



Participants and Organizers of COMSATS-TIB-UNESCO International Training Course on Synthetic Biology and Industrial Biotechnology (Details on Page 02)

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## From Editors' Desk

The year 2021 saw two major breakthroughs in the history of medical science in the form of development of COVID-19 vaccine in record time bypassing the usual time-frame of years and first-ever Malaria vaccine. Rays of hope amid a lot of despair and devastation that loomed over 2020 and much of the history in case of Malaria, these landmarks have opened doors for fast-paced solutions for future health-related catastrophic events. There are raising hopes of a better future thriving on the human intellect and technological advancements of the modern age. As important as these scientific developments are, the dream of a fair and equitable world cannot be realized without the ensuing benefits equitably reaching 70% of world population that lives in the developing countries.

Climate Change remained a burning issue throughout the year evoking commitments and inciting pledges from world leaders as seen during the United Nations Climate Change Conference (COP26) held in Glasgow in November 2021. These promises were aimed to protect, secure, and restore the environment and build a future centered upon renewables and clean energy with zero-carbon. The theme for this year's World Science Day also called for investment in building resilience of communities in the wake of Climate Change. The common point of the debates and dialogues of this nature and other similar issues was inclusivity, solidarity, and partnerships – the main ideas backing many

regional and global agendas.

COMSATS' activities during the year pertained to institution building, webinars and trainings, international liaison with partners in the North and the South, interactions with COMSATS' member countries and diplomatic missions based in Pakistan, and international observances. These activities resulted in necessary information sharing, science diplomacy and building and enhancing rapport with COMSATS' members, partners and potential partners. During the year, COMSATS also welcomed two new members from The Gambia and the Nigeria to its Coordinating Council.

This final issue reports some important developments that had the aim of strengthening connections, enhancing networking, advocating science diplomacy and building capacity of scientific workforce. Interesting S&T developments in the domains of renewable energy, food security, artificial intelligence, academia, information technology, health sciences, and digital technologies also adorn the pages of this issue.

At the year end, COMSATS is grateful to all the collaborating institutions and individuals for their unwavering support to COMSATS' activities during the year. Gratefully acknowledged are COMSATS Centres of Excellence who remained highly supportive and active throughout the year. Feedback on this issue and feed-forward on issue of the 2022 Volume of the Newsletter is welcome. We wish all readers a Happy New Year 2022.

## HIGHLIGHTS FROM COMSATS SECRETARIAT

### COMSATS-UNESCO Sign Cooperation Agreement

On November 8, 2021, an MoU was signed between COMSATS and the Pakistan National Commission for UNESCO (PNCU) for execution of COMSATS-UNESCO joint project titled 'COMSATS-UNESCO South-South Regional (Asia-Pacific) Technical Cooperation Programme (Biennium 2020-21)' under the UNESCO participation programme. The project was approved by UNESCO in May 2021 for grant of US \$ 35,000 under the regional category of UNESCO participation programme for 2020-21.



The proposed programme's main goal is to strengthen the scientific and technical capacities of COMSATS and UNESCO common member countries in the Asia-Pacific region by leveraging knowledge from COMSATS' Network of S&T Centres of Excellence, as well as other partnering institutions. The proposal calls for holding three to four international workshops/conferences in common fields of interest to COMSATS and UNESCO member countries. In this regard, four Centres of Excellence of COMSATS, CUI-Pakistan, ICCBS-Pakistan, TIB-China, and ITI-Sri Lanka, have formally consented upon hosting the joint events. One of these, 'International Training Course on Synthetic Biology and Industrial Biotechnology' with the Tianjin Institute of Industrial Biotechnology (TIB), China, was successfully organized during the reporting period (details in the following report).

COMSATS has previously successfully implemented the UNESCO Participation Programme in the biennium 2010-11 and 2006-07, with a total of 7 international workshops/seminars/

conferences held in COMSATS and UNESCO member countries.

### COMSATS-UNESCO-TIB Organize Training Course on Industrial Synthetic Biotechnology

The second International Training Course on Industrial Synthetic Biotechnology was held from 20th to 30th December 2021. The event was jointly organized by the Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences (CAS), from the platform of COMSATS Joint Center of Industrial Biotechnology (CCIB), which was established in April 2021. The objective of this Centre is to facilitate collaborative R&D activities, capacity building, S&T consultancy services, and technology transfer among COMSATS Member Countries and Centres of Excellence. This specialized training course had the patronage and support of Alliance of International Science Organizations (ANSO); the Department of International Cooperation, Ministry of Science and Technology, China; CAS-TWAS Center of Excellence for Biotechnology, China; and Innovation Cooperation Center, Bangkok; as well as the Commission on Science and Technology for Sustainable

Development in the South (COMSATS) and United Nations Educational, Scientific and Cultural Organization (UNESCO), under the project framework of "COMSATS-UNESCO South-South Regional Technical Cooperation Programme". Besides MOST-China and three intergovernmental agencies, the CAS-TWAS Center of Excellence for Biotechnology, China; and Innovation Cooperation Center, Bangkok supported the organization of the event.

The inaugural ceremony held on 20th December 2021, was attended by members of CCIB's Consultative Committee and Technical Advisory Committee, as well as distinguished members of TIB and Organizing Committee of the training course. Virtual participation of the ceremony included that of policy makers and members of scientific community from COMSATS' member states.

Speaking on the occasion, Dr. Akhtar Nazir, Executive Director COMSATS, informed that COMSATS is supporting the training course under the framework of COMSATS-UNESCO South-South Regional Technical Cooperation. He informed that under this framework similar scientific capacity-building activities are planned and will be executed in other member states of





COMSATS in the areas of Industry 4.0, sustainable energy, and natural product chemistry. Dr. Nazir hoped that participants will gain a better understanding of one another's needs and skills, and build cooperative and long-term connections that will enable them to develop and share biotechnological advancements and apply them to help attain common social and economic goals.

Ms. Xuemei Yang, Division Director, Department of International Cooperation, Chinese Ministry of Science and Technology; Prof. Jinghua Cao, Executive Director of ANSO Secretariat; Prof. Yanhe Ma, Director-General TIB; Prof. Sun Jibin, Deputy Director-General TIB and Director CCIB; and Mr. Syed Junaid Akhlaq, Secretary General, Pakistan National Commission for UNESCO (PNCU) also spoke at the ceremony.

The broad objectives of the training were to provide theoretical and practical laboratory training on fundamentals underlying the industrial synthetic biotechnology and introduce the participants on the progress in frontier technologies in various areas, including biomedicine, bio-agriculture, future food, bio-chemicals, bio-based materials, and bioenergy. The training program primarily comprised six technical sessions having keynote lectures and talks by subject experts focused at applications of industrial synthetic biotechnology, as well as six experimental sessions, and a group discussion focused at fostering interaction and future collaboration among participating researchers from developing member countries. During the training programme, emphasis remained on highlighting advancements in synthetic biotechnology and how innovations

in synthetic biology could benefit humanity in providing solutions to medical, environmental, and agricultural challenges. The training course also addressed other areas where synthetic biotechnology can be applied and challenges and opportunities regarding production strategies and applications of microbial cell with emphasis on food and energy applications were also highlighted.

During the experimental sessions, instructional videos, especially developed for this training program, provided step-by-step guidance on how to operate equipment, software or follow a technical process for high throughput and automated genetic engineering, technology of systems biology in metabolic engineering, X-ray Protein crystal structure determination, DNA synthesis, intelligent fermentation technology, and designing of metabolic

The opening session was followed by virtual tour of TIB to showcase its state-of-the-art research facilities and diverse array of cutting-edge instruments.

The training had notable international participation mainly covering member states of COMSATS and that of the Road and Belt Initiative (BRI). Fifty international trainees belonged to Bangladesh, Cambodia, China, Egypt, Ghana, Pakistan, Iran, India, Jordan, Kazakhstan, Morocco, Nepal, Nigeria, Sri Lanka, Rwanda, Tanzania, and Zimbabwe.





pathways based on genome-scale metabolic network. The trainers represented various Chinese academic and R&D institutions including Biotechnology Research Institute; Chinese Academy of Agricultural Sciences; Nanjing Tech University; Jiangnan University; Xi'an Jiaotong University; Guangdong Technion Isreal Institute of Technology; Institute of Microbiology, Chinese Academy of Sciences; Chongqing University, as well as Washington State University, USA. The speakers provided many useful ideas based on years of experience and expertise in their field.

During the group discussion session, the trainees held discussions on some of the major research endeavours over the last decade devoted to industrial synthetic biotechnology with a view to establishing prospective partnerships and form new synergies. At the end of graduation ceremony, the participants shared the information regarding their different skillsets, vast research experience and diverse academic backgrounds and agreed to collaborate for interdisciplinary research projects of CCIB's R&D Groups on bio-medicine, bio-agriculture, future food, bio-energy, bio-chemical, and bio-based materials.

### COMSATS Participates in WHO/EMRO and UNESCO's Joint Webinar on Vaccine Equity

COMSATS participated in the World

Health Organization Regional Office for the Eastern Mediterranean (WHO/EMRO) and United Nations Educational, Scientific and Cultural Organization (UNESCO) joint webinar on "Fair, Equitable and Timely Allocation of COVID-19 Vaccines in the Arab States/ Eastern Mediterranean Region", held on 6th December 2021. Dr. Azeema Fareed, Principal Medical Officer and Focal Person COMSATS Telehealth Project, chaired this webinar's session entitled "Social Impact of the COVID-19 Pandemic". More than 60 field experts from the Middle East and Arab region participated in the event.

The webinar consisted of six technical sessions divided into two parts. The first part covered sessions on Public Good, Solidarity & Building Capacity; Role of Data & Research; and Ethical Principles and Realities on Vaccine Roll-out in the Arab/EMR, while panel discussions on Vaccine Hesitancy and Community engagement; Social impact of the COVID-19 Pandemic; and Key Ethical Principles in Time of COVID-19 Pandemic and Vaccination were held during the second phase of the event.

Chaired by Dr. Fareed, the fifth session highlighted impacts of COVID-19 Pandemic on various socio-economic indicators such as health and education. Session panelists included Dr. Abdullah Al-Joudi, Member National Committee of Health Ethics, Saudi Health Council, Riyadh, Saudi Arabia; Dr. Samar Elfeky, Technical Officer in Division of Healthier Populations, WHO/EMRO;

and Dr. Nijmeh Al-Attayat, IBC member and Associate Professor, Hashemite University, Jordan.

Opening the session, Dr. Fareed opined that COVID-19 pandemic has negatively affected progress towards Sustainable Development Goals (SDGs). Citing relevant statistics, she noted that 2.8 to 3.4 million people of Eastern Mediterranean Region (EMR) have been pushed back into extreme poverty. This economic and health crisis has given rise to, highlighted and exposed the deep social inequalities around the globe. She opined that an unequal distribution of vaccines will further deepen these inequalities and widen the gap between the rich and the poor and will reverse decades of hard-won progress on human development.

Dr. Abdullah Al-Joudi highlighted the issues and measures related to governance, commerce and public health management in Saudi Arabia through statistics from different national and international reports. Dr. Samar Elfeky discussed the key policy challenges during the pandemic having far reaching social impact and leading to a number of gender-related issues and emphasized the need for mapping inequalities and expanding health services, as well as formulating tailored strategies for immunization with regard to COVID-19 and general 2020 global immunization goals. Dr. Nijmeh Al-Attayat, highlighted disruptions in the education sector caused by COVID-19 crisis and associated challenges that



disrupted the learning of 1.6 billion pupils across the world especially in Low-to-Middle-Income Country (LMICs). She considered it necessary to offset this loss which is possible with right adaptation of new policies, ICTs and online learning materials.

### COMSATS Participates in ANSO's School on 'Innovation, Sustainable Development and Leadership Enhancement'

COMSATS and UCAS joined hands under the Belt & Road International Innovation Development Institute Network (ANSO-BIDI Institute Network) to organize the 2nd term of ANSO-BIDI School (online training) on 'Innovation, Sustainable Development and Leadership Enhancement' (November '21 to January '22).

The opening ceremony of the event was held virtually on 17th November 2021, and was attended by over 150 participants from various countries.

Among others, 85 trainees belonging to various Centres of Excellence from 7 Member Countries of COMSATS, including Egypt, Iran, Kazakhstan, Nigeria, Pakistan, Sri Lanka, and Syria, as well as COMSATS Secretariat are participating in the training course.

Speaking on behalf of COMSATS, Prof. Dr. Ashraf Shaalan, Chairperson COMSATS Coordinating Council, stated that concerted efforts by all stakeholders, including governments, business sector, scientific community, policymakers, society, and individual citizens, are needed to address the ongoing socio-economic challenges being faced by the South particularly the battle against COVID-19 pandemic and achievement of Sustainable Development Goals. He laid emphasis on education, science, technology, indigenous R&D, and innovation at all levels for addressing these challenges. The online training has 9 weekly modules spanning over 2.5 months during which distinguished professors

from well-known universities and leaders of prestigious international organizations based in Belgium, Canada, China, Sweden, Switzerland, and USA would cover several topics in their lectures, including organizational management, risk management, resource integration and deployment.

### ED COMSATS Participates in Sri Lankan International Event

COMSATS' Centre of Excellence in Sri Lanka, the Industrial Technology Institute (ITI), held its 5th Biennial Research Symposium under the theme "Positioning Science, Technology & Research for New Normal Industrial Challenges", from 10th – 12th November 2021.

The Executive Director of COMSATS, Dr. Akhtar Nazir (Federal Secretary, Ministry of Science and Technology (MoST), Government of Pakistan), virtually addressed the Inauguration



Ceremony held on 10th November 2021. Several senior officials of the Sri Lankan Government, including State Minister for Digital Technology and Enterprise Development, and Minister for Trade were also present at the inaugural.

Speaking on the occasion, Dr. Nazir opined that the adoption of appropriate Science, Technology and Research policies, and putting in place robust infrastructure for research and development would be vital for the progress and development of countries. Dr. Nazir emphasized on building strong university-research institutions-industry nexus to help find innovative solutions to the challenges of post COVID-19 era. He stated that industrialization has the potential to help achieve a variety of social objectives, such as those related to employment generation, poverty eradication, gender equality, and greater access to education and healthcare. Dr. Nazir also acknowledged the mutually beneficial cooperation between COMSATS and ITI. On the occasion, Hon. Bandula Gunawardena, Sri Lankan Minister for Trade, acknowledged the efforts of ITI's scientists and researchers in developing technologies to help society during COVID-19.

Inaugurating the event, Dr. G.A. S. Premakumara, Chairman of ITI,

informed that the Biennial Research Symposium, that was introduced in 2013 has expanded to be an international event being held during the national science week of Sri Lanka. Dr. Premakumara highlighted ITI's long-standing relationship with COMSATS, appreciated continuous support from COMSATS and acknowledged its role in facilitating cooperation in science, technology and innovation for achieving sustainable development in the South, including Sri Lanka.

Dr. Radhika Samarasekera, Director General, ITI, underlined ITI's contribution in upgrading hi-tech industrial development in Sri Lanka via undertaking R&D, consultancy, technology transfer, training, surveys and monitoring, and mitigation of environmental pollution, among others. She thanked Executive Director COMSATS for his participation as a special guest.

In his remarks read out on the occasion, H.E. Gotabaya Rajapaksa, President of Sri Lanka, remarked that science and technology have played a critical role in dealing with new challenges and achieving the common goals. His Excellency informed that the Government of Sri Lanka has formulated a National Policy Framework: 'Vistas of Prosperity and Splendor', setting out a plan of action for socio-economic

development in the country. He appreciated the vital role played by R&D institutions during COVID-19.

On the occasion, Hon. Namal Rajapaksa, State Minister of Digital Technology and Enterprise Development/Minister of Youth & Sports/Minister of Development Co-ordination and Monitoring, informed that Sri Lankan government is committed to tackling the challenges of the new normal since the Pandemic started by, inter alia, investing in innovation and research. He reiterated his Ministry's commitment towards the digital transformation of Sri Lanka and acknowledged the constructive role of ITI in industrialization of the country.

In his keynote address, Hon. Prof. Tissa Vitarana, Member of the Parliament, Government of Sri Lanka, stated that the developing countries should make the best use of Science, Technology and Innovation in order to achieve socio-economic development. He was of the view that the negative fallout of COVID-19 on industry can be abated by taking necessary structural and organizational interventions. He noted that ITI has been providing solutions to industrial challenges of Sri Lanka through research and consultancies. Dr. Ilmi Hewajulige, Additional Director General at ITI, presented a vote of thanks at the end of the ceremony.

The technical sessions of the Symposium comprised 39 talks focused on the topics of Food, Herbal, Environmental, Material, and Chemical Technologies; Electro and Biotechnologies; Industrial Metrology; and Microbiology. A post-symposium workshop entitled "Entrepreneurship Development in New Normal: Challenges and Way Forward" was also held virtually on 15th November 2021, for Micro, Small and Medium Enterprises (MSMEs) with participation of scientists from COMSATS' Network.



## COMSATS Facilitates UNOSSC in organizing Capacity Building Webinar on Digital Transformation

As a key facilitator for capacity development programmes on South-South and Triangular cooperation, COMSATS was invited to participate in UNOSSC's Capacity Building Webinar on 'Digital Government and Transformation: Exploring South-South and Triangular Cooperation Innovations', held from 2nd to 5th November 2021. This webinar was organized in partnership with the Asian and Pacific Training Centre for ICT for Development, a regional institute of the Economic and Social Commission for Asia and the Pacific (ESCAP), and Amazon Web Services Institute. Managers and mid-level professionals from central and local governments, as well as government agencies in charge of digital project creation and implementation were invited to participate.

In view of COMSATS' strength in the form of its Network of International S&T Centres of Excellence, UNOSSC also requested COMSATS to nominate relevant subject expert to conduct a technical session on 'Emerging Technologies' as guest speaker on 4th November 2021. In consultation

with one of its Centres of Excellence – The Scientific and Technological Research Council of Turkey (TUBITAK) – COMSATS nominated Deputy Director, TÜBİTAK BİLGEM Software Technologies Research Institute (YTE), Dr. Nuriye Ünlü, to speak on key emerging digital government trends; potential of Artificial Intelligence (AI) technologies in digital government and ethical concerns associated with AI; as well as to discuss the need for and importance of robust data governance and digital identity systems.

During her presentation, Ms. Ünlü noted that Turkish government has developed its National Artificial Intelligence Strategy for the years 2021-2025. Developed by the Presidency's Digital Transformation Office and the Ministry of Industry and Technology, the strategy aims to consolidate Turkey's artificial intelligence objectives and provide the groundwork for a more aggressive investment plan. Plans and efforts are underway to prepare Turkey's public institutions for integrating next-generation technology and to have effective data-driven decision-making processes. She also noted that Turkey has launched several production and incentive opportunities to support R&D activities in emerging technology fields with high impact including; information security, energy storage, advanced functional materials & energetic

materials, biotechnological medicine, broadband technologies, electro mechanic systems, artificial intelligence & machine learning technologies, micro-nano optic electronic systems, robotics, mechatronics & automation, motor technologies, big data and data analytics and Internet of Things (IoT).

Under one of the agenda items of the webinar, national digital government strategies and programmes of selected countries in Asia and the Pacific were discussed. Availing on this opportunity, COMSATS liaised with the Ministry of Information Technology and Telecommunication (MoIT&T), Government of Pakistan to make their participation possible for the event through presentation of the country's national strategy. This resulted in Mr. Ajmal A. Awan, Member International Coordination, MOIT&T, representing Pakistan in the session.

Mr. Awan highlighted the programmes and projects of the Government of Pakistan to increase the competence of individuals, institutions and companies in the field of emerging technologies, including big data and artificial intelligence. He also stated that Pakistan was already committed to bringing about a major digital transformation even before the COVID-19 pandemic, expedited further by the Pandemic. Mr. Awan stressed that achieving digital transformation is fundamental for long-term prosperity of countries in the South in the post-pandemic age. In other technical sessions, discussions and deliberations focused on information-sharing on digital initiatives and strategies; design approaches for digital government and governance; digital government technology trends; as well as policy and operational aspects related to implementation of digital government programs and projects. Moreover, intellectual discourse was held on open source and government digital transformation.

## SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

### BCSIR-Bangladesh to Launch Country's First Hydrogen Fuel Production Plant

The Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh, has established the first hydrogen fuel production plant of the country that is expected to begin operations by June 2022. The plant will produce hydrogen by converting household waste and water into highly combustible fuel through a process known as biomass gasification and electrolysis of water, respectively.

Started in October 2018 at the Chattogram Laboratory of BCSIR as a pilot project, "Establishment of Hydrogen Energy Laboratory" aimed at locally producing highly sustainable and environment-friendly hydrogen fuel as well as promote private investment in hydrogen fuel plants.

### ICCES-China Organizes Conference on "Innovations in Agriculture to Ensure Global Food Security"

The International Center for Climate and Environment Sciences (ICCES), China, in collaboration with the Islamia University of Bahawalpur (IUB), Pakistan, organized the 1st International Conference titled "Innovations in Agriculture to Ensure Global Food Security" on 10th November 2021. Held under the theme of "Threats to Agriculture Being Faced by Climate Change", the Conference had the participation of about 150 researchers, policymakers, farmers, and students from Australia, Canada, China, Brazil, Germany, Nepal, New Zealand, Thailand, Turkey, Japan, Korea, United Kingdom, China and Pakistan.

During the opening session, Prof. Zhaohui Lin, Director of ICCES, delivered a keynote speech on "CAS



Earth System Model and its Applications for Sustainable Development", in which he introduced to the participants the new version of CAS Earth System Model (CAS-ESM2.0) widely applied for climate change and impact studies and having the potential application in Sustainable Agriculture. Prof. Lin marked the present Conference as an outcome of the collaboration established earlier this year between ICCES and IUB.

The technical sessions of the conference comprised 15 talks focused on the topics: CARE for South Asia: A methodological Framework for Addressing Agriculture Sector Risk and Hazards in Punjab-Pakistan; Critical nitrogen dilution curves: Implications for precision nitrogen management in rice; Effects of climate change on agriculture; and Rooting for net zero-emissions: building climate resilient cropping systems to achieve global food security, among others.

During the discussions, the participants shared insights on climate smart agricultural technologies; natural resource management; crop/plant nutrition management and adoption to environmental stresses for Sustainable Management, etc.

### UTG-The Gambia Signs MoU with WFP

The University of the Gambia (UTG), The Gambia, have signed a Memorandum of Understanding with the World Food Programme (WFP) of the United Nations. Under the MoU, the two parties will collaborate in areas such as: Assessment and Data Collection, Research and Policy Analysis, Innovation and Capacity Development, and Paid Graduate Scheme/Internship, among others.

The Agreement will guide The Gambia in achieving Sustainable Development Goals as well as work towards the national development plan of the country.



## CSIR-Ghana Introduces Techniques to Boost Maize Production

The Soil Research Institute of the Council for Scientific and Industrial Research (CSIR), Ghana, is introducing appropriate soil fertility and water management technologies to improve agricultural sustainability in Ghana. It is being done through the Modernising Agriculture in Ghana (MAG) programme launched with the financial support of the government of Canada.

Maize accounts for more than 50 percent of Ghana's total cereal production. Despite 8.79 percent average annual growth rate, average maize yield in Ghana remains one of the lowest in the world.

To help increase maize yield in Gyampokrom near Sefwi Wiawso Municipality of the Western North Region of Ghana, the Soil Research Institute has demonstrated some of its soil fertility management strategies in the region. Inadequate amount of water, removal of crops, weeds, leaching and erosion were identified as some of the factors contributing to soil infertility in the region.

The new techniques for soil fertility management as introduced included: biochar, organic fertilizer (poultry manure compost) and mineral fertilizer. These will not only help improve yields, reduce cost of farming but would also lead to sustainability of the agricultural sector in Ghana.

## NSQAC/RSS-Jordan Executes Software Source Code Quality Inspection Project

The National Software Quality Assurance Center (NSQAC) of Royal Scientific Society (RSS), Jordan,



implemented the Software Source Code Quality Inspection project with one of its strategic clients in Jordan. This project represented a unique achievement in Jordan and the region in the field of Software Source Code Analysis where the quality of source programme is ensured across all software development teams through the establishment of a quality gate based on internationally recognized standards.

NSQAC also accomplished an assessment of the quality of a Payroll system developed by one of RSS Jordanian clients, where the source code was evaluated using best-in-class tools based on internationally recognized standards. The assessment helped the client to improve the quality of the code in the areas of Robustness, Efficiency, Security, Changeability and Transferability and to reach an acceptable level for these health measures. A Structural Quality Certificate was issued listing the final scores achieved by the Payroll system.

## ICCBS-Pakistan Launches AI-Backed Digital Healthcare Platform

A digital healthcare journey platform namely 'Health Hands' has been developed at ICCBS Technology Park

and Technology Incubation Centre (ICCBS-TPTIC), International Centre for Chemical and Biological Sciences (ICCBS).

Health Hands has been designed to provide the best medical care to every patient through integrated AI-based symptom checker, clinical practices, online pharmacy, diagnostic laboratory, home care, and pharmacy counselling.

## Joint Research Center for Nutrition and Health Inaugurated at ICCBS-Pakistan

Pakistan-China Joint Research Center for Nutrition and Health has been established at the International Center for Chemical and Biological Sciences (ICCBS), Pakistan, the opening ceremony of which was held virtually with the participation of many Chinese and Pakistani scientists.

Prof. Dr. M. Iqbal Choudhary, Director ICCBS, Pakistan, and Prof. Atta-ur-Rahman, Chairman of Prime Minister's Task Force on Science and Technology, jointly unveiled the plaque of the joint research center from the Pakistani side, while Chinese officials from the Institute of Food Science and Technology, Chinese Academy of Agricultural Sciences (CAAS), China, unveiled the plaque from their side.

## ICCBS-Pakistan Inks Accord with Indonesian Varsity

A Memorandum of Understanding (MoU) has been signed by ICCBS, Pakistan, with the University of Sumatera Utara, Indonesia, for cooperation on academic, scientific and cultural grounds between the two sides.

Areas of cooperation between the two sides include development of academic and training programmes; exchange of faculty and staff for teaching and research; reciprocal assistance for visiting academic faculty, staff and students; coordination of such activities as joint research and transfer of technology; and exchange of information and research materials in the fields of mutual interests.

## CUI-Pakistan Holds 18th International Conference on FIT

COMSATS University Islamabad (CUI), Pakistan, organized the 18th International Conference on 'Frontiers of Information Technology' (FIT-2021) on 13th December 2021. H.E. Mr. Shibli Faraz, Federal Minister for Science and Technology, Government of Pakistan, inaugurated the Conference.

The Conference themed on "Digital Pakistan" had speakers from France, Netherlands, China, Ireland, Portugal, UK, USA, and Pakistan. The conference has been fostering new areas of IT since its inception and has this year captured attention of experts in Software Engineering, Pattern Recognition, Image and Natural Language Processing, Data Science, Water Informatics, Smart Grid, Energy and Electronics, and Signal Processing and Cyber Security, among others.

## 3rd China-Pakistan Marine Information Workshop Held at CUI-Pakistan

CUI, Pakistan, and the College of Underwater Acoustic Engineering of the Harbin Engineering University (HEU), China, jointly organized the 3rd China-Pakistan Marine Information Workshop on 16th November 2021 at Wah Campus of CUI.

Held under the aegis of One Belt One Road initiative, the workshop provided a dedicated platform to scientists, engineers, academicians, industry professionals and researchers from Pakistan and China to deliberate on this emerging area of Marine Science and Technology in Pakistan

Earlier, CUI-Pakistan also signed an MoU with HEU-China, to carry out research in the field of Marine Informatics and, Engineering and currently, 12 students of HEU are doing research at CUI Wah Campus.

## Cooperation Avenues with DCO Explored by CUI-Pakistan

A four-member delegation of the Digital Cooperation Organization (DCO) led by its Secretary General, Ms. Deemah Al-Yahya, visited CUI, Pakistan. DCO

is an international body founded by Bahrain, Jordan, Kuwait, Pakistan, and Saudi Arabia, to achieve prosperity, social stability, and growth of the digital economy by unifying efforts to advance digital transformation.

During the meeting held with the senior officials of various departments, the Secretary General showed special interest in University's Center for Policy Studies and Business Incubation Center. Ms. Al-Yahya proposed CUI becoming an observer institution of DCO and invited faculty members of the university to be part of the DCO's accelerator programme. Both sides also agreed on enhancing cooperation among universities of DCO member countries.

Ms. Al-Yahya was shown around various digital facilities of the University and briefed about CUI Data Center, Digitalization of Library, Video Conferencing Facility, Medical Image Processing Research Group (MIPRG) and Medical Imaging and Diagnostics Lab (MIDL).

## AQU-Palestine Explores Prospects of Cooperation with Turkish and German Institutions

Prof. Imad Abu Kishek, President of



Al-Quds University (AQU), Palestine, visited Turkey and Germany to develop academic partnerships and enhance the opportunities for AQU's students in practical training and scientific research in the various disciplines in order to enable them to keep pace with the local and global labor market with its latest requirements and technological developments.

Following discussions and meetings were held during the visits:

- Radix Implant: Agreement of cooperation signed under which Radix Implant shall provide training for AQU's dental students using up-to-date dental appliances.
- Ortel Mobile GmbH: Agreement to increase the number of AQU students who receive training at the company annually. The agreement also provides for expanding cooperation between the two sides to include joint workshops, and research and professional contributions that would contribute to advance the level of university students by familiarizing them cognitively and practically with the latest technologies in the world.
- German Hammer Forum: AQU medical students will receive training at German hospitals in cooperation with the medical

institution in Aachen, Germany, which comes within the efforts made by the association to strengthen strategic partnerships with the German society.

- Ambassador of Indonesia to Turkey, Dr. Lalu Muhammad Iqbal: prospects of linking Indonesian universities to Al-Quds University for achieving cooperation in the various academic programmes and research fields.

### UCAD-Senegal Signs Agreement for Waste Management

The Cheikh Anta Diop University of Dakar (UCAD), Senegal, has signed a partnership agreement with the Solid Waste Management Coordination Unit (UCG) of Senegal for the transformation and valorization of plastic waste.

The agreement will allow the establishment of 16 points for the sorting and collection within the university. Besides, training of about thirty undergraduate students in the transformation of plastic waste will also be conducted under this Agreement.

### Oxygen Self-Rescuer Development Project Signed by TÜBİTAK MAM-Turkey

TÜBİTAK Marmara Research Center (MAM), Turkey, has inked License Contract with MFA Mask and Work Safety Medicals Inc. on 23rd November 2021, for the project on "Development of Oxygen Self-Rescuers"

The Project aims to develop ergonomic, portable and modern self-rescuers to provide users with sufficient breathing air during emergency escape in cases where toxic gases are present in the ambient air and/or the amount of oxygen is not sufficient.



### TÜBİTAK MAM-Turkey Holds Project Workshop

TÜBİTAK MAM, Turkey, with the support of the Turkish Ministry of Agriculture and Forestry (TOB), General Directorate of Agricultural Reform (TRGM) is executing a project "Identifying Nitrate-Sensitive Areas and Making Action Plans" planned to be completed in June 2022. A Project Workshop and stakeholders' meetings were held at Otium Sealight Beach Resort in Kuşadası Aydın from 8th – 12th November 2021.

The project aims at identifying Nitrate-Sensitive Areas, which are already contaminated and/or likely to get contaminated with nitrate in the near future, to apply region-specific measures according to the "Good Agricultural Practices Code" in the annex of the communique, and to conduct cost-benefit analyses of the measures to be applied.

At the opening, the keynote speakers stated that the identification and control of diffuse pollutants, which have a great impact on pollution, is extremely important for improving and protecting the quality of water resources, and that the prevalence of agriculture and livestock activities in Turkey increases the significance of taking these pollutants into account.



During the meeting, presentations were made on Agricultural Pollution Control and Management Studies; Identification of Nitrate-Sensitive Areas (Methods and Results); and Making Nitrate Action Plans and Cost-Benefit Analysis, among others. Besides, sessions were held in which Nitrate-Sensitive Areas, Action Plans and Cost-Benefit Analysis of the Aegean Region, Mediterranean Region and Marmara Region basins were evaluated at village scale by TOB Project Team, TÜBITAK MAM Project Team, the collaborating university faculty members and the meeting participants.

## Awards and Achievements of Centres of Excellence

- HRH Princess Sumaya bint El Hassan, President of RSS, Jordan, received Energy Globe Award 2021 for the project "Public Schools Heating Project" implemented by the National Energy Research Centre (NERC) of RSS.
- Dr. Almoayied Assayed, the Director of Water and Environment Centre at RSS, Jordan, has been selected as one of the Frontiers Champions for his project entitled "Plant Factory in

MENA Countries: A Tool to Achieve Food Security at Cities in Amidst of Climate Change". Frontiers Champions is a programme funded by the Royal Academy of Engineering in the UK, in which the winners receive up to £10,000 to convene their projects through regional or thematic events.

- The Robotics Team of the Institut Teknologi Sepuluh November (ITS), Indonesia, won First Place in the ABU Robot Contest (ABU Robocon) Asia Pacific 2021, organized in China.

### Profile of Prof. Herbert Robinson, Vice Chancellor University of The Gambia (UTG), Serekunda, The Gambia

Professor Herbert Robinson has assumed charge as the new Vice Chancellor of the University of The Gambia (UTG), The Gambia. The University that has been COMSATS' Centre of Excellence since 2020, is working for the transformation of The Gambia through creation, application and transfer of knowledge. Prof. Robinson now represents The Gambia in COMSATS Coordinating Council as a member.



Prior to his appointment as the Vice Chancellor, Prof. Robinson was serving as the Director of Knowledge, Research and Learning at the African Capacity Building Foundation (ACBF), a specialized agency of the African Union, based in Harare, Zimbabwe. In this capacity, he played a lead role in organizing knowledge-sharing events as well as coordinating the publication and dissemination of research documents to align the development priorities of African countries with key policy documents, such as the African Union Agenda 2063, African Development Bank High Fives and United Nations Sustainable Development Goals 2030.

Earlier, Prof. Robinson served as the Regional Advisor, Head of Capacity Development and Training Division and Acting Director at the United Nations African Institute for Economic Development and Planning (UN-IDEP)/ UN Economic Commission for Africa based in Dakar, Senegal from 2012 to 2015. Prior to this, in 2011, he became a full Professor at London South Bank University, United Kingdom, having taught and led major academic programmes, including cutting-edge research and consultancy projects that benefitted both international firms and public sector institutions, including National Health Service of UK. As Professor of Project Management and Sustainability Strategy, he provided leadership in programme and curriculum development, research, building partnerships, mobilizing resources, and strategic planning at faculty and university levels.

Before embarking on his academic career, Professor Robinson worked in industry as a Quantity Surveyor at the London Office of Ove Arup, an internationally renowned consulting firm, and returned to The Gambia in 1991 as a United Nations National Expert to support the World Bank Second Highway Maintenance Project at the then Ministry of Works and Communications in The Gambia. He started his academic career at Loughborough University in the United Kingdom in 2000. Prof. Robinson did his Ph.D in Infrastructure Economics from South Bank University (2001) in the United Kingdom. Outputs from his research have been presented in international conferences and knowledge sharing events in Europe, USA, the Caribbean, Middle East, Asia and Africa. His earlier education includes a BSc (Hons) in Quantity Surveying (Construction Economics) from University of Reading, United Kingdom (1989), and a Master of Infrastructure Planning from University of Stuttgart in Germany (1995).

### China Reaches Agreements with The Gambia and Egypt

South-South Cooperation remains a key tool in global development agenda. China is a key player of South-South Cooperation in recent years, especially with its socio-economic rise and inclusive foreign policies. China has recently signed a cooperation agreement (November 4, 2021) with The Gambia on Economic and Technical Cooperation. This agreement was reached as a follow up of understanding reached between the two countries during Beijing Summit forum on China-Africa. The two countries resumed diplomatic relations in 2016 and have since signed a few such agreements. The goal of this agreement is to build China-Africa community with shared interests and achievements. (Voicegambia.com)

In another agreement, China and Egypt will undertake economic and technical cooperation and will make joint development efforts. The financial grants under this agreement are expected to further aid Egypt's Vision 2030. This agreement comes within the framework of the constant development of the joint economic relations between Egypt and China. Apart from cooperation for the pandemic management, the cooperation includes implementation of several development projects across various sectors such as health, agriculture, education, technical education, electricity. With a portfolio amounting to \$1.8 billion and spanning four years, the cooperation includes 1,110 training programs, benefiting 4,000 governmental officials. (zawya.com)

Egypt and China have also agreed to establish joint lab for smart agriculture under a memorandum of agreement signed on December 2, 2021. The agreement also paves way for executing

important cooperative research projects, holding scientific seminars and conferences, and exchanging visits of professors, lecturers, and students between Egypt and China. The signatories of the agreement include Egypt's National Authority for Remote Sensing and Space Sciences (NARSS), which belongs to the country's Ministry of Higher Education and Scientific Research, and China's Institute of Agricultural Resources and Regional Planning (IARRP) of the Chinese Academy of Agricultural Sciences (CAAS). The joint smart agriculture lab will be the second to be established in Egypt under the BRI umbrella, after the Chinese-Egyptian Renewable Energy Laboratory. (newsaf.cgtn.com)

### Faster, Less-invasive, Efficient COVID-19 Test Developed

Researchers have developed a 10 minutes COVID-19 test requiring only a drop of blood. (mit.edu, November 22, 2021). SARS-CoV-2 neutralizing antibodies (NABs) test does not need a laboratory or trained personnel. The work on NAb test was conducted by a research group at Singapore-MIT Alliance for Research and Technology (SMART) and the Nanyang Technological University, Singapore (NTU Singapore), as well as National University Hospital, MIT, and the Centre for Life Sciences and Yong Loo Lin School of Medicine at National University of Singapore.

This work is especially significant to address the need for fast monitoring of the pandemic to help manage the pandemic better as the populations go towards achieving herd immunity. The work is especially significant as NAb tests are not yet commercially available anywhere. With 93 % accuracy, the new test will help with point-of-care testing and mass monitoring with minimized contact with a live virus, which is the

case with most existing diagnostic tests, thus helping with safety and efficiency at high-traffic areas.

### Scientists Identify Antibody to Neutralize COVID-19

Scientists at Duke University and the University of North Carolina at Chapel Hill have identified and tested an antibody that helps manage infections from coronaviruses (Science Daily, November 2, 2021). The study is significant in the face of the ongoing corona virus Pandemic that has affected millions across the globe and continues to mutate into its variants looming over the health and lives of the global population. Reported in the journal Science Translational Medicine, the antibody is said to have a therapeutic potential against the current Pandemic and could help manage future outbreaks.

The antibody was isolated by analyzing the blood from a SARS-CoV-1 virus patient who had been infected with the original SARS-COV-1. Fifty antibodies with ability to bind to both the SARS-CoV-1 and SARS-CoV-2 (causing COVID-19) were found. One of these was found especially effective in binding to a number of animal coronaviruses and two human-infecting pathogens. By the right binding the said antibody can help neutralize a wide range of coronaviruses, including COVID-19 virus.

### Tunisia to Improve Food Security under Two Projects with UN

A National Action Plan for the Agriculture Sector in Tunisia has been jointly announced by the Tunisian government and the UN Food and Agriculture Organization (zawya.com). The action plan entails cooperation on

two projects to enhance food security and resilience to climate change. The agreements for the two projects were signed in Tunis by the Agriculture, Water Resources, and Fisheries Minister Mahmoud Elias Hamza, and Philippe Ankers, a representative in Tunisia for the Rome-based UN agency. Part of a four-year cooperation framework, the two projects focus on two key sectors of Tunisia, Agriculture and Fisheries. FAO is the main partner for the first project that will be supported by the Green Climate Fund (GCF), in which the FAO will be the main partner. It will help work out adaptation options related to water, land, crops,

livestock, fisheries and forestry for the National Plan. Focusing on fisheries, the second project "SocPro4Fish", is supported by the Norwegian Agency for Development Cooperation and aims at generating factual data on social protection in fisheries and enhancing aquaculture in Tunisia.

### Chinese Firm to Implement Bangladesh's First Waste-to-Energy Project

China and Bangladesh have signed an agreement to set up a 42.5-megawatt waste-to-energy power plant.

(daijiworld.com, December 02, 2021). To be set up by China Machinery Engineering Corporation (CMEC), the plant will be set up at Aminbazar on the outskirts of capital Dhaka. The project will be implemented under a 25-year deal approved last year between Bangladesh's Cabinet Committee on Purchase and CMEC. The project has a capacity of 42.5 megawatts and will process 3000 tonnes of waste daily.

This collaboration will aid Bangladesh's efforts to increase clean and economical electricity production, as well as China's commitment towards transition to a green and low carbon economy.

## COP26 Climate Summit: Facts and Figures\*

by Gareth Willmer

Since the sun set on COP26 in Glasgow, reaction to the climate summit has been decidedly mixed. The general consensus among climate leaders from the global South, however, is that even though progress was made in some areas, key issues facing climate-vulnerable communities were ignored.

This facts and figures article takes stock of where the world is at following the meeting.

Concluding on 13 November – a day later than scheduled – 197 countries agreed a deal that the UK presidency insisted "keeps alive" the goal of limiting temperature rises to 1.5 degrees Celsius above pre-industrial levels. Over the past two years, more than 150 countries submitted new or updated climate strategies, a five-yearly requirement under the 2015 Paris Agreement.

But temperatures are expected to rise well above 1.5 degrees under these strategies.

The International Energy Agency

predicted that if national targets "are met in full and on time" they would hold global temperature rises to 1.8 degrees Celsius by the end of the century.

However, independent scientific body the Climate Action Tracker (CAT) said that while warming could be limited to 1.8 degrees under the most optimistic scenario, there was a "credibility gap" due to the incompatibility between national goals and actions planned up to 2030.

It estimates that existing pledges put the world on course for at least 2.4 degrees Celsius of warming by the end of the century, with policy implementation "advancing at a snail's pace".

Climate Action Tracker (2021). 2100 Warming Projections. November 2021. Available at: <https://climateactiontracker.org/global/temperatures/> Copyright: Climate Analytics and NewClimate Institute. All rights reserved.

The heavy impact of missing the target was underlined by speakers at COP26. "We have 98 months to halve emissions.

The difference between 1.5 and 2 degrees is a death sentence for us," said Shauna Aminath, environment minister for the Maldives.

### Net zero and coal pledges

In what was widely seen as positive news, India, the world's third-largest greenhouse gas emitter, set a target at COP26 for achieving net zero carbon emissions by 2070. Although this goes beyond the 2050 or 2060 goals of many other countries, the move came as a surprise given India's previous resistance to net zero. It also means that all the world's major emitters now have a net zero commitment in place.

At COP26, a handful of countries joined an existing coalition of states, companies and banks who say they will phase out coal power, with about 25 committing to end international public support for the unabated fossil fuel energy sector by the end of 2022.

Despite these moves, some were disappointed that the final text in the

Glasgow Climate Pact was watered down, moving from an aim to “phase out” to an agreement to “phase down” unabated coal power.

Outside the official negotiations, funds were committed to developing economies via the launch of the Accelerating Coal Transition programme, an investment of nearly \$2.5 billion touted as a “first-ever effort to advance a just transition from coal power to clean energy in emerging economies”.

Launched by multilateral financing mechanism Climate Investment Funds and backed by financial pledges from the US, UK, Germany, Canada and Denmark, the first beneficiaries are expected to be South Africa, India, Indonesia and the Philippines.

Additionally, South Africa entered into a political declaration with the UK, the US, France, Germany and the European Union to provide \$8.5 billion over the next three to five years to enable a just energy transition in the southern Africa state.

### Climate finance

But elsewhere, climate finance fell short. A pledge by developing countries at the 2009 Copenhagen summit to commit \$100 billion in annual climate finance by 2020 has not been met, the Organisation for Economic Co-operation and Development (OECD) revealed ahead of COP26.

“The limited progress in overall climate finance volumes between 2018 and 2019 is disappointing,” said OECD secretary-general Mathias Cormann. “While appropriately verified data for 2020 will not be available until early next year, it is clear that climate finance will remain well short of its target.”

Costs for adaptation to climate change are also five to ten times greater than currently available public adaptation finance, according to estimates in a report by the UN Environment Programme.

Furthermore, the report says the gap is widening, despite a growing volume of adaptation-related policies.

There was, meanwhile, frustration at COP26 when it came to funding for loss and damage – the irreversible harm from climate impacts – even though the summit saw the subject become more prominent.

While developing and small-island countries pressed for a new finance facility for loss and damage, developed nations pushed back on this and an agreement was instead reached to continue talking about the matter.

“We are disappointed that the proposed Glasgow Loss and Damage Facility is not included in the final decision,” said Sonam P. Wangdi, chair of the Least Developed Countries Group, which represents one billion people across 47 countries in Africa, Asia and Pacific, and the Caribbean. “We heard widespread recognition of this injustice, yet there was a failure to address it.”

Moves were also made at COP26 to plug at least some of the shortfalls in climate resilience and adaptation. A dozen governments pledged \$413 million in funding to the Least Developed Countries Fund, while the Glasgow pact includes a goal for developed countries to double adaptation funding to developing countries to \$40 billion by 2025.

Furthermore, over \$450 million was pledged to locally led adaptation and \$356 million to climate financing mechanism the Adaptation Fund.

### Forests and methane

Major moves were announced in some other key areas.

Under the Glasgow leaders’ declaration on forests and land use, more than 140 countries, jointly possessing more than 90 per cent of the world’s forests, pledged to halt and reverse deforestation and land

degradation by 2030, while promoting inclusive rural transformation. The pledge quickly came under scrutiny, however, as civil society flagged doubts that signatories would follow through on the pledge.

At the summit, 28 indigenous peoples who represent communities that steward more than 80 per cent of the planet’s dwindling biodiversity were nominated as ‘knowledge holders’ to engage directly with governments.

In addition, more than 100 countries signed the Global Methane Pledge, agreeing to cut methane emissions by at least 30 per cent by 2030. As a powerful greenhouse gas, it is estimated that meeting the target would cut warming by a minimum of 0.2 C by 2050.

Yet given past events, many fears remain over whether these commitments and appointments are genuine, with delegates involved in negotiations warning that pledges would equate to “greenwashing” if parties failed to develop transparency and accountability measures.

Amid the widespread protests seen at the summit, some also questioned the representation of attendees. Campaigners Global Witness, for instance, revealed there were more than 500 delegates connected to the fossil fuel industry – a greater number than any individual country. This, Global Witness said, amounted to “flooding the Glasgow conference with corporate influence”.

Though current emissions targets look set to fall well short, countries agreed that they should return next year at COP27 in Sharm El Sheikh, Egypt, to “revisit and strengthen” their goals for 2030.

This article is part of our Spotlight on ‘The road to climate justice’

**\*Originally published by SciDev.Net, December 13, 2021**

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- 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.
- Two (02) PhD scholarships at the Al-Farabi Kazakh National University (KazNU), Kazakhstan.
- Long-term (1-2 years) and short-term (less than 6 months) fellowships for foreign scholars for collaborative research at Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences.

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

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