical and Aeronautics Engineering (ICMAE-2019), Gulu, Uganda (http://conferencefora.org/Conference/355/ICMAE/)
28 Nov. 2019	World Congress on Soil and Water Sciences (WCSWS-19), Mogadishu, Somalia (http://asar.net.in/event/index.php?id=1000395)

COMSATS Network of Centres of Excellence

BCSIR-Bangladesh www.bcsir.gov.bd

Embrapa Agrobiologia-Brazil embrapa.br/grobiologia

ICCES-China english.icces.ac.cn

TIB-China english.tib.cas.cn

CIF-Colombia www.cif.org.co

NRC-Egypt www.nrc.sci.eg

CSIR-Ghana www.csir.org.gh

IROST-Iran www.irost.org

ICENS-Jamaica www.icens.org

KazNU-Kazakhstan www.kaznu.kz/en/

RSS-Jordan www.rss.jo

ICCBS-Pakistan www.iccs.edu

NMC-Nigeria www.nmcabuja.org

CUI-Pakistan www.comsats.edu.pk

AQU-Palestine www.alquds.edu/en

UCAD-Senegal www.ucad.sn

ITI-Sri Lanka www.iti.lk

IRCC-Sudan www.ircc.gov.sd

HIAST-Syria www.hiast.edu.sy

TIRDO-Tanzania www.tirdo.org

CERTE-Tunisia www.certe.rnrt.tn

TÜBITAK-Turkey www.tubitak.gov.tr/en

Honourable mentions: Mr. Tila Mohammad, and Mr. Anya Augustine Igwebuike

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