COMSATS Newsletter

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

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COMSATS' Membership drive of 2018 concluded with Yemen's accession to the Commission in November 2018.

A result of follow-up on earlier efforts in this regard, the accession agreement was signed during an august gathering of representatives and senior officials from the diplomatic community in Islamabad.

(Details on page 11)

Inside this Issue

From the Executive Director's Desk	1
Highlights from COMSATS Secretariat	2
Special Section: Yemen Becomes the 27 th Member State of COMSATS	1
Article: Cooperation for Development	13
Some Activities of COMSATS' Centres of Excellence	15
S&T and Development News from Member States	21
Science, Technology and Development	22
Profile of Head of CoE: Prof. Dr. Yanhe Ma, DG TIB, China	23

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From the Executive Director's Desk

I hope the readers of this newsletter had a successful and promising 2018 paving the way for an even more productive and prosperous 2019. Year 2019 brings Silver Jubilee for the COMSATS. 25 years of existence, 27 countries and 22 Centres of Excellence in Asia, Africa and Latin America, all helped the Commission nurture as a truly intergovernmental and international body embarked upon the journey of sustainable progress and prosperity.

The Commission is primarily tasked with helping member countries attain sustainable socio economic development by employing Science and Technology as the major tool. The daunting task of developing the South with an ever growing population and lack of resources coupled with Climate related challenges has made it an ever more complex and demanding endeavor.

The UN's Sustainable Development Goals of 2015 provide guidelines and a frame work for its member states for framing agendas and policies aiming to bring about the desired sustainable change and development that meets the needs of the present without compromising the ability of future generations to meet theirs.

Appreciating the importance of these goals, the Commission has also aligned itself to these guidelines. Helping and assisting member countries and centers, the Commission has effectively engaged them by proactively deploying indigenous and shared solutions to regional and domestic challenges. Fortunately, S&T is a dynamic driver that can help these goals at every level. In fact, with due alignment, SDGs can help harness S&T efforts and resources to optimum results across the globe. With S&T cooperation at the centre of its agenda, COMSATS is devoted to making its due contribution towards SDGs. The contents of this newsletter include recent activities in this direction.

An important highlight included in this issue is the accession of Yemen to COMSATS. We welcome the country in COMSATS' fraternity and hope contributing to the socio-economic uplift of the country. Useful meetings with a number of foreign missions and delegates from Nigeria, Jordan and Germany during the period have also been reported. Doha, Qatar; Istanbul, Turkey; and Rabat, Morocco, were the venues of COMSATS' recent capacity-building activities. Three Memoranda of Understanding signed during November-December 2018, including those with UNOSSC and SESRIC, have further strengthened COMSATS' partnerships.

With this present issue, COMSATS Newsletter completes its decade as the 10th Volume draws to an end. Consistent support from all contributors, especially the Centres of Excellence, is highly appreciated, and is hoped to remain a constant in future Volumes. We remain greatly indebted to all collaborating intuitions and individuals for their unflinching support to our activities during 2018, and look forward to their continued backing and cooperation in the years to come.

May 2019 be a more prosperous year for all!



HIGHLIGHTS FROM COMSATS SECRETARIAT

Meetings with Foreign Missions and Delegates from Member States

Nigerian Focal Point, Permanent Secretary, Nigerian Federal Ministry of Science and Technology (December 10, 2018)

Mr. Bako Bitrus Nabasu, mni, Permanent Secretary, Nigerian Federal Ministry of Science and Technology visited COMSATS. He was accompanied by COMSATS' Liaison Officer for the FMST, Mr. Abayomi Oguntunde, Director Bio-resources Technology Research & Development; and Special Advisor to the Permanent Secretary, Mr. Samuel Thomas.

During his meeting at COMSATS Secretariat and a dinner hosted in his honor in Islamabad, the Permanent Secretary welcomed the cooperation offered by COMSATS for establishment of R&D Centres, such as the COMSATS Centre for Climate Change and Sustainability and new COMSATS' universities.

In the presence of senior officials from diplomatic community, Pakistani government officials, COMSATS Secretariat, and COMSATS University Islamabad, as well as foreign students studying at the university attending the dinner, the Permanent Secretary made a strong case for establishment of these institutions in Nigeria and looked forward to see more of COMSATS' Centres of Excellence in the areas based on the Country's national priorities. He also showed keen interest in availing expertise and resources available through the platform of COMSATS, including the knowledge and skills available at COMSATS' 22 Centres of Excellence, scholarship offers available at these Centres, and COMSATS' institution building experience.



"Nigeria is one of the five Member countries that are going to host a Centre each, the other four being Uganda, Tanzania, Palestine and Kazakhstan", informed the Executive Director of COMSATS Dr. S.M. Junaid Zaidi, who was hosting the delegation in Islamabad.

Mr. Nabasu expressed the desire to advance cooperation in areas of common interest between Nigeria and COMSATS' member states.

Discussion continued later at the residence of the Nigerian Higher

Commissioner in Islamabad, H.E. Maj. Gen. (R) Ashimiyu Adebayo Olaniyi. During his remarks, the High Commissioner opined that such collaboration between Nigeria and Pakistan is mutually beneficial. He appreciated COMSATS for facilitating the capacity building of Nigeria, especially through accepting Nigerian students to pursue postgraduate studies at CUI.

Dr. Zaidi informed that a brief concept note on the establishment of the university in Nigeria would be shared with the officials of Federal Ministry of





Science and Technology, Government of Nigeria.

Ambassador of Jordan to Pakistan, H.E. Maj. Gen (Retd) Ibrahim Yala Al Madani (24th December 2018)

A delegation of COMSATS led by the Executive Director COMSATS paid a courtesy call on the newly appointed Ambassador of Hashemite Kingdom of Jordan to Pakistan, H.E. Maj. Gen (Retd) Ibrahim Yala Al Madani, at his office in the Embassy of Jordan in Islamabad.

Dr. Zaidi apprised the Ambassador of relationship between COMSATS and Jordan. It was informed that Jordan is one of the founding members of COMSATS and Royal Scientific Society (RSS), COMSATS' Centre of Excellence (CoE) in Jordan, has always played an active part in programmes and activities of the Organization.

Matters regarding the multilateral cooperative schemes for the mutual benefit of COMSATS Member States were discussed. These included student and faculty exchange; R&D projects in emerging areas of S&T; post-graduate scholarships; and holding of capacity building activities.

Ambassador of Germany to Pakistan, H.E. Mr. Martin Kobler (23rd November 2018)

Upon invitation from the Executive Director COMSATS, the Ambassador of Germany to Pakistan, H.E. Mr. Martin Kobler, visited COMSATS Secretariat. He was accompanied by Ms. Christine Rosenberger, First Secretary and Ms. Veronique Wagner, Political, Press and Communication Counsellor at Embassy of Germany in Islamabad.

The Ambassador was given a detailed briefing on programmes and activities of COMSATS. It was proposed that bilateral cooperation between COMSATS and Germany may be established for joint capacity building programmes in areas of mutual interest; faculty development; vocational and technical training; exchange of expertise and technical resources; and various R&D projects.

Dr. Zaidi proposed R&D Centres in the field of Climate Change & Environment and Biotechnology, as well as Technology Parks and vocational training institutes as possible areas of cooperation. Further, it was opined that linkages of German institutes with COMSATS' Centres of Excellence would pave way for the latter to achieve excellence in a number of fields.

H.E. Mr. Martin Kobler was receptive of COMSATS' proposals and expressed keen interest in the establishment of Centre for Climate Change for which governments of Germany and France have already been approached by COMSATS.

Capacity Building Events

8th International Workshop on 'Internet Security (Doha, Qatar, December 23, 2018)

The 8th International Workshop on 'Internet Security: Enhancing Information Exchange Safeguards' was held from 23rd to 27th December 2018, in Doha, Qatar. The event was



jointly organized by COMSATS; Islamic Educational, Scientific and Cultural Organization (ISESCO); and the Inter Islamic Network on Information Technology (INIT), and was hosted by the Qatari National Commission for Education, Culture and Science.

The workshop was inaugurated by H.E. Dr. Hamda Hassan Al-Sulaiti, Secretary General, Qatari National Commission for Education, Culture and Science, Qatar. The inaugural session was attended by representatives of various diplomatic missions based in Doha, including Syria, Ghana, Palestine, Gambia, Sri Lanka, Nigeria and Turkey, apart from the local and foreign participants of the workshop.

Dr. Al-Sulaiti considered the workshop an important means to facilitate the participants in learning the best and the most effective ways to secure online information from risks and would promote user awareness and ability to safely store and share information via Internet. She considered this activity highly useful for Qatar and other participating countries keeping in view the significance of information and cyber security.

The inauguration also featured

messages from the Executive Director COMSATS and the Director General of ISESCO, and Executive Director INIT. The technical sessions of the five-day workshop were attended by about 30 researchers, system administrators and cyber security professionals, belonging to Qatar, Pakistan, Malaysia, Kazakhstan, Jordan, Morocco, Bangladesh, Oman and Maldives. The local participants belonged to various Ministries and Government Departments of Qatar, including Ministry of Higher Education, Ministry of Transport and Technology, Cyber Police Department, etc.

The workshop was conducted by six subject experts belonging to Pakistan: Dr. Haider Abbas, Associate Professor, National University of Sciences & Technology, Islamabad; Dr. Muhammad Masoom Alam, Associate Professor, COMSATS University Islamabad (CUI); Dr. Akber Abid Gardezi, Assistant Professor, CUI: Mr. Mian Muhammad Waseem Igbal, Assistant Professor, Department of Information Security, National University of Sciences & Technology; Prof. Dr. Kashif Kifayat, Head of Computer Science Department, Air University, Islamabad & Director of National Centre of Cyber Security Pakistan; Mr. Shah Fahd, Assistant Manager, National Engineering and

Scientific Commission (NESCOM).

Workshop on Metrology for the Least Developed Countries, (Gebze-Kocaeli, Turkey, November 26, 2018)

COMSATS co-organized the Workshop on Metrology for the Least Developed Countries in Turkey. The workshop was jointly organized with the TUBITAK National Metrology Institute (TUBITAK UME), Gebze-Kocaeli Turkey.

Hosted by TUBITAK National Metrology Institute, the workshop was attended by about 30 participants belonging to Tanzania, Senegal, Bangladesh, Gambia, Uganda, Pakistan, Iran, Jordan, Sri Lanka, Kazakhstan, Libya, Turkey and Austria. Apart from the officials of COMSATS Headquarters, the workshop was attended by officials belonging to the World Bank and the United Nations Industrial Development Organization (UNIDO).

The workshop was inaugurated by Dr. Mustafa Çetintaş, Director TÜBİTAK UME, Turkey. He delivered the message of H.E. Dr. Hasan Mandal, President of The Scientific and Technological Research Council of Turkey (TUBITAK), Turkey. In his message, Dr. Mandal considered metrology and quality





infrastructure in the field important for developing countries in manufacturing products for international and domestic markets and to improve the quality of life of their citizens. He stated that Turkey, particularly TUBITAK, is ready to help other developing and least developed countries in upgrading their metrology infrastructure and human resource development.

During his opening remarks delivered via Skype, the Executive Director COMSATS admired the progress made by Turkey in the afore-mentioned fields. He also shed light on the possible role of international organizations in facilitating the upgradation of metrology sectors and quality infrastructure in the countries of the South.

The technical sessions of the workshop were preceded by the detailed presentation by Dr. Mustafa Çetintaş, Director TÜBİTAK UME, Turkey, on the status of Metrology in Turkey. Mr. Erkut Kırmızıoğlu, General Directorate for Standards and Metrology, Turkey, covered the Transformation of Turkey's Legal Metrology System. Dr. Hüseyin Uğur, Consultant, World Bank, made a presentation on how Metrology Infrastructure can be developed in LDCs, while Mr. Pablo Davila, Industrial Development Officer, Standards and Quality Infrastructure Division, United Nations Industrial Development Organization (UNIDO), Austria, delivered UNIDO Perspective on Development of Quality Infrastructure in LDCs.

The event also included presentations made by the participating experts and policy makers in the field of metrology belonging to COMSATS' Member States, Sri Lanka, Kazakhstan, Jordan, Iran, Bangladesh, The Gambia, Senegal, Tanzania, and Uganda. These presentations highlighted the existing strengths/resources (manpower and technical infrastructure) as well as needs of the participating countries in the fields related to quality infrastructure, including Metrology, Standards, Accreditation and Conformity Assessment.

Their recommendations of the event related to upgradation of quality infrastructure included: adequate financial support of the governments to metrology institutes; strengthening of Academia-Industry linkages; periodic briefings by heads of metrology institutes to policy makers in order to keep them abreast of the developments and to seek their support; involvement of private sector; proper role of media in highlighting the significance of these sectors; and continuous capacity building opportunities to the manpower. While discussing the way forward, it was agreed that TUBITAK UME (with support from COMSATS) would conduct a survey among the participating countries in order to determine their common national needs of quality infrastructure. Subsequently, the participants would prepare proposals for joint projects in order to garner support from international agencies.

Fourth International Conference on Agriculture, Food Security, and Biotechnology Successfully (Rabat, Morocco, November 13 - 14, 2018)

The 4th International Conference on 'Agriculture, Food Security, and Biotechnology' was held in Rabat, Morocco. COMSATS co-organized the Conference with the Islamic Educational, Scientific and Cultural Organization (ISESCO) and the Inter Islamic Network on Information Technology (INIT), Islamabad, Pakistan.

COMSATS' Centres of Excellence represented during the Conference included: Tianjin Institute of Industrial Biotechnology (TIB), China; Al-Farabi Kazakh National University (KazNU), Kazakhstan; National Mathematical Centre (NMC), Nigeria; Industrial Technology Institute (ITI), Sri Lanka; and Industrial Research and Consultancy Centre (IRCC), Sudan. Around 50 researchers and subject experts from Algeria, Burkina Faso, Cameroon, Indonesia, Kazakhstan, Morocco, Nigeria, Senegal, Sri Lanka, Sudan, Tunisia and Turkey participated in the Conference.

The Conference was inaugurated by Dr. Amina Al Hajri, Deputy Director General, ISESCO, on 13th November 2018. Speaking on the inaugural, Dr. Hajri stated that attainment of food security is becoming increasingly challenging due to rapid population growth, effects of climate change, low yields of agriculture production, social



conflicts, as well as demographic and economic factors.

In his message read out by Mr. Tajammul Hussain, Advisor (Programmes), COMSATS Secretariat, the Executive Director COMSATS opined that under the "2030 Agenda for Sustainable Development" developing countries can build partnerships with the developed ones to achieve sustainability in every aspect.

The presentations made during the technical sessions covered a range of topics, inter alia, including advancements in crop improvement in dry-land food production; effect of environment on the properties of Sudanese bread wheat; impacts of irrigation and unstable grain markets on food security; phytoremediation potentials of sunflower on contaminated soils; and use of precision agriculture for improving sustainability.

Active discussions and deliberations during the sessions promoted exchange of ideas and knowledge sharing among the participants. The recommendations of the event pertained to: pertaining practices; landscape and territories; products; stakeholders; and advocacy were adopted after deliberations and insights.

Activities Related to Sustainable Development Goals

Seminar on SDGs Implementation: The Collaboration among Universities

In continuation of its initiative to promote the 2030 Global Development Agenda, COMSATS organized a seminar on "SDGs Implementation: The Collaboration among Universities" on 12th December 2018 at Pak-China Friendship Centre, Islamabad. The seminar was held in collaboration with the Higher Education Commission (HEC) of Pakistan and Inter University Consortium for Promotion of Social Sciences Arts and Humanities (IUCPSS). The inaugural ceremony was attended by over a number of participants from academia and diplomatic community of Pakistan.

Speaking at the inaugural, the Executive Director COMSATS presented the event as a unique platform that aimed to create clusters of relevant individuals and higher education institutions on each of the seventeen SDGs.

In his opening remarks, UN Resident Coordinator, Mr. Niel Buhne opined that universities can provide a good conduit between private sector and the educated youth of Pakistan for helping in achieving the SDGs.

His Excellency Sardar Masood Khan,





Honourable President of Azad State of Jammu and Kashmir (AJK) graced the event with his presence. Speaking on the occasion, His Excellency appreciated this timely emphasis of COMSATS on SDGs.

In his vote of thanks at the inaugural, Mr. Murtaza Noor, Founder of IUCPSS emphasized that partnerships for goals are keystones for achieving the 2030 Global Agenda.

The technical sessions of the seminar were moderated by Dr. Aneel Salman, Dean, Department of Management Sciences, COMSATS University Islamabad. Mr. Ali Kemal, Economic Policy Advisor at SDGs Support Unit, Ministry of Planning, Development and Reform delivered a presentation on "Implementation status of SDGs in Pakistan". Dr. Faisal Ahmed Khan, Pro-Vice Chancellor, Balochistan University of Information Technology, Engineering, and Management Sciences (BUITEMS), presented his university's case study covering the university's initiatives, such as establishment of National Incubation Center and International Centre for Refugee and Migration Studies (ICRMS) for fostering entrepreneurship, creating jobs, and building capacity of workforce and communities in line with SDG8.

The dialogues and interactions among the participants touched upon policy frameworks, social protection policies, entrepreneurship, international cooperation, equitable quality education, women empowerment, renewable energy, creativity and innovation, institutional building, and sustainable infrastructure. A detailed report of the event is available on: http://comsats.org/wp-content/ uploads/2019/01/Report-Inner-Pages_ SDGs-Implementation.pdf.

Presentation on Pakistan's Standing on SDGs

A presentation was made by Economic Advisor, Federal SDGs Support Unit, Ministry of Planning, Development and Reform, Government of Pakistan, Mr. Ali Kemal, at COMSATS Secretariat on November 7, 2018. The presentation was arranged with a view to strengthen the capacity of COMSATS' officials for understanding challenges and opportunities including SDGs in developmental agenda of developing countries, with special reference to Pakistan.

In his interactive presentation, Mr. Kemal informed the participants about Pakistan's standing with regard to SDGs. With regard to innovation, he quoted China as an example to follow, with figures of 400,000 new entrepreneurs each year.

Mr. Kemal highlighted the overarching importance of SDG 16 for achievement of all other SDGs. He noted the importance of good governance to support actions for all other SDGs. Efforts under SDG 17 could further augment relevant efforts by creating partnerships that are 'inclusive, sustainable and equitable'. For sustainability, again, Mr. Kemal considered it important to have stronger institutions.

Partnerships Reached and Strengthened

MoU with UNOSSC

On 30th November 2018, COMSATS joined hands with the United Nations Office for South-South Cooperation (UNOSSC) by signing a Memorandum of Understanding (MoU). The MoU formalized cooperation for promoting science-led sustainable development in its twenty-seven (27) Member States through South-South and Triangular Cooperation schemes. Ambassador Shahid Kamal, Advisor at COMSATS Secretariat, Islamabad, and Mr. Shahid



Husain, Special Adviser at UNOSSC, New York, signed the agreement on behalf of their organizations.

The MoU was signed during the side event "Promoting South-South Cooperation in Science and Technology for Sustainable Development", held jointly by COMSATS; Mustafa Science and Technology Foundation (MSTF), Iran; United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing (UN-OHRLLS); and UNOSSC at the 10th Global South-South Development (GSSD) Expo, United Nations Headquarters, New York, USA.

MoU with SESRIC

To strengthen the existing cooperation in the areas of common interest, COMSATS signed an MoU with the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) on 27th November, 2018, in Istanbul, Turkey. The MoU was signed by Ambassador Musa Kulaklikaya, Director General of SESRIC and Dr. Kamran Jahangir, Advisor COMSATS. This MoU paves way for the two organizations to enhance its collaboration in view of its earlier association for various cooperation initiatives as well as exchange of information and technical resources among their common member states.

MoU with PAAIS

Cognizant of the growing effects of the climate change and air pollution on the general health and well-being of communities being served by COMSATS Telehealth, COMSATS and Pakistan Allergy, Asthma and Immunology Society (PAAIS) recently signed a Memorandum of Understanding on 1st November 2018.

The collaboration under this MoU aims to serve the Rural Population through COMSATS Telehealth clinics in effective treatment of allergic conditions. Telehealth would be used as a tool for pre-assessment of the patients for allergen immunotherapy and to followup to assess treatment response and side effects. Both the organizations agreed to organize free online allergy camps for patients and online allergy





schools for the training of the health professionals associated with the clinics. It was also agreed to reach out various fora to initiate courses in Allergy and medical immunology and seek financial or technical assistance to develop products for diagnosis and treatment of allergic conditions.

Recognition and Representation at International Fora

CTH Receives Honorable Mention by ICIMOD-Nepal

Recognition of COMSATS Telehealth (CTH) has come in the form of an honorable mention during the fifth ICTD Mountain Development Awards 2018 of The International Centre for Integrated Mountain Development (ICIMOD), Nepal. The winners of this year's ICT Awards were announced on the International Mountain Day, 11 December 2018. CTH was one of twenty-one submissions for this year's award, including individuals, NGOs, universities, governments, donorfunded projects, private sector entities providing ICT-enabled innovations and good practices.

CTH was recognized for its efforts to enhance the access to healthcare to the people of mountainous regions within Pakistan through Telemedicine and also to utilize ICTs for capacity building of local staff and health care professionals.

Participation in OIC International Symposium on Financing for Development

Dr. Kamran Jahangir, Advisor at COMSATS attended the International Symposium on 'Financing For Development: Thinking Innovative Solutions to Persistent Development Challenges', held on 22-23 November, 2018 in Istanbul. The event was organized by The Statistical, Economic, Social Research and Training Centre for Islamic Countries (SESRIC), the Organisation of Islamic Cooperation (OIC), and the Islamic Development Bank (IDB).

During the meeting, discussions were held with the decision-makers from all organizing bodies comprising of OIC, SESRIC, and IDB. These included Ambassador Musa KULAKLIKAYA, Director General of SESRIC. Separate discussion was held with the Technical Cooperation Specialist for Training and Technical Cooperation Department at SESRIC, Mr. Onur Caglar, on the possibilities of further engagement between COMSATS and SESRIC.

Other officials met included Mr. Wasim Ahmed Abdulwahab, Director, Islamic Financial Sector Development Department, Islamic Development Bank, Dr. Huseyin Avni Bicakli, Deputy Secretary General of the Economic Cooperation Organization (ECO); Mr. H. Halil AFSARATA, Chief Adviser of Vice President, Chief Coordinator of FRiT Funds.

Engagements with the Foreign Office of the Host Country on Science Diplomacy and Other Affairs

Mr. Khalil-ur-Rahman Hashmi, Director General (UN), Ministry of Foreign Affairs, Government of Pakistan, visited COMSATS Secretariat and held a meeting with the Executive Director COMSATS and other officials on 14th November 2018.

Having briefed him on COMSATS, the Executive Director COMSATS shared COMSATS' aspirations to set-up universities in other Member States, especially in China, Nigeria



and Sri Lanka. Dr. Zaidi sought DG (UN)'s facilitation towards COMSATS' efforts pertaining to: seek support in COMSATS' membership drive; inviting experts / scientists from COMSATS member states, establishment of topclass universities in the country, capacity building programs, expert-opinions on socio-economic development initiatives etc.

The Director General pledged full support of his Ministry towards activities of COMSATS and pledged to assist in further networking, international representation and bilateral engagements with missions abroad.

Later, on 24th December 2018, a delegation from a newly established Division, Arms Control and Disarmament Division-II (ACDIS-II) & Science Diplomacy, Ministry of Foreign Affairs (MoFA), Government of Pakistan, visited COMSATS Secretariat upon invitation from the Executive Director COMSATS. The delegation comprised Ms. Saima Syed, Director, and Mr. Kamran Ahmad, Assistant Director, ACDIS-II & Science Diplomacy, MoFA. The meeting, was aimed at strengthening bilateral cooperation and earning the support of MoFA for COMSATS' Science Diplomacy programme.

The delegation was informed that

COMSATS has always remained cognizant of the need of Science Diplomacy for national progress and development and has, therefore, gave it a due place in COMSATS objectives. The potential of Science Diplomacy to serve as a tool to address challenges of socio-economic nature through forging constructive international partnerships was also highlighted.

It was informed by Ms. Saima Syed that ACDIS-II & Science Diplomacy Division has recently been established by MoFA in order to facilitate scientific collaboration between national stakeholders and international partners, as a part of Pakistani's diplomatic outreach in support of the government's socio-economic development priorities.

Both sides pledged to engage relevant stakeholders through Science Diplomacy for achieving socioeconomic development in accordance with 2030 Global Agenda.

Prospects of Cooperation with Welthungerhilfe Explored

A meeting between the officials of COMSATS and Welthungerhilfe (WHH) was held on 16th November, 2018. The meeting was led by the Ambassador Ms. Fauzia Nasreen, Advisor (SDGs) and Mr. Richard Blane, Country Director, from COMSATS and WHH, respectively.

CIS' experience in ICTs was agreed to be utilized in education, health, food security and building climate resilient communities by developing Apps, inter alia, for Child Growth Monitor for providing medical guidance, data collection etc. Tele-health programmes of COMSATS, it was noted, could be effectively utilized by WHH for providing updated information related to nutrition and child health care for better maternal and child health care.

From the platform of COMSATS, the organization's Centre of Excellence, ICCBS and WHH could be linked for the latter's research work related to nutrition content of flora/special plants in Thar. Similarly, COMSATS University Islamabad and its campuses could facilitate WHH in research and development aimed at innovative solutions to the problems in the field of agriculture.

The meeting led to a possibility of an agreement on areas of mutual interest with WHH's main office in Bonn, under which collaborations would be established between COMSATS CoEs and WHH regional offices in COMSATS' member countries.



SPECIAL SECTION: YEMEN BECOMES THE 27th MEMBER STATE OF COMSATS

The Republic of Yemen joined COMSATS as 27th Member State on November 06, 2018. The membership agreement was signed by H. E. Mr. Mohammed Motahar Alashabi, Ambassador of the Republic of Yemen to Pakistan, and the Executive Director COMSATS, Dr. S.M. Junaid Zaidi, on behalf of Yemen and COMSATS. respectively in Islamabad. The ceremony was witnessed by H. E. Mr. Muhammad Azam Khan Swati, the then Federal Minister for Science and Technology, Government of Pakistan, Ambassadors and High Commissioners from different countries based in Islamabad, and representatives of International organizations and the Ministry of Foreign Affairs.

Yemen was one of the many countries that had been reached out with invitations to join COMSATS in the last few years. The recent follow-ups and engagements with the Embassy of Yemen in Pakistan that led to the country's membership include the following two meetings.

The meeting of August 18, 2017, was held at COMSATS Secretariat. The Ambassador of Yemen to Pakistan had visited COMSATS Secretariat and received a briefing on the projects and programmes of COMSATS, and the



benefits and obligations of COMSATS' membership and also to renew the past invitations to Yemen to join COMSATS. The Ambassador, who was handed a formal letter of invitation to Yemen to join COMSATS, pledged to soon respond to what he had learnt during the meeting.

Later, on September 18, 2018, a followup visit was made to the Ambassador of Republic of Yemen in Islamabad, where it was learnt that significant progress had been made with regard to the membership of Yemen to COMSATS, which later transpired in the accession of the country on November 6.

Speaking at the accession ceremony, Mr. Swati noted with satisfaction Yemen's accession to COMSATS, which he



believed was going to further build the edifice of the Organization and enlarge the scope of collaborative activities of the Commission.

In her opening remarks, President, Institute of Peace and Diplomatic Studies (IPD), Mrs. Farhat Asif, considered Yemen's accession to COMSATS a momentous occasion and hoped that the country would greatly benefit from COMSATS' membership, especially the Yemeni students, faculty members and emerging scientist and academicians.

In his remarks after the signing ceremony, the Executive Director COMSATS welcomed Yemen as a member state, and hoped that the country would benefit fully from the programmes of the organization. These include, scholarship offers at COMSATS 22 Centres of Excellence in different Member Countries; multilateral research on important topics; capacity building activities; triangular cooperation. He thanked the Minister for his Ministry's continuous support to COMSATS.

The Ambassador of Yemen said that his country was honored to be part of COMSATS in view of its important standing in S&T-led development efforts for the South. He hoped for Yemen to benefit from COMSATS' membership.

Brief Profile of Yemen

Yemen is one of the oldest centers of civilization in the Middle East and officially known as Republic of Yemen.



It is bordered by Saudi Arabia to the north, the Red Sea to the west, the Gulf of Aden and Guardafui channel to the south, and the Arabian Sea and Oman to the East.

Demographics and Key Facts

Present-day Yemen: Brief Timeline

- 1918 Independence from Ottoman Empire
- 1962 Establishment of Yemen Arab Republic in the North
- 1967 Withdrawal of the British from the South Yemen protectorate
- 1991 Unification of two states to form the modern Republic of Yemen

The total population of Yemen is 28,036,829 largest age group of the total country's population is between 0-14 years (39.83%) followed by ages between 25-54 years (32.27%). The individuals aged 65 years and above constitute only 2.75% of the total population (CIA World Factbook).





Terrain

The land is mostly desert; hot and humid along west coast; temperate in western mountains affected by seasonal monsoon; extraordinarily hot, dry, harsh desert in east with the terrain described as narrow coastal plain backed by flat-topped hills and rugged mountains; dissected upland desert plains in center slope into the desert interior of the Arabian Peninsula. Yemen has a relatively fertile land and adequate rainfall helps sustain a stable population.

Economy

Yemen is faced with short and longterm challenges in economic stability and growth. The ongoing conflict has, inter alia, negatively affected Yemen's exports, devalued the currency, accelerated inflation, limited food and fuel imports, and caused widespread

damage to infrastructure. Yemen is not a part of the Organization of the Petroleum Exporting Countries (OPEC). Unlike many regional oil producers, Yemen relies heavily on foreign oil companies that have production-sharing agreements with the government. The country's dependence on declining oil and gas resources has further reduced its revenues. Income from oil production constitutes 70

to 75 percent of government revenue and about 90 percent of exports.

Agriculture is the mainstay of Yemen's economy, generating more than 20 percent of gross domestic product (GDP) since 1990 (20.4 percent in 2005 according to the Central Bank of Yemen) and employing more than half (54.2 percent in 2003) of the working population. Numerous environmental problems such as soil erosion, sand dune encroachment, and deforestation have been hampering the growth in this sector but the greatest problem by far is the scarcity of water.

The Government of Yemen has made development of education system its top priority and is focused on ensuring that all children have access to quality education. The country's development plans consistently prioritize human development and the education of the labor force. The basic education is free and open to all aged between 6 to 14 years. The government has even instituted a school feeding program. This program aims to feed children from poor families (StudyCountry).

Partnerships

Yemen is a member of the United Nations, the Arab League, and the Organization of Islamic Cooperation. Australia has a limited but friendly bilateral relationship with Yemen based on collaboration through international fora, including the Indian Ocean Rim Association. Since 2009, Australia has provided more than \$21 million to Yemen in humanitarian assistance through UN agencies and the International Committee of the Red Cross (Dept. of Foreign Affairs Australian Government).

Yemen has now entered COMSATS' fraternity aimed at cooperation in education and S&T.

COOPERATION FOR DEVELOPMENT



Inclusive development has been a global concern in some form for nearly a century now. The two World Wars I and II where on one hand showed humanity the worst mass destruction and turmoil brought upon humanity by humanity in the civilized world, on the other hand compelled nation states to work out arrangements that could help maintain peace in the world. Establishment of the United Nations in 1945 is a wellknown manifestation of a unified stance on need for maintaining peace in the world.

That time in history provides an interesting study of how development is fragile in the face of regional and global conflict. It was the era when humanity was making leaps and bounds of development owing to the industrial revolution and an unprecedented pace in scientific discoveries and inventions. The conflict that resulted in the World Wars brought even the developed countries to their lowest in terms of socio-economic conditions. Factors that helped them regain their socioeconomic stability and even regain excellence in a number of fields over the decades can provide useful lessons for the societies torn by conflict and war in the present world.

There is no denying the fact that massive catastrophes and events of global and universal scales call for unanimity in agreements on highest scales and global action. Operations of United Nations have remained under scrutiny since its inception and have been subjected to criticism by many. Not to validate or deny any, one would think that is there an expectation that a single global forum no matter how big could suffice to address all the world's issues. Debates on such matters are "as natural as the pattern that was made by the dust on a butterfly's wings"¹. However, while the world comes to an agreement on such matters, there is a need for more synergies and collaborations.

The division of the North and the South in terms of development and right use and distribution of resources has been a part of the development narrative for the past several decades. While efforts have been made to reduce the divide by a number of means, including establishment of organizations and coalitions, regional conflicts have been dictating the level of development in a number of areas across the globe. Disparity, thus, not only persists in some areas, it seems to be increasing. According to the World Bank estimates, 378,000 people worldwide died a violent death in war each year between 1985 and 1994 alone. In addition, the losses to infrastructure and resources, as well as migration of crucial human resource further exacerbate the situation in conflict-struck countries.

For the Republic of Yemen, the global peace ranking has gone from 11 in 2008 to 158 in 2018. Notwithstanding, Yemen is making laudable efforts to finding a way through its worst socioeconomic conditions in history. A step in this regard is its accession to the Commission on Science and Technology for Sustainable Development in the South (COMSATS). The country joined the organization aimed at S&T-led development of the South as its 27th Member State on November 06, 2018.

While expanding its horizons to the North to better achieve its objectives, COMSATS remains committed to its cardinal objective of helping out the societies that are most resource constrained. With a number of projects and programmes in education, ICTs for health and networking, capacity building, while providing an excellent platform for networking with institutions and governments in the North and the South, COMSATS' membership would facilitate the country's efforts to develop. An important means in this regard available to the country is the scholarships at COMSATS' Centres of Excellence, including the top ranking IT University of the country, COMSATS University. "Three hundred Yemeni students are studying in Pakistan," informed the H. E. Mr. Mohammed Motahar Alshabi, Ambassador of the Republic of Yemen to Pakistan, at the Accession ceremony in Islamabad, "Yemen's membership to COMSATS will help in finding new grounds for collaboration including cooperation with 22 Centres of Excellence."

The said Network of Centres of Excellence comprises of institutions in 21 out of 26 member countries of COMSATS working under their national mandates as well as coordinating with each other and other institutions from the North and the South. With three universities and other R&D and S&T organizations with specialties in fields relevant to member States' development agenda, the Network is aiding initiatives aimed at the socioeconomic uplift of these countries. Among the challenges that development organizations based in developing countries face, perhaps the most crucial ones include the political patronage from the countries. The decision-makers have to be kept sensitized about the need for continued cooperation and financial support as a continued process.

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Pakistan's patronage to COMSATS, despite the country's own unique challenges, has been unwavering. The organization itself came into being as a result of the country's initiative to gather developing countries on the platform of Foundation Meeting of COMSATS in 1994. Conceived by Dr. Abdus Salam, the idea of the Commission was presented by the Government of Pakistan to the participating countries who signed the accession agreement to establish the organization.

"By sharing our experiences, we can advance further, and COMSATS is the right platform for North-South and South-South Cooperation with 27 Member States. (Here) we have a large landscape for cooperation", said the Minister for S&T, H.E. Mr. Azam Khan Swati, at the accession agreement. The long-standing patronage of Pakistan to the apex forum of S&T cooperation being hosted in Pakistan presents the country to the world quite favorably in the context of regional and international S&T cooperation.

"We look forward to an active engagement with Republic of Yemen in accordance with the aims and objectives of COMSATS", added the Minister sharing a combined stance of COMSATS and his Ministry.

Establishment of such partnerships and synergies has become even more important under the 2030 Agenda for Sustainable Development, which necessitates an inter-disciplinary, qualitative approach towards 17 development goals. In particular, Goal 17 "seeks to strengthen global partnerships to support and achieve the ambitious targets of the 2030 Agenda, bringing together national governments, the international community, civil society, the private sector and other actors." The Goal acknowledges that "despite advances in certain areas, more needs to be done to accelerate progress. All stakeholders will have to refocus and intensify their efforts on areas where progress has been slow."²

Pakistan is contributing considerably through its patronage to COMSATS. This is manifest from COMSATS growing membership, of which Yemen's accession is the latest example, and its frontiers expanding to the North with cooperation and collaborative arrangements with UN development arms, Commonwealth Secretariat and others, as well as with its continuously growing membership.

(1 An expression used by Ernest Hemingway to describe F. Scott Fitzgerald in 'A Moveable Feast' (2 https://sustainabledevelopment.un.org/sdg17





SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

ICCES-China Co-organizes Fora for International and National Scientific Organizations

From November 3 to 5, 2018, the Founding General Assembly of the Alliance of International Science Organizations (ANSO) in the Belt and Road Region & the Second International Science Forum of National Scientific Organizations on the Belt and Road Initiative was held in Beijing. The conference was hosted by the Chinese Academy of Sciences. The International Centre of Climate Change and Environmental Sciences was the co-organizer of the event. The event was opened with a congratulatory letter from the President Xi Jinping read by the Vice Prime Minister Liu. It conveyed the hope that the scientific communities of all countries will work together to play the role through the platform of the "One Belt, One Road" international scientific organization alliance.

The alliance consists of 37 scientific institutions. The Russian Academy of Sciences, the Pakistan Academy of Sciences, the UNESCO, the Kazakhstan Academy of Sciences, the Tribhuvan University of Nepal, the Brazilian Academy of Sciences, the Academy of Developing Countries, the Polish Academy of Sciences, and the Hungarian Academy of Sciences joined the alliance as the first member unit. The Alliance will carry out indepth scientific and technological cooperation, work together to address common challenges, and promote popular communication and humanistic communication for countries along the route.

Prof. Zhu Jiang, Director of Institute of Atmospheric Physics, ICCES, in his keynote reported the research progress of the project of "One Belt and One Road Climate Disaster Short-term and Seasonal Prediction". The project aims



to establish a global high-resolution assimilation and forecasting system suitable for medium- and short-term forecasting of disaster weather in the "Belt and Road" region. This would provide for forecast products for one-toone regional storms, high-temperature and other disaster weather, and objective analysis of the atmosphere.

ICCES-China Strengthens Linkages with COMSATS Centres of Excellence in Pakistan and Nigeria

On 3rd November 2018, Dr. Wajid Nasim Jatoi, Associate Professor of COMSATS University Islamabad, Pakistan, participated in The Founding General Assembly of the Alliance of International Science Organizations (ANSO) in the Belt and Road Region & the Second International Science Forum of National Scientific Organizations on the Belt and Road Initiative held in Beijing. On the sidelines of his participation, he also visited the ICCES and presented his current research progress.

Dr. Jatoi has been closely cooperating with ICCES since 2014. The focus of the cooperation is to analyze the changes in extreme weather and climate events in South Asian countries such as Pakistan and their impact on agricultural production through observations from Pakistani stations. Dr. Wajid has applied for PIFI Visiting Scholarship in 2019 and plans to conduct a collaborative study on the theme of "Integration of Crop and Hydrological Simulation Technology and Its Application in Mitigation of Climate Change Impacts in China and Pakistan" at ICCES. The research content can directly serve the United Nations Sustainable Development Goals (SDGs).

From December 2-6, 2018, Prof. Xiaodong Zeng, Deputy Director of ICCES, visited National Mathematical Centre, Abuja, Nigeria to attend the International Conference on Mathematical Modeling of Environmental Pollution. He also gave a keynote speech on the "Development of CAS-ESM and its Application in Global Climate and Environment Simulation", and made a presentation on the "Transition and Diversity in Arid and Semiarid Grassland - Theoretical ecological modeling studies".

During his visit, Prof. Zeng was also invited to participate in the COMSATS' International Thematic Research Group (ITRG) on Mathematical Modelling and Simulation. After the meeting, Prof. Zeng and Prof. Stephen Onah, Director

COMSATS

of NMC, and other NMC members talked about the potential collaborative opportunities between ICCES and NMC.

ICCES and NMC intend to make more use of ICCES's research on climate system theory, model development and application, and NMC's mathematical modelling theory and analysis study, to collect and analyze Nigeria's climate and environmental observation data, to conduct joint research on extreme climate characteristics, impacts of climate change on the occurrence and spread of environmental pollution in Western Africa.

CUI-Pakistan Organizes International Conferences

COMSATS University Islamabad organized the 16th International Conference on Frontiers of Information Technology (FIT'18), which was held from December 17-19, 2018, in Islamabad for the 16th consecutive year. The principal aim of FIT is to focus on modern trends pertaining to computer sciences, engineering, and other related areas. Like every year, under the umbrella of Frontiers of Information Technology (FIT) conference, Best IT Innovation Awards (BITA-2018) Contest was also organized.

The 10th South Asian International Conference (SAICON) was held from 26th - 28th November 2018 in Islamabad where leading minds from around the world gathered to present their research for discussion, promotion of meaningful ideas and to put research challenges on table for attracting the attention of the international community. SAICON is an annual conference themed on business and data science, organized by the COMSATS University Islamabad (CUI) the custodians of the South Asian Chapter of the Academy for Global Business Advancement (AGBA).

Academic Linkages Strengthened by CUI-Pakistan

A four-member delegation comprising of Dr. Simone Burkhart, Head of Scholarship and Financial Division, Dr. Katharina Fleckenstein, Head of Scholarship Section, Ms. Dagmar Beerwerth, In-charge Scholarship programs and Ms. Inge Igbal, DAAD Director Islamabad Office visited COMSATS University Islamabad (CUI) on 6th November 2018 with the intent to learn more about CUI and its cooperation with Heidelberg University. The delegation interacted with a number of departments including Mathematics Department, Physics Department, Bio Sciences Department, Chemistry Department and International Office.

On November 19, 2018 an eightmember delegation led by Prof. Wang Xinyuan and his team from Heritage Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), Beijing, China visited CUI. Prof. Dr. Raheel Qamar, Rector CUI and Prof. Wang vowed to build a cooperative research platform on global changes, space archaeology and digital heritage, especially for using remote sensing technology to investigate, recognize and assess the natural reserves, world heritage and historic sites on the CPEC with the main purpose of conservation by both the institution.

A three-member delegation comprising of Prof. Dr. Xiuming Liu, Dr. Mingming Ma and Dr. Xuegang Mao from Fujian Normal University (FNU), Fuzhou, China, visited CUI on 19th Nov 2018. An agreement was signed to collaborate for joint research projects on "Impact of Climate Change on the Ecosystem and Ancient Agricultural Progress in Indus River Valley and Himalaya Region."

A high-level delegation from Federal Republic of Nigeria visited CUI Islamabad on 10th December 2018. The delegation was headed by Mr. Bitrus Bako Nabasu, Permanent Secretary, Federal Ministry of Science and Technology, Nigeria. Accompanying officials were Mr. Abayomi Oguntunde, **Director Bioresource Technology** Department of the Ministry of Science and Technology and Mr. Samuel Thomas, SA to Permanent Secretary. It was agreed by both sides to initiate collaborative work in the fields of architecture, chemical technology, food and biotechnology.





Nigeria Inaugurates Lab Named After the Director of ICCBS, Pakistan

The "Iqbal Choudhary Center for Natural Product Research (ICC-NPR)" was inaugurated in Benin, Nigeria on December 21, 2018. The inauguration took place during an international symposium on "Recent Discoveries in Natural Product Sciences", where Prof Iqbal Choudhary, Director of the International Center for Chemical and Biological Sciences (ICCBS), had been invited as a guest speaker at the Edo State Polytechnic.

The naming of the institute was to recognize his excellent contributions to the advancement of drug discovery and natural product research. Prof Iqbal Choudhary also attended the foundation laying ceremony of the Center.

Forensic DNA Lab of ICCBS-Pakistan gets Government Funding

The Dr. Panjwani Center for Molecular Medicine and Drug Research of ICCBS has allocated a grant of Rs. 220 million from the provincial government of Sindh to set up a modern Forensic DNA and Serology Laboratory. The Sindh government designated the ICCBS as the focal center for Forensic DNA and serology analysis and training in forensic serology and DNA analysis. The government also declared the ICCBS as drug and food testing laboratory.

A comprehensive execution plan for this project has been prepared under an MoU. The laboratory will be operational in eight months after the release of funds in December 2018. The forensic lab would have a capacity to handle 50 cases in routine while in any untoward situation extra cases would be divided among other national research facilities.

ICCBS-Pakistan to Collaborate with Canadian University on Scientific R&D

ICCBS signed an MoU with the Brock University, Canada, to cooperate on 'Scientific Research and Technology Development' in the fields of mutual interest, which include establishment of joint laboratories or pilot stations in research and development activities. The Director ICCBS, Prof. Dr. M. Iqbal Choudhary and Prof. Dr. S. Aijaz Ahmed, Dean Faculty of Mathematics and Science, Brock University, signed the five-year agreement in Karachi on behalf of their organizations.

The areas of cooperation include joint supervision of graduate students, including Masters and Ph. D. students and researchers.

ICCBS' International Symposium gathers experts from around the world

Scientists from different parts of the world gathered at the 4-day 14th International Symposium on Natural Product Chemistry organized by ICCBS from November 4 - 6, 2018. Over 600 scientists, including 100 foreigners from 40 countries participated in the symposium, which is considered as one of the most prestigious international events in the field of natural product sciences.

A number of brainstorming sessions, plenary lectures, invited presentations and session lectures were held in the four days of global science gathering. Around 90 posters were also presented by the young scholars. During the symposium, many foreign scientists agreed as adjunct faculty to serve ICCBS-University of Karachi.

NMC-Nigeria Organizes International Conference on Mathematical Modeling

The International Conference on Mathematical Modeling and Simulation was organized by the National Mathematical Centre (NMC), Abuja, Nigeria, 2-6 December, 2018. The conference was of the theme "Militating against Environmental Pollution through Mathematical Modeling for Sustainable Development". The conference aimed at creating an environment for sustained interdisciplinary research on environmental challenges facing the world today and in particular, Nigeria.





Speaking at the inauguration, Professor Stephen E. Onah, Director/ Chief Executive NMC presented Mathematical Modeling and simulation of earth's atmosphere and marine systems to be aimed at obtaining balanced information on dynamics of the complex physical, chemical and biological processes.

In his submission at plenary session, Professor Xiaodong Zeng of the International Centre for Climate and Environment Sciences, China, noted that solving the problem of pollution needs sophisticated models and tools and also the use of computers for enumeration and analysis. Models are developed according to the laws of physics and mathematics.

Other notable plenary speakers included Associate Professor and Department Chair, Mathematics, University of Central Texas, Dr. Christopher Thron. Dr. Thron underscored the importance of right application of mathematics to duly benefit from it.

The conference attracted local and foreign academics, researchers, scientists and students, Nigerian

Government agencies on climate and environment, with research interests in safe environment, water, air and soil. Activities during the conference included plenary and parallel sessions, group/roundtable discussions.

SPaceX Launches into Space a Nanosatellite created by Al-Farabi KazNU-Kazakhstan

A nanosatellite created by Al-Farabi Kazakh National University, Kazakhstan – Al-Farabi-2 – was successfully launched into space by SpaceX. The launch was successfully carried out from a Spaceport on the Falcon 9 rocket carrier in the Vandenberg Air Force Base of California (USA) on December 4, 2018. This is the second Nanosatellite launched by KazNU into space, the first being, Al-Farabi-1, launched into space on February 15, 2017.

The innovative technologies used in Al-Farabi-2 are protected by Kazakhstani patents. The nano-satellite has been designed to solve original scientific, technological and educational problems, and would facilitate testing of electronic components of an onboard computer developed by KazNU's scientists for small spacecraft. The results of the study based on the nanosatellite would effectively serve the Aerospace Industry of Kazakhstan and foreign partners of the university.

Laurels for Al-Farabi KazNU-Kazakhstan

The World Congress of Turkic Peoples awarded the Al-Farabi Kazakh National University the title of 'The Best University of the Turkic World'. Rector of the University, Academician Galym Mutanov was awarded with an Engraved Gold Medal of this international organization. In his congratulatory speech, President of the World Congress of Turkic Peoples, Yahiya Aliyev, highlighted the high achievements of the leading Kazakhstani University, its enormous scientific and innovative potential and dynamic development. He attributed this success of the University to the leadership of Rector Galym Mutanov, under which the University has carried out large-scale transformations.

CSIR- Ghana's Institute Trains 96 Youth on Solar Installation

On December 14, 2018, the Council for Scientific and Industrial Research – Institute of Industrial Research (CSIR-IIR), Ghana, trained 96 electricians and artisans on solar installation and maintenance in collaboration with TELSOL. Supported by Danish Development Agency, the event was held to build the capacity of members of Certified Electrical Wiring Professional Association of Ghana (CEWPAG).

The project is aimed to provide support for the energy needs of the Ghanaian government's One-District One-Factory, One-Village One- Dam Initiative. The project is expected to reduce dependence on foreign electrical contractors charging high fees for services. The training would also assist in increasing solar power generation capacity from the current level of 22.5MW and develop a non-constrained transmission network by 2020 and would help with 10 per cent contribution of modern renewable energy in the electricity-mix by 2030.

It is pertinent to mention here that the IIR was also recognized as the as the most Energy Efficient Public organization in the country for the year 2018 by the Ghana Energy Awards Scheme. This was announced during the annual Ghana Energy Awards held in Accra in November 2018.

The Royal Scientific Society Launches Six SMEs to Implement Communal Environmental Interventions through the "Youth Advocates for Improved Environment" Project

The Royal Scientific Society (RSS), Jordan, launched six small-medium enterprises (SMEs) as part of the project "Youth Advocates for Improved Environment in Mafraq and Ramtha", in June 2018.

The project, supported by the Middle East Partnership Initiative (MEPI), aims at empowering citizens, particularly young people, to implement a range of communal environmental initiatives/ interventions that promote participatory governance within the targeted areas. Youth advocacy groups were formulated through this project to implement these interventions.

The methodology of the project included building capacities of the youth advocate groups' members regarding environmental topics through holding specialized workshops to familiarize them with the most crucial challenges concerning water, energy and solid waste in Jordan. In addition, training courses were provided for the advocacy groups regarding human development skills (communication, presentation and leadership skills), creative thinking, advocacy and proposal writing.

Trained youth advocacy groups were then divided into smaller groups (4 sub-groups in Ramtha and 2 in Mafraq) to develop proposals for innovative environmental interventions that serve the local community and contribute to facing some environmental challenges in the targeted areas of Ramtha and Mafraq. Subsequently, six proposals for communal environmental interventions were submitted, all of which were financially and technically supported by the project. In order to successfully implement and manage these interventions and sustain the efforts of the working groups, the above-mentioned working groups independently established six SMEs, in close consultation with the RSS team.

Ramtha proposals included the following ideas: Recycling of wooden waste, Solid waste recycling arts, and School contest for solid waste segregation and Hydroponic agriculture. The Mafraq proposals included two ideas, i.e., composting and bread leftovers recycling. All initiatives are currently being managed by the youth groups and are successfully achieving their intended objectives.

RSS will constantly work on creating awareness and training programs to engage local communities in addressing national challenges.





TÜBİTAK Marmara Research Center (MAM) Biomaterials, Biomechanics and Bioelectronics (3B) Center of Excellence" Open to Collaborations to COMSATS Member States

The "Biomaterials, Biomechanics and Bioelectronics (3B) Center of Excellence", as part of TÜBİTAK Marmara Research Center (MAM) Materials Institute aims to develop and produce high-tech materials and devices for health sector through national capabilities. The Centre was established with the purpose to conduct cutting-edge research in the fields of Biomaterials, Bioelectronics and related technologies. Owing to its expert personnel who are competent in Materials Science, Chemistry, Food Science, Physics, Mechanics, Biomedicine and Microbiology; the 3B Center of Excellence conducts R&D and test & analysis studies on nanocarriers, biosensors and biomaterials. The newly constructed building of the Center was finished at the end of 2018.

The Center houses state-of-the-art laboratories dedicated to MEMS, advanced microscopy, thin film, bioelectronics test and characterization, chemical synthesis and characterization, mechanics and bio-mechanics, physicochemical properties, 3D-bioprinting, cell culture and biosafety level-II (BSL-II) microbiology for the development of innovative products in biomedical and health sectors.

Multidisciplinary research group of the Center has 15 on-going R&D projects with a total budget of about 5.2 million €. All of these projects are being conducted in close cooperation with stakeholders from the industry, universities, legal authorities and NGOs.

At the Centre, R&D is carried out on degradable (scaffolds for soft and hard tissue) and non-degradable biomaterials (dental implants, hip-joint replacements, knee implants, etc.), and various ISO and EN certified microbiological, disinfectant efficacy, biomaterials mechanical characterization tests are also conducted. 3B Center also synthesizes micro/nano carrier systems for targeted gene/ drug delivery systems, diagnostic imaging systems, and synthetic agents for early detection and treatment of various kinds of cancer by kits or biosensors.

Following projects are being executed



by the Centre:

- Designing of Wireless MEMS Sensor for the early detection of blocked heart arteries in order to prevent a possible heart attack before it actually takes place, thus it aims to decrease the number of deaths from heart attacks.
- Early Phase Lung Cancer Detection through the analysis of the breath and the breath condensate, in other words, the breath compounds originating from broncho-alveolar, of a lung cancer patient.
- Glucose Detection for the early diagnosis of type-I and type-II diabetes through a MIP-and-PNA harboring biosensor that functions with high selectivity and high accuracy, while being low-cost and quite simple

Once fully operational, the Centre, which is currently working on noninvasive sensors, will fabricate tissue implantable sensors (e.g. in brain), DNA sensors and sensors implantable on skin that will facilitate early disease diagnosis as well as toxin detection in tissues and body.

The R&D studies of the Center are expected to turn into products and help meet the needs of Turkey in the future as well as providing a proper guidance to R&D inputs. The 3B Center of Excellence is open to collaborations with COMSATS' countries for developing joint projects in line with the needs of the countries. Likewise, the member countries can use the infrastructure of the Center for their own projects; and other cooperation programs can be conducted through **COMSATS** University Islamabad like scholarship programs, student exchange programs, etc.



S&T AND DEVELOPMENT NEWS FROM MEMBER STATES

Egypt and Tunisia among the World's Best Renewable Energy Producing Countries

Renewable energy has wide scale applications in industrial and transport sector. Two COMSATS Member Countries, Egypt and Tunisia, along with the United Arab Emirates (UAE), are on the list of World Bank's best countries producing renewable energy in 2018.

World Bank's report cited by CNN Arabic mentioned that these three Arab states have made a remarkable progress in renewable energy development over the past seven years. The report indicated that these countries provided incentives such as legal framework to the private sector in order to encourage them to invest in renewable energy sector.

In the report, Egypt was graded from 10 points to 68 points by 2018 and UAE becomes one of the best states in developing energy efficiency on the World Bank's Regulatory Indicators for Sustainable Energy (RISE). This has made Egypt among the top 36 countries around the world. A commendation was also given to Jordan's "notable" progress in developing renewable energy from 2010 to 2017 with a record of 63 points. (Daily Times, 27th December 2018).

United Nations 2030 SDGs Adopted by JSEZA, Jamaica

The Jamaica Special Economic Zone Authority (JSEZA) has adopted the United Nations (UN) 2030 Sustainable Development Goals (SDGs), which are being targeted for attainment within 12 years in relation to a wide range of social and economic development issues. These focus on addressing education, energy, the environment, health, hunger, poverty, decent work and economic growth. The SDGs form part of Special Economic Zones' (SEZs) developmental framework in Jamaica, and are thought to be pivotal to fulfilling the SEZs' mandate. This mandate focuses on developing a regime and environment in which globally competitive firms thrive while driving unprecedented growth and development for all stakeholders' interests in a logisticscentred economy. The SDGs that were deliberated on directly aligned with the SEZ mandate are Goals 7-Affordable and Clean Energy; Goal 8-Decent Work and Economic Growth; Goal 9-Industry, Innovation and Infrastructure: Goal 11-Sustainable Cities and Communities: Goal 12-Responsible Consumption and Production; and Goal 17-Partnerships for the Goals. The economic, environmental and social aspects of sustainability were considered important for the proposed projects, by considering their potential to contribute to Jamaica achieving targets in the SEZ Policy, Vision 2030 Jamaica National Development Plan, Logistics Hub Initiative Master Plan and Industry Analysis, and SDGs. (Jamaica Observer, 22nd December 2018).

Pakistan Government to Expedite Implementation and Localization of SDGs

According to the Parliamentary Secretary for Planning of the Government of Pakistan Ms. Kanwal Shauzab, the country is making endeavours to expedite the implementation and localization of Sustainable Development Goals (SDGs) in the country. She gave this insight in a meeting with various representatives of UN agencies in Islamabad, to discuss SDGs agendas with regard to monitoring and evaluation, civil registration and vital statistics system and population control programs. Ms. Shauzab informed that the government is deliberating on plans to launch vocational training programs at large scale to equip youth with skills and relevant expertise to make them compatible with modern job market. She said the government also aims to further empower women.

A decision was reached at the meeting to organize a national level conference with inclusion of federal, provincial and district/local level SDGs representatives to discuss the future agenda of advocacy and localization of SDGs. (*Times of Islamabad, 28th December* 2018).

Zimbabwe Government Introduces Free Education

The Justice, Legal and Parliamentary Affairs Minister, Ziyambi Ziyambi, announced that the Zimbabwe government has introduced a law under which government schools will offer free basic education and abolish corporal punishment. He said that the Education Act will be amended when Parliament resumes sitting early next year to align the law with Section 27 of the Constitution.

He stressed that the state must take all practical measures to promote: (a) Free compulsory basic education for children; and (b) higher and tertiary education. The cabinet has approved the Education Amendment Bill which, among other things, promotes equitable development of schools across all regions, the learning of local languages and guarantees the rights of people with disabilities.

The Minister Ziyambi also pointed that the Constitution will be amended to improve women's representation in the National Assembly (*Bulawayo 24 News*, 23rd December 2018).



SCIENCE, TECHNOLOGY AND DEVELOPMENT

Lung-Like Device for Efficient Hydrogen Fuel Production

At Stanford University, California, Yi Cui and his team have developed a device that operates on the same principle as that of human lungs to power the reactions used for making hydrogen fuel (NewScientist, 20th December 2018). The scientists have fabricated a 12-nanometer thick rolled and sealed plastic film coated with gold and platinum nanoparticles on the inside and bearing tiny pores, with remarkable hydrophobic properties, outside. When the voltage is applied to water to split it into its constituent parts, the hydrogen and oxygen gases enter the lung-like apparatus and create energy as they pass through the conductive metals on the inside of the pouch. The team believes that improving the process could make better fuel cells which are used to power hydrogen vehicles and could one day be used for powering everything from cell phones to cities. Cui and his team found that their lung-like device is 32 per cent more efficient than other known devices in flat membrane

Turning Plastic Bottles into Aerogels

Researchers from the National University of Singapore (NUS) have found a way to convert plastic waste into a material called Aerogels which can be modified to absorb oil and carbon dioxide (Asian Scientist, 12th November 2018).

Plastic waste is toxic and nonbiodegradable. Such waste often ends up in oceans and landfills, affecting marine life. Plastic bottles are commonly made from polyethylene terephthalate (PET). In the present study, a research team led by Associate Professor Duong Hai Minh, has found a way to convert PET into aerogels which are porous solid materials with customizable properties. The researchers have produced soft, flexible, durable, extremely light, and easy to handle aerogels with superior thermal insulation as well as strong absorption capacity. PET aerogels can be customized for various applications by giving different surface treatments.

Bacteria Found In Ancient Irish Soil Halts Growth of Superbugs: New Hope for Tackling Antibiotic Resistance

The soil of Swansea University Medical School in Swansea, Wales, is long thought to possess medicinal properties. A team of researchers from Wales, Brazil, Iraq and Northern Ireland, carried an analysis of this soil which led to the discovery of a previously unknown strain of bacteria. The strain, named Streptomyces sp. Myrophorea, is effective against four of the top six superbugs that are resistant to antibiotics, including MRSA (Science Daily, 27th December 2018).

According to a recent research, up to 1.3 million people in Europe could die of antibiotic-resistant superbugs by 2050. Thus the discovery of this microbe will help in R&D of new antibacterial drugs to treat multi-resistant bacteria, and other lethal infections.

Wearable Devices for Better Healthcare

A team of researchers from Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS), The Wyss Institute for Biologically Inspired Engineering, Beth Israel Deaconess Medical Center, and Boston Children's Hospital have developed a soft, nontoxic wearable sensor that unobtrusively attaches to the hand and measures the force of a grasp and motion of the hand and fingers (www.seas.harvard.edu, 21st December 2018). This sensor has huge potential for early diagnosis of cognitive and motor developmental disabilities which are currently diagnosed with a series of cognitive and motor tests. Such disabilities are often reported in children born prematurely and their timely detection can alleviate the negative impacts on children.

A highly conductive liquid solution, made from potassium iodide and glycerol, has been used in the sensor, in contrast to previous biocompatible sensors which are prepared using sodium chloride-glycerol solutions which have low conductivities. Further, the preparation of these wearable sensors takes one-third less time than other sensors.

In another study, scientists from McCormick School of Engineering and Feinberg School of Medicine, Northwestern University, Illinois, have developed world's smallest wearable, battery-free device for measuring exposure to light across multiple wavelengths ranging from the ultra violet (UV) to visible and even infrared parts of the solar spectrum. The device can record up to three separate wavelengths of light at once even in the water (www.mccormick.northwestern. edu, 5th December 2018). It can monitor therapeutic UV light in clinical phototherapy booths for psoriasis and atopic dermatitis, as well as blue light phototherapy for newborns with iaundice in the neonatal intensive care unit. It also demonstrates the ability to measure white light exposure for seasonal affective disorder. As such, it enables UVB and UVA exposure for people at high risk for melanoma, a deadly form of skin cancer.

For recreational users, the sensor can help warn against impending sunburn.

PROFILE OF HEAD OF COMSATS CENTRE OF EXCELLENCE

PROF. DR. YANHE MA, DIRECTOR-GENERAL, TIANJIN INSTITUTE OF INDUSTRIAL BIOTECHNOLOGY, CHINA

Prof. Dr. Yanhe Ma is the Founding Director and Director-General of Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences (CAS),



which became the 22nd COMSATS International S&T Centre of Excellence during the 21st Meeting of COMSATS Coordinating Council held on 3-4 April 2018, at Al-Farabi Kazakh National University (KazNU), Almaty, Kazakhstan. Prof. Ma is also the Vice President of Chinese Society of Biotechnology and Director of National Engineering Laboratory for Industrial Enzymes since 2010 and 2008, respectively.

Born in 1961, Prof. Ma holds a doctorate degree in Fermentation Engineering from Jiangnan University, China. During the early years of his career as a Biotechnologist, he worked as a Research Assistant at Institute of Microbiology (IM), CAS where he was successively promoted to Professor from Assistant and Associate Professor.

Major part of Prof. Ma's research is related to the discovery, development and application of extremophiles and extremozymes. His research group has discovered over 20 novel extremophile species, and developed some industrial enzymes, some of which have been used in food, textile and pharmaceutical industries.

As the chief scientist of China's first synthetic biology project "Synthetic cell factories" funded by the National Basic R&D Program of China, Prof. Ma founded China's first "cell factory" research group. Under this project, his group has built over 20 important microbial cell factories, by which the disruptive green production patterns based on biosynthesis could be established.

He is currently the member of the Scientific Advisory Committee on the development of national strategic emerging industries and development of national new materials, Deputy Secretary-General of the Scientific Advisory Committee on the development of national bioindustry, and member of Steering Committee of national medium and long-term biotechnology development planning.

Prof. Ma was also a member of the expert panel on biotechnology of the National High Technology R&D Program of China (863 program) during the "11th Five-Year" plan of China, the convener of the expert panel on Industrial Biotechnology of 863 program during the "12th Five-Year" plan of China. Besides, he was involved in drafting many national strategic plans on biotechnology, bioindustry and strategic emerging industries during the national "12th Five-Year" and "13th Five-Year" plans of China.

In recognition of his services towards scientific advisory and research, Prof. Ma was conferred numerous honours and awards including Science and Technology Progress Award by China National Light Industry Council (2016), Science and Technology Progress Award by China Petroleum and Chemical Industry Federation (2014), Science and Technology Progress Award of Tianjin City (2013), Technology Invention Award by China Petroleum and Chemical Industry Federation (2011) and National Technology Invention Award (2001).

Prof. Ma has published 227 papers and has filed 156 patents of which 46 were granted. He has also served as Editor, Associate Editor, and member of the editorial board of several international academic journals including 3 Biotech, The core scientific areas of Tianjin Institute of Industrial Biotechnology (TIB) of Chinese Academy of Sciences (CAS) are industrial protein science and biocatalytic engineering, synthetic biology and microbial manufacturing engineering, and biological systems and bioprocess engineering.

TIB has state-of-the-art core facilities covering high-throughput screening, systems biotechnology, fermentation, and genome synthesis along with National Engineering Laboratory for Industrial Enzymes, CAS Key Laboratory for Microbial Systems Biotechnology, Tianjin Key Laboratory for Industrial Biosystems and Bioprocess Engineering, and a Tianjin Engineering Center for Bio-catalytic Technology.

TIB has over 600 staffs and graduate students, among which 45 are professors. TIB has applied for over 540 patents, among which 136 have been granted and has received 12 awards among which 10 are of national/ provincial level.

So far, it has established cooperative relationships with over 140 enterprises of the nation with a total contract value of \$120 million. Over 30 technologies have been industrialized in various industries, such as pharmacy, chemical, textile, fermentation, biomaterials and enzyme.

Aquatic Biosystems, Applied and Environmental Microbiology and Chinese Journal of Biotechnology.

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