



COMSATS Newsletter

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

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The Chairpersonship of COMSATS Consultative Committee has been passed from Federal Secretary to Federal Minister level raising the portfolio of Committee's profile.

Current Minister of S&T of host country Pakistan, H.E. Mr. Chaudhry Fawad Hussain, assured his support towards COMSATS' operations, in his capacity as the new Chairperson of COMSATS Consultative Committee, during a visit to COMSATS Secretariat. (Details on page 2)

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From the Executive Director's Desk

Rapidly emerging global markets accompanied by the fourth industrial revolution are increasingly influencing socio-economic development in the Global South. The Global South is especially vulnerable to the consequent changes due to multi-faceted issues including governance, globalisation, poverty, mal-nutrition, poor health and the slow speed of progress in science and technology. The consequent inadequacies place the South in a stark contrast with the North that has outpaced the South in science, technology and innovation. Institutions in the South are generally deficient due to poor understanding of the complexity of the diverging problems that may require simple but innovative solutions.

COMSATS is an active agent of building relevant capacities in developing countries through promotion of science and technology, education, health, and S&T/R&D capacity building with a strong focus on institutional development. With an array of technical and human resources available within the Network of Centres of Excellence, the scope of our activities is broad in both time and space, and necessitates enhanced integration of the efforts aimed at bridging the development divide between the North and South. Of late, our efforts for North-South-South (Triangular) Cooperation present great hope for breaching new grounds in institutional cooperation

and science diplomacy that aid our on-going mission of S&T-led sustainable development. The Global Agenda 2030 is strategically placed at the core of all programmes of COMSATS.

We feel highly honoured to have hosted a visit of H.E. Chaudhry Fawad Hussain, Federal Minister for Science and Technology, Government of Pakistan, during the reporting period. In a recent development in this regard, the Chairpersonship of the Ministerial Consultative Committee now rests with the Minister of S&T of the host country, Pakistan. This graduation underscores the strong support of the Government of Pakistan to COMSATS statutes and various bodies for which we are especially grateful.

COMSATS' engagement with various embassies and high officials of foreign countries in Islamabad has helped in disseminating the mission of COMSATS, harness their support for COMSATS' programmes and increase the likelihood of COMSATS membership expansion. Meetings were held with the Ambassadors of Bosnia & Herzegovina, Spain and Azerbaijan, during the reporting period.

We are highly indebted to all the collaborating institutions and individuals for their patronage of our programmes and look forward to their continued support.

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HIGHLIGHTS FROM COMSATS SECRETARIAT

New Chairperson Consultative Committee visits COMSATS Secretariat

The new Chairperson of COMSATS Consultative Committee, H.E. Chaudhry Fawad Hussain, the Federal Minister for Science and Technology, Government of Pakistan, visited COMSATS Secretariat on 19th June 2019, for the first time after assuming the charge of his Ministry.

During the meeting that was held in the presence of senior officials of COMSATS Secretariat, the Minister was given a briefing on COMSATS' mandate, flagship projects, current and future programmes. Dr. S. M. Junaid Zaidi, Executive Director COMSATS, apprised the Minister of COMSATS' plans to establish in its member states the Centres on Climate Change and Sustainability, Nanotechnology, Genomics, Mathematics, Artificial Intelligence and Robotics.

Furthermore, it was informed that consultations are being made with the Association of Commonwealth Universities (ACU) for setting-up COMSATS University in four countries, i.e., Egypt, Nigeria, Sri Lanka, and Tanzania. Mr. Fawad Hussain was



appreciative of COMSATS' efforts to establish new universities and centers on critical issues in the developing countries and considered them an excellent example of international diplomacy.

Apart from COMSATS Tele-Health (CTH) Network established in the suburbs of Islamabad and far-flung areas of Pakistan, the Minister was apprised of the relevant collaboration of COMSATS with the Government of Azad Jammu and Kashmir (AJK), Khyber Pakhtunkhwa (KPK) and Punjab. The Minister expressed interest in CTH Programme in connection with the Government's aspirations to improve the health sector of Pakistan.

Mr. Fawad Hussain considered Artificial

Chairperson Coordinating Council H.E. Chaudhry Fawad Hussain, Federal Minister for S&T, Government of Pakistan

Chaudhry Fawad Hussain assumed the Charge of Pakistan's Ministry for Science and Technology on April 19, 2019. In June 2019, consultations with the focal ministry of COMSATS in Pakistan, Ministry of S&T, Government of Pakistan, agreed to have the ex-officio Chairpersonship, previously held by the Federal Secretary of the ministry, officially transferred to the Minister. By virtue of his position at the Ministry, Mr. Hussain is now the incumbent Chairperson of COMSATS.

Before assuming the charge of the Ministry of S&T, Mr. Hussain was appointed the Federal Minister for Information & Broadcasting in April 2018.

In his current position as the Minister for S&T, Mr. Hussain aspires to promote science and technology solutions for developmental problems of the country through reinforcement of inter-sectoral coordination and institutional cooperation.

Mr. Hussain is a strong advocate of Science Diplomacy.

More details here:
http://comsats.org/?page_id=100



Intelligence and related technologies necessary for meeting the industrial and national needs and emphasized promoting liaison between research institutions and industries so as to translate the research potential of the country into its economic growth. Mr. Chaudhry opined that COMSATS is well-placed in aiding the Ministry in relevant interventions.

The meeting ended with the pledge of support from the Honourable



Minister towards COMSATS' mandate and operations. This includes holding the meeting of the 3rd Consultative Committee which is planned to be held soon.

Meetings with Diplomatic Missions

As part of COMSATS' membership drive, officials of COMSATS Secretariat held meetings with representatives of three foreign missions in Pakistan belonging to: Azerbaijan, Bosnia & Herzegovina, and Spain.

Ambassador of Bosnia & Herzegovina to Pakistan

A meeting with H.E. Mr. Sakib Foric, Ambassador of Bosnia & Herzegovina to Pakistan, was held on 2nd May 2019 at His Excellency's office in the Embassy of Bosnia & Herzegovina. The aim was to seek His Excellency's assistance to establish ties with the Government of Bosnia & Herzegovina for the promotion of S&T, enhancing scientific knowledge and technical expertise, and bilateral cultural exchange.

After giving an overview of COMSATS mission, structure, operations, as

well as national and international collaborations, Dr. Zaidi highlighted to His Excellency the benefits and obligations of joining COMSATS as a member state.

The Ambassador lauded COMSATS' undertakings and encouraged cooperation between the two sides particularly in trade, tourism, and education. Further, he pledged taking up the membership matter with the relevant Ministries in Bosnia & Herzegovina. H.E. Mr. Foric was handed over an invitation letter to join COMSATS along with COMSATS' information material.



Ambassador of Spain to Pakistan

On 2nd May 2019, H.E. Mr. Manuel Durain, the Ambassador of Spain to Pakistan, visited COMSATS Secretariat, Islamabad. The meeting held with His Excellency was aimed to explore ways of initiating bilateral cooperation.

During the meeting, a briefing was given to His Excellency on COMSATS' mandate, structure, undertakings and international outreach. It was informed by Dr. Zaidi that COMSATS, in the wake of changing climate threats, is establishing a network of COMSATS Center for Climate and Sustainability (CCCS) involving its ten member states. Dr. Zaidi invited Spain's participation in this initiative.

Furthermore, Dr. Zaidi suggested establishing collaboration between COMSATS University Islamabad (CUI) and Spanish universities for cultural exchange, faculty development, scholarships and upgradation of R&D facilities. Discussions regarding the establishment of a world-class Centre for Mathematics on the model of the International Centre for Theoretical Physics (ICTP), Italy, were also held during the meeting.

H.E. Mr. Durain appreciated the



Organization's activities and duly endorsed Dr. Zaidi's proposals for initiating bilateral cooperation.

The Ambassador was also apprised of benefits and obligations of joining COMSATS as a member state. It was anticipated that Spain's accession to COMSATS would help in increasing the membership of the Organization to Latin American countries owing to the strategic closeness of Spain to these countries. During the meeting, the Ambassador was handed over an invitation letter to join COMSATS along with key information on COMSATS.

The Ambassador assured full support of his office towards membership matter and nomination of S&T/R&D Spanish institution for inclusion in COMSATS Network of International S&T Centres of Excellence.

Ambassador of Azerbaijan to Pakistan

COMSATS' senior officials called on His Excellency Mr. Ali Fikrat Oglu Alizada, Ambassador of the Republic of Azerbaijan to the Islamic Republic of Pakistan, at his office in Islamabad on June 18, 2019.

Apart from discussions on matters of mutual interest, the matter of Azerbaijan's membership to COMSATS

and the nomination of a suitable S&T/R&D Azerbaijani institution to become COMSATS' Centre of Excellence were discussed with reference to earlier contacts in this regard. Mr. Alizada informed that the matter of Azerbaijan's accession to COMSATS is under consideration at the Azerbaijan Ministry of Foreign Affairs. It was proposed that COMSATS' officials may visit Azerbaijan to hold meeting with relevant stakeholders in order to expedite the membership process.

Furthermore, possibility of initiating collaboration between institutions of COMSATS' host country, Pakistan, and their Azerbaijani counterparts was also explored to promote cultural and academic exchanges.

Interactive Session held to Discuss COMSATS Future Plan of Action

On the approach of COMSATS Silver Jubilee, Dr. Akram Sheikh, Co-Chair and Distinguished Senior Fellow at Global Think Tank Network (GTTN), was invited to COMSATS Secretariat in order to share some important insights for COMSATS' plan of action for the next 25 years.

At the onset of the interaction held on 26th June 2019, Dr. Zaidi recalled Dr. Sheikh's services to Pakistan's development projects and appreciated his support and commitment towards the promotion of science and education in the country.

A briefing was given to Dr. Sheikh on COMSATS' agenda, on-going programmes and future plans. He was apprised of COMSATS' recent initiatives to establish varsities in its member states including Egypt, Sri Lanka, Tanzania and Nigeria, in partnership with organizations such as Association of Commonwealth Universities (ACU). In the context of the developing countries especially, Dr. Sheikh considered ST&I-led knowledge economy as the fundamental instrument for a country to excel within the



landscape of emerging needs and development-related challenges as well as to achieve financial stability. He stressed upon the need for adopting integrated, well-coordinated, interdisciplinary and holistic approaches towards development.

The discussions also touched upon other matters pertaining to: economy improvement, technology transfer, human resource development, industrialization and mitigation of effects of natural disasters.

Dr. Sheikh also answered some important questions related to governance, national needs and priorities, and infrastructure improvement.

Participation in International Moot on SMEs

A delegation of COMSATS participated in the 15th INSME Annual Meeting "Fintech & Logistics: New Technologies and Markets for SMEs" held in Naples, Italy, from 6th to 7th June 2019. The delegation comprised of Dr. Kamran Jahangir, Advisor Technical Advisory Committee (TAC) and Mr. Laeeq Hassan Jaswal, Manager Strategic Partnerships, COMSATS Secretariat, Islamabad.

The International Network of Small and Medium Enterprises (INSME) has 64 members from 30 different countries of Asia, Africa, Europe and the Americas. Its mission is to provide an international platform to SME policy makers, intermediaries, practitioners, researchers and networks working in the fields of innovation, technology transfer and entrepreneurship.

This year's INSME meeting's session on Fintech explored themes like: Fintech opportunities for SMEs; the wider impact of digitalization on SMEs; competences and skills in the era of Fintech. While concluding the session Mr. Giuseppe Tripoli, Secretary General, Italian Union of Chambers of Commerce appreciated the role of Fintech in social inclusion through greater business opportunities for small and medium enterprise. The Fintech session was followed by the General Assembly session.

The second day of the meeting discussed in detail the role, opportunities and challenges to logistics for SMEs in the Mediterranean region. The panel deliberated upon: possibilities of having an impact on business by bringing innovations in logistics and supply chains, especially trading platform, trade finance and e-commerce. While concluding the

event, Mr. Giovanni Zazzerini, Secretary General of INSME, thanked the participants for their presence and contribution to the meeting.

On the occasion, COMSATS' officials held sidelines meetings with senior officials of INSME in order to explore avenues of cooperation. Possibility to hold INSME Annual meeting in Islamabad in 2021 was also explored during the meetings.

Awareness Talk on EU's Marie Skłodowska-Curie Actions (MSCA) Programme

COMSATS, in collaboration with the European Union (EU), organized an awareness talk on EU's Marie Skłodowska-Curie Actions (MSCA) Programme for the young scientists and researchers on 2nd May 2019.

Speaking on the occasion, Dr. S. M. Junaid Zaidi, Executive Director of COMSATS, stated that COMSATS has partnered with UK-based organizations including Commonwealth and Association of Commonwealth Universities (ACU) in view of the increasing importance of triangular cooperation. He also noted the good working relations that COMSATS has established with European Union





(EU). Further, he considered youth the backbone and R&D the pillar for national progress and development.

In her talk, Ms. Anne Marchal, Deputy Head of Mission, Delegation of European Union (EU) to Pakistan, highlighted various contours of EU flagship Research and Innovation Programme – Horizon 2020 with a special focus on the fellowship opportunities under the umbrella of MSCA. Ms. Marchal mentioned that researchers and R&D organisations can equally benefit from MSCA funding. She informed that the fellowships open for European Union Member States and Associated Countries have benefitted 134 Pakistani researchers so far.

Ms. Marchal also shared with the audience the attributes of a winning proposal, timeline, and guidelines for application. She stated that the Programme encourages the participation of refugees, and scholars with impairment.

Subsequent to her talk, Ms. Marchal addressed the queries of the participants pertaining to application process, eligibility criteria, funding, and beneficiaries among others.

COMSATS and UNDP explore Possibilities of Cooperation on SDGs and Climate Change

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

Dr. Kamran Jahangir, Advisor (TAC), visited the office of the UNDP's Country Director for Pakistan, Mr. Ignacio Artaza, in Islamabad, on 10th May 2019.

During the meeting, the Dr. Zaidi apprised the Country Director of the composition and activities of the Commission in various fields of S&T and their relevance to SDGs. Mr. Artaza was also informed of COMSATS' initiatives in the field of Climate Change and its corresponding interest in establishing a Centre in this field with nodes in interested developing countries.

Appreciating the spectrum of COMSATS' activities highlighted in the briefing, Mr. Artaza also underscored various areas of interest and operations of UNDP. He showed keen interest in COMSATS' initiatives relating to SDGs and Climate Change.

Both counterparts agreed to further linkages and cooperation in these and other areas of common interest.

Visit of Faculty Members and Students from Community Colleges of USA to COMSATS Secretariat

A delegation comprising of faculty





members and students belonging to community colleges of USA, visited COMSATS Secretariat, Islamabad, on 18th June 2019. The delegation was received by Gen. (R) Muhammad Tahir, Advisor China Desk, COMSATS, along with other officials of COMSATS Secretariat.

Gen. (R) Tahir apprised the delegation of COMSATS programmes, flagship projects, achievements and future plans. The delegates took keen interest in COMSATS' projects and initiatives in particular COMSATS' Centre for Climate & Sustainability (CCCS) and COMSATS Tele-Health (CTH) project. They were also appreciative of COMSATS' efforts for the promotion of science

and technology in the developing region. Further during the meeting, the participants exchanged views on matters pertaining to socio-economic development in view of the emerging global needs.

The meeting ended with a resolve to work together in the areas of mutual interest.

Seminar on "Second Belt and Road Forum: Achievements and Prospects" held at COMSATS

COMSATS in collaboration with the Centre for Belt and Road Initiative and

China Studies Institute of Peace and Diplomatic Studies (IPD) organized a seminar on "Second Belt and Road Forum: Achievements and Prospects" on 3rd May 2019, at COMSATS Secretariat, Islamabad. The seminar organized within the framework of the Second Belt and Road Forum held in Beijing, China, had the participation of diplomatic community, students and members of the civil society.

Speaking on the occasion, Ms. Farhat Asif, President, IPD, encouraged students to learn the best practices, principles and values of developing countries, such as China.

In her talk, Ms. Bhao Zong, Head of Political and Press Section, Embassy of People's Republic of China, noted that the Belt and Road Initiative (BRI) is aimed to promote development in the region and beyond through inclusiveness. The Initiative encourages bilateral and multilateral cooperation through various means and at various levels. It was further informed that projects under the umbrella of BRI have a bearing on social and economic aspects of national development.

The event encouraged exchanges on various aspects of the theme of the event.



SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

MoUs signed between ICCBS-Pakistan and Chinese R&D Institutions

The International Center for Chemical and Biological Sciences (ICCBS), Pakistan, has signed multiple Memoranda of Understanding with the leading Chinese research and academic institutions of Hunan University of Chinese Medicine, Changsha, China. Prof. Atta-ur-Rahman (Chairman, Prime Minister's Task Force on Science and Technology), Prof. Dr. M. Iqbal Choudhary (Director, ICCBS) and relevant Chinese officials signed the MoUs on behalf of their institutions.

The signed agreements aim to advance science and technology through joint collaborative research and education for addressing national, regional and global challenges associated with chemical and biological sciences. By virtue of the established cooperation, both sides will exchange research facilities and staff, and enhance cooperation in the areas of chemistry, biology, biotechnology, molecular medicine, pharmacology, and natural and life sciences.

Director ICCBS to Represent Pakistan at the Global BHBD

The International Center for Chemical

and Biological Sciences (ICCBS), Pakistan, has become a member organization of the Global Open Biodiversity and Health Big Data Alliance (BHBD) housed at Beijing Institute of Genomics, Chinese Academy of Sciences, China. The Director of ICCBS, Prof. Dr. Iqbal Choudhary, has also been accepted as a representative from Pakistan in recognition of his extraordinary and outstanding scientific achievements in the field of organic chemistry and natural products chemistry.

ICCBS-Pakistan Opening New Centres

ICCBS, Pakistan, has opened two research centres on "Sino-Pakistan TCM & Ethnomedicine" and "Sino-Pakistan TCM", at its facility. The Centres were recently inaugurated by Prof. Atta-ur-Rahman (Chairman, Prime Minister's Task Force on Science and Technology) and Mr. Wang Yu (Chinese Consulate General Karachi, Pakistan) during a ceremony held at ICCBS, Pakistan.

Moreover, a Centre of Artificial Intelligence (AI) will be established at ICCBS, Pakistan, according to one of the Memoranda of Understanding signed between Chinese and Pakistani authorities. Another institute of the same nature will also be established

at the Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF-IASST), Haripur District.

ICCBS to Receive Large Number of Sri Lankan Students

Under Pakistan Technical Assistance Programme (PTAP) for Sri Lanka, a large number of Sri Lankan students and scholars will visit ICCBS, Pakistan, to pursue higher learning degree programmes. These Sri Lankan students pursuing higher learning degree programmes in chemical and biological sciences will be accommodated at ICCBS, Pakistan, under 'Allama Iqbal Scholarships' offered by the Pak-Sri Lanka Higher Education Cooperation Programme.

TÜBİTAK MAM-Turkey Builds Cooperative Ties with KACST-Saudi Arabia

The Energy Institute of TÜBİTAK Marmara Research Center (MAM) has signed two Agreements with the Saudi Arabia King Abdulaziz City for Science and Technology (KACST), on "Technology Collaboration Project for Developing a 7-Feeder Power Quality Analyzer – KACST PQ2" and "Technology Collaboration Project for Developing Solar Central Inverter".

Under the Agreement on "Technology Collaboration Project for Developing a 7-Feeder Power Quality Analyzer", a power quality analyzer will be developed for making simultaneous measurements on 7 feeders with common voltage channels. Within the scope of the project, power quality analyzer hardware and software and communication software will be developed; power quality analyzers will be manufactured and trainings will be provided. Project outputs can also be used at wide area power quality monitoring systems, distribution and





transmission SCADAs (Remote Control and Monitoring Systems).

As per the "Technology Collaboration Project for Developing Solar Central Inverter", the technology of the photovoltaic inverter to be developed jointly will be transferred to KACST. Through this project a photovoltaic inverter will be developed and manufactured for converting direct current generated by photovoltaic panels in solar power plants to alternating current and transferring the generated power to the grid. With 20 years of planned lifetime, the product's design will allow serving confidently under desert climate conditions.

The first sample product will be installed in Saudi Arabia; its long-term operation conditions will be examined, and know-how will be gained for better photovoltaic inverter designs.

National Noise Barrier Systems to be developed by TÜBİTAK MAM-Turkey

The Environment and Cleaner Production Institute of TÜBİTAK MAM aims to develop national noise barrier systems for use in noise reduction and control efforts in the provinces. Environmental Noise Management

studies and status analyses have been conducted for these provinces. In connection with this, a meeting was held on 22 March 2019, at the headquarters of the Ministry of Environment and Urban Planning High Technics Board for determining the technical specifications of the components that can be used in the design and application of noise barrier systems.

Turkey's Chemical Industry R&D Needs Workshop Held at TÜBİTAK MAM-Turkey

A workshop was organized by TÜBİTAK Marmara Research Center (MAM) on 13th June 2019. Addressing the research and innovation needs of Turkish



Chemical Industries, the workshop had the participation from ministries, R&D and academic institutions, technopark administrations, NGOs and relevant companies.

During the workshop, Prof. Murat MAKARACI, Vice President of TÜBİTAK MAM, briefed about the chemical sector and competencies of Chemical Technology Institute of the Council while Mr. İlhan AYDIN, Kocaeli Province Director for Ministry of Industry and Technology, talked about university-industry cooperation. Furthermore, representatives from Turkey's leading petro-chemistry company (TÜPRAŞ) and an international fragrance company (Gulcicek) enlightened the audience on their innovative capabilities and practices.

The workshop was followed by visit to TÜBİTAK MAM Chemical Technology Institute's laboratories.

TÜBİTAK MAM-Turkey Strengthens Scientific and Technological Cooperation with China

Delegations from the Jiangsu Industrial Technology Research Institute (JITRI) and Jiangsu Province Department of Science and Technology (JSTD),



China, visited TÜBİTAK Marmara Research Centre (MAM) on June 16, 2019. The visit was made with a view to foster scientific and technological cooperation between China and Turkey in connection with the establishment of the Alliance of International Science Organizations in the Belt and Road Region (ANSO). During the meeting, discussions were held to further bilateral cooperation in areas of mutual interest with a focus on innovative research in cooperation with the manufacturing industry.

In the similar vein, visit of the Vice President of Chinese Academy of Science (CAS), Prof. ZHANG Yaping, and delegation of Chinese Association on Science and Technology (CAST) on May 23-24, 2019 and June 15, 2019, respectively, opened avenues of bilateral cooperation.

CUI-Pakistan Fosters Relationships with Institutions from Turkey, China, UK and Pakistan

A delegation comprising of senior officials of College of Mechatronics and Control Engineering (CMCE), Shenzhen University, China, visited COMSATS

University Islamabad (CUI) on 3rd May 2019. An Addendum Supplement between Faculty of Engineering, CUI, and College of Mechatronics and Control Engineering (CMCE), SZU, was signed as an outcome.

The delegates also visited CUI Abbottabad Campus on May 6, 2019 and held meetings with Campus Director, and Heads of Departments including Chemistry, Civil Engineering, Earth Sciences, Management Sciences, Computer Sciences and Electrical and Power Engineering to realize the cooperation stipulated in the MoU.

Mr. Vladimir Yordanov, Partnership Development Manager, Academic Partnership Unit from Coventry University, UK, visited COMSATS University Islamabad (CUI) on June 13 2019, in order to explore possibilities of cooperation with CUI. An idea was proposed by Mr. Yordanov to hold summer school and execute joint research. Both sides agreed to enhance collaboration through exchange of students.

Mr. Cihan Cobanoglu, Head of International Relations Office, Istanbul Sehir University (ISU), Turkey, visited Islamabad and Lahore campuses of

COMSATS University Islamabad (CUI) from 10 – 14 June 2019, with a view to strengthen and advance ongoing collaboration through building connections and exchange of best practices. Both sides are already actively pursuing collaboration and reciprocal exchange of faculty, staff and students.

During his visit, Mr. Cobanoglu held meetings at International Office and different academic departments of the university and gave a briefing on ISU including its internationalization agenda, vision and roadmap.

An eleven point follow-up agenda was agreed between CUI and ISU during the meeting. Subsequently, Mr. Cobanoglu was also shown around various facilities of the campuses.

CUI entered into an agreement with the International Islamic University (IIU) for the establishment of COMSATS and IIU Scientific International Chair that will help foster scientific and international cooperation and serve the purpose of achieving security, peace, stability and sustainable development in Pakistan and Saudi Arabia.

The MoU signed by Prof. Dr. Raheel Qamar, Rector CUI, and Prof. Dr. Ahmed Yousif Al-Draiweesh, President IIU, on 15th May 2019, surrounds various other aspects of academic, research and scientific cooperation and is geared towards building a joint think tank to recommend both Governments of Pakistan and Saudi Arabia on policy issues arising in the China Pakistan Economic Corridor.

Mexican Representative to Palestine visits Al-Quds University

Mr. Pedro Blanco Perez, Mexican Representative to Palestine paid a visit to Al-Quds University (AQU),



Palestine, on 17th June 2019, with a view to foster joint academic and research collaboration between AQU and Mexican academic and R&D institutions.

During the meeting, Prof. Imad Abu Kishkek, President of AQU briefed Mr. Pedro Blanco Perez about AQU's various faculties, programs, scientific achievements, apart from AQU's partnerships and cooperative schemes with several universities and research centers in the region and elsewhere in the world.

Already in collaboration with Mexico for the promotion of cultural understanding and scientific cooperation, AQU pledged to enhance bilateral collaboration for joint research, exchange of faculty and students.

TWAS-UNESCO Associate at ICCES-China

Under the TWAS-UNESCO Associateship Scheme, Dr. Sathaporn Monprapussorn from Geography Department of Srinakharinwirot University, Thailand, visited the International Center for Climate and Environmental Sciences (ICCES), China, from April 8th – June 4th 2019.

The visit was undertaken in order to conduct collaborative research on comparative study of land use models and urban heat island effects between China and Thailand.

During his visit to ICCES, Dr. Monprapussorn presented an academic report entitled "Land Use Change in Bangkok and its Impact on the Urban Heat Island", which highlighted the geographical characteristics of the Bangkok Metropolitan Area (BMA).

Dr. Sathaporn Monprapussorn has previously been associated with COMSATS' International Thematic Research Group (ITRG) on "Climate Change and Environmental Protection" as the coordinator of sub-group on "Urbanization and Environmental Impact". Dr. Monprapussorn also aims to conduct comparative studies on land use and climate change in China and Thailand in the future under the same scheme.

ITI-Sri Lanka Assists ILO-LEEDS Project in Jaffna Peninsula

The Industrial Technology Institute (ITI), Sri Lanka, was invited by the International Labour Organization (ILO) under the Local Empowerment through Economic Development (LEED) project, to offer its food technology services for the upgradation of selected micro, small and medium enterprises (MSMEs) in Jaffna, Kilinochchi and Vavuniya, Sri Lanka.

The LEED project is aimed to reduce poverty with sustainable job creation for men and women in conflict affected area in Northern Province of Sri Lanka with the assistance of public and private partnerships. Accordingly, ten SMEs were selected by ILO to access constraints in terms of technology and food safety management which hinders the performance and the

Events in Centres of Excellence

17th International Conference on Frontiers of Information Technology (FIT'19)

Dates: 16-18 December 2019

Venue: Islamabad, Pakistan

Website: <http://fit.edu.pk/>

7th International Symposium-cum-Training Course on Molecular Medicine and Drug Research

Dates: 4th - 7th November 2019

Venue: Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences (ICCBS), Karachi

Website: <http://iccbconferences.com>

The 1st NRC-Grenoble INP International Conference on Science and Sustainable Development

Dates: 16th - 18th September 2019

Venue: National Research Centre (NRC), Egypt

Website: <http://www.nrc.sci.eg>

Call for Applications: 33rd Khwarizmi International Award (KIA), IROST, Iran

Award Ceremony: February 2020

Website: www.khwarizmi.ir

competitiveness in open market.

A team of ITI officers visited the industries to survey the current process technologies, food safety management aspects used and held discussions with the entrepreneurs to consolidate their knowledge. ITI will be offered capacity development in training, new product development, product designing, facility layout designing based on food safety guidelines and suitable packaging.

KazNU-Kazakhstan Enters World's Top 210 Best Universities

Al-Farabi Kazakh National University (KazNU), Kazakhstan, has been ranked at 207th position by the International QS



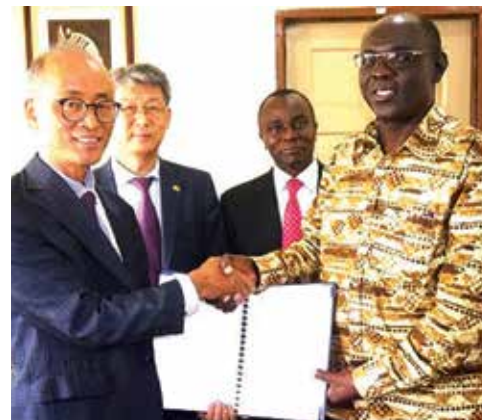
RSS-Jordan Signs MoU for Collaboration with Chinese Research Institutes

The Royal Scientific Society (RSS), Jordan, has entered into an Agreement with the Jiangsu Industrial Technology Research Institute (JITRI), China, on 22nd June 2019, to advance and promote applied research and commercialization.

Under this MoU, both sides will work for the development and implementation of applied research projects for strengthening technological innovation and industrial R&D in Jordan and China. The Agreement will focus on the following key areas: Energy, Big Data Analytics, Water and Environment.

CSIR-Ghana Signs Agreement with KOPIA to Expand Commercial Operations

On 24th May 2019, the Council for Scientific and Industrial Research (CSIR), Ghana, signed a Memorandum of Understanding with the Korean Programme on International Agriculture



(KOPIA), Korea, to expand its commercialization operations. Under the agreement, KOPIA will support the Animal Research Institute (ARI) and the Crop Research Institute (CRI) of the CSIR to produce poultry breeds and rice seedlings for commercial purposes.

The Agreement was signed by Dr. Cho Gyoungrae (Director KOPIA), Prof. Emmanuel Adu, (Director ARI) and Dr. Moses B. Mochiah (Director CRI) on behalf of their institutions. H.E. Mr. Kim Sungsoo, Korean Ambassador to Ghana and Prof. Victor Kwame Agyeman, Director of CSIR, Ghana, witnessed the ceremony.

World University Rankings (QS WUR). The University has now entered the top 210 among 800 best Higher Education Institutions (HEIs) in the world.

Over the past five years, the university has moved up in the QS WUR ranking, moving up more than 400 positions.

Furthermore, according to the results of the QS WUR subject rating, KazNU was the first among the universities of the Commonwealth of Independent States (CIS) countries to enter the group of 51-100 best HEIs in the world.

Tanzania Industrial Research and Development Organization (TIRDO) Coal Laboratory

Accurate results from analyses of coal, coke and biofuels are important in addressing barriers to their utilization. As a Government research and development institution, TIRDO has acquired the unique coal quality assessment equipment (Figure 1) backed by a team of competent staff. The equipment allows the undertaking of proximate and ultimate analysis of carbonaceous energy materials like coal.

Tests conducted at TIRDO coal laboratories along with applicable



Figure-1: Coal Laboratory Equipment: CHS 580 for ultimate analysis (left) and bomb calorimeter for gross calorific value determination (right)



Figure-2: Development of Coal Briquettes Technology

standards include proximate analysis for Moisture (ASTM D3173), Fixed Carbon (ASTM D5142), Calorific Value (ASTM D5865) and ASH (ASTM D2795). The ultimate analysis tests produce more comprehensive results by determining the elemental composition of the coal including sulfur (ASTM D4239).

The TIRDO coal laboratory's contribution to Tanzania's social economic development is enormous. When the laboratory was established in year 2015, the coal production/ use in the country was 255,884 tons (valued TZS 25,588,400,000). In year 2018, the coal use increased to 913,500 tons, which is equivalent to TZS 91,350,000,000.

Development of Coal Briquettes for Household and Industrial Use in Tanzania

After acquiring the coal quality assessment capacity, TIRDO has now embarked on developing coal utilization technologies. Coal briquettes (Figure 2) are being developed for use in households and industries. The special interest is to replace wood-based fuel in household cooking.

This takes into consideration that in Tanzania, over 90% of households use forest products (charcoal or firewood) as source of cooking energy. It is estimated that between 300,000 to 400,000 hectares of forest is used for

charcoal production per year. Recent information on charcoal usage in Tanzania is estimated at 2.3 million tons per annum. Continued charcoal use poses environmental concerns since its production technologies are inefficient and unsustainable.

The coal utilization technologies development at TIRDO is also receiving technological support from an important institution of COMSATS' Centre of Excellence in Turkey, TÜBİTAK Marmara Research Centre of Turkey (TÜBİTAK MAM). This follows the signing a memorandum of understanding between the two centres of excellence, in 2017 (Figure 3 a & b).



S&T AND DEVELOPMENT NEWS FROM MEMBER STATES

Jordan to spearhead country's digital economy through 'One Million Jordanian Coders' Initiative

Within the framework of Jordan-UAE strategic partnership, 'One Million Jordanian Coders' initiative has been launched in Jordan under the patronage of HRH Al Hussain Bin Abdullah II, Crown Prince of Jordan (The Jordan Times, 30th May 2019).

The initiative has been implemented by the Crown Prince Foundation (CPF), the Ministry of Digital Economy and Entrepreneurship, and the UAE Ministry of Cabinet Affairs and the Future.

It aims to empower Jordanian youth through necessary training on coding and computer programming techniques. Apart from building their capacities, this initiative will equip them with future skills to help increase their competitiveness in the job market.



Turkey to Collaborate With Cuba for Vaccine Production

Turkey has joined hands with Cuba for the production of vaccines and other pharmaceuticals. In an international health conference, Dr Fahrettin Koca, Turkish Minister for Health and his Cuban counterpart, Dr. Jose Angel



Portal Miranda, agreed to establish a study group to work on vaccines, including cancer's, as well as other medicines.

Turkish Ministry of Health has accelerated international bilateral cooperation in line with the country's aim to localize the vaccine production by 2023 (Turkish Minute, 27th May 2019).

Pakistan and Malaysia Develops Forecasting Models to Predict Heat Waves

Pakistani and Malaysian researchers in collaboration have developed a statistical heat wave forecasting model that can help predict the triggering and progress of the deadly weather events in Pakistan (SciDev.Net, 9th April 2019).

The team tested the model to predict 18 heat waves that occurred between 1992 and 2010 by calculating humidity and wind patterns during the summer months. They found the model capable of predicting the triggering and departure dates of heat waves at varying levels of accuracy.

According to a Pakistan-specific heat wave study published in Atmospheric Research in June 2018, Pakistan experienced 126 heat waves of varying durations from 1997 – 2015.

The study suggests a 75 percent rise in heat waves by 2030, a 189 percent

by 2060 and 277 percent increase by 2090 compared to 1997 – 2015 period. This means the country will experience around 12 heat wave events annually by 2030, 20 such events by 2060 and 26 events by 2090.

The team developed this model by using Princeton's data for the reconstruction of historical heat waves and re-analyzed the data of National Centers for Environmental Prediction (NCEP), US, to select appropriate sets of predictors to forecast heat waves in Pakistan with a lead time of 1 to 10 days, using the Quantile Regression Forests (QRF) model.

Zimbabwe's Education 5.0 to Accelerate Achieving Vision 2030

Zimbabwe in the wake of fourth industrial revolution has adopted a new education curriculum – Higher and Tertiary Education 5.0 (HTE 5.0) – that focuses on innovation and industrialization. This measure has been taken in order to reinforce, retool and revive Zimbabwean industry using the latest technology.

The new education system is in line with the Vision 2030 of H.E. Emmerson Mnangagwa, President of Zimbabwe, who aims to transform the country's economy into an upper-middle income by the year 2030.

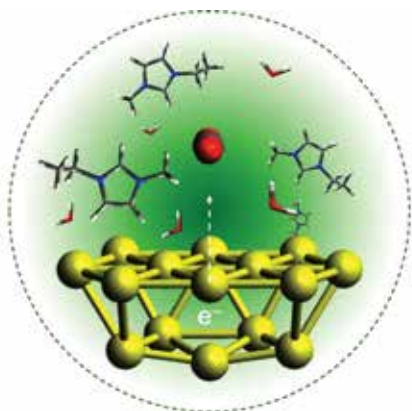
Under the new education system, the Government of Zimbabwe has released \$700 000 for setting-up innovation hubs at State universities including the National University of Science and Technology (NUST), the Midlands State University (MSU), the University of Zimbabwe (UZ), the Harare Institute of Technology (HIT), Zimbabwe Defence University and Chinhoyi University of Technology (CUT).

SCIENCE, TECHNOLOGY AND DEVELOPMENT

Transforming Carbon Dioxide into Liquefiable Fuels Using Artificial Photosynthesis

Chemists at the University of Illinois have developed an artificial process that uses the same green light portion of the visible light spectrum used by the plants during natural photosynthesis to convert carbon dioxide (CO₂) and water (H₂O) into liquid fuel by using electron-rich gold nanoparticles as catalyst (*Nature Communications*, 1st May 2019).

Gold nanoparticles are efficient catalysts as they efficiently absorb light and do not degrade or break down like other metal catalysts. The liquid fuels are not only safer and more economical to transport than gas fuels but also can store energy more densely as they are made from long-chain molecules. Furthermore, through the conversion of CO₂ to complex molecules like propane, green energy technology is a step closer to storing solar energy for use when sun in times of need.



Graphic courtesy: Sungju Yu, Jain Lab at University of Illinois at Urbana-Champaign

Drug-resistant Bacterial Infection Treated using Phage Therapy

A 17 year old teenage girl with cystic fibrosis developed a widespread bacterial infection subsequent to lung

transplant in 2017. The infection spread to her surgical wound site, liver and more than 20 other locations on her skin despite treatment with antibiotics. The girl was then treated with a cocktail of three viruses – bacteriophages – that specifically attack the strain of *Mycobacterium abscessus* with which the girl was infected.

The bacteriophages infect only a single strain of bacteria hence they are highly specific. In this case, researchers searched about 10,000 phages against the bacterial strain of *M. abscessus* with which the girl was infected. After screening, they found only one phage that could effectively infect and kill the targeted bacterial strain along with two other phages that could infect *M. abscessus* but not efficiently. The latter two phages were then genetically engineered to specifically attack *M. abscessus*. After treatment with bacteriophages, girl's condition began to improve with gradual healing of the surgical wound and other infected areas of her skin (*Nature Medicine*, 8th May 2019).

Use of Fluorescent Microalgae May Lead to Super-Efficient Solar Cells

A team of researchers from the Universities of Birmingham and Utrecht, Netherlands, have found that tiny light-emitting microalgae present in the ocean hold the potential to be used as organic solar cells (*Science Daily*, 9th May 2019). Microalgae have evolved over billions of years to possess light harvesting systems that enable them to survive in harsh environments.

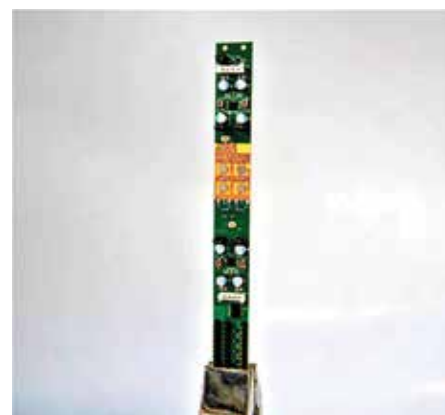
The microalgae can convert sunlight to energy with 95 percent efficiency due to which they have a tendency to be used in the solar panels in an environment friendly manner. In this study, the researchers used mass

spectrometry for the molecular analysis and characterization of individual components of the algae's light-harvesting system in order to reveal fine details of the system that could help in understanding system's efficiency. The team further aspires to conduct in-depth study of the system including the study of mechanism of energy transfer and its high efficiency.

Low-cost 39 GHz Beamforming Transceiver for 5G Communications

A team of more than 20 researchers at the Tokyo Institute of Technology (Tokyo Tech) and NEC Corporation, Japan, have successfully developed a 39 GHz transceiver with built-in calibration for 5G applications to achieve better quality communications and cost-effective scalability. This transceiver could be used in the next generation of 5G wireless equipment including base stations, tablets, smartphones and Internet-of-Things (IoT) applications.

This product was presented at the IEEE Radio Frequency Integrated Circuits Symposium (RFIC) held in Boston, Massachusetts, on 4th June 2019. The scientists published their work as "A 39 GHz 64-Element Phased-Array CMOS Transceiver with Built-in Calibration" which received the award of best paper.



<https://www.titech.ac.jp/english/news/2019/044415.html>

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

- 16-17 Oct. 2019 The Academics World 693rd International Conference on Environmental Science and Development (ICESD), Colombo, Sri Lanka (<http://www.academicworld.org/Conference2019/>)
- 27-28 Oct. 2019 The Academics World 703rd International Conference on Recent Advances in Medical and Health Sciences (ICRAMHS), Manila, Philippines (<http://www.academicworld.org/Conference2019/>)
- 27 October 2019 International Conference on Advance Education (ICAE-2019), Mogadishu, Somalia (<http://researchfoundation.net/event/index.php?id=1013268>)

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CERTe-Tunisia
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TÜBİTAK-Turkey
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Honourable mentions: Mr. Tila Mohammad, and Mr. Anya Augustine Igwebuikwe



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