



Annual Report

2018

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





ANNUAL REPORT

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Sustainable Development in the South
(COMSATS)**



Hon. Nana Addo Dankwa Akufo-Addo
President of Ghana
Chairperson COMSATS

Hon. Nana Addo Dankwa Akufo-Addo became the 13th President of the Republic of Ghana after winning the country's Presidential Election 2016. On 7th January 2017, he took charge as the President of Ghana, by virtue of which he is an ex-officio Chairperson of COMSATS. The Chair of COMSATS was rotated in 2012 from Pakistan to Ghana through consensus among the members of COMSATS' Commission at its 2nd General Meeting held in Islamabad.

As a lawyer, Mr. Akufo-Addo worked to champion the cause of human rights, rule of law, justice, freedom, and democracy in Ghana.



H.E. Mr. Imran Khan
Prime Minister of Pakistan
Prime Minister of the Host Country, Pakistan

H.E. Mr. Imran Khan became the 22nd Prime Minister of Pakistan on 18th August 2018. Before his political career, Mr. Khan was a well-known figure as a cricketer and a philanthropist. Educated from top institutions of Pakistan and England, Mr. Khan is the Chancellor of the University of Bradford and has also received an honorary fellowship by the Royal College of Physicians.

Mr. Khan aspires to make Pakistan a technologically advanced country whereby it reaps the dividends of most modern R&D outcomes for national prosperity and well being. His resolve to lift the nation from backwardness and poverty is manifold in his government's initiatives in health, education, judicial system reforms, science & technology and smart governance.



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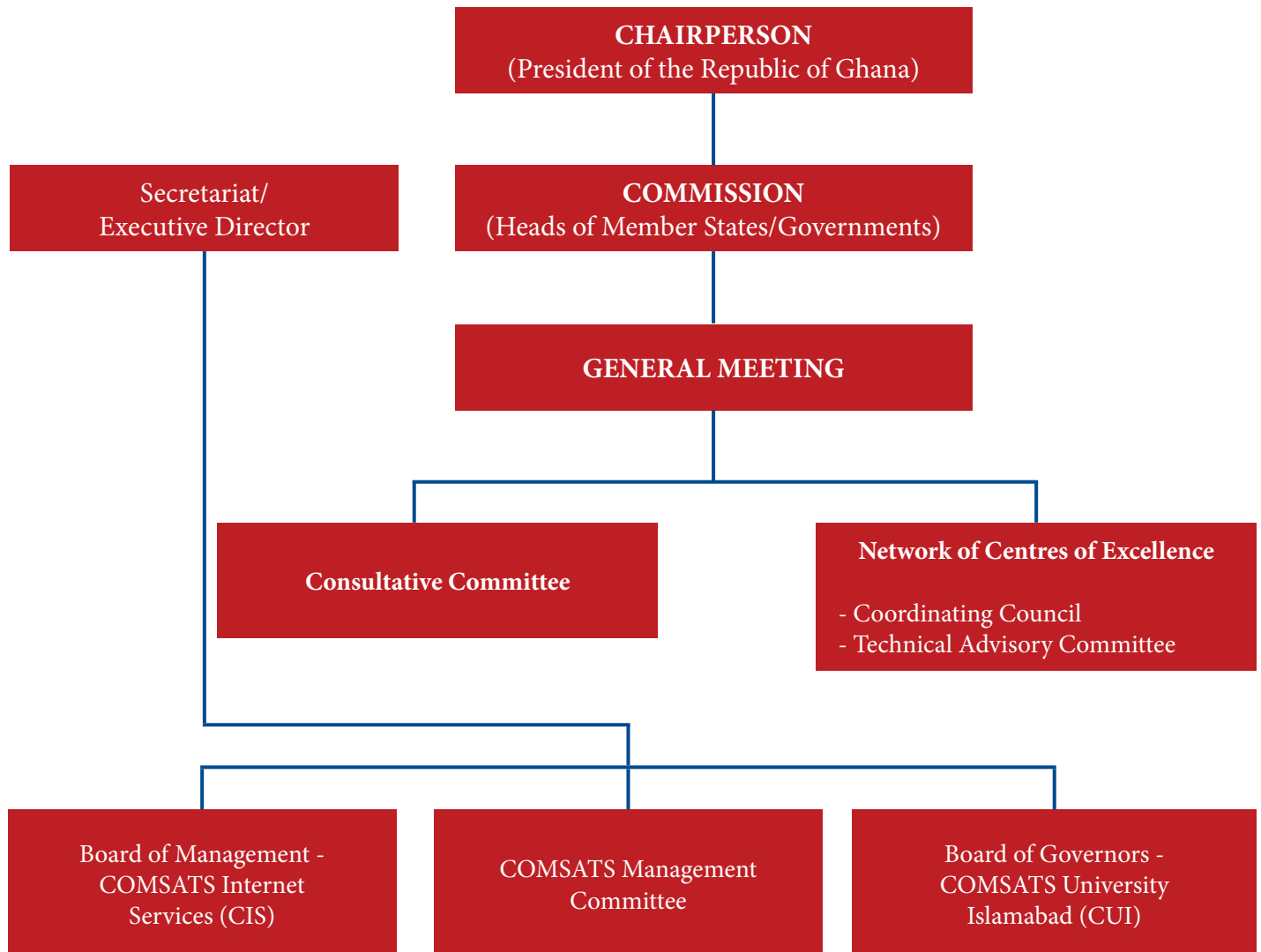
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COMSATS' PROFILE

The Commission on Science and Technology for Sustainable Development in the South (COMSATS) was established in October 1994 as an international/intergovernmental organization to act as a global forum of developing countries for their sustainable socio-economic uplift through the applications of science and technology. COMSATS' current membership includes 27 countries located in the continents of Africa, Asia, Latin America (and Eurasia), representing a population of over one-third of the world's total.

These countries have diverse social, cultural, economic, political, educational and religious backgrounds, and also differ greatly in their scientific and technological potentials. Their common aspirations for development through cooperation in S&T capacity-building is the *raison d'être* of their membership of COMSATS. COMSATS' major source of scientific and technological strength stems from its network of international S&T Centres of Excellence which comprises of 22 reputed centres/universities.

The Secretariat of COMSATS is permanently located in Islamabad, Pakistan, which is supported by the generous grants from the Government of Pakistan. The membership of COMSATS is open to all developing countries. However, the organization now aspires to broaden its horizons to all countries and institutions from the North.

MISSION

The mission of COMSATS is to 'help create a world where all nations/states are at peace with one another and capable of providing a good

quality of life to their populations in a sustainable way, using modern scientific and technological means'.

OBJECTIVES

The major objectives and functions of COMSATS as given in its Statutes are:

- To sensitize the countries in the South to the centrality of science and technology in the development process, to the adequate resource allocation for research and development, and to the integration of science and technology in the national and regional development plans;
- To support the functioning and activities of the Network of International Science and Technology Centres for Sustainable Development in the South, established at the foundation meeting of the Commission;
- To support other major initiatives designed to promote indigenous capacity in science and technology for science-led sustainable development, and to help mobilise long-term financial support from international donor agencies and from Government/Institutions in the North and the South to supplement the financing of international scientific projects in the South;
- To provide leadership and support for North-South and South-South cooperative schemes in education, training and research, such as the proposal to set up programmes of scholarships for research at centres of excellence in the South; and
- To support the relevant programmes and initiatives of major scientific organisations working for the development and promotion of science and technology in the South.





Dr. S.M. Junaid Zaidi
Executive Director COMSATS

Dr. S. M. Junaid Zaidi assumed the charge of Executive Director in February 2017, by virtue of which he is also the ex-officio Secretary to the Commission, Coordinating Council and the Consultative Committee. He has rich and diverse experience spanning over forty years, ranging from his work for international and national organizations, educational-institution building, and research and teaching to foreign collaborative ventures. He has been the founding Rector of a Centre of Excellence of COMSATS, the COMSATS Institute of Information Technology (CIIT), which has phenomenally grown in operations and reputation both nationally and internationally. He is a recipient of two prestigious national awards of Pakistan, *Sitara-i-Imtiaz* and *Hilal-i-Imtiaz*.

FOREWORD

The Global South is confronted with significant economic and social challenges that continue to upset the well-being of the people and impede the process of inclusive economic growth. The challenges in form of population growth, malnutrition, health hazards and climate change are leading to poverty, inequality, unemployment and hunger. South-South and Triangular Cooperation can largely bridge this gap through exchange of resources, technology and knowledge.

Scientific revolutions reinforce economic progress and improve health and education systems, thereby changing the ways people live, work, and relate to one another. A nation indifferent to innovation and technical research cannot achieve faster economic growth. Nations, particularly in the South need to strengthen their efforts at harnessing the pace of innovation to benefit from the transformative potential of technological advancement. It is imperative that research and development is prioritized in development strategies and allocation of resources. Moreover, it is equally important to exploit the enormous potential for South-South Cooperation in scientific fields mainly to meet the economic challenges of 21st Century.

COMSATS, as an ardent advocate of science and technology for sustainable development, is therefore making all-out efforts to promote scientific and economic cooperation among developing countries with a view to helping them benefit from the excellent development potential offered by the modern-day science and technology. Towards this end, the Commission is supporting South-South Cooperation, which is necessary to improve national well-being and self-reliance in developing countries. We are constantly attuning our programmes and activities in line with development need of the member states to facilitate them fast track economic progress by harnessing their scientific capacities and human resource.

The year 2018 has been an eventful period for COMSATS as our activities grew not only in magnitude but also in scope to encompass increasing emphasis on the 2030 Global Agenda. The Commission focused on creating greater awareness on SDGs and exploring

ways to expedite their implementation. Towards this end, COMSATS organized two seminars and a lecture to engage academia and universities in a meaningful partnerships with government and communities for aligning their research and educational activities with the SDGs. (Details may be seen in relevant section of the report). Besides, COMSATS established and strengthened relations with a number of national and international organizations. MoUs with South Center and UNOSSC as well as accreditation to commonwealth are some highlights in this direction.

This year, the Republic of Yemen joined the COMSATS network as its 27th Member State joined COMSATS as a member States while the Network of Centres of Excellence was strengthened with addition of Tianjin Institute of Industrial Biotechnology, China. Besides, many potential partners from different countries visited the Commission's Secretariat to explore avenues of cooperation in scientific and technological fields of mutual interest. We fondly look forward to expanding our membership in the North and the South as it would open up new opportunities for countries to come together to share their experiences, knowledge and best practices for mutual benefit.

We feel privileged to work with many renowned institutions and individuals in different parts of the world. I would like to thank all the inspiring, courageous and creative people who have been lending their active support to COMSATS in furthering its objectives. In particular, I thank the members of the Consultative Committee and Coordinating Council for their continued support and encouragement. I highly appreciate the diligence and commitment exhibited by my colleagues in contributing to COMSATS' performance. I also greatly admire the hard work of the editorial team in compiling this report.

Last but not the least, I thank the readers for their keen interest in our programmes and activities, which is a great source of encouragement for us.

Dr. S.M. Junaid Zaidi

Focal Ministries in Member States



Bangladesh

Ministry of Science and Technology



China

Ministry of Science and Technology



Colombia

Departamento Administrativo de Ciencia, Tecnología e Innovación - COLCIENCIAS



Egypt

Ministry of Higher Education and Scientific Research



The Gambia

Ministry of Higher Education, Research, Science and Technology



Ghana

Ministry of Environment, Science, Technology and Innovation



Iran

Ministry of Science, Research and Technology



Jamaica

Ministry of Science, Technology, Energy and Mining



Jordan

Higher Council for Science and Technology



Kazakhstan

Ministry of Education and Science



Korea DPR

State Academy of Sciences



Morocco

Ministry of National Education, Vocational Training, Higher Education and Scientific Research



Nigeria

Federal Ministry of Science & Technology



Pakistan

Ministry of Science and Technology



Palestine

Ministry of Education and Higher Education



Philippines

Department of Science and Technology



Senegal

Ministry of Higher Education, Universities, Regional University Centres and Scientific Research



Somalia

Ministry of Education, Culture and Higher Education



Sri Lanka

Ministry of Science, Technology and Research



Sudan

Ministry of Science and Communications



Syria

Ministry of Higher Education



Tanzania

Ministry of Communication, Science and Technology



Tunisia

Ministry of Higher Education and Scientific Research



Turkey

The Scientific and Technological Research Council of Turkey (TUBITAK)



Uganda

Uganda National Council for Science & Technology



Yemen

Ministry of Higher Education and Scientific Research



Zimbabwe

Ministry of Higher and Tertiary Education, Science and Technology Development



Mrs. Yasmin Masood

Federal Secretary, Ministry of Science and
Technology, Government of Pakistan
Ex-officio Chairperson of COMSATS
Consultative Committee

Mrs. Yasmin Masood is the ex-officio Chairperson of COMSATS Consultative Committee since September 14, 2017, by virtue of her position as Federal Secretary, Ministry of Science and Technology of the host country, Pakistan.

She belongs to Pakistan Administrative Service, which is the most elite and prestigious cadre of the Civil Service of Pakistan. In the past, Mrs. Masood has held a number of important positions in the Government of Pakistan. Her most recent position was at the office of Secretary of Benazir Income Support Programme (BISP).

Members of COMSATS Coordinating Council



Mr. Md. Faruque Ahmed
Chairman BCSIR, Bangladesh



Dr. Gustavo Ribeiro Xavier
DG Embrapa Agrobiologia, Brazil



Prof. Lin Zhaohui
Director ICCES, China



Prof. Dr. Yanhe Ma
Director General TIB, China



Dr. Eduardo Posada F.
Director CIF, Colombia



Prof. Mohamed Hashem
President NRC, Egypt



Prof. Dr. Victor Agyeman
Director-General CSIR, Ghana



Dr. Alireza Ashori
President IROST, Iran



Mr. Charles N. Grant
Director General ICENS, Jamaica



HRH Princess Sumaya bint El Hassan
President RSS, Jordan



Prof. Dr. G. M. Mutanov
Rector KazNU, Kazakhstan



Prof. Stephen E. Onah
Director NMC, Nigeria



Prof. Dr. Raheel Qamar
Rector CUI, Pakistan



Prof. Dr. M. Iqbal Choudhary
Director ICCBS, Pakistan



Prof. Dr. Imad F. S. Abukishek
President AQU, Palestine



Prof. Ibrahima Thioub
Rector/President UCAD, Senegal



Mr. Upul Pushpakumar
Acting Director General ITI, Sri Lanka



Dr. Widad H. A. H. Hassan
Director General IRCC, Sudan



Dr. Maher Suleiman
Director HIAST, Syria



Prof. M. M.A. Mtambo
Director General TIRDO, Tanzania



Prof. Ahmed Ghrabi
Director General CERTe, Tunisia



Prof. İbrahim Kiliçaslan
President TUBITAK MAM, Turkey



Prof. Dr. Ashraf Shaalan, Ph.D.

Chairperson of COMSATS Coordinating Council

Prof. Ashraf Shaalan, a distinguished biological anthropologist, is the former President of National Research Centre (NRC), Egypt. He was elected as Chairperson of COMSATS Coordinating Council during its 19th Meeting held in May 2016, in Islamabad, Pakistan. He is also the Editor-In-Chief of the Bulletin of the National Research Centre and member of scientific board of many other scientific journals. As an academician, Prof. Shaalan has published his work mostly focused on child growth and development, child nutrition and assessment of nutritional status and has received national and international recognition for the same. He has published more than 40 articles in local and international scientific journals.

FROM THE CHAIRPERSON COORDINATING COUNCIL

It gives me great pleasure to be addressing the readers of this Annual Report of COMSATS, covering its overall performance during the year 2018. It is very satisfying to note that the Organization together with its partner organizations continued to make great progress towards its mission during the year.

As has been the practice in the past, COMSATS' Network contributed greatly to COMSATS' operations. A major annual event for this year was the 21st meeting of COMSATS Coordinating Council that convened in Almaty, Kazakhstan, hosted by the Network member, Al-Farabi Kazakh National University. The interaction between the participating Centres and observer organizations was useful for strengthening collaborations. We are pleased to have welcomed in 2018 the Tianjin Institute of Industrial Biotechnology, China, as a new member of the Network.

The Commission organized several workshops and training programmes to help enhance capacity building in the member institutions. The corresponding section of the Annual Report would bear in this context the names of the participating/ contributing Centres, which included: COMSATS University Islamabad (CUI), Pakistan; Al-Farabi Kazakh National University (KazNU), Kazakhstan; Tianjin Institute of Industrial Biotechnology, China; National Mathematical Centre (NMC), Nigeria; Industrial Technology Institute, Sri Lanka; Industrial Research and Consultancy Centre (IRCC), Sudan; Iranian Research Organization for Science and Technology (IROST), Iran; and Royal Scientific Society (RSS), Jordan. While a devoted section also aims to present the activities of Centres

of Excellence during the year.

The multilateral research among the Centres and other relevant organizations in developing countries under COMSATS International Thematic Research Groups is also being augmented. The relevant part of this report would shed light on the same.

COMSATS' thrust during 2018 towards the SDGs is remarkable, which is reflected through two major events held during the year. I hope that the Network will follow suit and contribute to this thrust in helping to promote SDGs and, in turn, achieving these goals in Member States.

The induction of the Republic of Yemen as 27th member state was a highlight of the Commission's activities, which reflects the increasing trust in its role as a promoter of science-led development on sustainable basis. I felicitate the Ambassador of Yemen in Islamabad for making this happen. As the Chairperson of COMSATS Coordinating Council, I look forward to making available this platform of COMSATS for technical cooperation to aid the country's progress. We would welcome any nominated Centre of Excellence of Yemen to the Council.

I would like to congratulate COMSATS' community on the organization's accreditation with Commonwealth and collaborative arrangements reached with other organizations during 2018.

I hope that the readers would feel better informed about activities of COMSATS and its network and would be inclined in supporting the organization's mission.



1. CORE ACTIVITIES OF COMSATS SECRETARIAT

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Core Activities of COMSATS Secretariat

COMSATS Secretariat provides secretarial assistance to both the Commission and the Network of Centres of Excellence. It is responsible for regularly holding statutory body meetings as well as following up their deliberations and decisions. The Secretariat also executes COMSATS' programmes and activities in partnership with other inter-governmental agencies, national S&T institutions, R&D organizations, members of academia and scientific community across the world. Other core activities of the Secretariat relate to: pooling and management of financial resources; enhancing the membership of COMSATS and its Network; and dissemination of information to the stakeholders.



21st Meeting of COMSATS Coordinating Council

COMSATS Coordinating Council continuing its tradition of regular annual meetings, held its 21st meeting to review the progress and make decisions for the smooth functioning of the Network. The meeting was generously hosted by COMSATS' Centre of Excellence in Kazakhstan, Al-Farabi Kazakh National University (KazNU) in Almaty on April 3 – 4, 2018.

Apart from officials of COMSATS Secretariat, the meeting was attended by Council members or their representatives from 14 Centres of Excellence; and representatives of the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC), Turkey, Edibon International, Spain, and the International Centre for Genetic Engineering and Biotechnology (ICGEB), Italy. In addition, Deputy Director-

General, Tianjin Institute of Industrial Technology (TIB), China, also attended the meeting in connection with TIB's request for induction in COMSATS' Network of International S&T Centres of Excellence.

Inauguration

The meeting was inaugurated on 3rd April 2018, by Prof. Dr. G. M. Mutanov, Rector, Al-Farabi Kazakh National University (KazNU), Kazakhstan, in the presence of representatives of diplomatic missions of Pakistan and Egypt in Kazakhstan. In his welcome address, Prof. Dr. G. M. Mutanov considered cooperation among COMSATS' Network as an opportunity for exchanging experiences, knowledge and technologies and promoting sustainable development among countries of the South. He noted with satisfaction KazNU's active participation in COMSATS' programs, since its induction in the Network, including hosting of two

capacity building events during 2017. He hoped that the present Council meeting would facilitate KazNU's collaboration in initiating joint research projects with other Centres of Excellence to introduce new technologies for improving living standards in developing countries.

Speaking at the inaugural, Dr. S. M. Junaid Zaidi, Executive Director COMSATS, acknowledged the due efforts of KazNU towards the promotion of COMSATS' mission. He considered Science, Technology and Innovation (STI) as the key to address diverse global challenges stemming from climate change, wars and conflicts, poverty, hunger and food scarcity. He expected the Council to streamline their plans in accordance with the '2030 Agenda for Sustainable Development' and urged the member states to make best use of their indigenous resources for achieving common objectives of the Network.



“The universal and inclusive nature of sustainable development goals requires more than ever before to invest in education, health and environment and on the top, forging partnerships and building cross-border cooperation that may facilitate the cross-cultivation of experiences and knowledge; building competencies and reducing the technological gap between the developed and developing nations of the world.”

Dr. S. M. Junaid Zaidi
Executive Director COMSATS

In his message readout by Prof. Dr. Tlekkabul Ramazanov, Vice Rector, Research & Innovations, KazNU, Prof. Bolatbek Abdrassylov, Chairman of the Scientific Committee, Ministry of Education and Science, Kazakhstan, stated that development of cooperation with foreign states such as COMSATS member countries [was] an important direction of



“Our main goal is to improve the level of life of the citizens of our countries by introduction of new technologies into business, service, production and government activities, and resolving common problems by the exchange of our strengths.”

Prof. Dr. G. M. Mutanov,
Rector, KazNU

the scientific and technological policy of Kazakhstan. He expressed satisfaction over the engagements of KazNU with other COMSATS' Centres of Excellence for various capacity building purposes.

Speaking at the occasion, Prof. Dr. Ashraf Shaalan, President National Research Centre (NRC), Egypt, and Chairperson, COMSATS Coordinating Council, underscored the importance of scientific and technological cooperation among developing countries in achieving socio-

economic development and preserving their resources and environment. He considered COMSATS as an appropriate forum for establishing and enhancing meaningful collaboration among the member countries. He urged collaboration in the field of energy considering it the backbone of development.

The messages of the Chairman of the scientific committee at the Ministry of Education and Science, Kazakhstan, as well as the President of the National Academy of Sciences of Kazakhstan, were read-out on the occasion by Prof. Dr. Tlekkabul Ramazanov, Vice-Rector for Research & Innovations, KazNU. In the messages, the Centres of Excellence were encouraged to determine effective mechanisms of collaboration for seeking new ways for the integration of science and technology and improving the standard of living of the masses.

Technical Proceedings

The technical sessions of the two-day meeting were presided over by Prof. Dr. Ashraf Shaalan. The Council deliberated upon a 15-point agenda and approved the Minutes of the previous (20th) Meeting of COMSATS Coordinating Council. Apart from the routine agenda-items of discussion, the Council deliberated upon the prospects of joint projects in line with United Nations' 2030 Global Agenda and



Dr. S. M. Junaid Zaidi, Executive Director COMSATS, was awarded the Al-Farabi Gold Medal by (KazNU) for his outstanding contributions towards fostering international collaboration in science and technology, during the plenary session of the 5th International Farabi Readings held in conjunction with the inaugural ceremony of 21st Meeting of COMSATS Coordinating Council.

Speaking on the occasion, Dr. Zaidi admired the enormous contributions of Al-Farabi in the fields of science, philosophy, mathematics and music, and pledged to follow his legacy and promote his philosophy by all means.



financial matters of COMSATS. In the light of the presentations, the Council appreciated and expressed satisfaction over the annual activity report and COMSATS future plans, as well as administrative and financial matters of COMSATS.

During another agenda-item, the heads/ representatives of Centres of Excellence made presentations on their scientific activities with a view to highlight their contributions toward South-South and Triangular Cooperation and to identify areas of potential collaboration. The representatives of international partner organizations attending the meeting as observers shared their on-going programmes and activities and focused on the prospects of collaboration with COMSATS. Additionally, a presentation was made by the Chairman of the Edibon International, Spain, on the scientific expertise, equipment and soft-loan facilities available with the enterprise for the upgradation of the Centres of Excellence.

formulation of criteria for evaluation of nominated Centres of Excellence.

As per regular practice, the Advisor (Programmes) COMSATS briefed the Council about the implementation status

of the decisions taken by the Council in its previous meeting, while the Executive Director COMSATS presented COMSATS' Annual Activity Report (May 2017 – March 2018). The Advisor (Programmes) also presented the administrative and





The Council accorded unanimous approval on the induction of Tianjin Institute of Industrial Biotechnology (TIB), China, in COMSATS' Network as its 22nd Centre of Excellence, based on the prescribed technical evaluation proforma submitted earlier as well as the presentation made by the Deputy-Director General of the Institute during the present meeting. Furthermore, the progress reports of the International Thematic Research Groups (ITRGs) on 'Information and Communication Technologies', 'Mathematical Modelling', 'Renewable Energy' and 'Agriculture, Food Security and Biotechnology' were presented to the Council by the Group Leaders / representatives of the Lead Centres. Under the relevant agenda-items, discussions were held regarding on-going programmes of COMSATS,

including MS and PhD scholarships, post-doctoral fellowships, tele-health programme, capacity building activities and publications, as well as possibilities of linking the COMSATS' programmes with SDGs.

The Centres explored the possibility of initiating joint projects having regional significance in line with SDGs. The matter of formulation of criteria for evaluation of nominated Centres for induction in COMSATS' Network, as well as the role of Technical Advisory Committee in enhancing collaborations among Centres of Excellence and their up-gradation were also discussed.

During the meeting, several offers were extended by Centres of Excellence. These offers resulted in four MoUs

signed between the following Centres of Excellence: (i) NRC-Egypt and BCSIR-Bangladesh; (ii) NRC-Egypt and CIIT-Pakistan; (iii) CIIT-Pakistan and KazNU-Kazakhstan; and NRC-Egypt and ICCES-China for collaboration under the umbrella of COMSATS for achieving common objectives.

On 5th April 2018, the participants of the meeting visited various laboratories of KazNU in order to explore opportunities of collaboration. In this regard, TIB, China and KazNU will jointly execute a research project in the fields of mutual interest. Moreover, ICCES-China will soon send its delegation to KazNU in order to induct its relevant scientists in COMSATS' ITRG on 'Climate Change and Environmental Protection' for conducting joint research projects. The discussions during the meeting and visit to KazNU laboratories opened new avenues of collaboration among the members of COMSATS' Network.

The meeting issued a Communiqué, which inter alia encouraged the Network members to streamline their programmes in accordance with the Sustainable Development Goals. The next (22nd) meeting of the Coordinating Council will be hosted by the Tianjin Institute of Industrial Biotechnology, China, during 2019.



Closing Session

In his closing remarks, the Executive Director COMSATS paid gratitude to the organizing committees of KazNU and COMSATS for making excellent arrangements for the meeting. He hoped that the Centres of Excellence would actively contribute towards achieving the sustainable development goals through South-South and Triangular Cooperation in science and technology. The Chairperson Coordinating Council thanked the organizers for their tireless efforts.

Speaking at the conclusion, the Vice-Rector for Research & Innovations, KazNU, looked forward to active collaborations between KazNU and other Network Members.

Follow-up of the Decisions of the 21st Meeting of COMSATS Coordinating Council

A major component of the activities of COMSATS Secretariat is following up the decisions of its statutory bodies. The 21st Meeting of COMSATS Coordinating Council was held on 3rd – 4th April 2018, in Almaty, Kazakhstan and hosted by COMSATS' Centres of Excellence in Kazakhstan, Al-Farabi Kazakh National University (KazNU).

The 21st Coordinating Council meeting

took a number of decisions regarding the expansion of COMSATS' membership and Network of Centres of Excellence, facilitating collaboration among Network members, and effective implementation of COMSATS' programmes and activities in COMSATS' member states. The decisions were actively followed-up by COMSATS Secretariat through correspondence with Heads and Liaison Officers of Centres of Excellence. Some key developments in this regard are given below:

COMSATS Secretariat continued its efforts for enhancing the membership of its Network of International S&T Centres of Excellence. In this connection, COMSATS approached renowned R&D centres in Malaysia, Malawi and Morocco. Besides, a major decision of Coordinating Council was the induction of Tianjin Institute of Industrial Biotechnology (TIB), China, in COMSATS' Network as a Centre of Excellence.

As per the Council's advice to approach international donor bodies for the upgradation of laboratories and technical infrastructure of Centres of Excellence, COMSATS Secretariat received proposals from the following Centres: Al-Quds University, Palestine; National Research Centre (NRC), Egypt; Al-Farabi Kazakh National University (KazNU), Kazakhstan; COMSATS University Islamabad (CUI), Pakistan; International Centre for Chemical and Biological Sciences (ICCBS), Pakistan; and Industrial Research

and Consultancy Center (IRCC), Sudan. Besides, COMSATS Secretariat is in correspondence with the governments of Sri Lanka and Nigeria regarding the establishment of higher education institutions in their respective countries.

In the light of Council's resolution to establishment new Centres of Excellence in the cutting-edge fields of science and technology with the support of international partner organizations and funding agencies, COMSATS Secretariat has planned to set-up a Centre for Climate & Sustainability (CCCS) as a multi-stakeholder institute for bringing innovative approaches to plan, fund and tackle climate change. This proposal has received due endorsement and support from COMSATS Member States and Centres of Excellence in Pakistan, Uganda, Tanzania, Nigeria, Palestine, Kazakhstan, Iran, and China.

Furthermore, the consultations regarding the establishment of COMSATS' regional offices for Africa and Latin America at NRC, Egypt and CIE, Colombia, respectively, is under way.

The Coordinating Council encouraged Member States and Centres of Excellence to strengthen cooperation and facilitate networking among Centres of Excellence. In light of this, following bilateral visits were made during 2018:

- A delegation led by Prof. Dr.

Participants of the 21st Coordinating Council Meeting

- Mr. Md. Sarwar Jahan, Chief Scientific Officer, Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh
- Dr. Robert Boddey, Research Scientist, Embrapa Agrobiologia, Brazil
- Prof. Dr. Ashraf Shaalan, President, National Research Centre (NRC), Egypt
- Prof. Hosam El-Sayed, Assistant Vice President for Research, National Research Centre (NRC), Egypt
- Dr. Eduardo Posada F., Director, Centro Internacional de Fisica, Colombia
- Dr. Mahmoud Molanejad, Acting President for International Cooperation, Iranian Research Organization for Science and Technology (IROST), Iran
- Mr. Johann Antoine, Head of the Nuclear Analytical Laboratory, International Centre for Environmental and Nuclear Sciences (ICENS), Jamaica
- Prof. Dr. G. M. Mutanov, Rector, Al-Farabi Kazakh National University (KazNU), Kazakhstan
- Prof. Dr. Tlekkabul Ramazanov, Vice-Rector for Research & Innovations, Al Farabi Kazakh National University (KazNU), Kazakhstan
- Prof. Stephen E. Onah, Director/Chief Executive, National Mathematical Centre (NMC), Nigeria
- Prof. Dr. Raheel Qamar, Rector, COMSATS Institute of Information Technology (CIIT), Pakistan
- Dr. Arshad Salim Malik, Head, International Office, COMSATS Institute of Information Technology (CIIT), Pakistan
- Dr. G.A.S. Premakumara, Director General, Industrial Technology Institute (ITI), Sri Lanka
- Dr. Widad Hassan Abdel Halim Hassan, Director General, Industrial Research and Consultancy Centre (IRCC), Sudan
- Dr. Maher Suleiman, Director, Higher Institute for Applied Science and Technology (HIAT), Syria
- Dr. Lugano Wilson Mwansule, Senior Researcher, Tanzania Industrial Research and Development Organization (TIRDO), Tanzania
- Prof. Ahmed Ghrabi, Director General, Water Researches and Technologies Centre of Borj-Cedria (CERTE), Tunisia
- Prof. Jibin Sun, Deputy Director-General, Tianjin Institute of Industrial Technology (TIB), China
- Ms. Maria Luisa Fichera, Chief, Legal & Administration, International Centre for Genetic Engineering and Biotechnology (ICGEB), Italy
- Dr. Atilla Karaman, Researcher, Data and Information Management Unit, Statistics and Information Department, Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRI), Turkey
- Dr. Elias Bonilla, Chairman, Edibon International, Spain
- Dr. Syed Muhammed Junaid Zaidi, Executive Director, COMSATS, Pakistan
- Mr. Tajammul Hussain, Advisor (Programmes), COMSATS, Pakistan
- Dr. Kamran Jahangir, Advisor (TAC), COMSATS Headquarters, Pakistan
- Mr. Farhan Ansari, Sr. Assistant Director (Programmes), COMSATS, Pakistan

Raheel Qamar, Rector, COMSATS University Islamabad (CUI), visited Sri Lanka from 24th – 27th July 2018. The delegation met with the Honourable Minister for Science, Technology & Research, Skills Development & Vocational Training, Dr. Sarath Amunugama and discussed opportunities of collaboration with universities and other R&D/S&T

institutions of Sri Lanka. During the visit, meetings were also held with the Secretary, Ministry of Higher Education, Sri Lanka; Vice Chancellor, University of Colombo; Chairman Board of Directors and Executive Director, Industrial Technology Institute (ITI), Colombo; and Managing Director, National Science

Foundation (NSF). An important outcome of the visit was the exchange of Intent of Cooperation (IOC) between CUI and ITI.

- Prof. Zhaohui Lin, Director, International Center for Climate and Environment Sciences (ICCES), China, visited Al-Farabi Kazakh National University (KazNU), Almaty, Kazakhstan, in order to explore common grounds of cooperation in the areas of climate and environmental sciences. The two sides agreed on launching a project regarding drought analysis and prediction and its relation to crop yield in Northern Kazakhstan. Besides, Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS) inked an MoU with KazNU for expert exchange, and joint capacity building events in areas of mutual interest.
- Dr. Elias Bonilla, Chairman, Edibon International, Spain, visited COMSATS University Islamabad (CUI), Pakistan, during October 2018 and made a presentation regarding products and services offered by Edibon International to the Vice Chancellors and senior officials of relevant engineering universities.

Furthermore, following visits are being planned during the forthcoming year:

- Visit of Prof. Dr. Muhammad Iqbal Choudhary, Director, ICCBS, Pakistan to TIB, China (in first week of January 2019); and
- Visit of a delegation from KazNU, Kazakhstan to ICCBS, Pakistan (in first week of March 2019).

The Coordinating Council appreciated the progress made by the respective ITRGs and encouraged them to prepare project proposals having significance for achieving the UN Sustainable Development Goals. In this regard, COMSATS Secretariat

Collaborations Offered and Sought

- TIB-China offered collaboration for bi-directional technology transfer; joint R&D projects under The Belt and Road Initiative, scientific events, training courses, and scholarships.
- BCSIR-Bangladesh offered research collaboration, inter alia, in materials and metallurgy, biomaterials, leather technology, nanotechnology, biotechnology, RETs, herbal medicine and medicinal plant, and bioequivalence study.
- CIF-Colombia offered services including: courses in biophysics and neurosciences; short stays for scientists; co-direction of MS and Ph.D thesis in bio-physics; science policy.
- NRC-Egypt offered fellowships in textile processing; plant biotechnology; polymers; bioactive materials; and nanotechnology.
- ICENS-Jamaica offered technologies/expertise in environmental geochemistry; trace elements; heavy metal pollution; mineral composition of food; biogeochemical cycles; forensics.
- CERTE-Tunisia offered technologies on treatment and valorisation of the effluents of petroleum production; and sanitation.
- IRCC-Sudan offered support for capacity-building activities in renewable energy, waste management, products from essential oils, mining, and mechanical design, and joint research with ICCBS-Pakistan and PCSIR-Pakistan.
- HIAST-Syria pledged to initiate Tele-health Program with the support of COMSATS and sought collaboration of other Centres in nanotechnology, conductive polymers, hydrogels, superabsorbent polymers, and renewable energy.
- CUI-Pakistan offered to initiate collaboration in the field of cyber security and to jointly organize scientific events.
- ITI-Sri Lanka and ICCES-China agreed to collaborate for establishing a Center for Extreme Climatic Events and to conduct joint research with other Centres.
- TIRDO-Tanzania and MAM-Turkey agreed to collaborate in energy; engineering; food science and technology; biotechnology; materials technology; environment; and chemistry.
- TIRDO-Tanzania and IRCC-Sudan agreed to collaborate in leather and textile research.
- RSS-Jordan sought the support of other Centres in conducting certified trainings in the following fields of Climate Change (modelling and projection, vulnerability assessment, tools and software for climate change assessment, adaptation, agriculture and water) and mitigation and seismology (landslides hazard, investigation and mitigation; and landfills hazard, investigation and mitigation).
- NMC-Nigeria solicited support from CUI-Pakistan for the development of ICT Resource Centre.
- HIAST-Syria pledged to initiate Tele-health Program in Syria with the support of COMSATS.

was advised to facilitate the availability of funds from international donor agencies as well as governments of the Member States. COMSATS Secretariat arranged Skype meetings with the Group Leaders/representatives of ITRGs with the agenda to review their progress and future plans.

COMSATS Secretariat invited the member countries and Centres of Excellence to benefit from CUI's

standing offer of hundred (100) post-graduate scholarships and ten (10) PhD scholarships/postdoctoral fellowships; NRC's offer of five (05) short-term PhD fellowships; KazNU's offer of five (05) PhD scholarships/postdoctoral fellowships; and BCSIR's offer of one (01) postdoctoral fellowship. In this regard, twelve (12) students are enrolled in various MS and PhD programmes at CUI, Pakistan, and one (01) student belonging to Pakistan is

enrolled in PhD programme at KazNU, Kazakhstan. Besides, one (01) nomination of short-term PhD fellowship at NRC, Egypt, received from IRCC, Sudan, is under consideration.

The Council encouraged Network members to conduct capacity building events in accordance with the needs and demands of the scientific workforce of the Centres of Excellence and Member States. In this regard, COMSATS in collaboration with ISESCO organized International Conference on 'Agriculture, Food Security, and Biotechnology' on 13th – 14th November 2018 in Rabat, Morocco; and International Workshop on 'Internet Security: Enhancing Information Exchange Safeguards' on 23rd – 27th December 2018 in Doha, Qatar. Furthermore, Workshop on 'Metrology for Least Developed Countries', co-organized by COMSATS and TUBITAK National Metrology Institute (TUBITAK UME) from 26th – 27th November 2018 in Gebze Kocaeli, Turkey, benefited about 30 participants belonging to COMSATS' member states. In addition, COMSATS and National Research Centre (NRC), Egypt, will jointly organize a Workshop on 'Water Resources: Expected Crises and Strategies of Predomination' on 11th – 12th March 2019, in Cairo, Egypt.

About 20 scientists from COMSATS Member States and Centres of Excellence were sponsored by COMSATS Secretariat for short-term trainings and participation in various capacity building events held during the year 2018.

Other offers of collaboration made by the Centres of Excellence during the 21st Coordinating Council meeting were also followed up.

Enhancement of Membership of COMSATS' Commission

Expansion of COMSATS' Membership is an on-going process since the establishment of the Commission and



has been a top priority in COMSATS' strategic plan. During 2018, linkages were established and strengthened with potential member countries.

Yemen's State Membership to COMSATS

The Republic of Yemen joined COMSATS as 27th Member State on 6th November 2018 when the accession 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.

The signing 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.

H. E. Mr. Mohammed Motahar Alashabi, Ambassador of the Republic of Yemen played due role in realizing the accession of Yemen to COMSATS. His Excellency visited COMSATS Secretariat on 18th August 2017 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. During the meeting, His Excellency was also handed over a formal letter of accession for onward submission to relevant authorities.

Later, on 18th September 2018, the Honourable Ambassador paid a follow-up visit during which 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.

By virtue of its membership, Yemen will be represented at the Heads-of-State level Commission and the Ministerial-level Consultative Committee of COMSATS.

Other Efforts to Expand State Membership

During the calendar year 2018, COMSATS Secretariat extended membership offer to several countries in a series of meetings held with the diplomatic corps of Pakistan including Kenya, Kuwait, Malaysia, Mauritius, Turkmenistan, United Arab Emirates and Uzbekistan. During these meetings, the diplomats were given a briefing on COMSATS along with the benefits and obligations of joining the Commission. The meetings were successful

About Tianjin Institute of Industrial Biotechnology (TIB), China

Tianjin Institute of Industrial Biotechnology (TIB) was jointly founded by CAS and Tianjin Municipal Government and officially designated as one of the CAS research Institutes in November 2012. The institute was primarily approved by the Chinese Commission of Public Sector Reform as a non-profit national research institute in March 2012.

The core scientific areas of TIB 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.

in breaking ground for expediting the membership process. The diplomats were appreciative of COMSATS' contribution for the sustainable development of the South.

Additionally, efforts were made to expand COMSATS' membership to other countries in Asian, African, South American and Arab region.

Enhancement of Membership of COMSATS' Network of International S&T Centres of Excellence

The expansion of COMSATS' Network of

International S&T Centres of Excellence is a constant pursuit to strengthen both the number and the thrust areas of the Network in line with the objectives of the Organization. During 2018, efforts were continued for inducting more scientific institutions in COMSATS' Network.

Accession of Tianjin Institute of Industrial Biotechnology (TIB), China

During the 21st Coordinating Council meeting (3rd – 4th April 2018), COMSATS welcomed Tianjin Institute of Industrial Biotechnology (TIB), China, to its Network as the 22nd member and second

Centre of Excellence from China. The Certificate of Membership was issued from COMSATS Secretariat to TIB on 30th April 2018.

Besides, COMSATS reached out renowned R&D centres in Malaysia, Malawi and Morocco with the view to induct them in the Network.



Communiqué of the 21st Meeting of COMSATS Coordinating Council (3 – 4 April 2018, Almaty, Kazakhstan)

The participants of the 21st meeting of COMSATS Coordinating Council, including the representatives of fifteen Centres of Excellence, deliberated upon the fifteen-point agenda of the meeting during 3-4 April 2018, and are pleased to unanimously adopt the following statement:

1. The Coordinating Council pays gratitude to the Al-Farabi Kazakh National University (KazNU) for making excellent arrangements for the meeting and for providing warm hospitality to its participants. The administrative support of COMSATS Secretariat to KazNU for the successful organization of the meeting, including active correspondence with the invitees and preparation of necessary documentation, is appreciated.
2. The excellent and efficient mode ration of the discussions during various technical sessions of the meeting by the Chairperson Coordinating Council, Prof. Dr. Ashraf Shaalan, President NRC, is commended.
3. The Coordinating Council is pleased to welcome the Tianjin Institute of Industrial Biotechnology (TIB), China, as a member of COMSATS' Network of Centres of Excellence. It is hoped that TIB will actively participate in the activities of the Network, play a vital role in the achievement of COMSATS' objectives as well as provide imperative support to Network members whenever and wherever required.
4. The Council appreciates the R&D and academic activities being undertaken by Centres of Excellence individually as well as collectively. The strong intent of the Centres of Excellence to collaborate with each other for executing joint research and development projects having social and economic impact is commendable. The Network members are encouraged to streamline their programmes in accordance with the Sustainable Development Goals (SDGs) as well as to engage in South-North-South Triangular Cooperation.
5. COMSATS Secretariat is encouraged to continue its efforts to extend the membership of COMSATS' Network to other states as well. The Council also advises COMSATS Secretariat to include state-of-the-art centres from the North and the South in the Network in order to upgrade those Centres that need support from the advanced Centres to become true Centres of Excellence.
6. The linkage of Coordinating Council with other organs including Consultative Committee and Technical Advisory Committee may be strengthened in order to facilitate the upgradation of Centres of Excellence as well as expansion of the programmes and activities of COMSATS' Network. In this regard, the international donor agencies may be approached for upgradation of labs and technical infrastructure of Centres of Excellence.
7. The Council encourages the establishment of new Centres of Excellence in the cutting-edge fields of science and technology for addressing national, regional and global challenges, with the support of international partner organizations and funding agencies.
8. The Centres of Excellence may benefit from the COMSATS Tele-health Programme for meeting the healthcare needs of the Member States.
9. The Lead Centres and collaborating institutions of ITRGs are encouraged to actively collaborate, share data, exchange expertise and laboratory resources, and build capacity in order to execute the joint research projects

for the benefit of COMSATS' Member States. The ITRGs may also seek funding for this purpose from their respective Governments as well as international donor agencies.

10. The Belt and Road Initiative (BRI) of China is one of the largest infrastructure and investment mega-projects in history, involving 13 Member States of COMSATS. There are enormous opportunities of collaboration and funding under this Initiative. The Centres of Excellence are encouraged to capitalize on the opportunities available under this initiative for accelerating socio-economic development in the Member States.
11. The Council felicitates Dr. S. M. Junaid Zaidi, Executive Director COMSATS, on having been conferred upon the Al-Farabi Gold Medal for his outstanding contributions towards fostering international collaboration in science and technology.
12. The Council appreciates the efforts of COMSATS Secretariat to fulfil the objectives of the organization, and acknowledges the following achievements:
 - i. Initiatives taken by the new Executive Director of COMSATS for enhancing programmes and activities of the Organization as well as fostering regional and international cooperation;
 - ii. Steady growth of COMSATS flagship projects in Pakistan, i.e. the COMSATS Institute of Information Technology (CIIT) and COMSATS Internet Services (CIS);
 - iii. Continuous expansion of COMSATS Member States and Centres of Excellence;
 - iv. Organization of four (04) capacity building events in collaboration with Centres of Excellence and international partner organizations, which benefited various scientists, researchers, academicians, engineers and technicians belonging to Centres of Excellence and COMSATS Member States;
 - v. Increased utilization of postgraduate scholarships at CIIT-Pakistan by COMSATS Member States;
 - vi. Exchange of resources and enhanced scientific collaboration among Centres of Excellence in various R&D domains;
 - vii. Networking with the institutions of the North for the mobilization of financial resources and technical support so as to meet the objectives of the Network; and
 - viii. Regular publication of COMSATS' Annual Report, COMSATS' Newsletter, journal 'Science Vision' and other information material about the organization.
13. The Council encourages the Network members to make efforts for the following:
 - i. Availing the opportunities of scholarships / fellowships available with COMSATS' Centres of Excellence;
 - ii. Conducting capacity building events in accordance with the needs and demands of the scientific workforce of the Centres of Excellence and COMSATS Member States;
 - iii. Sensitizing their respective governments regarding the benefits of regularly making AMC for the financial sustainability of COMSATS; and
 - iv. Keeping COMSATS Headquarters abreast of the developments and achievements of their respective Centres.

2. STRENGTHENING SOUTH-SOUTH AND TRIANGULAR COOPERATION

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Strengthening South-South and Triangular Cooperation

One of the functions of COMSATS is to support major initiatives designed to promote indigenous S&T capacity through synergies among relevant Governments in the North and the South. Meetings are held with dignitaries, officials and delegations from a number of countries engaged on regular basis to establish and promote linkages to strengthen triangular cooperation in a number of fields, including education, training and research.



Meetings with Diplomats and Officials from Member States

Prof. Stephen E. Onah, Director National Mathematical Centre (NMC), Nigeria (19th January 2018)

Matters of mutual interest discussed included NMC's role in COMSATS' programmes especially International Thematic Research Groups (ITRGs), the Centre's academic, R&D and capacity building activities as well as possibilities of upgrading the Centre as an international Centre. Prof. Onah was also given a presentation with special emphasis on follow-up of the 20th Coordinating Council Meeting.

The focus of the discussions was on collaboration between NMC and COMSATS University and other Centres of Excellence, and Member States of COMSATS. It was informed that the installment for the second phase of project being led by NMC under the umbrella

of COMSATS' ITRG on Mathematical Modeling would be released by ISESCO on the submission of progress report and revised project proposal. Prof. Onah noted that the ITRG on Mathematical Modelling being headed by Prof. Benjamin O. Oyelami has published papers on the group's research. Research work under the group has good implications in a number of different fields including: effect of air and water pollution on human health, and climate change. He also identified some areas for useful application of Mathematical Modeling that needed further R&D, such as crime detection.

Further, views were exchanged on developing a database of relevant information and identifying potential partners to establish joint research projects in Mathematical

Modelling. It was noted that NMC looked forward to working with CUI in areas of mutual interest and showed interest in formalizing an agreement in this regard. Dr. Zaidi encouraged NMC to prepare proposals for





submission to institutions in the North for soliciting funds and expertise. He hoped to see NMC upgraded and developed into a world class institute. He also opined that the Centre has the capacity to serve institutions of Africa by providing expertise and academic opportunities and thus becoming a regional leader in its area of specialization.

Prof. Dr. Radwan F. H. Qasrawi, Researcher, Department of Computer Science and Information Technology, Al-Quds University, Palestine (31st January 2018)

The meeting with Prof. Qasrawi was held in the company of relevant officials of COMSATS Secretariat. Prof. Qasrawi is serving as COMSATS' Liaison Officer at Al-Quds University (Palestine), which is a Centre of Excellence of COMSATS. During the meeting, Prof. Qasrawi requested COMSATS to facilitate capacity-

building at Al-Quds University by helping it acquire PhD scholarships for its faculty members. In response, Dr. Zaidi assured to make necessary arrangement by collaborating with Pakistani universities, including CUI and ICCBS. He encouraged Prof. Qasrawi to submit a detailed proposal on his request, which would be forwarded to potential international donor agencies for funding.

Prof. Qasrawi also requested COMSATS to help in establishing Technology Incubation Centre at Al-Quds University, for which Dr. Zaidi pledged his support. Dr. Zaidi also invited Prof. Qasrawi to visit the incubation centres at COMSATS Internet Services (CIS) and CUI.

H. E. Mr. Yao Jing, Ambassador of People's Republic of China to Pakistan (6th March 2018)

A welcome reception was hosted for Mr.

Jing as the new Chinese Ambassador in Pakistan. A number of Ambassadors and foreign missions of Islamabad attended the ceremony to welcome the new colleague. These belonged to China, Turkey, Bosnia and Herzegovina, Turkmenistan, Azerbaijan, Uzbekistan, Sri Lanka, Egypt, Syria, Tunisia, Morocco, Yemen, Poland, Kyrgyzstan, and Portugal. Deputy Head of Missions of Belarus, Sudan, Russia, Norway, Kazakhstan, Romania, Hungary, and Ukraine also attended the meeting. Noting the phenomenal growth the country has undergone during the last four decades, Dr. Zaidi considered China a relatable example of growth and development in present times for the South. Dr. Zaidi sought enhanced involvement of China in COMSATS' programmes through the Ambassador's office for the development of COMSATS' member states. Appreciating the country's One Belt One Road project, he stated that it is a prominent example of how growth can be mutually beneficial among many countries.

H.E. Noordeen Mohamed Shaheid, High Commissioner of Sri Lanka to Pakistan (4th May 2018)

The High Commissioner was accompanied by Mr. Mohamed Anas, Counsellor/ Head of Chancery. During the meeting it was recalled that Sri Lanka is one of the founding members of COMSATS, and the Industrial Technology Institute (ITI), Sri Lanka, is affiliated with COMSATS





as a Centre of Excellence. The High Commissioner expressed keen interest in the programmes of COMSATS, especially the scholarships being offered by various Centres of Excellence of COMSATS. Other matters discussed during the meeting included potential collaboration in S&T and institution building in higher education sector, capacity building of scientists and researchers through focused trainings, and exchange of faculty and students, etc.

**H. E. Mr. Barlybay Sadykov,
Ambassador of Republic of
Kazakhstan to Pakistan (10th May
2018)**

The meeting with the Ambassador of Kazakhstan was held in his office in Islamabad. During the meeting, Dr. Kamran Jahangir, Advisor (TAC), COMSATS, recalled that Kazakhstan is founding member of COMSATS, and the Al-Farabi Kazakh National University (KazNU) has been affiliated with COMSATS as a Centre of Excellence since 2016. The Ambassador was also acquainted with the outcomes of the 21st meeting of COMSATS Coordinating Council (3-4 April 2018), hosted by KazNU in Almaty.

On behalf of COMSATS, Dr. Jahangir offered COMSATS' support for jointly establishing a higher education institution in Kazakhstan, exchange of scientists and scholars between Kazakhstan and other member countries, exchange of delegations comprising scientists and academicians, setting-up of Al-Farabi Chair in universities of Pakistan, and collaboration

in the field of tele-health.

The honourable Ambassador appreciated the proposals, and pledged to forward the same to Astana for consideration. He also appreciated the programmes and activities of COMSATS and highlighted the importance of global partnerships in achieving the UN Sustainable Development Goals. He shed light on the recent initiatives of Kazakhstan for promoting green technologies as well as ensuring cyber security.

**H. E. Maj Gen Retd. Waqar Ahmad
Kingravi, High Commissioner of
Pakistan to Nigeria and Ghana (23rd
June 2018)**

The key agenda of the meeting with the High Commissioner designate was to seek support of Pakistani High Commission for reinforcing COMSATS' ties with Nigeria and Ghana. During the meeting, possibilities of actively engaging Ghana and Nigeria in COMSATS' programmes and activities were discussed including scholarships for their students at COMSATS University Islamabad; efforts for meeting their capacity building needs; and deputing an official from Ghana to work on secondment at COMSATS Secretariat.

The matter of upgradation of Council for Scientific and Industrial Research (CSIR), COMSATS' Centre of Excellence in Ghana was also discussed. Dr. Zaidi expressed willingness to launch various initiatives for sustainable socio-economic development in COMSATS Member States belonging

to Africa. In this regard, guidance shall be sought from COMSATS' Chairperson (Honourable President of Ghana), who is the Co-Chair of Sustainable Development Goals Advocates. The High Commissioner assured his full support for facilitating the liaison between office of the President of Ghana and Executive Director COMSATS.

**H. E. Mr. Ahmed Fadel Yacoub,
Ambassador of Egypt to Pakistan (5th
July 2018)**

During the meeting with the Ambassador, Dr. Zaidi highlighted the working relations between Egypt and COMSATS since 1994 and joint past achievements and future plans. He also highlighted the triangular collaborations (South-South and North-South), which are being actively sought and how COMSATS Centre of Excellence in Egypt, National Research Centre (NRC), has been helping the cause. His Excellency showed interest in COMSATS' flagship project, COMSATS University Islamabad (CUI), and its facilities. He hoped that more Egyptian students would also benefit from the attractive scholarship offer of CUI. Dr. Zaidi hoped that His Excellency would help ensure more student intake from Egypt.

**Senior Officials of the Embassy of
Jordan in Islamabad (11th September
2018)**

Dr. Maen Khareasat, Minister Plenipotentiary/Charge d'Affaires and Mr. Mahmoud Oglah Baniata, Cultural Counsellor, Embassy of Hashemite Kingdom of Jordan in Islamabad, met



with the Executive Director COMSATS, and other officials of COMSATS. During the meeting, Dr. Zaidi noted the active role being played by Jordan as a Member State of COMSATS. He hoped to further strengthening cooperation between COMSATS and Jordan. Dr. Maen Khareasat valued COMSATS' pivotal role in facilitating the socio-economic development of its member states, and appreciated its contributions in the fields of science and technology. Dr. Zaidi suggested that Pakistan and Jordan should send their delegations comprising faculty members and students on reciprocal basis to explore opportunities for faculty exchange, scholarship opportunities, and joint research and development activities. Dr. Maen pledged his Embassy's support to facilitate such exchanges.

H.E. Mrs. Khadija Mohamed Alмахzoumi, Ambassador of the Federal Republic of Somalia to Pakistan (4th October 2018)

Possibilities were explored to establish Centre of Excellence on Climate Change and Technology Parks based on the need and priority of the Somali Government during the meeting with Mrs. Alмахzoumi. It was noted that collaboration of relevant institutions in China, Turkey and European Union could be sought to establish biotechnology centres, oriented towards the needs of industrial sector, upon Somalia's request. COMSATS' support and cooperation were also extended for faculty development of Somali higher education institutions. Dr. Zaidi offered COMSATS' facilitation

for securing admissions in higher study programmes in Pakistani universities. The Ambassador looked forward to benefitting from various programmes of COMSATS, especially those pertaining to higher education.

Mr. Khalil-ur-Rahman Hashmi, Director General (UN), Ministry of Foreign Affairs, Government of Pakistan, (14th November 2018)

Mr. Khalil-ur-Rahman Hashmi, received a briefing from the Executive Director COMSATS. Dr. Zaidi also shared COMSATS' aspirations to set-up universities in other Member States, especially in China, Nigeria and Sri Lanka. Dr. Zaidi requested DG (UN) to facilitate COMSATS' efforts pertaining to: COMSATS' membership drive; inviting experts / scientists from COMSATS member states, establishment of top-class universities in the country, capacity-building programs, expert-opinions on

socio-economic development initiatives, 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.

Mr. Bako Bitrus Nabasu, mni, Permanent Secretary, Nigerian Federal Ministry of Science and Technology (10th December 2018)

His Excellency 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.

Meetings with Diplomats of Potential Member States

H.E. Alexey Yurievich Dedov, the Ambassador of Russian Federation to Pakistan, (6th March 2018)

The Ambassador was accompanied by Mr. Pavel Didkovsky, First Secretary to the Embassy of Russian Ambassador. Welcoming His Excellency, Dr. Zaidi apprised the Ambassador of the mandate and achievements of COMSATS. He further sought the Ambassador's counsel for exploring different avenues for expansion of COMSATS' membership. Dr. Zaidi hoped to have contacts

established with the Russian Academy of Sciences in order to engage the academy for exchange of students and scientists, and identification of institutes for collaborations with relevant organs of COMSATS. The Russian Ambassador appreciated the role COMSATS Secretariat has been playing for S&T-led development through South-South Cooperation and pledged all possible support to COMSATS' programmes.

H. E. Mr. Eric Beishembiev, Ambassador of Kyrgyzstan to Pakistan (25th April 2018)

His Excellency was accompanied with Mr. Aibek Tilebaliev, Deputy Head of Mission of the Embassy. The Executive Director informed them about COMSATS' vision and mission and the potential benefits of COMSATS' membership. The Executive Director also extended invitation to the Kyrgyz Republic to join COMSATS as member. His Excellency showed keen in COMSATS' membership and pledged to pursue the matter with relevant ministries to expedite the approval.

H.E. Mr. Kim Pham, Ambassador of Vietnam to Pakistan (4th July 2018)

During the meeting, the Executive Director COMSATS, considered it important to have scientist exchange among the institutes of COMSATS and Vietnam. He also emphasized that Research and Development are key to a sustainable future of the South and asked the Ambassador to help identify Vietnamese R&D institutions with good

infrastructure that may be willing to collaborate with the member states. Speaking on the occasion, Amb. (Rtd.) Shahid Kamal, Advisor at COMSATS, highlighted the importance of food security and accomplishments of Vietnam in the fields of rice production and agriculture as its potential for becoming COMSATS' member state. Based on COMSATS' advantage in the field of IT and related technologies, Mr. Tajammul Hussain, Advisor Programmes, requested His Excellency to identify partner institutions in Vietnam that could work with the organization.

H.E. Mr. Rashidally Soobadar, High Commissioner of Mauritius to Pakistan (17th July 2018)

The High Commissioner of Mauritius received a briefing by Dr. Zaidi. His Excellency was informed about COMSATS evolution with a special reference to the organization's flagship projects. Sharing the key demographics of his country, H.E. Rashidally elaborated on economy and socio-cultural and historical aspects of Mauritius that boasts 100% literacy rate and offers free education till college level. His Excellency offered Mauritian Government's willingness to help Pakistan in boosting tourism.

H.E. Mr. Piotr Opalinski, Ambassador of the Republic of Poland to Pakistan (20th August 2018)

The Polish Ambassador informed the



senior officials of COMSATS attending the meeting of his own association with Warsaw University of Oriental Studies. He mentioned that Poland had earlier been more focused towards Europe and wanted to join EU because of its colonial past. The focus of the country's collaborations, he informed, has also shifted towards East as a policy matter. The Ambassador expressed hope of partnering with COMSATS and establishing useful contacts with its Centres of Excellence. Dr. Zaidi handed over the invitation to join COMSATS as a membership and other relevant documents to the Ambassador.

H.E. Dr. Brigitta Blaha, Ambassador of Austria to the Islamic Republic of Afghanistan (Resident in Islamabad – Pakistan) (8th October 2018)

The agenda of the meeting was to explore common grounds of cooperation for the benefit of the South, especially Africa. The Ambassador was briefed about the programmes, activities and achievements of COMSATS. It was proposed that the two sides can mutually collaborate for joint cooperative projects pertaining to capacity building of scientists and researchers; trainings of academicians; setting-up of Centres of Excellence in COMSATS Member States; and strengthening linkages with various stakeholders working in climate change and environmental sciences niche.

H.E. Mr. Volodymyr Lakomov, Ambassador of Ukraine to Pakistan (9th October 2018)

The Ambassador was given a briefing on COMSATS' programmes, activities and flagship projects. Dr. Zaidi expressed desire to collaborate with Ukraine in areas of mutual interest. His Excellency informed that Ukraine stands among the top three countries in the world in the field of IT and has well-developed agriculture sector. During the meeting, a formal accession letter to Ukraine for joining COMSATS was handed over to H.E. Mr. Volodymyr Lakomov. He assured to take up the proposal with Ukrainian government for final decision.

H.E. Stefano Pontecorvo, Ambassador of Italy to Pakistan (15th October 2018)

During a meeting held at the Italian Embassy in Islamabad, the Ambassador informed about the recent connections established between the Italian Ministry of Education, Universities and Research, HEC and different academic institutions

of Islamabad and Lahore. Dr. Zaidi offered COMSATS' facilitation for providing assistance to the Italian Embassy in further developing linkages with higher education institutions in Pakistan. Dr. Zaidi also highlighted the scholarships offered by COMSATS University. Speaking during the meeting, Ambassador (R) Fauzia Nasreen emphasized the role of Centres of Excellence (CoE) of COMSATS and explored the possibility of induction of a Centre from Italy to the Network. In response, His Excellency shared a possibility of two Italian institutions' nominations for inclusion in the Network: Further, the Ambassador noted Disaster Management and Maritime Pollution as other areas in which Italy could assist COMSATS member countries.

H.E. Mr. Kjell-Gunnar Eriksen, Ambassador of Norway to Pakistan (22nd October 2018)

The Honourable Ambassador was accompanied by Director (Development Cooperation) of his Embassy. The Ambassador was apprised about COMSATS' programmes and activities.





He stated that COMSATS and Norway can cooperate in various domains, such as capacity building and training of scientific workforce, launching projects in contemporary S&T areas, technical institute building as well as other joint ventures tailored for science-led socio-economic development. The Ambassador was apprised that Norwegian Government is already collaborating with COMSATS University Islamabad (CUI) and has signed a Memorandum of Understanding (MoU) with the University's Abbottabad Campus.

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

The Ambassador of Germany was accompanied by Ms. Christine Rosenberger, First Secretary and Ms. Veronique Wagner, Political, Press and Communication Counsellor at Embassy of Germany in Islamabad. During the meeting, 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. 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. Mr. 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.

Mr. Michal Bobak, Economic Counsellor, of Czech Republic to Pakistan (11th December 2018)

Mr. Bobak expressed keen interest in bilateral cooperation between Czech Republic and Pakistan as well as other Member Countries, especially in the areas of Education and Health. He suggested cooperation between CUI / Pakistani Universities with the Universities of Czech Republic from the platform of COMSATS

especially in the areas of Mathematics and Physics. In this connection, possibilities of faculty / student exchange were discussed. The Executive Director COMSATS invited the delegation comprising of senior professors of Czech Republic' Universities to Pakistan in order to explore opportunities of faculty exchange, scholarships and joint research and development activities. He also highlighted the emerging initiatives of COMSATS i.e. establishment of COMSATS Centre for Climate and Sustainability (CCCS), efforts for establishing Universities and R&D Centres in various Member States and expansion of Tele-health programs.

Mr. Bobak solicited COMSATS' assistance in the areas of Climate Change and the preservation of water resources. He was informed about the forthcoming workshop on 'Water Resources: Expected Crises and Strategies of Predomination', to be held at National Research Centre, Egypt. It was agreed that the Embassy of Czech Republic would facilitate the circulation of information regarding COMSATS activities in related organizations / universities in the country.

3. COLLABORATIONS WITH NATIONAL AND INTERNATIONAL ORGANIZATIONS

• American Institute of Pakistan Studies (AIPS)	22
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Collaborations with National and International Organizations

COMSATS has been endeavouring to expand its cohort of national and international partners to foster broader and more effective collaborations in Science and Technology and launch new programmes and activities with its Centres of Excellence for sustainable socio-economic development of the Member States. These partnerships aim to complement the programmes of COMSATS focusing on capacity-building of S&T community in developing countries.



American Institute of Pakistan Studies (AIPS)

A Memorandum of Understanding (MoU) was signed between COMSATS and the American Institute of Pakistan Studies (AIPS) on 4th January 2018, in order to promote cooperation between the two organizations for enhancing research and capacity building activities. Dr. S. M. Junaid Zaidi, Executive Director COMSATS, and Dr. Farhat Haq, President

AIPS signed the Agreement on behalf of their respective organizations, during a ceremony held at COMSATS Secretariat, Islamabad. The agreement was reached through cooperation between COMSATS and Institute of Peace and Diplomatic Studies (IPD).

The guiding principle of the MoU is to support cooperation in higher education and research, faculty training by foreign scholars, academic placements of

faculty, sharing information and the use of resources for COMSATS' member countries and AIPS affiliated centers. Under this MoU, both the organizations have agreed to jointly organize trainings and workshops by US academics for scholars and researchers, co-organize series of academic talks and seminars by visiting US researchers and undertake programmes in areas of mutual interest.

Department for International Development (DFID)

In line with COMSATS' efforts to expand the scope of its programmes and international collaboration, the Executive Director COMSATS, Dr. S. M. Junaid Zaidi invited Ms. Joanna Reid, Head of Department for International Development (DFID) Pakistan, British High Commission to visit COMSATS' Secretariat. The meeting held on 7th February 2018 was successful in breaking ground for joint cooperative ventures.

During the meeting, both sides gave





briefing on their respective organizations wherein Ms. Reid informed that the DFID offers three groups of programmes in Pakistan having a focus on health, education, and nutrition; humanitarian work; and economic growth. She mentioned that the DFID has been engaged in humanitarian work in Pakistan in collaboration with the disaster management authority and provincial agencies. Ms. Reid also noted that the DFID is interested in collaborative projects related to economic growth in Pakistan, and opined that technology for sustainable development is of interest to every country.

Dr. Zaidi sought Ms. Reid's advice for initiating work in the COMSATS' latest member, Somalia, which is keenly interested in telemedicine. He mentioned that DFID and COMSATS could collaborate in projects like development

of entrepreneurship and SMEs, and could jointly work in areas of health, food security, climate change and SDGs. Further, Dr. Zaidi offered human resource to DFID for its disaster management programmes.

Pacific Island Development Forum (PIDF)

On 12th March 2018, COMSATS signed an MoU with the Pacific Islands Development Forum (PIDF) in Islamabad. The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, and the Secretary General PIDF, Mr. Francois Martel, signed the agreement on behalf of their organizations. The MoU was signed among a gathering of diplomats of COMSATS' member countries, Vice Chancellors of local Science and Technology Universities, representatives

of various government officials and representatives of international organizations actively working in Pakistan.

According to the agreement, both the organizations will collaborate to promote Science, Technology and Innovation (ST&I) to meet the 2030 Agenda for Sustainable Development.

The World Academy of Sciences (TWAS)

During 2018, the collaboration between COMSATS and The World Academy of Sciences (TWAS) that was established in 2015 further rejuvenated through a visit paid by a ten-member delegation of COMSATS. The visit made from 11th to 17th March 2018, was successful in exchange of information and best practices.



The visit included a week-long interactive training at The World Academy of Sciences (TWAS) during which, following officials made interactive presentations on the TWAS operations: Max Paoli – TWAS Programme Coordinator; Cristina Simoes & Sara Dalafi – TWAS Fellowships Office; Payal Patel – TWAS Research Grants Office; Antonella Mastrolia – TWAS Prizes Office; Edward Lempinen – Public Information Officer; and Ophelia Stephenson-Odle



– Finance & Administration Officer. These presentations touched upon a number of operations of TWAS, including Fellowships, Exchanges, Research Grants, Prizes, Information and Communications, Finance and Administration and Science Diplomacy.

Further, the officials visited the Abdus Salam International Centre for Theoretical Physics (ICTP), Organization for Women in Science for the Developing World (OWSD), The InterAcademy Partnerships (IAP), and International Centre for Genetic Engineering and Biotechnology (ICGEB). At ICTP, COMSATS' officials received a presentation by Prof. Sandro Scandolo, Head Scientific Programmes and

Outreach, ICTP. Presentations by OWSD and IAP were given by Tonya Blowers – OWSD Coordinator, and Peter McGrath – IAP Coordinator, respectively.

At ICGEB, Dr. Lawrence Bank, Scientific Coordinator, and his colleagues held a detailed meeting with COMSATS' officials on earlier collaborations and future prospects in this regard.

The Scientific and Technological Research Council of Turkey (TÜBİTAK)

With a view to learn from the best practices as well as cement cooperation, a

delegation comprising senior officials of COMSATS visited COMSATS' Centre of Excellence in Turkey, TÜBİTAK Marmara Research Centre (MAM) from March 22nd – 23rd March 2018.

The Vice President TÜBİTAK MAM, Prof. Dr. Murat Makaraci and his team gave a briefing to the delegation on the Centre and its departments. A visit to the Genetic Engineering and Biotechnology Institute and the Technology Park (MARTEK) within the same premises was also arranged and the delegation was also shown some applications and products developed by TÜBİTAK MAM in food, chemical, defense and energy. Visits to the various facilities available with the TÜBİTAK's R&D institutes were also arranged, which included a close look at sophisticated instruments, and lab equipment, as well as interactions with the scientists and researchers working there. The delegates also learnt about the contribution of MAM in Turkey's national development in this regard.

Later on, Dr. Kamran Jahangir, Advisor (TAC), COMSATS Secretariat, paid a visit to TÜBİTAK from 19th September – 8th October 2018. During the visit, meetings were held with the Executive Vice President of TÜBİTAK, Dr. Orkun Hasekioğlu; President of MAM, Prof. İbrahim Kiliçaslan; and Vice President





in Charge of Strategy and Technology Development of MAM, Dr. Murat Makaraci.

In the above-mentioned meetings, it was pledged that TÜBİTAK shall support Government of Pakistan in its initiatives by offering resources and services available with the Council; and short-term summer trainings shall be offered by TÜBİTAK MAM to scientists/ researchers belonging to COMSATS' member states. Further, in the meeting held at Turkish Management Sciences Institute (TUSSIDE), common grounds for cooperation were explored.

Dr. Jahangir also held meetings at Gebze Technical University, Gebze, and Mardin Artuklu University, Mardin with a view to build bilateral cooperation for exchange of technical and human resources for the benefit of COMSATS' member states.

Islamic Educational, Scientific and Cultural Organization (ISESCO)

Under the umbrella of an MoU signed between COMSATS and Islamic Educational, Scientific and Cultural Organization (ISESCO) in 2004, the two organizations are collaborating with a view to build the indigenous capacities of scientific communities, belonging to their member countries, in different fields of S&T. To date, the two organizations have jointly organized 54 capacity building events in those fields of science and technology, which are most relevant to the Sustainable Development Goals (SDGs). In the past, the two organizations have also supported joint research projects and brought out joint publications.



During the reporting period, the collaboration between the two organizations was revived through signing of a Joint Cooperation Agreement on 13th April 2018 in Islamabad. Under the Agreement signed by the Executive Director COMSATS and Director General ISESCO, following two capacity building events were jointly organized (details covered in section 5):

- The 4th International Conference on Agriculture, Food Security and Biotechnology (13th – 14th November 2018, Rabat, Morocco)
- The 8th International Workshop on 'Internet Security: Enhancing Information Exchange Safeguards' (23rd – 27th December 2018, Doha, Qatar)

So far, around 660 researchers, scientists, engineers, technicians and industry professionals have benefitted from the proceedings of these events.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

COMSATS established strong working relations with United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) through signing an MoU on 20th December 2017. During the reporting period, this collaboration was



advanced through bilateral exchanges in order to promote Science, Technology and Innovation (STI) for sustainable development of the developing region.

On 20th April 2018, Dr. Laura Altinger, Regional Advisor on Climate Change, UNESCAP, visited COMSATS Secretariat and held a meeting with the Executive Director COMSATS, Dr. S. M. Junaid Zaidi, and his team including, Ambassador (R) Shahid Kamal, Head/Advisor, Centre for Climate Research and Development (CCRD); Ambassador (R) Fauzia Nasreen, Advisor (SDGs); Dr. Kamran Jahangir, Advisor (Technical Advisory Committee); Ms. Huma Balouch, Sr. Assistant Director (Programmes); and Ms. Mehwish Durrani, Sr. Program Officer.

The meeting sought to explore the possible collaboration with UNESCAP especially in the field of Climate Sciences and to discuss a roadmap to ensure the establishment of a Climate Change center. Joint inter-sectoral and interregional project proposals in the field of Climate Change, ensuring reciprocal representation of both organizations at their respective statutory bodies meetings; and UNESCAP's support to enhance COMSATS' membership drive are among several potential areas for cooperation between COMSATS and UNESCAP which were subsequently discussed.

Further discussions focused on the development of initiatives that would help

to build resilience and provide support and funding for adaptation activities for scaling up the Climate Adaptation and Mitigation Programme in common member countries of COMSATS and UNESCAP through the Green Climate Fund (GCF).

Furthering this collaboration, COMSATS delegation led by Ambassador Fauzia Nasreen, Advisor (SDGs) attended the 74th Session of UNESCAP on the theme of "Inequality in the Era of the 2030 Agenda for Sustainable Development" in May 2018 (details given in section 6).

Later on 21st June 2018, the Senior Coordinator of Asia and Pacific Center for Development of Disaster Information Management (APDIM), UNESCAP, Mr. Mostafa Mohaghegh, along with Mr. Aamir Qayum, Project Officer, National Disaster Management Authority (NDMA), Pakistan, visited COMSATS Secretariat, Islamabad with a view to enhance bilateral cooperation in areas of common interest, particularly in the field of Climate Change.

During the meeting, Mr. Mohaghegh informed that APDIM has a governing council comprising of nine members, and the Government of Pakistan is very active member of the council. He added that the Center, which is operating from Tehran, is providing opportunities for collaboration among countries in the Asia and Pacific region. He also invited COMSATS to be a part of this regional information platform.

While discussing prospective cooperation, Ambassador (R) Fauzia Nasreen proposed that COMSATS and UNESCAP should join hands for conducting activities that may have the objective to build capacity in its member countries to deal with climate change. UNESCAP and COMSATS' officials agreed to collaborate for facilitating their common member countries in making best use of available resources and platforms to meet their knowledge and capacity needs; assessed success stories, trends, needs, and gaps in knowledge and capacity for advancing sustainable development.

Down the line, the Executive Director COMSATS participated as a Panelist in Regional Consultation on South-South Cooperation in Asia and the Pacific: Towards the Buenos Aires Plan of Action 40th Anniversary, held by UNESCAP and United Nations Office for South-South Cooperation (UNOSSC) in June 2018 (details covered in section 6).

The European Union (EU)

The collaboration with EU continued as a part of COMSATS' strategy to expand the horizons of its undertakings towards North so as to foster North-South Cooperation for achieving excellence in various dimensions of S&T. The cooperation with EU resulted in an awareness seminar, organized to educate the academia and research community on various aspects of applying for the funding



under Horizon2020, the details of which are given in section 5.

Commonwealth Secretariat

During 2018, COMSATS endeavored to build ties with the Commonwealth of Nations with a view to receive its patronage for Commission's undertakings concerning Sustainable Development Goals (SDGs). In line with this, the Executive Director COMSATS, Dr. S.M. Junaid Zaidi, visited Commonwealth Secretariat on 22nd May 2018, to hold a meeting with the sixth Commonwealth Secretary General, Rtd. Hon Patricia Scotland QC. Also present during the meeting were the Assistant Secretary General of Commonwealth, Dr. Nabeel Goheer, and other Commonwealth officials.

Discussions regarding potential opportunities of collaboration between COMSATS and the Commonwealth in areas including Climate Change, Sustainable Development Goals (SDGs), and the Commonwealth Innovation Hub were made during the meeting. Dr. Zaidi endorsed the ideas presented by Ms. Patricia for collaboration in the areas highlighted by the Secretary General, and expressed willingness of COMSATS to take further action for implementation. She also mentioned that such potential



collaborations would help develop synergies in areas of interest and enhance the strength and impact of joint activities.

The bilateral exchanges resulted in the accreditation of COMSATS to Commonwealth on 26th June 2018. The accreditation provides formal recognition of the organization becoming a part of a large network of accredited civil society and professional organizations associated with the Commonwealth. Under the aegis of this association, some of the priority areas where COMSATS and the Commonwealth could work hand in hand include Science, Technology and

Innovation, Sustainable Development and Climate Change. COMSATS' member countries and Centres of Excellence (COEs) can greatly benefit through collaborations in the form of research and development projects within the network of Commonwealth's accredited organizations.

The Secretary General Commonwealth Secretariat, Patricia Scotland, warmly welcomed COMSATS as an accredited organization of Commonwealth Secretariat during a Dialogue with Accredited Organisations, held at Marlborough House, London on July 31, 2018. Speaking to the large gathering at the Dialogue, Dr. S. M. Junaid Zaidi, Executive Director COMSATS, stated that COMSATS had joined the Commonwealth at the right time with the new Innovation Hub. He hoped to work together on this initiative and looked forward to positive engagement with the Secretariat and other Commonwealth organisations.

South Center

COMSATS inked an MoU with the South Centre on 3rd September 2018. The Executive Directors of the two organizations, Dr. S.M. Junaid Zaidi and Dr. Carlos Correa, signed the Agreement, respectively. Under this Agreement, COMSATS and South Centre will





collaborate to advance South-South and Triangular Cooperation through various regional and cross-regional cooperation initiatives, and exchange of information and technical resources among their common member states.

Furthermore, through this MoU, both parties have agreed in principle to launch and execute joint cooperative schemes and programmes in areas such as education and training, STI, policy development, climate change, and sustainable development.

United Nations Office for South-South Cooperation (UNOSSC)

COMSATS is in close cooperation with the United Nations Office for South-South Cooperation (UNOSSC). The Executive Director COMSATS participated as a Panelist in Regional Consultation on South-South Cooperation in Asia and the Pacific: Towards the Buenos Aires Plan of Action 40th Anniversary, held by UNESCAP and UNOSSC held during June

2018 (details covered in section 6).

On 18th October 2018, a delegation of COMSATS visited UNOSSC and held meetings with the senior officials of the Organization in order to explore common grounds of cooperation in the fields of mutual interest including climate change and sustainable development. As a part of this collaboration, a dedicated page for COMSATS (www.unsouthsouth.org/comsats/) has been established on UNOSSC web-portal so as to promote, coordinate and project South-South and Triangular cooperation globally and within the United Nations system. The web portal is a means to showcase the work of COMSATS to the international community and disseminate information on the organization's activities in promoting South-South and Triangular Cooperation.

To further reinforce the collaboration, COMSATS inked an MoU with UNOSSC on 30th November 2018. The MoU formalized cooperation for promoting science-led sustainable development in twenty-seven (27) member states of COMSATS 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 States (UN-OHRLS); and UNOSSC at the 10th Global South-South Development (GSSD) Expo, United Nations Headquarters, New York, USA.

Besides, COMSATS is facilitating UNOSSC in formulating its second series of "Good Practices in South-South and Triangular Cooperation for Sustainable Development" and in formulating its flagship report series entitled "South-South in Action" (SSiA).

Pakistan Allergy, Asthma and Immunology Society (PAAIS)

Cognizant of the growing effects of climate change and air pollution on the general health and well-being of communities being served by COMSATS Tele-health, COMSATS inked an MoU with Pakistan Allergy, Asthma and Immunology Society (PAAIS). The MoU, signed on 1st November 2018 by Executive Director COMSATS and President PAAIS, aims to serve Pakistani rural population in effective treatment of allergic conditions. To serve this purpose, tele-health would be used as a tool; and patients' pre-assessment for allergen immunotherapy as well as follow-up to assess treatment response and side effects will be carried out.

Under this Agreement, free online allergy camps for patients will also be organized and health professionals associated with the clinics will be trained through online





allergy schools. Both sides have 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.

Welthungerhilfe (WHH)

In order to establish working relations with various agencies working in areas holding significance with respect to sustainable development, a meeting was held between officials of COMSATS and Welthungerhilfe (WHH) 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.

During the meeting, 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 (CUI) 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.

Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC)

In 2018, COMSATS and SESRIC revived their commitment to promote scientific activities in the areas of mutual interest for the socio-economic development of common member states through signing an MoU 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. The MoU paves way for the two organizations to enhance collaboration in view of the earlier association for various cooperation initiatives as well as exchange of information and technical resources among their common member states.

Moreover, SESRIC maintained its usual presence in COMSATS' statutory meetings through its representatives. Dr. Atilla Karaman, Researcher at Data and Information Management Unit, Statistics and Information Department of SESRIC, represented SESRIC in the 21st Meeting of COMSATS' Coordinating Council held from 3th – 4th April 2018 in Almaty, Kazakhstan (details in section 1).





4. EFFORTS FOR SUSTAINABLE DEVELOPMENT GOALS

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|----------------------------------------------------------------------------------------------------------------------------|----|
| • Seminar on “Sustainable Development Goals: The Role of Universities”, Islamabad, Pakistan (9 th July 2018) | 32 |
| • Seminar on “SDGs Implementation: Collaboration among Universities”, Islamabad, Pakistan (12 th December 2018) | 37 |
| • Talk on “Implementation Status of SDGs in Pakistan”, COMSATS Secretariat (7 th November 2018) | 39 |

EFFORTS FOR SUSTAINABLE DEVELOPMENT GOALS

By virtue of its mandate, COMSATS' operations align well with global agenda like MDGs and, since 2015, the SDGs. Of late, attempts are being made to further tailor COMSATS' plans and activities for the accomplishment of goals and targets relevant to its mandate. An advocacy role in this regard, has also been adopted to help mainstream the SDGs for national and regional development.



During the reporting period, COMSATS organized two international seminars in relevance with SDGs with a view to engage public and private sectors, universities and academia, research and development institutions and more importantly youth for fostering the 2030 Global Development Agenda. The details of these seminars are covered in the following sections.

Seminar on “Sustainable Development Goals: The Role of Universities”, Islamabad, Pakistan (9th July 2018)

In line with the fact that education

and research could serve as potent means not only for the promotion and advocacy of SDGs but also for their successful implementation, COMSATS in collaboration with the Higher Education Commission (HEC) of Pakistan, organized a seminar 9th July 2018, to facilitate the understanding and response of the academic and research community to the opportunities and challenges in localization of 2030 Global Agenda.

The Vice Chancellors and other senior officials from around a 100 universities from all over Pakistan gathered at the event which was successful in generating

a much needed momentum for devising action plans to streamline education and research with SDGs. The proceedings of the event were also live streamed for the benefit of COMSATS' member countries and the Network of Centres of Excellence.

Inaugural Session

The Executive Director COMSATS, Dr. S. M. Junaid Zaidi, in his inaugural address, highlighted the importance of UN 2030 agenda for sustainable development across the globe and declared universities as important instruments for cultivating innovative practices and achieving





Sustainable Development Goals (SDGs). He stated that the development needs of the countries of the South make it imperative to create awareness about the social challenges. COMSATS has filled the void in so far as inter-linkage between sustainable development and science and technology (Science for SDGs) by establishing networks and Centres of Excellence such as CUI and some others in its member countries.

In his opening remarks, Mr. Tariq Banuri, Chairperson HEC, noted that the UN was cognizant that social vulnerabilities could easily transcend into security threats. This conviction led to a comprehensive approach to development in the shape of MDGs followed by SDGs. He urged all stakeholders to cooperate for development and implored upon the Vice Chancellors to align the degree programmes being offered at the universities with SDGs.

In his remarks, Mr. Neil Buhne, UN Resident Coordinator stressed upon the need to ameliorate the quality of education in universities and suggested modeling students in marketing, research and development. This could ensure, he added,

utilizing and channeling the ideas and use them for the benefit of the society.

Technical Sessions

The technical proceedings of the seminar were divided into the following three sessions:

Technical Session I – Promotion and Advocacy for SDGs

The session was chaired by Prof. Dr. John Thwaites, Chair of Sustainable Development Solutions Network (SDSN) Australia/Pacific, and Monash Sustainable Development Institute (MSDI), through video conferencing and featured keynote talks of Dr. Sania Nishtar, President Heartfile, Pakistan; Mr. Shoaib Sultan Khan, Chairperson Rural Support Programmes Network, Islamabad; Mr. Shoaib Ahmed Siddiqui, Ministry of Planning Development and Reforms, Pakistan; and Prof. Dr. Muhammad Abdul Aziz Irfan Mufti, Dean Faculty of Mechanical and Industrial Engineering (UET), Peshawar.

In his keynote address, Prof. Dr. Thwaites

mentioned that SDGs were built keeping in view the problems associated with the MDGs which were succinctly addressed in SDGs. He opined that universities can play a key role in the implementation of SDGs by engaging in training and support in operations; active research in understanding the key to challenges; mobilization of young people in bringing entrepreneurship; encouraging innovations; supporting interdisciplinary research and collaboration between institutions, private sectors and government; capacity building and public guidance; and assisting in data collection and assessment.

Dr. Sania Nishtar presented a monologue on SDGs and underlined the salient factors leading to the need for SDGs. She highlighted the relevance of SDGs for national development of countries by using comparative advantage and advocated the need for reforms at institutional level to achieve the desired results for SDGs.

In his talk, Mr. Shoaib Sultan Khan apart from emphasizing the need to make best use of indigenous resources for achieving the SDGs, acknowledged the





role of academic institutions in solving developmental challenges and advised creating linkages between universities and private sector; sharing ideas and making joint efforts for solving community problems.

Mr. Shoaib Ahmed Siddiqui expressed that the government is resolute about the 2030 Global Agenda as evident from its adoption in various plans and programmes. He added that through horizontal and vertical administrative

measures, the Agenda is being treated as national goals of Pakistan. He further stated that the Ministry for Planning, Development and Reforms needed to serve as a knowledge hub. In his keynote talk, Prof. Dr. Muhammad Abdul Aziz Irfan Mufti, stressed upon the need to advocate free and critical thinking within the students. He suggested that awareness should be created by making SDGs part of curriculum.

Technical Session II – SDGs Implementation: Perspectives on Education, Research & Development

Dr. Max Paoli, Programme Coordinator, TWAS, Italy, chaired the second session which featured keynote talks of Dr. Abid Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad; Dr. Asma Hyder, Member Social Sector, Planning Commission, Government of Pakistan; Mr. Ali Tauqeer Sheikh, Chief Executive of Leadership for

Some Views and Thoughts of the Speakers



“... education and research institutions must engage with people... to convey key messages and promote work towards sustainable solutions... the support of Science and Technology is particularly beneficial for developing countries to grow in the best possible way, following models of responsible growth guided by sustainability science... the gap between scientists and policy makers must be bridged...”

– Dr. Max Paoli, Programme Coordinator, The World Academy of Sciences (TWAS), Italy



“.....rather than adding new issues or distracting from things that are being done, SDGs try to package global development thinking around a set of key priority goals. This is also true in the area of science and technology innovation. In that sense, I think academia, including in Pakistan, is well positioned to respond to the SDGs through science and technology innovation, even where it may not think that it is doing so knowingly.”

– Dr. Adil Najam, Dean, Frederick S. Pardee School of Global Studies, Boston University, USA



“The UN Sustainable Development Solutions Network (SDSN) is a good way to foster university linkages within the framework of North South cooperation. There are now over 700 universities and knowledge institutions from all parts of the world those are part of the SDSN. Sustainable development and the SDGs will not be achieved without the active collaboration and involvement of universities working together.”

– Prof. John Thwaites, Chair of ClimateWorks Australia and the Monash Sustainability Institute, Australia



“UNESCO chair is a huge honour for Pakistan and is recognition of our work in using technology to solve problems of the developing world, including access to education, better healthcare, technology-enabled agriculture practices, rural Internet connectivity and digital financial inclusion.”

– Dr. Umar Saif, Vice Chancellor Information Technology University, Lahore



“To have sustainable rural communities the first need is to empower them by organizing them and fostering their institutions at various levels, such as, household groups, village and union council. Individually, the vulnerable rural poor can neither access public services and supplies nor have a voice to influence administrative and political pillars of state.”

– Mr. Shoaib Sultan Khan, Chairperson Rural Support Programmes Network



Environment and Development (LEAD), Pakistan; Dr Javed Ashraf, Vice Chancellor, Quaid-e-Azam University, Islamabad; and Dr. Khalid Riaz, Dean Management Sciences, COMSATS University Islamabad (CUI).

In his keynote talk, Dr. Max Paoli strongly endorsed the need for bridging the gap between the scientist and the policy

makers. Dr. Paoli also urged COMSATS to take the lead, in collaboration with UNESCO, to coordinate the Education 2030 agenda by undertaking advocacy to sustain political commitment, facilitating policy dialogue, knowledge sharing and standard setting, convening global, regional and national stakeholders discourse to guide implementation of the agenda, and COMSATS functioning as a focal point for education within the overall SDG coordination architecture in the member countries.

In his featured talk, Dr. Abid Suleri commented that lack of quality research and national agenda for SDGs implementation is a challenge for academic institutions. He stressed that changing the mindset and outreach within the researcher community for collaborations need to be strictly embraced by the university faculty and researchers as universities have role in the planning and implementation regarding the SDGs.

In her key note address, Dr. Asma Hyder elucidated the cross-cutting nature of the Sustainable Development Goals (SDGs), which require integrated policy approaches. Mr. Ali Tauqeer Sheikh opined that the wide gap and weak connection between the universities and policy makers need to be addressed for the localization of SDGs within the country.

The Vice Chancellor of Quaid-e-Azam University, Prof. Dr. Javaid Ashraf underscored the need to overcome intolerance and resistance to embrace diversity and to achieve economic prosperity and attainment of SDGs in the country. Dr. Khalid Riaz suggested that universities as the creators of knowledge must engage in data integration and

building collaboration and serve as hubs of innovation to support and host businesses that provide technologies and services for sustainable development.

Technical Session III – Frontier Technologies: Scientific Institutions driving Innovations

The last technical session was presided over by Dr. Adil Najam, Dean Pardee School of Global Studies, Boston University, Massachusetts. In his keynote address, Dr. Najam recommended tackling the great global challenges through multi-disciplinary approach owing to their “global” nature. He was of the view that comprehensive approach combining all these goals can initiate the process of SDGs implementation. Dr. Najam stated that interdisciplinary research centers should be established in Pakistan as instruments for finding solutions to societal problems.

Dr. Umar Saif, Vice Chancellor of Information Technology University (ITU) and UNESCO Chair for ICTD presented innovation driven projects launched by Punjab Information Technology Board (PITB) for sustainable agriculture and healthcare.

The next panelist, Prof. Dr. Fazal Ahmed Khalid, Vice Chancellor UET Lahore, considered technology an important and essential means for achieving progress. In his talk, Prof. Masoom Yasinzai, Rector of International Islamic University Islamabad (IIUI), Islamabad, suggested that relevant PhD degree holders in Pakistan certified for independent research should join hands with think tanks, international organizations and NGOs to bring a positive change in the society. Furthermore, there is a need to identify





priority research areas for teachers and students aligned with SDGs as well as for the researchers to acquire new skills in terms of their work.

Dr. Orkun Hasekioglu, Vice President, Scientific and Technological Research Council of Turkey (TUBITAK), Turkey, who joined through video conferencing, highlighted the importance of High- Level Panel on Technology Bank for Least Developed Countries located in Turkey. He noted how the technology bank is not only the achievement of an important target of SDGs but is also an important platform for developing world striving to achieve more goals and targets.

A success story of an innovative entrepreneur, Ms. Sadia Bashir, CEO and Founder, PixelArt Games Academy

(PGA) was also presented during the event for showing practical application of innovation at grass-root level.

Closing Session

The event was closed by Dr. Arshad Ali, Executive Director of HEC. In his vote of thanks, he appreciated the presence of the academic community, policy makers and relevant quarters on an important forum of global importance. Thanking COMSATS, he hoped that each participating university would take the process forward by creating their own agenda in line with the relevant SDGs.

Recommendations

Some key recommendations of the event are as follows:

- To achieve SDGs and other relevant global initiatives, it will be useful for academia to familiarize the future policy makers and influencers to be aware of the concept and its dimensions.
- The research activities at the universities should be better aligned to the sustainable development agenda and their results should help cater to relevant public policy needs in order to facilitate industrial and economic development.
- The campus operations at the universities should cater to the needs of sustainability, i.e., conservation of energy, water, paper, material, etc. Proper waste management and good quality of food should be ensured to practically demonstrate the needs for sustainability.





- Universities are encouraged to organize more workshops and joint projects to implement SDGs, through North-South Cooperation, and may increase the number of thematic research grants exclusively for topics related to SDGs.
- The universities and think tanks should complement each other's efforts in order to make policy recommendations relevant to SDGs.
- The government should pave way for incubation of ideas and convert data into learning. Data analysis and goal-wise availability of data as tool for accountability and policy initiatives should be ensured.
- The incentive structure at the universities should be made relevant to the efforts for achieving SDGs.
- Big role needs to be played by the HEC in research relating to SDGs. Purpose-based research should be promoted rather than emphasis on contributions to high impact factor journals.



Seminar on “SDGs Implementation: Collaboration among Universities”, Islamabad, Pakistan (12th December 2018)

The seminar on “SDGs: The Role of the Universities” was followed up by another focused seminar on “SDGs Implementation: The Collaboration among Universities”, held 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).

Inaugural Session

The inaugural ceremony was attended by a number of participants from academia and diplomatic community of Pakistan.

Speaking at the inaugural, the Executive Director COMSATS Dr. S. M. Junaid Zaidi, 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. Neil Buhne opined that universities can provide a good conduit between private sector and the educated youth of Pakistan for helping in achieving the SDGs. He also highlighted some specific goals such as those related to climate change and peace and justice as the key SDGs that unequivocally uphold the right to education. He was of the view that access to education unleashes the potential of the people thereby making achievement of SDGs possible.

His Excellency Sardar Masood Khan, President 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 and lauded Dr. Zaidi's role in establishing COMSATS University Islamabad (CUI). He further stressed the importance of education as a cross cutting agenda applicable across the country and as a trust inextricably linked





to the 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.

Technical Sessions

The technical proceedings of the event were divided into two technical sessions which were moderated by Dr. Aneel Salman, Head of Department of Management Sciences of COMSATS University Islamabad.

Technical Session I

This session included presentations by Mr. Ali Kemal, Economic Policy Advisor, SDGs Support Unit), Ministry of Planning, Development and Reform; Dr. Faisal Ahmed Khan, Pro-Vice Chancellor, Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS), Quetta; and a Video Message by Dr. Azimzhan Khitakhunov, Economics Department, Higher School of Economics and Business, Al-Farabi Kazakh National University, Almaty, Kazakhstan.

In his presentation, Mr. Ali Kemal noted that Pakistan being the first country to endorse the 2030 Agenda for Sustainable Development has duly incorporated it into the country's national development agenda. He stated that actualization of SDGs involves district level awareness

campaigns, local government training programmes, as well as orientation programmes for the stakeholders.

Further, Mr. Kemal informed that a Voluntary National Review (VNR) on the theme "Empowering People and Ensuring Inclusiveness and Equality" will be submitted to the United Nations by the Government of Pakistan in the second quarter of year 2019. VNR compiled on the basis of provincial consultation and the available data aims to facilitate sharing of experiences including successes, challenges and lessons learned during the reporting period.

Dr. Faisal Ahmed Khan 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. Besides, he envisaged building a Consortium in support of SDG8 in partnership with other universities and international organizations.

In his video message, Dr. Azimzhan Khitakhunov stated that institutions must address the challenges of the digital revolution and play an important role in contributing towards the innovation eco-system in the societies through fostering entrepreneurship; encouraging collaboration with the private sector including leading companies, foundations and research-intensive institutions; promoting diversity and inclusion, and exploring the nexus of technology and





society. He mentioned that Al-Farabi Kazakh National University (KazNU) has put in place a strategy that gradually addresses all goals for the implementation of the SDGs. He stressed that in order to successfully implement the goals, universities need to become champions of sustainable development and play a leading role in the implementation of the SDGs.

Technical Session II

A brainstorming exercise was held during the second session wherein representatives from different varsities of Pakistan registered the activities undertaken by their respective institutions for the promotion and advocacy of SDGs.

The clusters of universities formed on each of the seventeen SDGs apprised the various measures taken at different levels for the implementation of SDGs including strengthening research on Sustainable Development issues; tackling social inequality; increasing

employment opportunities for the youth; empowering women; providing quality education to all at every level; waste and flood management; promoting the use of renewable energy; encouraging creativity and innovation; building and enhancing international cooperation; and promoting gender parity, among others. Besides, participants also deliberated on the possible strategies and actions to streamline their initiatives with United Nations 2030 Global Agenda.

Closing Session

The event concluded with a note of thanks from Dr. Zaidi and distribution of souvenirs among distinguished speakers.

Talk on “Implementation Status of SDGs in Pakistan”, COMSATS Secretariat (7th November 2018)

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



5. SCIENCE AND TECHNOLOGY EVENTS ORGANISED

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Science and Technology Events Organised

Capacity-building activities make a prominent part of COMSATS' programmes aimed at South-South Cooperation. The organization has been organizing scientific events in areas of crucial importance to Member States. These result in strengthening scientific linkages; build indigenous capacities; and promote S&T as a tool for development. These events provide a useful platform to the members of the scientific community, development experts, donor and development agencies, and the decision-makers to share their views and experiences on contemporary issues of importance for S&T-led socio-economic development.



COMSATS-EU Awareness Seminar on Horizon2020, Islamabad, Pakistan (7th May 2018)

COMSATS in collaboration with the Service Facility Wing of the European Union organized an awareness seminar on European Union's Horizon 2020, in Islamabad, on 7th May 2018. The purpose of the seminar was to educate the academia and research organizations on various aspects of applying for the funding under Horizon 2020, which is one of the biggest EU research and innovation programme. The said programme, worth €80 Billion, is available till the year 2020 and caters to following key areas: excellent science, industrial leadership, and societal challenges.

The Seminar was attended by a number of vice chancellors and researchers, considering improving chances of benefitting from good funding opportunities. Some representatives of foreign missions in Pakistan were also present on the occasion. The event proceedings were made available through live-streaming to a wider audience, including COMSATS Ministerial focal points, Centres of Excellence, and partner organizations in different continents.

During the seminar, a Technology Transfer Consultant, Mr. George Panagopoulos, from PRAXI Network, Greece, provided training on three thematic aspects pertaining H2020. These covered an introduction to the programme and work plan for the last two years; sources of information on the programmes and

documentation needs; and ways to prepare and submit proposals best suited to qualify for the funding. He underscored the available funding opportunities in the fields of transport, energy, environment, biotechnology, nanotechnology, defense, agriculture, forestry, and social sciences.

The participants of the event took home great encouragement in the form of success stories from Pakistan. Two Pakistani researchers, Prof. Dr. Syed Habib Bukhari and Dr. Amina Khan shared their experiences that helped them secure funding for their projects under the programme. Dr. Bukhari and Dr. Khan had won funding for their projects on "MeTABLE-Advanced Bioinformatics for Genome and Metagenome and Discovery of Novel Biocatalyst from Extremophiles: Implications for Improving Industrial



“COMSATS has been able to establish cordial working relations with organizations from the North including the European Commission. Developing countries are especially in need of good research and should benefit fully from programmes such as H2020”.

Executive Director COMSATS
Dr. S. M. Junaid Zaidi



“H2020 is very useful for researchers and scientists across the globe. COMSATS’ efforts for disseminating important information on the programme are laudable. Programmes such as Erasmus+ and H2020 are an important link between the EU and developing countries.”

Deputy Head of Mission, Delegation of the European Union to Pakistan
Ms. Anne Marchal

Processes” and “Tobacco cessation within TB programmes: A ‘real world’ solution for countries with dual burden of disease”, respectively.

Dr. Bukhari remarked that policy makers should collaborate with students, researchers and technical experts to help maximize the benefits of such funding opportunities for national development. It was noted by Dr. Khan that good track record in one’s area of research is of utmost importance for securing funding under H2020.



Discussion and Q&A sessions of the event further complemented the training imparted during the seminar. These pertained to: national focal points for H2020, available sources of information, capacity-building aspects of the projects, joint venturing between universities, possibilities for social science related projects, important timelines, ICTs in agriculture, inter-disciplinarity of the projects and intellectual property.



Knowledge-Sharing Seminar on e-Health, Islamabad, Pakistan (5th October 2018)

COMSATS Tele-Health participated in the International Health Expo that was organized by Mass Comm Solutions at Pak-China Friendship Centre from 5th – 7th October 2018. The event gathered healthcare stakeholders at one platform with the purpose to provide edutainment, networking, investment, and knowledge sharing opportunities. COMSATS’ participation included a tele-consultation desk for live consultations from the Basic Health Units (BHUs) located in far flung areas and a knowledge sharing seminar.

The Expo was inaugurated on 5th October 2018, by Mr. Aamir Mehmood Kiani, Federal Minister for National Health Services, Regulation and Coordination. Speaking at the inauguration ceremony attended by leading figures of healthcare and IT sector, Dr. S. M. Junaid Zaidi, Executive Director COMSATS, highlighted the need for due incorporation

of tele-health in healthcare system. He considered it crucial to promote and encourage research in medicine owing to the fact that new strains of bacteria and viruses are constantly emerging partly due to climate change.

COMSATS Tele-Health knowledge sharing seminar on e-health helped create awareness among health community about e-health and its importance as well as to share with the participants, experiences in various e-health domains. The seminar attracted around 50 participants including representatives from Human Development Foundation (HDF), PIMS (ORIC), Heartfile Pakistan, COMSATS University Islamabad (CUI), Centre for Information Technology (CIT), GKAZ HealthCare, CYGNET Technologies, Islamabad Diagnostic Centre (IDC), PEITS, Excel Labs, and American Teleclinic, among others.

At the onset, Dr. Azeema Fareed, Principal Medical Officer at COMSATS Secretariat, presented tele-health as a useful tool to achieve cost effective, time efficient and instant universal health coverage which is in line with the targets of Sustainable Development Goal (SDG3). Further, Dr. Fareed acquainted the participants with COMSATS Tele-Health Project launched



in 2001 and providing healthcare services to remote areas of Pakistan through 13 Tele-Health Clinics set-up all across Pakistan from Gilgit/Skardu to Gawadar.

During the seminar, presentations were given by healthcare professionals on various aspects of e-health. Dr. Shafaat Ahmed Khan, Head of Health Informatics Department, COMSATS University Islamabad (CUI), while highlighting the significance of health informatics, stated that innovation and creativity in healthcare delivery is at the stake of health informatics.

The Founder of DreamSofTech Pvt. Ltd. and Director of Membership & Marketing at Cloud Security Alliance (CSA), Pakistan, Ms. Sarah Shafqat presented the futuristic prospects of IoT enabled Smart Health over Cloud and gave an example of her case study pertinent to SmartHealth diabetes diagnostic system. Ms. Shafqat opined that despite its benefits, Smart Health over Cloud raises trust and security concerns for organizations as well as general public.

Mr. Ernest Kaliyev, Director of Centre of Biomedicine, and Healthy Lifestyles at COMSATS' Centre of Excellence in



Kazakhstan, Al-Farabi Kazakh National University (KazNU), also participated through video conferencing. He shared the experience of Kazakhstan-Korea in the implementation of digital healthcare in Kazakhstan.

Mr. Ihtiram Ul Haque Khattak, Senior Manager at Heartfile Health Financing (HHF) Division, Islamabad, briefed the audience about the HHF Programme and stated that the said programme strives to overcome financial barriers to healthcare access for the underprivileged in society by linking the needy person with a donor.

Dr. Suhail Chughtai, Founder and Chairman of Medical City Online, who participated through video conferencing, acquainted the audience about his initiative and stated that Medical City Online offers e-healthcare services to medical professionals such as online medical meetings & peer to peer case projection for instant advice; live & interactive medical webinars with multiple presenters facility; live tele-supervision of operative procedures from distance for training & patient safety; and live tele-reporting of radiographs, MRI, CT scans, among others.

Ms. Faiza Batta and Dr. Tayyab Saeed representing American TelePhysicians Group gave a briefing on Shifa4U – a project of American TelePhysicians (ATP). It was apprised that ATP utilizes

innovative digital technology to bridge the gap between top healthcare facilities and patients. Dr. Saeed informed that Shifa4U Tele-clinic provides live consultations through local physicians as well as expert American and UK based Specialist Physicians. He stated that Shifa4U also provides online healthcare education programs for doctors, nurses and hospital staff to educate them in dealing with procedures and commonly arising complex medical situations. It was informed that ATP is engaged in collaborations in US, UK as well as with international hospitals.

The event served as an important networking activity for entities and institutions working in Telemedicine.

International Conference on Agriculture, Food Security, and Biotechnology, Rabat, Kingdom of Morocco (13th – 14th November 2018)

The 4th International Conference on 'Agriculture, Food Security, and Biotechnology' was held from 13th – 14th November 2018 at ISESCO Headquarters in Rabat, Morocco. The two-day Conference was hosted by ISESCO and co-organized by COMSATS and the Inter Islamic Network on Information Technology (INIT), Islamabad, Pakistan. The Conference highlighted the

importance of agriculture biotechnology for addressing issues pertaining hunger, malnutrition and food insecurity in the developing world.

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. 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.

The Conference was inaugurated by Dr. Amina Al Hajri, Deputy Director-General, ISESCO, on 13th November 2018.

In his message read out by Mr. Tajammul Hussain, Advisor (Programmes), COMSATS Secretariat, Dr. S.M. Junaid Zaidi, Executive Director COMSATS, noted that food security threats are more pronounced in the developing countries where more than 80% of the world's population lives. He opined that the developing countries can build partnerships with the developed ones to achieve sustainability in every aspect of life, including food security under the 2030



"Attainment of food security is becoming increasingly challenging due to rapid population growth, effects of climate change, slowdown of agriculture production, prevailing social conflicts, as well as demographic and economic factors. The Conference is going to be an important platform for sharing of knowledge, and promoting interaction between academicians, scientists and researchers."

Dr. Amina Al Hajri
Deputy Director-General, ISESCO



Agenda for Sustainable Development. Speaking on the occasion on behalf of Executive Director, INIT, Mr. Atiq-ur-Rehman, Senior Programme Officer, INIT, stated that the role of IT in agriculture, food security and biotechnology is crucial. He opined that IT can reduce the gaps between agricultural community, biotechnologists, governmental and non-governmental organisations.

The technical deliberations of the Conference consisted of four technical sessions framed on the following themes: Agriculture: Challenges, Perspective and Opportunities in the Islamic World; Food Security: Strategy and Dynamics in the Context of SDGs; Biotechnologies and Their Application: State of the Art and Perspectives in Islamic Countries; and Precision Agriculture/ Satellite Farming

and New Applied Technologies. The presentations made during the various technical sessions covered a range of topics which, inter alia, included 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.

In addition, a set of recommendations was made during the panel discussion on "What is the inequality between Agriculture, Food Security and

Biotechnology for a better Muslim world". These pertained to practices, landscape and territories, actors and advocacy. The recommendations included the following:

- Develop biotechnologies crops without ignoring genetic pools of local traditional crops;
- Promote precision agriculture within countries and international policies. The technologies such as remote sensing, UAV, GNSS, LIDAR and such others have a great contribution to the green revolution and will ensure the sustainability of natural resources (water, land and forest);
- Promote good practices and lessons sharing between COMSATS and ISESCO member states;
- Create balance between different land uses. Promote awareness to protect agriculture and forest lands through application of land territories plan;
- Promote subsidies for farmers to help them maintain their agriculture activities instead of moving to urban area;
- Promote local population traditional knowledge in managing natural resources such as land and water;
- Create working groups to sensitize decision makers; enhance the population awareness;
- Mobilize funds in order to enhance precision agriculture and



biotechnology;

- Develop agreement for wider integration to regional capacity building programs such as Al-Farabi exchange program; and
- Advocate for massive government intervention and funding leading to support research and capacity building.

A working group was also created to implement the decisions underlying the recommendations. It was also agreed that the group would work to ensure sharing of good practices and lessons among COMSATS and ISESCO Member States as well as in OIC countries.

Workshop on Metrology for the Least Developed Countries, Gebze, Turkey (26th – 27th November 2018)

The Workshop on Metrology for the Least Developed Countries was held at TUBITAK National Metrology Institute (TUBITAK UME) from 26 to 27 November 2018, in Gebze-Kocaeli, Turkey. The workshop, jointly organized by COMSATS and TUBITAK UME, attracted 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 Secretariat, the workshop was attended by officials belonging to the World Bank and the United Nations Industrial Development Organization (UNIDO).

The primary objective of the workshop was to enhance the knowledge-base, expertise and capacity of the institutions working in the field of metrology in the least developed countries.

The workshop was inaugurated by Dr. Mustafa Çetintaş, Director TÜBİTAK UME, Turkey, on 26th November 2018.

During his opening remarks delivered via Skype, Dr. S. M. Junaid Zaidi, Executive

Turkey, particularly TUBITAK, is ready to help other developing and least developed countries in upgrading their metrology infrastructure and human resource development.

H.E. Dr. Hasan Mandal, President, Scientific and Technological Research Council of Turkey (TÜBİTAK), Turkey

Director COMSATS, admired the progress made by Turkey in metrology and hoped that the participants would be able to fully benefit from the expertise of TÜBİTAK UME and would replicate the same in their respective countries. He thanked TÜBİTAK UME for hosting the event and for providing warm hospitality to its participants.

The technical sessions of the workshop were preceded by a 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, UNIDO, Austria, delivered UNIDO Perspective on Development of Quality Infrastructure in LDCs. It was noted that UNIDO has extended support to Sri Lanka, Mozambique, Nigeria and Iraq in building their National Metrology Institutes. UNIDO also extends support in capacity building and human resource development in the related fields.

The event also included presentations made by the participating experts and policy makers in the field of metrology belonging to COMSATS' Member States, including Sri Lanka, Kazakhstan, Jordan, Iran, Bangladesh, The Gambia,

Feedback from Participants of the Workshop

I would like to thank COMSATS and TUBITAK UME for holding such a wonderful workshop. I found it very fruitful and informative. I hope Metrology becomes one of the main focuses of COMSATS, due to its huge positive effects on the scientific and industrial development of the member states. IROST is interested in participating and assisting all of the metrology-related activities planned by COMSATS.

M. Reza Bakhtiari, Iranian Research Organization for Science and Technology (IROST), Iran

I would like to thank COMSATS and TUBITAK UME for organizing the event. I would like to share my knowledge of Metrology during relevant activities planned by COMSATS.

W.M.S. Wijesinghe, Industrial Technology Institute (ITI), Sri Lanka

I would like to thank COMSATS and TUBITAK for a very successful and exceptional workshop on Metrology. It was very educational to us, we gained knowledge and exchanged information with our dear colleagues in the workshop. We will do our best to support and provide any information needed by other participants. It is hoped that this workshop is the start for future cooperation in meteorology within the region.

Eng. Tareq Hasan, Royal Scientific Society (RSS), Jordan

The workshop was very educative and interactive. I hope we will continue to communicate in future to build on and implement various recommendations of the workshops. Thanks to the organizing committee.

Cherno Njai, Weights and Measures Bureau, Ministry of Trade, 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.

During the discussion session, the participants exchanged knowledge and know-how regarding various segments of quality infrastructure. Subsequently, the participants were divided into the following five working groups in order to prepare recommendations and roadmaps for upgradation of metrology sectors in the collaborating countries: (i) Funding for Development of Metrology; (ii) Traceability of Standards; (iii) Know-how Transfer; (iv) Creating Public Awareness about Metrology among Stakeholders; and (v) Human Resource Development and Knowledge Management.

A broad roadmap was developed by the participants for the upgradation of metrology and quality assurance infrastructure in the developing and least developed countries.

Recommendations made pertained to: 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; continuous capacity building opportunities to the manpower, etc.

While discussing the way forward, it was agreed that TÜBİTAK 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.

International Workshop on ‘Internet Security: Enhancing Information Exchange Safeguards’, Doha, Qatar (23rd – 27th December 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, ISESCO and 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, on 23rd December 2018. 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.

During her inaugural address, Dr. Al-Sulaiti conveyed the greetings of H.E. Dr. Mohammed bin Abdul Wahid Al-Hammadi, Minister of Education and Higher Education, Government of State of Qatar. She considered this activity highly useful for Qatar and other participating

“Great technological advances, development of various means of communication, openness across the world, and the world’s dependence on transmitting various types of data and information through networks and websites present various risks. Information/ internet security, therefore, is one of the most urgent needs of the hour.”

H.E. Dr. Hamda Hassan Al-Sulaiti,
Secretary General, Qatari National
Commission for Education,
Culture and Science

“There will be over 12 billion machine-to-machine devices connected to the Internet by 2020, and at the same time, the annual cost to the global economy from cybercrime is expected to increase to \$2.1 trillion globally. Apart from devising strategies and implementing policies, nations need to build and strengthen their inherent capacities such as developing potent firewalls to shield the local network systems.

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

countries keeping in view the significance of information and cyber security.

She recalled that during the 73rd session of the United Nations General Assembly, His Highness Sheikh Tamim bin Hamad Al Thani, the Emir of the State of Qatar, called for an international conference on Global Cyber-Security, stressing the importance of information security and the need for international laws to prevent information security risks.

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

“ISESCO has always placed a high emphasis within its consecutive Action Plans to implement programmes and mobilize international and national efforts to promote the use of new scientific knowledge for sustainable economic progress. In this regard, ISESCO mobilize forces in order to create a suitable environment for performance of using information and communication technology as per technological requirements of the Member States.”

Dr. Abdulaziz Othman Altwaijri, Director General of ISESCO

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, covered topics related to Organizational Security, practical approaches to organizational information security management, cloud computing security, ISO 27001, Information Security Management System, and Risk Assessment (Identification, Risk Calculation Methods and Treatment strategies, Gap Analysis). He also conducted practical exercises on Information Security Policy/Procedures Writing, Information Assets Identifications & Valuation, Gap Analysis, Statement of Applicability, Risk Assessment &

“INIT works on learning and deploying information and communication technologies for gainful purposes in the Islamic world.”

**Mr. Tahir Naeem
Executive Director INIT**

Treatment, Auditing and Certification Process, and Auditing and Evaluation.

Dr. Muhammad Masoom Alam, Associate Professor, COMSATS University Islamabad (CUI), Islamabad, introduced the techniques used in Cyber Threat Intelligence and conducted related practical demonstrations and exercises.

Dr. Akber Abid Gardezi, Assistant Professor, COMSATS University Islamabad (CUI), Islamabad, shed light on new and emerging threats in Smart Cities, including vulnerabilities in autonomous vehicles and artificial intelligence. He also discussed the dark side of Internet in detail.

Mr. Mian Muhammad Waseem Iqbal, Assistant Professor, Department of Information Security, National University of Sciences & Technology, Islamabad, conducted hands on training on the Master Boot Record (MBR) and Partition Tables. He also conducted practical exercises on Exploring Windows Registry, SQL Injection and Mobile Hacking, Master





File Tables (MFT) and various other Scenarios/Experimentation.

Prof. Dr. Kashif Kifayat, Head of Computer Science Department, Air University, Islamabad & Director of National Centre of Cyber Security Pakistan, covered topics related to dissecting a Cyber Attack, including Reconnaissance, Scanning, Gaining access, Maintaining Access and Covering Tracks and Hiding. He also discussed Distributed DoS Attacks including Anatomy of a Sample DDoS Attack, Evolution of Botnet Configurations and DDoS Attacks and Mitigation Techniques.

Mr. Shah Fahd, Assistant Manager, National Engineering and Scientific Commission (NESCOM), Islamabad, conducted hands-on training on Wireless Hacking and Countermeasures including Security Issues in Wireless Networks, WEP Cracking, WPA Cracking, WPA2 Cracking and Counter measures. He also conducted practical exercises related to Reconnaissance & Scanning (Scanning

using NMAP, Enumerating open ports and services, Nessus Vulnerability Scanner, etc.).

The workshop concluded with the distribution of certificates by the representatives of COMSATS, INIT and Qatari National Commission.

31st Khwarizmi International Award (KIA), Iran

The Khwarizmi International Award is a research award given annually by the honourable President of the Islamic Republic of Iran. The award seeks to recognize the efforts made by researchers, innovators and inventors, both in Iran and all over the world and to appreciate their invaluable achievements and contributions to various fields of science and technology. The awardees, 10 senior researchers and 10 young researchers, are selected by the Iranian Research Organization for Science and Technology (IROST). The award is given to the most prominent scientists and engineers, and is considered as the

most prestigious scientific award in Iran. It honors those individuals who have made outstanding achievements in research, innovation and invention in fields related to science and technology.

Iran is a founding member of COMSATS and has been making considerable contributions to COMSATS' objective of facilitating science-led sustainable progress in developing countries, while, IROST is one of the most active Centres of Excellence of COMSATS in Iran. In collaboration with IROST, COMSATS has been organizing various capacity building programmes in Iran, with the aim of building indigenous capacity of the local scientists and institutions. COMSATS is also a privileged partner in IROST's annual Khwarizmi International Award since 2000. The aim to supporting this initiative over the years is encouraging and motivating best practices and achievements in science.

In 2018, COMSATS sponsored the cash award and certificates to the first and second prize winners of the 31st Khwarizmi International Award which was held on 28th February 2018, in Tehran, Iran. Moreover, message from Executive Director COMSATS was also shared to be published in KIA Bulletin, where the Executive Director had applauded IROST's continuation of the long-held tradition of recognizing and honoring the excellence and achievements of promising scientists, engineers or researchers in the field of S&T through Khwarizmi International Award. He congratulated the winners of 31st Khwarizmi International Award (KIA) for making significant scientific contributions in their field of specialization.

6. PARTICIPATION IN VARIOUS EVENTS AND MEETINGS

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• Regional Consultation on South-South Cooperation in Asia and the Pacific: Towards the Buenos Aires Plan of Action 40 th Anniversary (Bangkok, Thailand, June 27-29, 2018)	54
• Training workshop on 'Landhydrological processes under changing Climate Observation, Modeling System and Uncertainties' (Beijing, China, September 20-21, 2018)	55
• OIC International Symposium on 'Financing For Development: Thinking Innovative Solutions to Persistent Development Challenges' (Istanbul, Turkey, November 22, 2018)	56

Participation in Various Events and Meetings

The senior officials of COMSATS Secretariat undertake international visits from time-to-time to strengthen and expand the membership of COMSATS and its Network of S&T Centres of Excellence, participate in international meetings and develop partnerships and cooperative mechanisms with relevant institutions in different countries.



24th Session of ICGEB Board of Governors (Trieste, Italy, May 10, 2018)

The Executive Director COMSATS was invited to participate in the 24th annual session of the Board of Governors of International Centre for Genetic Engineering and Biotechnology (ICGEB), Italy, held on 10th and 11th May 2018. He was among over 100 delegates from more than 50 countries that bore witness to this

important statutory meeting of ICGEB. The Board drives the Governance of the Centre and determines its direction and activities. During the session, the Director General ICGEB provided update on cooperation agreements with International and Intergovernmental organizations and working groups within and beyond the UN common system. He explained that over the last four years, the partnerships with multilateral organisations have flourished and listed a number of Organizations already working with ICGEB, which

include the European Union, COMSATS, BRICS, IILA, JRC, UNIDO, UNU-BIOLAC, UN-SAB, UNIACB and WHO. A highlight of the meeting was the signing of a collaboration agreement between ICGEB and Health Consumers and Reference Materials of the Joint Research Centre (JRC) of the European Science Hub, the largest research institute of the European Commission.

74th Session of UNESCAP (Bangkok, Thailand, May 11, 2018)

A COMSATS' delegation led by Ambassador Fauzia Nasreen, Advisor (SDGs), visited Bangkok from 10th to 16th May 2018, to attend the 74th Session of United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). COMSATS' invitation of participation in this event was based on the understanding reached between the two organizations through an MoU signed between the two Commissions during the visit of Dr. Shamshad Akhtar, UN





Under Secretary General and Executive Secretary UNESCAP in December 2017. The theme of the 74th session was “Inequality in the Era of the 2030 Agenda for Sustainable Development”. The session was divided into two segments: Senior Officials and the High-Level Ministerial. In the opening session of the events, the Executive Secretary UNESCAP provided a comprehensive picture of the issues confronting the Asia-Pacific Region, initiatives taken to address the challenges and the progress achieved.

At the working sessions, member countries reported in their statements the status with regard to 2030 agenda for sustainable development. The mega connectivity measures such as Belt and Road initiative and other infrastructure projects as well as ICT connectivity were seen as potential game changers within Asia Pacific.

In the ministerial segment on 14th and 15th May, country statements were delivered by the representatives of member countries and international and nongovernmental organizations enjoying observer status with UNESCAP.

A statement of COMSATS was made by Ambassador Fauzia, who highlighted the vision of COMSATS founders with reference to the three pillars: science and technology; sustainable development and South-South cooperation. COMSATS’ aim of providing better life to people at large was presented to be in sync with the objective of reducing inequality and,

therefore, receives top-most priority in its functioning.

Presence at ESCAP Headquarters was further utilized for holding important meetings. A highlight was the call on the Executive Secretary during which matters related to future prospects of collaboration between COMSATS and ESCAP were discussed. Subjects discussed with other senior officials related to potential areas of joint activities, such as High-Level Political Forum related to BAPA-40, cooperation of strategic nature involving exposure to small scale technologies with ESCAP member countries, disaster risk reduction and social issues. Overall, the focus remained on the Sustainable Development Goals (SDGs), South-South and Triangular cooperation, which was the main theme of another important event of UNESCAP attended later by the Executive Director COMSATS.



Inauguration of UN-OHRLLS Technology Bank for LDCs (Turkey, June 1, 2018)

A three-member delegation led by the Executive Director COMSATS visited Turkey, from the 1st to 6th of June 2018, to attend the Inauguration of the UN Technology Bank for Least Developed Countries and to have follow up meetings on possible partnerships/ collaborations.

The inaugural session of the UN Technology Bank was hosted by the Government of Turkey on 4th June 2018. The ceremony marked the achievement of the first target of the 2030 Agenda for Sustainable Development, SDG target 17.8. The day-long event comprised of an opening session and a panel discussion on Fostering STI in the LDCs: “The contribution of the Technology Bank for LDCs”.





On the sidelines of the event, COMSATS' officials had a number of productive meetings with counterparts and experts from various international organizations based in Turkey. Opportunities and possibilities for collaborative research were explored with regard to COMSATS' Centres of Excellence, the International Thematic Groups and the Member States categorized as LDCs. COMSATS has 7 such member states: Bangladesh; The Gambia; Senegal; Somalia; Sudan; Tanzania; and Uganda.

During their stay in Turkey, COMSATS' delegation also visited the following research and development facilities in Istanbul: TUBITAK's MARMARA Research Centre (COMSATS' Centre of Excellence); Earth and Marine Sciences Institute, MRC; National Metrology Institute; and Informatics and Information Security Research Centre (BILGEM). The members of the delegation were shown the state-of-the-art R&D labs and were given detailed briefing on various facilities available with them. The Executive Director showed great interest in the remarkable progress Turkey had made in some of the very important facets of nation building through S&T. He offered the Turkish officials facilitation to resources available with COMSATS. Reciprocating his generous offer, the management of

these research facilities showed keen interest in working closely with the COMSATS in areas of mutual interest. All participants of the meetings were of the unanimous view that the UN's Technology Bank offers a huge opportunity to the least developed countries and it was in the greater interest of the participating institutions to make the best out of the great initiative.

The Executive Director assured his counterparts of his own and the Commission's resolve to help facilitate the member countries gain self-reliance through science and technology for sustainable development which is the key to national wellbeing and prosperity.

Regional Consultation on South-South Cooperation in Asia and the Pacific: Towards the Buenos Aires Plan of Action 40th Anniversary (Bangkok, Thailand, June 27-29, 2018)

The Executive Director COMSATS participated as a Panelist in the Regional Consultation on South-South Cooperation in Asia and the Pacific: Towards the Buenos Aires Plan of Action 40th Anniversary, held in Bangkok, Thailand, from 27 to 29 June 2018. The event was

organized by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the United Nations Office for South-South Cooperation (UNOSSC), and the Ministry of Foreign Affairs of the Kingdom of Thailand.

The themes of the conference related to trends and diversity of the South-South cooperation landscape in Asia-Pacific – turning challenges into opportunities; institutional arrangements and management of South-South and triangular cooperation – experience and good practice; modalities to strengthen regional and sub-regional cooperation through South-South and triangular cooperation for sustainable development; role of the United Nations Development System and other stakeholders including the civil society organizations and the private sector; and alternative approaches to sustainable development.

The Panel that comprised Dr. Zaidi among others steered discussion on a session on examples and good practices of transformative South-South and Triangular Cooperation in Asia and the Pacific at the regional and sub-regional levels. Speaking on the occasion, Dr. Zaidi suggested some of the critical areas in which South has been lagging behind. In this regard, he deemed lack



of good human resource of researchers and scientists, absence of a steady supply of financial and ancillary resources, and political will among the crucial ingredients needing reinforcement for development of the South. He also called for more support from the North, as well as the international organizations and funding agencies to help address relevant challenges. Dr. Zaidi expressed COMSATS' commitment to assist the international community and the governments in the South achieve lasting sustainability for development through science and technology. On the sidelines of the event, Dr. Zaidi held meetings with Dr. Vijavat Isarabhakdi, Advisor, Ministry of Foreign Affairs, Thailand; Sikama Sanghirun, Programme Officer, Thailand International Cooperation Agency (TICA); Lorenzo Santucci, United Nations

ESCAP; Dr. Subrata Sinha, United Nations Environment Programme; and Srinivas Tata, UNESCAP.

Training workshop on 'Landhydrological processes under changing Climate Observation, Modeling System and Uncertainties' (Beijing, China, September 20-21, 2018)

A two-day training workshop on 'Landhydrological processes under changing Climate Observation, Modeling System and Uncertainties' was organized by the International Centre for Climate and Environment Sciences (ICCES) with the support of Bureau of International Collaboration of Ministry of Science and

Technology (MoST), China, from 20th – 21st September 2018. From COMSATS, Maj. Gen (R) Muhammad Tahir, Advisor (China Desk) and, Mr. Tajammul Hussain, Advisor (Programmes) attended the event.

During the event, four internationally renowned scientists (Prof. Yong Luo, Prof. Kun Yang, Prof. Duoying Ji and Dr. Quanxi Shao) gave lectures/training on the subject and provided details on the model on application, and its statistical treatment and verification. Sixty young scientists from 20 countries benefitted from this workshop. Countries represented included Egypt, China, Bangladesh, Thailand, Mali, Ghana, Togo, Sri Lanka, Kazakhstan, Tunisia, Malaysia, Pakistan, Sudan, Morocco, Vietnam, Australia, and India.





Representing COMSATS on the occasion, Maj. Gen (R) Tahir considered climate change one of the greatest threats to the planet resulting in major devastation through drought, floods and hurricane. He extended his gratitude to Prof. Lin for organizing the subject workshop for young scientists from developing countries.

During the visit, the delegation also held meeting with Prof. Zhaohui Lin, Director, International Centre for Climate and Environment Sciences (ICCES), Beijing, China; Prof. Jibin Sun, Deputy Director, Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences (CAS), Tianjin, China; and Ms. Xuemei Yang, Director, Division of International Organizations and Conferences, Department of International Cooperation, MoST, Beijing, China.

Both sides exchanged views on issues of bilateral interest during the meetings. The proposals for the establishment of Earth Centre and a Centre on Climate Change were discussed. Furthermore, matters regarding the establishment of Joint labs, Technology Parks and Technology Transfer Centers were also deliberated upon. The proposal for posting of Chinese experts to COMSATS Secretariat was also put forward. The possibility of establishing a COMSATS' Joint Centre on Industrial Biotechnology at TIB China was also explored. The delegation also discussed

matters regarding expert-exchange and scholarships, capacity building programmes, short-term visits, among others.

OIC International Symposium on 'Financing For Development: Thinking Innovative Solutions to Persistent Development Challenges' (Istanbul, Turkey, November 22, 2018)

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, Turkey. 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 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 collaborations 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); and Mr. H. Halil AFSARATA, Chief Adviser of Vice President, Chief Coordinator of FRiT Funds.



7. SOME ACTIVITIES OF CENTRES OF EXCELLENCE

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Some Activities of Centres of Excellence

A group of twenty-two R&D institutions from different developing countries, predominantly COMSATS' Member States, is affiliated with COMSATS constituting its Network of International S&T Centres of Excellence. The Network Members serve as COMSATS' technical resource for South-South cooperation, in line with their mandates for programmes of scientific research and development. This section covers reports received from COMSATS' Centres of Excellence, as well as news of some Centres covered in COMSATS Newsletter over the year.



Al-Farabi Kazakh National University (KazNU), Kazakhstan



The oldest classical university in Kazakhstan, the Al-Farabi Kazakh National University (KazNU) has a mission to integrate basic and applied

research for involvement in global educational space.

R&D and Technology

KazNU launched test mode work in the field of telemedicine in December 2017. Since January 22, 2018, video-consultations started regularly. Consultations are conducted on 8 profiles: cardiology, neurology, surgery, otorhinolaryngology, family medicine, internal medicine, dermatology, and orthopedics. KazNU uses TheCure TMS

program, developed by the Pusan National University Hospital.

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 was the second Nanosatellite launched by KazNU into space. The innovative technologies used in Al-Farabi-2 are protected by Kazakhstani patents.

Collaborations

On September 7, 2018, KazNU, the Kazakh Physical Society and JSC "National Center





for Space Research and Technology” signed an agreement on cooperation with the International Center for Relativistic Astrophysics (ICRANet). With the help of ICRANet, Kazakhstan will be able to attract leading scientists of the world to train scientific staffs in the field of astrophysics in Kazakhstan.

The President of Asia Oceania Federation of Nuclear Medicine and Biology (AOFNMB) and Chairman of Japanese Society of Nuclear Medicine, Prof. Jun Hatazawa, visited Al-Farabi KazNU on September 22, 2018, to discuss the possibility of establishing a Central Asian Centre for nuclear medicine. The University approved all the proposals of the Japanese delegation to establish a Center for Nuclear Medicine, which will have the necessary faculty and facilities for education and training of relevant specialists.

Events

International Farabi Readings was held at Al-Farabi KazNU from April 03 to 13, 2018. The Readings is a special KazNU branded scientific event. The 2018 event included seventeen conferences, round tables, etc. attended by more than 300 academics, scientists and scholars from Kazakhstan and abroad.

On October 18, 2018, KazNU hosted the second day of IEEE 12th International Conference on Application of Information and Communication Technologies (AICT2018), which was held from 17-19 October 2018, in Almaty. AICT2018 was organized in partnership with the Kazakh-British Technical University (KBTU), Almaty; Suleyman Demirel University (SDU), Kaskelen; and ADA University, Azerbaijan, with the support of IEEE Azerbaijan Joint Chapter and technical sponsorship by Institute of Electrical and Electronics Engineers (IEEE).

Awards and Recognition

On 1st June 2018, KazNU entered the top 220 among the 800 best universities in the world by moving up another 16 positions in the international QS World University Ranking. An important factor in KazNU's growth in this ranking was large-scale structural modernization, result-oriented high efficiency management and intensive development of a unique infrastructure that had grown by 40% over the past five years.

According to Times Higher Education (THE) World University Rankings-2019, the University is the only Central Asian University in the top 801-1000 best universities of the world. A total of 1,250 universities from 86 countries were included in the ranking. Traditionally, THE rankings are headed by Higher Education Institutes from USA and UK.

The World Congress of Turkic Peoples awarded the University the title of ‘The Best University of the Turkic World’.

The Rector of the University, Prof. Galym Mutanov was awarded an Engraved Gold Medal for his contributions as an academician and growth of KazNU.

Al-Quds University, Palestine

The Al-Quds University is a Palestinian institution founded in 1984. The main campus of the University is located in Abu Dis, with four more campuses in Jerusalem, Sheikh Jarrah, Beit Hanina and Ramallah (al Bireh).



Dr. Najwa Safadi of the Department of Social Works Al-Quds University, Palestine, and her counterpart from Boston College, USA, Dr. Scott Easton, concluded a joint study entitled “Health and Well-being of Public Sector Social Workers in Palestine”. The collaborative study is expected to yield recommendations which will reduce the pressures on social workers, examine the reality of the mental health of Palestinian social workers, and review the working conditions from the perspective of Palestinian social workers.

Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh

Bangladesh Council of Scientific and Industrial Research (BCSIR) is a non-profit multidisciplinary public research council. The main mandate of BCSIR is serving the needs of the country by providing right R&D solutions.



In 2018, BCSIR accomplished a number of important tasks in laboratory development, induction of fresh scientists, fellowships, research grants for the university and its own R&D projects.



Research and Development

In 2018, BCSIR carried out research in various areas based on Bangladesh's national needs. Research projects were undertaken in different categories, i.e., Research & Development of BCSIR; Annual Development Program of the Government of Bangladesh; Special Allocation Project from the Ministry of Science and Technology; Climate Change Trust Fund from the Ministry of Environment and Forest; and foreign-funded project. The research output and ongoing projects for the reporting period are summarized in the following tables.

R&D Projects	
Total R&D projects	101
Annual Development Programs	9
Special Allocation Projects	9

Academic Research Output	
Research papers	174
Processes	21
Patents	12

International Collaborations

BCSIR has renewed an MoU with Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia and Council of Scientific and Industrial Research (CSIR), India, for cooperation in holding joint research, symposia, trainings and exchange of scientific information.

Events and Capacity-Building

During 2018, BCSIR:

- Held sixteen seminars on its R&D projects on regular basis. Four day-long workshops with the stakeholders were organized by different institutes of BCSIR to get feedback for future R&D planning. A science fair was also organized with a few technical sessions.
- Provided training to 422 scientific professionals on different scientific equipment.
- Scientists supervised 224 M.Sc theses of different universities.

COMSATS University Islamabad, Pakistan

COMSATS University Islamabad, Pakistan, is dedicated to advancement of learning



and extending the frontiers of knowledge. Its mission supports and promotes knowledge creation in academically diverse disciplines and to the application of this knowledge to benefit the people.

CUI is ranked among 601-800 world best universities, and first among Pakistani Universities, according to the most recent rankings of TIMES Higher Education (THE). It has also been ranked at #301-400 in THE Engineering & Technology; #401-500 in Computer Science and Life Sciences; and #401-500 in Physical Sciences (THE rankings 2019). Also the University is ranked among 751-800 world best universities as per QS World Universities Rankings 2019. Earlier, it was ranked 190th in QS Asian Universities Rankings 2018. Academic Ranking of World Universities (ARWU) rank CUI 1st in Pakistan and amongst 601-700 universities of the world prestigious Shanghai rankings.

Major Research Activities/ Initiatives

The Office of Research Innovation and Commercialization (ORIC) at CUI also undertook diversification of CUI's research portfolio by identifying and submitting research proposals to multi-faceted national and international funding



Key Statistics 2018	
Students	35,000
Graduates	5,3241
Faculty	3,100
PhDs Faculty	1,150
Staff	2,500+
Departments	19
Programmes offered	98
Laboratories	270
Impact factor publications recorded in national/ international journals	2,115

agencies. A Guide to Research Grant Programs of National and International Funding Agencies was developed and distributed amongst CUI faculty and researchers. The ORIC also initiated a Research Proposal Management System (RPMS) to better organize the data of the Research Projects, Travel Grants, Conferences, and Workshops.

In 2018, 300 research projects, 256 Travel Grant applications and 17 Seminar Workshops application were submitted to different funding agencies, out of which 124 research projects, 131 Travel Grants and 07 seminar workshops have been approved. Moreover, under CUI's Research Grant Program (CRGP), 62 research proposals were received, out of which 45 research proposals were approved after due evaluation.



During the year, the University filed 05 US patents, 01 PCT patent and 11 Pakistan patents based on applied research of its faculty, while 03 US patents and 02 Pakistan patents have been granted. CUI also provided trainings on understanding IP Rights and Patenting to researchers from many universities.

Capacity-Building Activities

In 2018, the Professional Development wing of Office of Research Innovation and Commercialization (ORIC), CUI, conducted 06 trainings, in which 118 professionals from a number of organizations, industries and universities were trained. The alumni base of these trainings includes students, researchers, and professionals, as well as corporate leaders, directors, executives, vice chancellors and CEOs.

These events were on the following themes: Writing Research Proposals, Food Safety and Hygiene Management, Improving Drug Delivery Standards and Regulatory Compliance, High Performance Team Culture, Data Analysis for next generation sequencing (NGS), Techno Parks, Structural Equation Modeling, Managing & Engaging Stakeholders in Construction & Civil Infrastructure Development Projects; and Magnetic Resonance Imaging (MRI).

Student Startup Business Center organized 12 training sessions for startups under "SSBC-Business Plan Development Training Program", to enhance the capacity of CUI students' Startups (Batch-IV & V) on development of Business Plans.

International Collaborations

Exchanges/Mobilities Aailed

During 2018, 137 renowned researchers, diplomats, delegations, students and faculty members visited CUI. Similarly 57 individuals, delegations and faculty members also went abroad on various projects.

The two big programs that CUI availed in 2018 were the European Union funded Erasmus+ program and the Turkish Higher Education Council funded program, the Mevlana Exchange program. Both fund two-way mobilities between institutions located at the home country and institutions located in the partner country. During 2018, CUI availed a total of 25 fully funded outward mobilities of students, faculty and staff under both programs.

CUI's partner universities in Turkey where the Mevlana mobilities were availed, were Duzce University, Sakarya University and Mugla Sitki Kocman University. Likewise, Erasmus + partner universities included Middle East Technical University (Turkey) Istanbul Sehir University (Turkey), Heidelberg University (Germany) and University of Nice (France).

International Students

During 2018, a total of 124 international students (Ph.D 14 (Full Time 11, Sandwich 3) Postdoctoral 1, MS 10, Undergraduate 99) from 10 countries, i.e., Afghanistan, China, Cameroon, Iraq, Nigeria, Palestine, Ghana, Gambia, Sudan and Tanzania were enrolled in Software Engineering, Mathematics, Chemistry, Computer Science, Meteorology, Environmental Sciences, Physics, Pharmacy, International

Country wise enrollment of International Students	
Country	No. of Students
Afghanistan	101
Gambia	4
Cameroon	2
Palestine	2
Iraq	2
Sudan	1
Nigeria	9
China	1
Ghana	1
Tanzania	1

Relations and Bio-sciences departments.

Foreign Faculty

With the view to foster internalization and develop strong linkages with reputed universities around the globe, CUI International Office has been making efforts to attract academicians from all over the world to serve in its Faculty to enrich its teaching and research programs.

Ms. Katherine Louis Sipra, a USA National is inducted as International Faculty in Department of Bio-sciences, CUI. Ms. Katherine is working in animal behavior and related research, particularly the Indus Dolphin. She is also working on wildlife conservation-oriented projects in Pakistan.

Moreover, the following six Professors served at CUI as visiting faculty:

1. Dr. Pareeda Pomennate, Researcher, from NSTDA, Thailand (Biosciences Department, CUI);
2. Dr. Gustavo H.D Tanoli, Assistant Professor, University of UFLA, Brazil (Biosciences Department, CUI);
3. Dr. Shuhab Dainshwar Khan, Department of Earth & Atmospheric Sciences, University of Houston, USA (Meteorology Department, CUI);
4. Dr. Manoel T. Souza Junior, EMBRAPA, Brazil (Biosciences Department, CUI);



5. Dr. Yuxiang Zhang, School of Information Sciences & Engineering, Fudan University, China (Physics Department, CUI);
6. Dr. Soon Xing NG, Associate Professor, University of Southampton, UK (Electrical Engineering Department, CUI).

Moreover, HEC, Pakistan, has approved four more foreign faculty cases while three are in process.

Council for Scientific and Industrial Research (CSIR), Ghana

CSIR was established in the present form on November 26, 1996. The genesis of the Council, however, dates back to the erstwhile National Research Council (NRC), which was established by the government of Ghana in August 1958 to organize and coordinate scientific research in the country.



Training in Solar Installation

On December 14, 2018, CSIR's Institute of Industrial Research (CSIR-IIR) trained 96 electricians 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 at providing 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 the country's dependence on foreign electrical contractors.

Ghana Energy Awards

The Institute of Industrial Research of CSIR was also recognized as the most Energy Efficient Public organization in Ghana, by the Ghana Energy Awards Scheme. This was announced during the annual Ghana Energy Awards held in Accra in November 2018.



EMBRAPA Agrobiologia, Brazil

The Embrapa Agrobiologia is striving to provide solutions for research, development and innovation for sustainability of agriculture benefitting the Brazilian population.



Research and Development

To improve farmers' ability to identify natural enemies of the pests, scientists from EMBRAPA Agrobiologia developed a mobile application for identification of pests and their enemies. With this mobile application, it is possible to access images of most common natural control agents. The application is named as InNat guide and is freely available on Google Playstore. With a smartphone in hand, the farmers can compare the insects with image gallery, which includes 13 families of predatory insects, plus parasitoids and spiders. In addition to the photos, the application also contains information on each natural enemy group and its role in nature.

Events

Agriculture Forum

EMBRAPA Agrobiologia, Brazil, participated in the First Brazil-US-Haiti Family Agriculture Forum held on 25th -27th April 2018. The Forum was themed 'Sustainable Alternatives for Strengthening Family Agriculture'. During the event, the researchers from Embrapa talked about topics such as unconventional food plants (PANCs), recognition of natural enemies and attractive plants, and conservation of seeds, among other subjects related to family farming.



Field Day

About 30 technicians and farmers in the Cunha region of the state of São Paulo participated in a Field Day on 21st June 2018, for recognition of natural enemies of agricultural pests. The activity was organized by researchers of Embrapa Agrobiologia with the support of the Association of Agroecological Producers of Cunha (APAC), Brazil, and the Association of Culture and Environmental Education (SerrAcima), Brazil. The field day helped farmers increase their knowledge about the pests, and how to drop the level of pests without using harmful pesticides.

Symposium on Biological Nitrogen Fixation

The XVI Symposium on Biological Nitrogen Fixation with Non Legumes was organized in conjunction with the IV Latin American Workshop of PGPR and the XIX Relare, in Foz do Iguaçu, Brazil, from 26th – 31st August 2018. Around 300 experts from across the globe presented work on the interaction of plant microorganisms and the benefits of the use of bacteria and fungi that promote plant growth. A number of disciplines were covered in the event including evolution, ecology, genomics, biochemistry, physiology, crop production and engineering, and new uses

of microorganisms in agriculture.

Industrial Research and Consultancy Centre (IRCC), Sudan



Industrial Research and Consultancy Centre (IRCC), Sudan, is an R&D and consultancy centre that was established with the assistance of United Nations Industrial Development Organization (UNIDO) and is affiliated with the Ministry of Industry, Government of Sudan.

Accreditation of Leather Technology Centre Laboratories

The process of accrediting IRCC laboratories was started under the supervision of Sudanese Council for Accreditation (SADC) and Tunisian Accreditation Council (TUNC) and with the patronage of UNIDO. The Leather Technology Center was the first to be accredited.

The Industrial Waste Management Project

The Industrial Waste Management Project



was held under the frame work of South-South Cooperation between IRCC, Sudan Cleaner Production Center (SCPC) and Egypt National Cleaner Production Center (ENCPC). It was an international program financed by the African Development Bank (ADB). It included training courses which were held in Egypt and Sudan, and an industrial waste survey for a number of factories in Khartoum.

Symposium on Household Industry

In collaboration with Federation of Arab Scientific Research Council (FASRC), IRCC organized the Scientific Symposium on 'Household Industry' in Khartoum from October 15 – 16, 2018. The event was organized with the aim to highlight the role of household industry in supporting development programs in the Arab countries at the national and regional levels.

Industrial Technology Institute (ITI), Sri Lanka

Industrial Technology Institute, Sri Lanka, is a multi-disciplinary research organization that comes under the purview of Ministry of Science, Technology and Research of Sri Lanka. It comprises of

Research and Development Sections and Technical Services Sections and conducts research and testing services for economic and industrial development.

Research and Development

R&D during 2018 at ITI included:

- The technology of two innovative products, i) tree freshness formulation and ii) ITI bio wax (which reduces the post harvest losses of fruits), were transferred to Hayley's Agriculture Holdings Ltd. The project was carried out in collaboration with the International Development Research Centre (IDRC), Canada.
- Formulation of Ready-To-Serve low added sucrose nutritious scorn/

flat bread, nutritional biscuit from minor cereals, whey-based beverage and 100% herbal balm base from trans-esterified coconut oil (ready for technology transfer).

- R&D sections initiated 16 research projects and collaborative projects on national interest with other institutes; Preliminary studies for water quality and soil parameters of Chronic Kidney Disease affected areas in the Northern Province and Use of Titanium dioxide for heavy metal adsorption in waste water were initiated with University of Jaffna, Sri Lanka, and solid waste management in industrial waste with University of Ruhuna, Sri Lanka.
- Thirty-seven research articles were published in reviewed journals.
- Two patents were obtained.

Technical Services

The newly established Residue Analysis Laboratory of ITI received accreditation as a testing laboratory in the field of Chemical Testing. The Lab's testing was found in compliance with the accreditation criteria for testing and calibration laboratories as described in ISO/IEC 17025. The accreditation was announced at a ceremony organized by the Sri Lanka Accreditation Board (SLAB) to commemorate the World Accreditation Day on 21st June 2018. The laboratory now has 158 accredited parameters in





variety of matrices guarantee the accuracy and precision, as well as the reliability of laboratory results produced to the customers.

A Packaging Material Testing Laboratory was initiated with the funds from UNIDO.

An island wide survey was carried out to find out the level of usage of packaging material. Under this project, around 3,000 wells being used for drinking water in schools in the Anuradhapura, Badulla, Vayuniya, Mulathiv and Jaffna Districts were subjected to microbiological and chemical testing, including heavy metals and pesticide residues as per SLS 614:2013.

ITI's modern high end analytical instruments and accredited facilities for heavy metals and pesticide analysis were used to carry out for the analysis of heavy metal and pesticides in the drinking water.

Awards

Mr. Nisala Gunasekara, Dr. Shanthi Wilson, Dr. Ilmi Hewajulige, and Ms. Shiranthi Perera won Gold Medal in the Commercialized category under technical field of Food Technology for the Development of Bio Wax Formulation.

Dr. R. M. Dharmadasa and Dr. C. H. Manoratne won the Gold Medal in the Open category under technical

field of Agriculture, and DASIS Award (open Category) for the Formulation of Environment friendly BASCA.

Dr. Theja Herath won Silver Medal in the Open category under technical field of Food Technology for the product 'Low added sucrose nutritious scorn-Flat bread'.

Dr. Iresha Kotegoda, Mr. Ruwan Arachchi and the team received the Presidential Awards for Patented Inventions (3rd Place) for Development of clay filter body with high fluoride binding ability for the remediation of fluoride contaminated water.

Dr. Prasanna Liyanawaduge and Engr. Anura Sooriya Arachchi received the Presidential Merit Awards for Patented Inventions for Measurement tape calibrating unit.

IDRC project team received the National Award for Science & Technology Achievements (NASTA) for the category of excellence in international collaboration for advancement of S&T.

Dr. Iresha Kottegoda received the SUSRED (Support Scheme for Supervision of Research Degrees) Award organized by the National Science Foundation of Sri Lanka.

Ms Sachindra Perera received the Gold medal: Finalist of SLAYS Three-minute

thesis Competition (3MT)- 2018 organized by the Young Scientists Forum.

Capacity-Building Events

During 2018, ITI scientists participated in 30 capacity-building events held in Australia, China, Germany, India, Japan, Korea, Malaysia, Morocco, New Zealand, Nigeria, Pakistan, Philippines, Singapore, Sweden, Switzerland, Thailand, Turkey, and Vietnam. The purposes of these participations included capacity building activities, trainings, fellowships, study, paper presentations, and policy education in a number of fields. These events included:

- Quality Infrastructure for Food Safety (ITP : 305 Global) held in Sweden from 4th February to 2nd March 2018;
- 12th European Pesticide Residue Workshop held in Germany from 22nd to 25th May 2018;
- International workshop on Modern and Emerging trends in Vaccine Development held in Nigeria from 22nd to 24th May 2018;
- Asia Clean Energy Forum held in Philippines from 4th to 8th June 2018;
- Seminar on Technology Innovation of Bamboo and Rattan for Green Sector Development for developing countries held in China from 29th August to 18th September 2018;
- 17th CTWF International Symposium on Ecohydrology & Climate Change held in China from 17th to 21st September 2018;
- Seminar on Quality Infrastructure for Food Safety held in Malaysia from 7th to 12th October 2018;
- 3rd Regional Conference for Presidents, Vice Presidents and Technology Transfer officers of Universities and Research Institutions held in Japan from 13th to 15th November 2018;
- 24th WAITRO General Assembly and Biennial Congress held in Malaysia from 19th to 23rd November 2018.

Prof. M. Iqbal Choudhary
Director ICCBS



The International Center for Chemical and Biological Science (ICCBS) is internationally recognized for its research and educational eminence as center of Excellence for TWAS, UNESCO Category II institution, and COMSATS Center of Excellence. ICCBS serves as a platform for collaborative research activities of developing country scientists and scholars' and play a major role in capacity building of many institutions of COMSATS' member countries. ICCBS fully support the mission of COMSATS by promoting the COMSATS' network activities through providing numerous training of scholars and technicians and capacity building opportunities to COMSATS' institutions. We encourage all COMSATS' member institutions to foster the network activities through ICCBS for the promotion of S& T sector in COMSATS' Member States. A large number of collaborative projects were initiated between ICCBS and COMSATS' member countries, such as Kazakhstan, China, Turkey, Sri Lanka, Iran, Sudan and significant achievements were made during the reporting year 2018. Some highlights of this year achievements of ICCBS are presented in this report.

International Center for Chemical and Biological Sciences (ICCBS), Pakistan

The International Center for Chemical and Biological Sciences (ICCBS), Pakistan, is one of the leading academic research institutions in Pakistan with a strong international standing. ICCBS has been a UNESCO



Category II institution since 2015. The Center also serves as the Centre of Excellence of COMSATS, TWAS, WAITRO, OIC and UNCSTD. ICCBS focuses on: research and training for producing high quality human resource; and extending diagnostic, analytical and clinical testing services to local and regional clients from private and public sectors.

Collaborations

MoU with Basic Medical Science Institute (BMSI)

ICCBS signed a Memorandum of



Understanding with the Basic Medical Sciences Institute (BMSI), Karachi, on 20th June 2018. According to this memorandum, both the parties will collaborate in areas of basic medical sciences. Joint research projects would be conducted in the areas of mutual interest including physiology, biotechnology, biochemistry, pharmacology, microbiology, biomolecular and biomedical sciences, genetics.

Agreement with Hunan Anbang Pharmaceutical Co. Ltd., China

An agreement was signed with the

leading Chinese firm named Hunan Anbang Pharmaceutical Co. Ltd. The agreement paves way for cooperation on conducting clinical trials of "Yinhuang Qingfei Capsule" at ICCBS' Center for Bioequivalence Studies and Clinical Research (CBSCR). The agreement was signed by Dr. Xiaochun Chen, Director General, Health and Family Planning Commission of Hunan Province, China, and Prof. M. Iqbal Choudhary, Director ICCBS, in Karachi. It is hoped that after conduction of successful clinical trials on Pakistani population, the drug will be marketed in Pakistan on reduced rates.

MoU with Chapman University, USA

An MoU was signed with Chapman University, USA, for developing and fostering cooperation in academics and research. Prof. Iqbal Choudhary, and Prof. Dr. Daniele C. Struppa, President of Chapman University, signed the MoU on behalf of their institutions in a ceremony held at the campus of Chapman University in Southern California, USA. The two parties agreed to exchange research staff and provide joint supervision to graduate students in the areas of chemistry, biology, biotechnology, molecular medicine, pharmacology, natural and life sciences.

MoU with Brock University, Canada

An MoU was signed 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 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.

MoU with Health Department, Government of Sindh, Pakistan

An MoU was signed with the Health Department, Government of Sindh, on October 01, 2018. The Agreement was signed by Additional Chief Secretary, Health Department of Sindh, Dr. Muhammad Usman Chachar and Director ICCBS, on behalf of their organizations.

Infrastructure Development

Cluster Computer Machine

The German Consul-General, Rainer Schmiedchen, inaugurated the latest



Cluster Computer machine at ICCBS. Alexander Von Humboldt Organization, Germany, has provided a sophisticated four-socket 4U rack mounted server. Mr. Rainer Schmiedchen reiterated that the German government will continue to support ICCBS's leading research establishment. He appreciated the longstanding collaboration between Germany and Pakistan. The machine was procured to carry out exhaustive Molecular Dynamics simulation to study the motion of molecular at a larger scale.

Forensic DNA Lab

The Dr. Panjwani Center for Molecular Medicine and Drug Research of ICCBS received 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 had designated ICCBS as the focal center for Forensic DNA and serology analysis and training in forensic serology and DNA analysis. 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.

Capacity-Building Events

During 2018, ICCBS organized a number of capacity building events which included the following:

The 3rd International Workshop on X-Ray Crystallography in Structural Biology was held at L.E.J. National Science Information Center of ICCBS, from 8th – 10th October 2018. The event was jointly organized by Dr. Panjwani Center for Molecular Medicine and Drug Research (PCMD), ICCBS, and the International Union of Crystallography. International experts, including Prof. Dr. Atta-ur-Rahman, former Chairman Higher Education Commission (HEC); Federal Minister for Science and Technology; Prof. Dr. Samar Hasnain from UK; Prof. Dr. Richard Garratt from Brazil; Director ICCBS, Prof. Dr. M. Iqbal Choudhary; Dr. Sammer Yousuf; and Dr. Saima Rashed spoke on the occasion.

The 47th public awareness seminar on "Environment, Health, and Development" was held at PCMD, ICCBS, on 27th September 2018. The seminar was jointly organized by PCMD and Virtual Education Project Pakistan (VEPP).

Four-day 14th International Symposium on Natural Product Chemistry was organized by ICCBS from November 4th – 6th 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.

Honors and Achievements

Director ICCBS declared most Productive Scientists of Pakistan

Pakistan Council for Science and Technology (PCST) declared Prof. Dr. Muhammad Iqbal Choudhary, Director, International Centre for Chemical and Biological Sciences (ICCBS) as the most productive scientist of Pakistan. Dr. Choudhary was selected from 4,154 productive scientists of Pakistan. Under the umbrella of ICCBS, he also heads HEJ Research Institute of Chemistry, and Dr. Panjwani Center for Molecular Medicine and Drug Research.

Lab in Nigeria Named after the Director of ICCBS

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.

International Center for Climate and Environment Sciences (ICCES), China

International Center for Climate and Environment Sciences (ICCES), China, focuses its research on the key scientific problems related with global climate and environmental changes. The main research



fields includes the development of Dynamical Earth System Model and numerical simulation, meteorological

and environmental forecast and related disaster assessment theory and technique, data assimilation theory and methodology, and earth system theory and natural cybernetics. Currently, there are more than 60 ongoing research projects in ICCES, which are mostly funded by the Ministry of Science and Technology (MoST) of China, Chinese Academy of Sciences, and the National Natural Science Foundation of China (NSFC).

ICCES is one of the first CAS training centers for international students. ICCES is devoted to establishing the cooperative and innovative research center in the area of climate and environment sciences, provide services to the developing countries with scientific support and advisory, capacity building, etc.

Some Statistics-2018	
Research scientists	40
Professors	16
Graduate students and postdocs	50

Collaborations

During 2018, the institutions and organizations with which ICCES strengthened collaborations included:

Al-Farabi Kazakhstan National University

Prof. Lin Zhaohui, Director ICCES and Associate Professor Zhang visited Kazakhstan from 25th to 27th June 2018. On June 25th, a memorandum of cooperation was signed between ICCES and Kazakh National University (KazNU) on research cooperation in the fields of land water circulation, cloud-aerosol interaction, air pollution, climate prediction, etc., and exchange visits and scientific data between the two centres.

Thai Institute of Meteorological and Hydro and Agro Informatics Institute (HAI)

On July 20, 2018, ICCES team visited Thailand on invitation of Dr. Sutat Weesakul, Director of the Institute of Meteorological and Hydrological Information of Thailand (HAI). Meeting between senior officials of the two organizations deliberated on means to strengthen the cooperation in meteorological disaster monitoring, climate prediction, high performance computing areas. The meeting resulted in formulation of plans for the cooperation study between ICCES and HAI in the next 1-2 years.





On September 18, 2018, Prof. Lin Zhaohui, Director of ICCES and Associate Professor Wu Chenglai accompanied the delegation of HAIL to visit the High performance computing sub-center, Computer Network Information Center (CNIC) of the Chinese Academy of Sciences in Beijing. The 9-member delegation of the HAIL was led by Dr. Sutat Weesakul, Director of HAIL. The two sides discussed in detail the issues of supercomputer construction and maintenance, resource allocation, weather and climate model migration and optimization, data visualization, big data and artificial intelligence.

Asian Institute of Technology in Thailand

Prof. Lin Zhaohui and Assistant Researcher, Cao Meichun, visited the Asian Institute of Technology in Thailand from December 17 to 23, 2018, to participate in China-Thailand joint project on comparative risk assessment of hydrologic hazards and adaption policy in Jiulong River and Chao Phraya watershed within the “future earth” annual project workshop. The visit resulted in promoting the project implementation and exchange experiences of both parties in climate change, extreme precipitation, and the development of atmospheric-terrestrial-hydrological models.

Chiang Mai University

Invited by Professor Somporn Chantara from Chiang Mai University in Thailand, Professor Lin Zhaohui visited the Environmental Research Center of Chiang Mai University from December 24th to 28th, 2018. The two sides discussed the cooperation based on the IAP-CMU cooperation agreement memorandum, the joint project application, joint training courses and academic seminars.

Education Funding Committee of the University of Sri Lanka and University of Ruhuna

On November 6, 2018, Prof. Lin Zhaohui, Director of ICCES, received a delegation of Sri Lankan Universities – University of Sri Lanka, President Gamini Senanayake of the University of Lankhna, Sri Lanka, and Professor Tilak Priyadarshana, Director of the International Cooperation Center of the University, Dr. Pan Gang, of the South China Sea Marine Research Institute, Chinese Academy of Sciences. The visit also included Professor Lilisiya Leelamanie Dewapura Acharige from the Faculty of Agriculture, University of Luhuna, and Dr. Kumudu Radampola Gamage from the School of Fisheries and Marine Science and Technology.

International Center for Chemical and Biological Sciences

On January 5, 2018, Dr. Muhammad Iqbal Choudhary, Director of the Center for Excellence in Chemistry and Biological Sciences (ICCBS), University of Karachi, Pakistan, visited ICCES to discuss the establishment of the China-Pakistan Center and discussed the Pakistan Higher Education Commission’s “Winter Smog” cooperation projects in the program.

COMSATS University Islamabad

On November 3rd, Dr. Wajid Nasim Jatoi, Associate Professor of COMSATS University Islamabad, Pakistan, attended 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. Dr. Wajid’s research area is crop eco-climatology and he 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.

Establishing the African Drought International Cooperation Network

During the CTWF International Symposium and the International Training workshop, professionals from ICCES exchanged views with scientists from nine African countries including Nigeria, Sudan, Kenya, Egypt, Morocco, Togo, Ghana, Tunisia, Mali, etc. It was agreed that an African Drought International Cooperation Network can be established to conduct joint research, share data and the latest research results, and conduct regular training and academic exchanges to reveal the characteristics and mechanisms of drought in African countries and serve countries’ prediction and response capabilities for extreme



weather events, especially drought.

Capacity-Building

International Students

CAS President's International Fellowship Initiative (PIFI)

In 2018, based on the existing cooperative research network, ICCES attracted young scholars from developing countries to study for master's and doctoral degrees under CAS President's International Fellowship Initiative (PIFI). Augustine Omondi from Kenya and Sadaf Nasreen from Pakistan came to ICCES for their studies under the CAS President's International Fellowship Initiative (PIFI) and CAS "The Belt and Road" Master Fellowship Program.

Mr. Omondi is currently working on various methodological models as tools to assess and predict extreme weather events in the GHA (the Greater Horn of Africa) region of Africa. Ms. Nasreen is pursuing a Ph.D. in Meteorology in Professor Lin Zhaohui's team, who is working to improve surface conditions by simulating IAP climate models and climate events in South Asia.

Farhan Saleem (Pakistan), a Ph.D. student in ICCES, focuses on the vulnerability analysis of Pakistan under climate change. Combining the observations of 1971-2016 and climate models of more than 30 meteorological stations of the Pakistan Meteorological Administration, he used

24 extreme climatic factors to study the climatic characteristics and trends of different agro-ecological zones, aiming to reveal extreme weather - the impact of climate events (high temperatures, floods, droughts, etc.) on Pakistan's agriculture-ecology.

In addition, Kritanai Torsri (Thailand), Victor Nnamdi Dike (Nigeria), Sherly Selton (Sri Lanka), Farhan Saleem (Pakistan), Alireza Kamal (Iran), Kalpana and Hamal (Nepal) continue to conduct course study and research in ICCES.

CAS "The Belt and Road" Master Fellowship Program: In 2018, Karimova Mahjabin came from Khujand, Tajikistan started pursuing master's degree in atmospheric science in Professor Lin Zhaohui's team. Her main research area in the future is "the annual trend of Syr-Darya river flow and its relationship with temperature and precipitation."

TWAS-UNESCO Associateship for Short-term Research

In 2018, Dr. Sathaporn Monprapussorn, from Department of Geography, Faculty of Social Sciences, Srinakharinwirot University, visited ICCES with the support of the TWAS-UNESCO Associateship project and conducted a three-month collaborative study. During the visit, Dr. Sathaporn Monprapussorn conducted a study on "The Impact of Urban Land Use on Climate Change: A Comparison between Bangkok and Beijing".

Events

Some major events of ICCES during 2018 were:

- ICCES-COMSATS international Training Workshop on "Land-hydrological Processes under Changing Climate" (September 20 - 21, 2018);
- Srinakharinwirot University-ICCES International Workshop on "Climate Change Impact and Adaptation for Sustainable Development" (July 21, 2018);
- 17th CTWF International Symposium on "Ecological Hydrology and Climate Change" (September 17-19, 2018);
- Srinakharinwirot University-ICCES 1st International Conference on Geography & Geoinformatics for Sustainable Development (ICGGS) (July 19 - 20, 2018);
- CAS-CSIRO Nanoscience and Climate Change Annual Bilateral workshop (August 30-31, 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;
- International Symposium on "Earth System Atmosphere-Land-Ocean Interactions" (From July 30 - August 3, 2018).



International Projects

Some major projects undertaken by ICCES during 2018 were:

- China-Thailand (NSFC-TRF) International Cooperation Project “Southeast Asia Regional Inter-annual Climate Variability Mechanism and Prediction Research”
- Implementation of sub-projects under Pilot Project of the Chinese Academy of Sciences “Short-term and seasonal predictions of climate disasters”
- National Natural Science Foundation of China and Sri Lanka International Cooperation Project
- ICCES-Sweden-UK Joint Cooperation and Exchange Project “Future Rainfall Effects on Surface, Hydrology and Livelihoods in Eastern Africa”.

ICCES Publications 2018	
Themes of Papers Published	Number
Air Quality/ Advances in atmospheric Science	14
Ocean models	12
Glaciology	5
Climate Change/ Global Warming	17
Natural disasters and their management	7
Climate measurement processes, methods and technologies	22
Total	77

Publications

During 2018, researchers of ICCES published a number of papers in various themes which are summarized in the table.

Iranian Research Organization for Science & Technology (IROST), Iran

IROST was founded in 1980, with the aim of providing support to Iranian researchers, inventors and industrialists across the country. This organization provides valuable services in fulfilling the country’s scientific, technical and engineering requirements by supporting applied and developmental research, as well as developing new technologies by making use of qualified experts and modern equipment and facilities



On 8th January 2018, an agreement was signed for scientific and technological cooperation between Iranian Research Organization for Science & Technology (IROST), and Astan Quds Razavi Institute of Economics. According to the agreement, both parties will collaborate for the projects aimed for promotion of biotechnology, advanced materials and nanotechnology, electrical and electronic

equipment, advanced machinery, water technologies, new energy, blood products, creative industries, development of advanced medical centres for high risk diseases, and food security.

National Mathematical Centre (NMC) Abuja, Nigeria

The National Mathematical Centre (NMC), Nigeria is an inter-university organization that promotes research and capacity-building in mathematical sciences. It was



established, inter alia, to train and develop high quality human resource in Mathematical Sciences, for enhancing students’ performance in Mathematics and Mathematical Sciences at all levels of Nigerian education system.

Capacity-Building Events

During 2018, NMC organized some capacity-building activities that include:

- International Conference on Mathematical Modeling on “Militating against Environmental Pollution through Mathematical Modeling for Sustainable Development” (2nd to 6th December, 2018);
- Foundation Postgraduate Course in Computational Mathematics (March, 2018);
- Foundation Postgraduate Course in Statistics in Probability Theory, Distributions and Stochastic Processes (November, 2018);
- NMC-Google Africa Code Week (22-25 October, 2018);
- ‘Girls-Students Olympiad Competition in Mathematics’ is part of new innovation by the NMC and was approved under the Sustainable Development Goals (SDGs) Project, and is aimed to boost the interest of the Girl-Students in Mathematics.



- NMC, Nigeria joined the rest of the world in celebrating the Maiden Edition of United Nations Educational Scientific and Cultural Organization (UNESCO) International Day of Mathematics (IDM) on 14 March, 2018.

Collaborations

During the year 2018, NMC strengthened its existing collaborations with the Department of Mathematics, COMSATS University Islamabad (CUI), and Pakistan. Prof. S. E. Onah, the Director/Chief Executive of the NMC returned the earlier visit to the Centre of Prof. Dr. Moiz-ud-din Khan, Chairperson of the Department of Mathematics of CUI. A number of issues of mutual interest pertaining to

research, training and development as well as knowledge sharing in mathematical sciences between the two institutions were addressed. The discussions resulted in signing of an MoU to that effect.

In line with one of its mandates of identifying Young Talents in Mathematical Sciences, the 2018 Edition of Nigerian Universities Computer Programming Contest (NUCPC-2018) was organised by the Computer Science Programme of NMC with a number of contestants. The Centre also facilitated the participation in the 2018 Africa Regional ACM-IBM Collegiate Computer Programming Contest in South Africa for the winning team of the NUCPC-2018 as well as a number of international Olympiads in Mathematics, Sciences and Informatics.



Infrastructure Development

The Centre undertook a major overhauling of its ICT facilities with some Government Agencies in Nigeria. The obsolete desktop PCs were replaced with all-in-one PCs with all the System (Programming) and Applications software upgraded, as well as high capacity Laptop PCs, and Servers to reequip the computer laboratory. The Centre also improved its Internet access.

To ensure smooth power supply to the Centre, alternative power source in the form of the Renewable Solar Power (RSP) was acquired for the Centre's Computer Programme Department, Computer Laboratory Unit, Mathematical Science Library and Administrative block.

A new Guest House for external and foreign visitors was also built.

National Research Centre (NRC), Egypt

NRC was established in 1956 to foster basic and applied scientific research, particularly in industry, agriculture, public health and other sectors of Egypt's national economy.



A protocol was signed with World Fish Center, Malaysia, for mutual cooperation in the field of ichthyology (the scientific study of fish), through exchange of scientists, technology, scientific information, and research. Prof. Dr. Ashraf Shaalan, President of NRC and Dr. Gareth Johnstone, Director General of WorldFish, signed the protocol on behalf of their organizations. The protocol further aims to focus on the health of tilapia fish, which is a significant species of fish for Egyptian people due to its cheap price and wide availability in Egyptian waters.

Royal Scientific Society (RSS), Jordan

The Research Scientific Society (RSS) is the largest applied research institution in Jordan. It, inter alia, provides consultancy and technical support services for scientific capacity-building.



The Society serves as the local as well as regional reference point of knowledge for science and technology. It launched six small-medium enterprises (SMEs) in June 2018 as part of the project “Youth Advocates for Improved Environment in Mafraq and Ramtha” which was supported by the Middle East Partnership Initiative (MEPI).

Projects

The major projects carried out by RSS during the reporting period were:

- The MENA Region Initiative as a Model of NEXUS Approach and Renewable Energy Technologies (MINARET)
- Accelerating 0-emission building sector ambitions in the MENA region;
- Clean Technology and Environment Intervention in the Jordan Valley Funded by MEDA/Canada;
- Monitoring the quality of water resources at Jordan valley;

- Ambient Air Quality (AAQ) Monitoring and Assessment in Al-Hashimiyeh Town/ Zarqa;
- Ambient Air Quality (AAQ) Monitoring and Assessment in the Industrial Estates and Ambient Air Quality (AAQ) Monitoring and Assessment in the Industrial Areas;
- The Production of Hollow and Solid Concrete Blocks for Walls and Slabs;
- SWITCH MED TEST II (Transfer of Environmental Sound Technology) with Jordanian Food Industry;
- Roadmap for Scaling-up Resource Efficiency in Jordan;
- Mapping of Aquifer Vulnerability to Contamination at Landfill Sites: A First Step Toward Sustainable Solid Waste Management in Jordan;
- Assessment of Ambient Air Quality in the areas surrounded Al-Abiad and Al-Hasa Phosphate Mines;
- Developing Manual for Jordanian Building Energy Saving Code;
- Developing Manual for Solar System code; and
- Understanding the Risk of Bat-Borne Zoonotic Disease Emergence in Western Asia.

RSS 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.

Capacity-Building Activities

During 2018, RSS organized following capacity building activities:

- On 28th February 2018, the British Embassy, Amman; RSS; and the Higher Council for Science and Technology, Jordan, co-hosted a workshop at RSS in Amman-Jordan, to bring together British and Jordanian Scientists, researchers and innovators under the Newton-Khalidi Fund. The workshop was conducted under the framework of Newton Programme.
- The Environment and Water Centre at RSS, in cooperation with the United Nations Environment Program (UNEP) and the Iraqi Ministry of Health and Environment, organized a capacity building training for the staff working on the preparation of the second national communication and the First Biennial Update Report for the UNFCCC on climate change. The three-day training program held in Erbil included lectures on GHG inventory estimation and GHG mitigation analysis and the softwares used.
- RSS and the Jordanian Ministry of Environment, in collaboration with





Jordan Valley Authority organized the first training of trainers' workshops on adaptation to climate change.

- RSS in collaboration with the United Nations Office for Disarmament Affairs (UNODA) organized the Regional Workshop on the implications of recent developments in science and technology for the Biological Weapons Convention (BWC) in the Middle East and North Africa (MENA), in July 2018 in Amman.
- The Water and Environment Centre and the Systems Engineering and Software Development (SESD) Departments of RSS are working with the International Bank for Reconstruction and Development "WBG", in implementing a Multi-Level Integrated Monitoring, Reporting, and Verification (MRV) System for Jordan. The first workshop of the project was held on 17th April 2018.
- Sixth MEDENER International Conference on Energy Transition- Energy efficiency and energy prices: a peaceful solution to the jigsaw was organized within the framework of MEETMED project by the Mediterranean Association of the National Agencies for Energy Conservation (MEDENER), in close cooperation with RSS/NERC.
- MeetMED workshop on EE and RE strategies and policies including regional experts' integration.
- Consultation Meeting "Enforcement of Jordanian Buildings Codes" was held.

- Several awareness sessions at Jordan Valley and Wadi Musa in cooperation with Ministry of Environment aiming at strengthening the resilience of poor communities working in agriculture.

In addition, capacity building events on the following themes were also held by RSS during the reporting period: Biorisk management, Identifying non-conformities & root cause analysis, Radiation protection, Routine troubleshooting instrumentation & HPLC Applications, Detection of pig derivatives in food products, Food inspection, Pesticide Quality Testing, and Detection of Enteroviruses in Sludge by PCR.

Collaborations

RSS signed agreements with the following organizations in 2018:

- On 20th May 2018, an Agreement was signed with the Intellectual Property Commercialization Office (IPCO) of the Industrial Research Institute (IRI) for the 'Innovation Voucher Project'.
- On 5th July 2018, an MoU was signed with University of Pisa (UNIPISA) to foster cooperation and interaction between institutions of Mediterranean area on several disciplines within the parties' field of work.
- On 28th November 2018, an MoU was signed with the National Metrology Institute of the Scientific and Technology Research Council of Turkey (TÜBİTAK) to enhance scientific and technical cooperation in

metrology and calibration.

- On 29th November 2018, an MoU was signed with the TÜBİTAK Marmara Research Centre to promote scientific and technological cooperation in areas of mutual interest.

Moreover, the Systems Engineering and Software Development (SESD) Department in RSS is working in collaboration with the International Bank for Reconstruction and Development (IBRD), World Bank Group, for implementing a Multi-Level Integrated Monitoring, Reporting, Verification (MRV) System for Jordan. The system containing national, sectoral, institutional and project level data will enable climate change mitigation interventions in Jordan. The project is expected to be fully operational by the second quarter of 2019.

Awards and Achievements

During the reporting period, RSS won two out of four awards of Al Hussein Award for Creativity and Excellence in the Fields of Water, Environment and Energy. The Water and Environment Centre at the RSS received an award for Best Environmental Project titled "Hydroponic on rooftops: A new and innovative way to achieve food security in urban areas" implemented by Eng. Mohammad Mashatleh.

The National Energy Research Centre (NERC) at RSS received an award for Best Energy Project titled "Fostering Solar Technology in the Mediterranean area – FOSTER in MED".

Prof. Dr. Yanhe Ma
Director-General, TIB



The 2018 is a fortunate year for TIB since it has witnessed the inclusion of TIB in COMSATS Network as the second COMSATS Centre of Excellence in China. On behalf of TIB, I'd like to take this opportunity to express our appreciation to the Secretariat and all the staff of COMSATS for the support and guidance during the process. We fully recognize COMSATS' mission, objectives and efforts in promoting the socio-economic sustainable development in the South. COMSATS is an important international platform, not only playing important roles in promoting the South-South cooperation but also in catalyzing North-South cooperation. More and more developed countries will be connected to the international collaboration network under the umbrella of COMSATS which will further accelerate the socio-economic sustainable development in the South.

As a national research institute, TIB is committed to supporting the sustainable development of the nation by developing disruptive industrial biotechnologies. TIB has a strong focus on technology transfer and holds cooperative relationships with a large body of commercial enterprises. We are actively working on upgrading our institute to National Technology Innovation Center for Synthetic Biology. We believe the research capacity built by TIB is not only for China, but also could be beneficial to our COMSATS member countries and other friends.

In 2018, we initiated collaborations with some Centers of Excellence such as ICCBS with the support of COMSATS Secretariat. In the coming years, we plan to strengthen cooperation with the members by carrying out training program, joint research, academic exchange and technology transfer to promote biotechnology development and the industrialization in the South, function as a hub for bilateral/multilateral collaboration in the area of biotechnology to fulfill the commitments under the Belt and Road Initiative as well as Sustainable Development Goals, and promote the synergetic and sustainable development both in China and in the South. We believe only by the joint efforts of international cooperation, we will be able to tackle the key challenges hampering the development and application of the industrial biotechnology, and finally create a green and healthy world for our community with shared future for mankind.

Last but not least, we are looking forward to welcoming COMSATS in Tianjin this April for the upcoming 22nd Meeting of the Coordinating Council of COMSATS.

Tianjin Institute of Industrial Biotechnology (TIB), China

Tianjin Institute of Industrial



Biotechnology (TIB), Chinese Academy of Sciences (CAS) is a non-profit national research institute jointly

established by CAS and Tianjin Municipal Government in 2012. TIB's mission is to

strengthen its capabilities in innovation and technology transfer so as to become a global leader for research and development in industrial biotechnology. TIB became the 22nd COMSATS' International S&T Centre of Excellence during the 21st Meeting of COMSATS Coordinating Council held in Almaty, Kazakhstan.

Research and Development

TIB has made major breakthroughs in biotransformation and bio-manufacturing,

the green biosynthesis of chemicals, the microbial production of plant natural products, the green bioprocessing technologies, delivering important impacts in social-economic sustainable development.

TIB is looking for collaborations in the areas of industrial protein science and biocatalytic engineering, synthetic biology and microbial manufacturing engineering, biological systems and bioprocess engineering. TIB offers technology



services, including technology consulting, technology services, analysis service such as amino acid analysis, protein analysis, gene sequencing.

TIB also provides various R&D service ranging from the customized development of biomaterials, biocatalysts, plant natural products and green bioprocessing technologies according to the demand of the industry.

Projects

During the calendar year 2018, TIB undertook about 200 research projects; including 08 international collaborative projects supported by the National Natural Science Foundation of China (NSFC), Chinese Ministry of Science and Technology (MoST), Chinese Academy of Sciences, and Tianjin Municipality.

Moreover, TIB with the patronage of International Partnership Program



of Chinese Academy of Sciences and in collaboration with the research organizations of the developing countries, including COMSATS' member countries, carried the research on the processing and production of functional food ingredients from agricultural biomass resources in Asia and Africa.

During 2018, TIB also extended cooperation to some developed countries such as America, Germany, Canada and Denmark in the areas of protein engineering, bioenergy, bio-food, and biotechnology equipment development.

Collaborations

TIB signed a strategic collaborative agreement with the Power Environmental

Energy Research Institute of America on 31st May 2018 with a view to establishing joint research centres under the umbrella of National Technology Innovation Centre for Synthetic Biology (NC SynBio).

Besides, in order to extend collaboration in fields of chemical, biological and biomedical sciences, TIB inked an MoU on S&T Cooperation with International Centre for Chemical and Biological Sciences (ICCBS), Karachi.

Achievements

TIB has established cooperative relationships with more than 100 enterprises from 24 provinces of China with a total contract value of \$140 million, which makes TIB rank as top 10 among the 104 CAS institutes based on technology transfer.

Publications

During the reporting period, TIB published 142 articles in Science Citation Index (SCI) journals. Besides, researchers of TIB published a manuscript on developments in the progress of carboxylic acid substrates (CARs) from an evolutionary point of view, including the convergence/divergence between CARs and knowledge of the catalytic mechanism in Green Chemistry.



TÜBİTAK Marmara Research Center (MAM), Turkey

TÜBİTAK Marmara Research Centre (MAM), Turkey, is an internationally recognized organization involved in research on conventional technologies for enhancing Turkish industry and solving technological problems.



Research and Commercialization Activities

TÜBİTAK MAM developed a technology to detect aflatoxin, which is a toxic and carcinogenic matter in food items. Immunoaffinity columns are used for aflatoxin detection. These columns constitute of antibodies and antibody based analysis of products, which can be used widely in food control and food analysis laboratories. The diagnostic kits based on the technology would be prepared under the Ministry of Food, Agriculture and Livestock.

A “Passenger Imaging System” developed by the Materials Institute of TÜBİTAK MAM started serving at the Turkish ports of entry. The system was developed by TÜBİTAK MAM as a result of the R&D project in collaboration with the Ministry of Customs and Trade Directorate General of Customs. The system is actively used at the Turkish ports of entry for the detection of smuggling. The Imaging System can detect metal and non-metal dangerous materials like drugs, explosives and guns hidden on passengers or underneath their clothes. One of the most important advantages of the system is its capacity to detect items that cannot be detected by metal detectors.

TÜBİTAK MAM and DEMİRPOLAT Ltd. Co. signed a license protocol on the first 100% national complementary



food for infants. The parties agreed to conduct a project on the “Development of Cereal Based Complementary Infant Food Formulations”. This project allows the production of hydrolyzed flours made of organic cereals (wheat, oat and rice) which constitute the main raw material of complementary infant foods.

TÜBİTAK MAM and MAPA Dried Fruit, Food and Construction Industry and Trade Inc. signed a license agreement for 100% national pectin production. Pectin is a stabilizing and gelling agent used in food processing. The project aims to produce pectin from apple pomace and apple peel, and to improve the conditions for apple pectin production.

Collaborations

The President of Shota Rustaveli, Georgian National Science Foundation (SRGNSF), Prof. Manana Mikaberidze, and the

Vice President, Dr. Nino Gachechiladze, visited the campus of TÜBİTAK in Gebze upon the invitation of the President of TÜBİTAK, on 26th January 2018.

A delegation from Tanzania visited TÜBİTAK Marmara Research Center (MAM) on 17th January 2018. The parties discussed the opportunities of cooperation between Tanzania and TÜBİTAK MAM. After the meeting, the delegation visited TÜBİTAK MAM’s laboratories at Food, Materials, Energy and Chemical Technology Institutes.

Projects and Technical Services

The IPA-INNOFOOD Project on the “Development of Research and Innovation Facilities for Improving Regional Competitiveness of Food Industry” was successfully put into practice. This is the first project approved in the 2nd Term of the Competitive Sectors Program under the financial cooperation between the EU and Turkey. The protocol signing ceremony was held at the premises of TÜBİTAK MAM. The project aims to improve the product quality and safety of SMEs operating in the food and beverage sector.

TÜBİTAK MAM expanded its customer service portfolio to Europe after addressing hydrophone calibration request of a Research Center in Italy and PAH analysis





request of an Environmental Laboratory in Monaco. The Centre provided its services to the Principality of Monaco, which is located in the Mediterranean Coast of Europe.

The Centre also extended its customer service portfolio abroad by getting service requests from Russian Federation for “cytotoxicity, irritation and sensitization” tests in accordance with the test protocol of the international standard ISO 10993 in medical device and material sector.

The power plant control system that was developed by TÜBİTAK MAM Energy Institute Power Plant Control Technologies Group was put into service at the first unit of the Deriner HPP operated by the HPPs Department of Electricity Generation Company (EÜAŞ). The Deriner HPP consists of 4 units with an installed capacity of 670 MW. It is the 6th largest hydroelectric power plant of Turkey.

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 3B Center of Excellence is open to collaborations with COMSATS’ countries for developing joint projects in line with the needs of the countries.

COMSATS’ member countries can use the infrastructure of the Center for their projects.

Université Cheikh Anta Diop (UCAD), Senegal

UCAD was established in 1957, and offers learning and research opportunities in a broad spectrum of disciplines to the population of Senegal.



The archeological research of UCAD, Senegal, received a prize at the XVIII congress of Union Internationale des Sciences Préhistoriques et Protohistoriques (UISPP) that was held from 04 to 09 June 2018 at the Université Panthéon-Sorbonne, Paris. UCAD is the only African university to have received the award. This award is a distinction for archaeological research (shelly clusters, valley of the Senegal River and Falémé) conducted by the Department of History of the Faculty of Humanities and Letters and IFAN Cheikh Anta Diop in collaboration with international teams.



A Glance at the Presentations of Centres of Excellence made during 21st Coordinating Council Meeting

Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh

Dr. Md. Sarwar Jahan, Director of BCSIR Laboratories, Bangladesh, gave a detailed account of research divisions at BCSIR while elaborating various R&D projects and products developed by BCSIR laboratories housed at Dhaka and Chittagong. Dr. Jahan informed that the Institute of National Analytical Research & Service (INARS), BCSIR, has been accredited by Bangladesh Accreditation Board (BAB) and is committed to work for the SDG-6 – Clean Water and Sanitation. BCSIR established various research facilities for advanced research, innovation and technology transfer. It was informed that BCSIR organized in-house trainings on sophisticated laboratory instruments, trainings for armed forces personnel and scientific workforce in industries as well as trainings for general public.

Embrapa Agrobiologia, Brazil

Dr. Robert Boddey, Research Scientist representing Embrapa Agrobiologia, Brazil, informed that Embrapa is the Brazilian Agricultural Research Corporation under the Ministry of Agriculture, Livestock and Food Supply, Brazil. Its 46 research centres are conducting research on various aspects of agriculture with a focus on biological nitrogen fixation. An organic farm is housed at Embrapa Agrobiologia as well as various R&D facilities. Embrapa Agrobiologia has established a network of experiments for research and technology transfer and also offers training in microbiology and molecular biology. Collaborations are ongoing with Savanna Agricultural Research Institute (SARI), the Council for Scientific and Industrial Research (CSIR), Ghana; and National Institute of Agricultural Sciences (INCA), Cuba. It was also informed that Embrapa Agrobiologia is one of the actors in the cooperative project funded by PROCISUR (Cooperative Program for the Agroalimentary and Agroindustrial Technological Development of the Southern Cone). Embrapa Agrobiologia

has extended its outreach to countries such as Argentina, Colombia, Germany, England, France, Portugal, Uruguay, USA, Cuba, Mexico, Ghana and Kenya for joint ventures in research and development.

Tianjin Institute of Industrial Technology (TIB), China

Prof. Dr. Jibin Sun, Deputy Director-General TIB, briefed the participants about the organizational structure and model, research areas, core facilities, human resource, products, as well as research output of the Institute during the past ten years. Furthermore, it was informed that in the pursuit of its mission, TIB catalyses transition from agricultural plantation, chemical processing, and fossil based resources to industrial manufacturing, bioprocessing, and renewable resources respectively. The Institute is collaborating regionally and internationally with several industries, enterprises as well as R&D institutes for technology transfer and industrialization. TIB has partnered with more than 140 Chinese companies; has established 20 joint labs with the companies apart from establishing 04 industrialization



bases with the local governments and enterprises. TIB has transferred thirty 30 technologies to various industries including pharmaceutical, chemical, textile, fermentation, biomaterials and enzyme industry. Internationally, TIB is collaborating with R&D universities from more than 20 countries and has established partnership with more than 10 international organizations. TIB is planning to establish the National Technology Innovation Centre for Synthetic Biology (NC SynBio) and scale-up its campus wherein 12 key technology R&D platforms, a facility core, and an incubation centre will be established.

Centro Internacional de Fisica (CIF), Colombia

Prof. Dr. Eduardo Posada F., Director, International Centre for Physics (CIF), Colombia, gave a briefing on the projects undertaken by various research groups at CIF in following areas: (i) biophysics and tropical diseases; (ii) biophysics of cellular signalling; (iii) cellular neurophysiology; (iv) applied optics; (v) materials science;

(vi) environmental biotechnology; and (vii) applied physics and technological development. He informed that CIF has established ties with international organizations such as ICTP, TWAS, Max Planck Institute, Gottingen, Ecole de Physique et Chimie, Paris, Paris VI NYW, and Biophysics Institute Woodshole.

National Research Centre, Egypt

Prof. Dr. Ashraf Shaalan apprised the Council of the formalization of an MoU between NRC and ICCES-China. NRC has strengthened ties with COMSATS Member States including Jordan, Kazakhstan, Morocco, Sudan, Tanzania and Tunisia, by signing agreements with their respective governments. For joint ventures in the future, Prof. El-Sayed proposed hosting a workshop on water shortage and also invited researchers/scientists from academic and research institutions of COMSATS Member States for participation in the research projects to be launched under the umbrella of NRC 12th Research Plan.

Iranian Research Organization for Science & Technology (IROST), Iran

Dr. Mahmoud Molanejad, Acting President for International Cooperation IROST, presented programmes and activities for 2018-2019 and briefed the Council about IROST mission to strengthen the foundations of self-reliance in science and technology; and support Iranian inventors, innovators, researchers and industrialists to respond to the increasing demand for science and technology development programs. He gave a detailed description of IROST structure & facilities; and invited researchers, innovators and inventors from all over the world and to participate in the 32nd Khwarizmi International Award (KIA) Tehran (February 2019). It was informed that joint research projects between IROST and Sultanate of Oman and joint cooperative research project with Germany, Brazil and Sri Lanka, have been approved.



International Centre for Environmental Nuclear Sciences (ICENS), Jamaica

Mr. Charles Grant and Mr. Johann Antoine represented ICENS and gave an overview of the key facilities and progress on various projects during 2017 and informed that ICENS hosted several TWAS fellows from Nigeria, Uzbekistan and Namibia. They also referred to the Memorandum of Understanding (MoU) between ICENS and Namibia University of Science and Technology.

Al-Farabi Kazakh National University (KazNU), Kazakhstan

Prof. Tlekkabul Ramazanov, Vice-Rector for Science and Innovations, presented key statistics including financial and economic indicators about KazNU and explained that the University aimed at generating the highly qualified specialists competitive in the international labour market. He gave a detailed overview of various institutes operating under the University and interpreted the

Research-Innovation-Production chain. He explained that the scientists at the University implemented 574 projects with total funding of US\$14.5 million during 2017, including 247 projects of grant funding by the Ministry of Education and Science; 128 research works within the framework of business agreements with organizations and enterprises; 193 grants of international funds and organizations and six projects of programme-targeted funding by the Ministry of Education and Science of the Republic of Kazakhstan on DRIA of Al-Farabi KazNU. KazNU is an internationally recognized as Global Hub for Sustainable Development of the Program "Academic Impact" of the United Nations and Regional Hub for Sustainable Development within the framework of the UNESCO Program – UNITWIN.

National Mathematical Centre (NMC) Nigeria

In his presentation, Prof. Stephen E. Onah, Director/Chief Executive, National Mathematical Centre (NMC), Nigeria, informed that Nigeria is being benefitted

from various programmes and activities of COMSATS which, inter alia, include scholarship schemes, capacity building events, and sponsorships in the form of travel grants. It was informed that in addition to joint research projects in a wide spectrum of areas related to Mathematical Sciences, NMC and CUI have also joined hands for sharing resources such as scientific literature. Prof. Onah also mentioned that NMC has solicited support from CUI for the development of ICT Resource Centre at NMC. Prof. Onah pledged to generate innovative topics for ITRG on Mathematical Modelling. He also expressed intent for bilateral visits between NMC and other Centres of Excellence for exploring avenues of collaboration and launching joint projects in line with UN Sustainable Development Goals (SDGs).

COMSATS University Islamabad (CUI), Pakistan

Prof. Dr. Raheel Qamar, Rector, CUI, gave a detailed account of the organizational structure, academic programmes and



human resources at CUI; and highlighted key achievements of the University during 2017. He mentioned that CUI was ranked among the top universities at national and international levels. He referred to CUI cooperation with COMSATS' member countries and informed that the University had so far accommodated 900 students through scholarships from Bangladesh, Nigeria, Palestine, Gambia, Sudan, Iran, Turkey, Jordan, Somalia, China and Tanzania. Dr. Raheel Qamar expressed that CUI was keenly looking forward to collaboration with other members of the network in the field of cyber security, and organizing scientific forums for mutual benefit.

Industrial Technology Institute (ITI), Sri Lanka

Dr. G.A.S. Premakumara, Director, General ITI gave an overview of the organisational structure and human resources and highlighted the major objectives, functions, achievements as well as major technology transfers of the Institute. Regarding the on-going and future collaborations with COMSATS' Centres of Excellence, Dr. Premakumara stated that an MoU has been signed between ICCES, China, and ITI, Sri Lanka. Under this MoU, establishment of a Center for Extreme Climatic Events & Environmental Research (CECEER) at ITI is in process.

Industrial Research and Consultancy Centre (IRCC) Sudan

Dr. Widad Hassan Abdulhalium, Director-General IRCC, informed that IRCC had signed agreements with four states to establish IRCC departments, while in-depth studies were in process to identify the potential and create industrial map in

each state. She explained that IRCC had executed 20 research projects, issued 26 publications, carried out infrastructure and rehabilitation projects and conducted several capacity building programmes. IRCC has entered into an agreement with UNESCO Chair, Pakistan Council of Scientific and Industrial Research (PCSIR) and ICCBS, Pakistan on Transfer of Technology.

Higher Institute for Applied Sciences and Technology (HIAST), Syria

The Director of Higher Institute for Applied Sciences and Technology (HIAST), Syria, Dr. Maher Suleiman, shed light on the awards and achievements of HIAST during the reporting period including the publishing of 8 scientific books and 19 papers in journals of international repute. He apprised of the nascent collaboration between HIAST and (i) Iranian Research Organization for Science & Technology (IROST), Iran, in Solar and fuel cell and hybrid PV systems; (ii) Water Researches and Technologies Centre of Borj-Cedria (CERTE), Tunisia, in Waste water treatment; and (iii) Advanced Materials and Nanotechnology Research Center, Iran, in microwave absorbing materials.

Tanzania Industrial Research and Development Organization (TIRDO), Tanzania

Dr. Lugano Wilson Mwansule, Director, Engineering Development, Tanzania Industrial Research and Development Organization (TIRDO), Tanzania, highlighted the mission along with the key functions and the core departments of the Organization. TIRDO has on-going collaborations with other

Centres of Excellence. TIRDO signed a Memorandum of Understanding (MoU) with TÜBİTAK Marmara Research Center (TÜBİTAK MAM), Turkey in 2016. The MoU aimed at technical cooperation in Energy; Engineering; Food Science and Technology; Biotechnology; Materials Technology; Environment; and Chemistry. Furthermore, it was shared that collaboration between TIRDO and Industrial Research and Consultancy Centre (IRCC), Sudan, in leather and textile research is in initial stages. Dr. Mwansule stated that a scientist from TIRDO is also participating in COMSATS' ITRG on Mathematic Modelling.

Centre for Water Researches and Technologies (CERTE), Tunisia

The Director General of Water Researches and Technologies Centre of Borj-Cedria (CERTE), Tunisia, Prof. Ahmed Ghrabi, enumerated the regional and international academic institutes, research organizations and industries with which CERTE has partnered. CERTE is executing projects with countries such as France, Germany and Morocco. Moreover, Prof. Ghrabi mentioned that CERTE has been a partner in projects on Water-Works- (IRESA) and Water Saving in Agriculture (WASA) executed under European Union: H2020 in the year 2017. Currently, CERTE is working on a project on salt in transformation in partnership with University of Berlin, Germany, DAAD. CERTE has successfully transferred following technologies to the industries for the benefit of society: (i) valorization of wastes of soft drinking industries by production of interest microorganisms and metabolites; (ii) treatment and valorization of the effluents of petroleum production; and (iii) sanitation in rural primary schools (local water management system).

8. INTERNATIONAL THEMATIC RESEARCH GROUPS

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Activity Report of COMSATS' International Thematic Research Groups (ITRGs)

COMSATS' International Thematic Research Groups (ITRGs) are based on research collaboration among clusters of scientific institutions in specific fields of Science and Technology relating to development needs of Member States. Based on their respective expertise, selected Centres of Excellence of COMSATS are designated as the Lead Centres of these Groups while the membership is open to all relevant institutions. The member institutions of a Group are expected to complement one another's scientific capacities for a coherent goal-oriented R&D activity under the guidance of the designated Group Leader from the Lead Centre.



During the reporting period, efforts were continued by COMSATS Secretariat for engaging with ITRGs with an aim to augment the level, and scope of their activities pertaining to research projects and capacity building. In order to review the progress and development of joint research of the respective Groups and to discuss future plans and roadmaps for further actions, meetings were held with group leaders/ members of four ITRGs on 25th September 2018. Some outcomes and discussions of the meetings are as follows.

International Thematic Research Groups (ITRGs) on Climate Change and Environmental Protection

In the Skype meeting held with Dr. Chenglai Wu, Associate Professor, ICCES, CAS, China, it was informed that data

has been compiled from five countries for the Group's project on meteorology. Dr. Wu stated that expansion of the Group to other countries would help in efficient data compilation and analysis. It was proposed by Dr. Kamran Jahangir, Advisor (TAC),

COMSATS, that the Group may hold a local workshop for data interpretation and translation into meaningful developments.

It was apprised that for the capacity building and knowledge sharing in areas



pertaining to climate and environment, international workshops are held annually with the active support of CAS-TWAS-WMO Forum (CTWF). Moreover, it was communicated that under the umbrella of ITRG on 'Climate Change and Environmental Protection', International Center for Climate and Environment Sciences (ICCES) has provided scholarships to six students from COMSATS' member states.

Further during the meeting, the matter of funds availability for project execution and other activities being executed by the Group was also discussed. COMSATS pledged its full support for facilitating collaboration between ICCES and other Centres of Excellence of COMSATS.

International Thematic Research Groups (ITRGs) on Renewable Energy

For appraisal on progress of ITRG on 'Renewable Energy', a Skype meeting was held with Prof. Nasrin Moazami, Group Leader, and Dr. Foad Farhani, Acting President of International Relations, IROST, Iran.

Dr. Farhani informed that the two projects, one on 'Microalgae' and the other on 'Solar Cells' are being executed under the umbrella of ITRG on Renewable Energy. Further, he notified that the feasibility study of another project on 'Microalgae to Fuel' has been conducted. While briefing on the projects, he informed that IROST is the pioneer of launching solar energy initiatives in Iran. Further during the discussions, Prof. Moazami indicated Blue Economy as a prospective area that may be explored by IROST in the near future.

Prof. Moazami informed that the President of Iran National Science Foundation (INSF), Dr. Nosratollah Zargham, has pledged the Foundation's financial support for activities and projects carried out under the umbrella of ITRG.

International Thematic Research Groups (ITRGs) on Natural Product Sciences

In Skype meeting held with Prof. Iqbal Choudhary, Director, International Center for Chemical and Biological Sciences (ICCBS), and Prof. Dr. Shaheen Faizi, Associate Researcher, ICCBS, COMSATS' officials received a briefing on the recent undertakings of the Centre including collaborations with other COMSATS' Centres of Excellence, expert exchange, and reverse linkages programmes launched by ICCBS with the support of Islamic Development Bank (IDB).

It was notified that trainings will be provided to selected post-doctorates from COMSATS Centres of Excellence in Egypt, the National Research Centre (NRC) at ICCBS, Pakistan, as a part of fellowship programme of the latter. Further, it was learnt that ICCBS has:

- explored common grounds of cooperation with the Centres of Excellence in Sri Lanka (ITI) and Turkey (TUBITAK MAM) through COMSATS' support.
- launched expert exchange programme with ICCES, China, for advocacy of climate and health;
- established a Pak-Kazakh Research Laboratory jointly with KazNU,

Kazakhstan, with the support of IDB; and

- seeks to develop working relations with IROST, Iran, in the field of medicinal plants.

International Thematic Research Groups (ITRGs) on Information and Communication Technologies

Dr. Sajjad A. Madani, Associate Professor, COMSATS University Islamabad (CUI) visited COMSATS Secretariat to meet the Executive Director COMSATS with regard to the progress of the Group.

Dr. Madani informed that several national events and seminars have been conducted under the ITRG on ICTs. He expressed interest in expanding the frontiers of the Group by launching projects and activities in e-learning, Block Chain, and Artificial Intelligence and building collaboration with the countries of the North, which would also help with funding issues for these projects.

Dr. Zaidi suggested exploring possibilities of providing consultancy services in the field of ICTs to national, regional and international bodies, particularly in COMSATS' member states. This idea was received with great interest by Dr. Madani who stated that a strategic plan would be devised by the Group for provision of



services in Data and Science Analytics and Cyber Security to COMSATS' member states, including Pakistan.

Summary of Presentations made by ITRGs during 21st Council Meeting

As a regular feature of the Coordinating Council Meetings since the launch of the ITRGs, progress reports are presented by the group leaders or their representatives. Presentations made during the last Council meeting by the groups are summarised below:

a. Information and Communication Technologies Group

Dr. Arshad Saleem Malik, Head, International Office, CUI, Pakistan, highlighted the research themes of the Group, i.e., (i) Big Data and IoT, (ii) Cloud computing, (iii) e-Solutions and (iv) Cyber Security. Key elements of the projects that were being executed under these themes were elucidated. It was learnt that a Hybrid Learning Initiative was launched under the aegis of the Group. He also enumerated the publications issued under different research themes.

Dr. Malik apprised the Council about various capacity building events organized under the Group activity during the reporting period and expressed the intent to soon convene a meeting of the ITRG on ICTs. A proposal, it was informed, had been submitted for establishment of Cyber Security Laboratory.

b. Mathematical Modelling Group

Prof. Ejugwu Stephen Onah, Director/ Chief Executive, NMC, Nigeria, presented progress of the ITRG on "Mathematical Modelling and Simulation of Air and Water Pollution: Effects and Remedies" and informed that the Group was conducting research on: (i) water pollution with chemical substance, (ii) greenhouse



gases, (iii) heavy metals (iv) carcinogens and (v) microbes. He shared with the participants major research findings of the Group on greenhouse emissions in Nigeria and Tanzania; mathematical study of biodiversity in polluted environment; and evolutionary study of cancer cells using numeric simulation.

c. Renewable Energy Group

Dr. Mahmoud Molanejad, Acting President, International Cooperation, IROST, Iran, in his presentation

explained that the Group had selected the project entitled "Measurement and Characterization of Silicon Crystalline Solar Cell" during its foundation meeting in 2016. He informed that scientists from Iran, Kazakhstan and Syria were participating in the project. He invited scientists from other Member states to join the Group. Dr. Molanejad highlighted the difficulties being faced by the Group in acquiring requisite funds for the project and requested COMSATS for assistance in this respect.



9. SPECIAL ASSIGNMENTS

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Special Assignments

For the benefit of its Member States, COMSATS undertakes special assignments, such as conducting scientific studies, undertaking pilot projects, or implementing educational programmes. One of COMSATS' flagship projects has been successfully transformed into full-fledged institutions, i.e., COMSATS Internet Services (CIS), while the project on telehealth is being expanded. The administration related to graduate students from Member States studying at CUI is also a special assignment of the Secretariat. Some of the foreign students after thorough evaluation have been engaged to facilitate in COMSATS' operations.



COMSATS Tele-health (CTH)

During 2018, COMSATS Telehealth (CTH) was aligned with the Goal 3 of UN Sustainable Development Goals, which is to “ensure healthy lives and promote wellbeing for all at all ages”. CTH particularly aims at achieving targets of Goal 3 for the provision of universal health coverage, access to quality essential healthcare services, especially those focusing on mother and child health care to reduce perinatal mortality.

During the reporting period, CTH continued providing health services through Teleconsultations, building previous partnerships and seeking new ones to strengthen Telehealth system and carrying out awareness and advocacy programs to disseminate information on usefulness of Telehealth system within Pakistan and other member states of COMSATS.

Tele-consultations

CTH Clinics established throughout Pakistan continued to give online treatment and advice through doctors available from COMSATS Telehealth Resource Centre in Islamabad. Total number of patients seen during the year through Telehealth exceeded 4000 (Figure 1).

CTH provides outpatient care through General and family physicians to patients presenting with a variety of ailments. Around 56 percent of the cases seen were of females seeking Obstetric care, that were provided antenatal and postnatal care assisted by online antenatal Ultrasound scans. Keeping the need in view, in addition to the physicians, a Gynecologist was also taken on board to provide



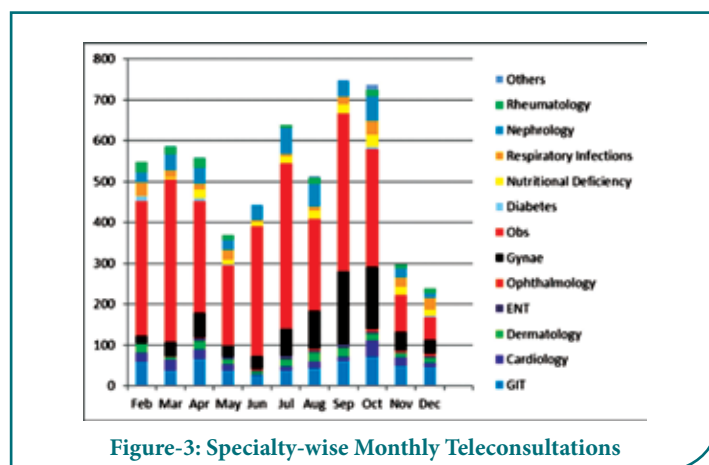
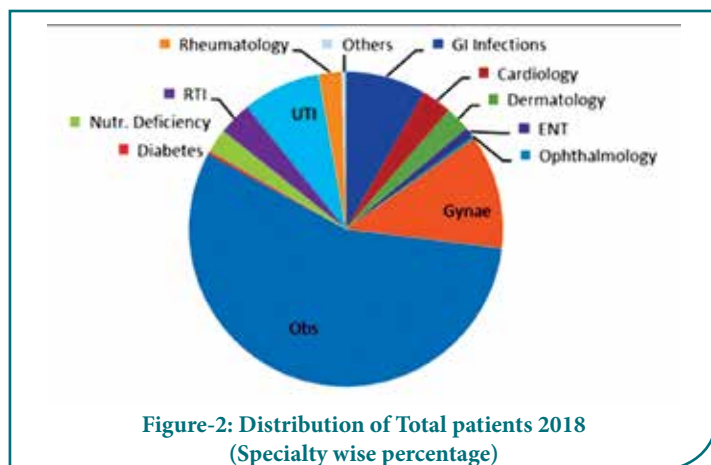
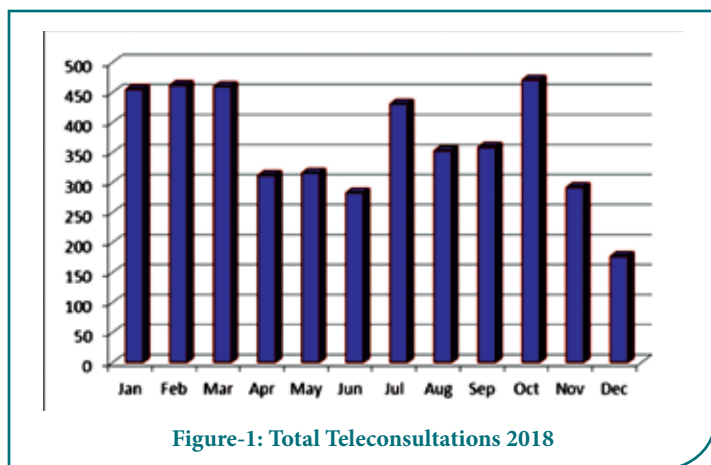


Figure-4:Telehealth Clinics-Locations	
Telehealth Clinics	
Quetta	
Gwadar	
Mansehra	
Multan	
Ubhri	
New/Reopened Clinics	
Madan	
Swabi	
Gokina	

support for complicated Gynecological and Obstetrics cases presented at these clinics. Teleconsultations also helped patients presenting with gastrointestinal, respiratory tract, and urinary tract infections, in addition to patients with various nutritional deficiencies.

Additional Telehealth Clinics

Two CTH clinics were added to the list of clinics: one through COMSATS-KPK IT board project and the other handed back earlier to the local health administration was reacquired.

Capacity-Building

Events Organized

Training and hands-on practice for staff at new Telehealth clinics was carried out to develop and enhance their understanding of telehealth, the standard procedures to carry out teleconsultations and use of telemedicine hardware and software. Four medical technicians from the two centres were trained while two female health workers got trained in handling

ultrasound probe to assist the gynecologist in Islamabad for antenatal ultrasounds.

COMSATS also initiated collaboration with the Health Informatics Department at COMSATS University for a one-day study visit of MS Health Informatics students to the COMSATS Telehealth. Two groups of 10 students each visited COMSATS Telehealth in year 2018. Both groups led by Assistant Professor, Dr. Nighat Sultana, were briefed about background and operations of CTH and were taken to the Resource Centre for live demonstration of the ongoing teleconsultations. Students took keen interest in the working and technology of the telehealth and asked questions from the medical doctors at the Centre. Their queries addressed pertained to satisfaction of the patients and doctors of CTH, issues of paramedics at the Rural



Honorable Mention under ICIMOD's ICT Mountain Development Award 2018

In December 2018, COMSATS Telehealth received an honorable mention under the "ICT Mountain Development award 2018" of the International Centre for Integrated Mountain Development's (ICIMOD). The mention was recognition of its role in providing healthcare and knowledge and skill development of the local community using ICTs.

2018, Islamabad, Pakistan

- International Students Convention & Expo at Pak China Business Center, December 2018, Islamabad, Pakistan
- COMSATS Carrier & Expo Fall 2018, COMSATS University Islamabad, December 2018, Islamabad, Pakistan



Telehealth clinics and kind of software being used for transfer of patient data.

In order to create general awareness among health professionals and provide a platform to the relevant stakeholders to showcase their eHealth activities, COMSATS regularly organizes seminars and workshops on e-Health. One such seminar was conducted as a part of health expo in Islamabad with 50 participants including representatives from NGOs, health organizations and universities (Section 5).

Event Participation

CTH participated in the following capacity building events and demonstrated its telemedicine system at various fora.

- Digitizing the Healthcare Sector – Challenges & Opportunities , November 2018, Colombo, Sri Lanka
- Digital Youth Summit, April 2018, Peshawar, Pakistan
- Tourism Gala, April 2018, Mirpur, Azad Jammu and Kashmir
- International Health Expo, October

Collaborations

Azad Jammu and Kashmir- IT Board (AJK-IT)

The year 2018 started with the visit of the President of Azad Jammu and Kashmir (AJK), Sardar Masood Khan, to COMSATS Telehealth and COMSATS Internet Services. The President was briefed about the Telehealth program and also shown a demonstration of live Teleconsultations. The visit resulted in close collaboration between CTH and the Government of AJK leading to proposal submission for set up of telehealth centres in AJK, participation in a Gala in Mirpur and an online medical camp. The medical camp was setup at a remote location near Rawalakot district of Kashmir through satellite link where doctors at CTH resource centre in Islamabad provided consultations online for three consecutive days. Later, the same setup was shifted to Muzaffarabad where patients were provided online consultation for another three days. A total of 286 patients benefited from this camp.

KPK-IT Board

In continuation of the understanding reached through an MoU signed in 2017, separate agreements with Khyber Pakhtunkhwa-IT (KPK-IT) Board were signed for establishment of two new Telehealth Clinics in KPK. A centre each was established in BHUs in Mardan and Sawabi. Possibility of extending telehealth Services in the FATA area of KPK is also under discussion.

Agreements Signed

During 2018, agreements were signed with the following institutions:

- *Baluchistan Research and Development Foundation (BRDF)/Dr Najma Ghaffar Hospital(DNGH)*
Under the agreement, COMSATS will provide technical support to establish a Telehealth centre at DNGH, Quetta and link it with a Telehealth clinic to be established at Jhal Magsi, a remote area in the province of Baluchistan.
- *International Rescue Committee (IRC)*
The agreement signed paves way for preparation of a joint proposal 'Saving Lives at Birth: A Grand Challenge for Development'
- *Pakistan Asthma Allergy and Immunology Society (PAAIS)*
COMSATS entered into an agreement with PAAIS that aims to provide training to the health professionals linked with telehealth clinics. The focus of the trainings will mainly be allergy and immunological ailments and their management. Further, President of PAAIS being an expert in the field also provides teleconsultations to the allergy patients presenting at Telehealth clinics.

Other possibilities of collaboration were explored with Pakistan Institute of Medical Sciences, Midland Doctors Medical Institute (MDMI), Welthungerhilfe,

and Commonwealth Centre for Digital Health(CWCDH).

Moreover, throughout the year 2018, COMSATS Centres of Excellence were engaged in activities relating to CTH. These included Al-Farabi Kazakh National University (KazNU), Kazakhstan and Industrial Research and Consultancy Centre (IRCC), Sudan.

COMSATS Internet Services (CIS)

Established in 1996, COMSATS Internet Services (CIS) is Pakistan's pioneer ISP, offering diversified services, like Wireless broadband, Domain & web hosting, On-demand broadband, data center services, video conferencing, website designing and development, search engine optimization, virtual private servers, networking, IT training, and Internet related research facilities for the last 23 years. CIS currently operates in 19 cities of Pakistan and has more than 12,000 customers in prominent organizations from public and private sectors, well-known national and international companies and firms, software and business companies, foreign missions, consulates and embassies, non-governmental organizations, universities, and social development and research organizations.

The affairs of CIS are managed by a Board of Management (BOM) headed by Dr. S.M. Junaid Zaidi, Executive Director COMSATS. The Board deliberates on matters, such as general performance, financial performance and overall expansion of CIS operation & network coverage. Mr. Sardar Nasir Jamal Khan was recently appointed as Chief Operating Officer CIS.

CIS has eight core services branded as 'The Colors of CIS'. These include Tornado® (Wireless broadband), Hawaii™ (Domain, hosting, and VPS) and COMSpeed™ (Optical Fiber Connectivity). CIS' value added services include Hurricane™ (On-demand broadband), Prism™ (Website development), Viacon™ (Video conferencing), and COM meeting™ (web Conferencing Service). CIS ComClinic™ is a brand name under which CIS delivers tele-health service to underdeveloped and remote areas in Pakistan. All these processes and procedures are ISO9001:2008 certified.

CIS also offers a wide range of training courses, including Cisco®, CCNA and CCNP, Linux Administration, Windows® Administration, Microsoft Office®, Oracle® database administration, Web development, Graphics design, and ITIL® V3 Foundation.



Data Centers

CIS has well-equipped data centers in Islamabad, Lahore, Faisalabad & Peshawar offering a variety of services like Virtual Private Servers, Domain Registration, Website Hosting, Co-location of Servers and Rack space to its customers. The data centers provide hosting services on both Windows and Linux platforms. CIS expanded its data center infrastructure with the latest state-of-the-art equipment at CIS Technology Park building in Islamabad. Additional features include:

- Precision cooling system with humidity controller;
- Fire suppression along with four-stage fire alarm;
- N + 1 electric system including UPS and backup electric generators.

Software & IoT Development

CIS Software development and IoT sections consist of dedicated experts in JAVA, Python, .NET & PHP platforms and machine languages who utilize latest technology and best practices for website performance optimization, security and inventions. The experts of this section are using Internet for human intelligence and development of useful IoT products, such



as those to control water management, building safety & security, etc. This section has successfully developed new products, and upgraded applications for Government, semi-Government, non-governmental and private organizations.

Bandwidth Growth

To ensure provision of high uplink and downlink speeds for its customers, CIS gets bandwidth from multiple providers. CIS acquired bandwidth growth from 3.5 GBPS in 2017 to 4.5 GBPS (approximately current bandwidth) in 2018.

Tele-Health Clinics

A network of 13 rural Tele-Health clinics is connected with CIS Islamabad where a panel of doctors/specialists provides live medical consultation. These telehealth clinics are functioning and successfully operating in the remote areas of Pakistan, where more than 85,620 patients have been examined so far through this system. This facility is highly appreciated by the local population due to the importance of system. CIS is providing its consultancy for running of telehealth facilities as joint venture with Government of Punjab & KPK. Efforts are also being made to establish these facilities in FATA & AJK in near future. (Details in earlier report of this section)

Expansion of Operations

CIS is continuously working on its network expansion program. For this purpose, CIS added new PoPs in the surrounding areas of Rawalpindi/Islamabad, new offices have been set up at Tarnol, BaraKahu, Wah/Taxila and PWD Colony areas of the Punjab province of Pakistan.

Participation and Promotion

During 2018, CIS set up stalls at the International Health Expo, Student



FROM OUTGOING FOREIGN INTERNS

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I completed my Masters in Molecular Genetics from the prestigious University (COMSATS University Islamabad) on COMSATS Scholarship. I did my research at Translational Genomics Lab on one of the most endemic Auto-immune disease (Rheumatoid arthritis). In this research, we checked the role of some gene's SNPs among Pakistani population. We were able to achieve such a good research with excellent findings under the supervision of Dr. Benish Syed Ali and Co-supervision of the able Rector/Vice-Chancellor of CUI in person of Prof. Dr Raheel Qamar T.I.



I was able to have such a wonderful research experience due to the opportunity given to me by this great commission (Commission on Science and Technology for Sustainable Development in the South) of which one of the objectives is to bring in closer all the countries in South (developing and under developed countries) all together in order to achieve sustainability in the area of science and technology.

During my two years stay at CUI, I was opportune to work with this organization (COMSATS) for a period of one year as an intern. During that period of time, I learned a lot from the able and talented senior officers from different departments and as such that improved my skill to work in any international organization. I would like to thank the management of COMSATS, especially the Executive Director, for this wonderful experience.

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I won the COMSATS University Islamabad-The World Academy of Science (CUI-TWAS) Postdoctoral Research Fellowship in 2017-2018 tenable in the Polymer and Material Science Laboratory, Department of Physics, COMSATS University Islamabad, Pakistan. During my stay at CUI, I worked on the synthesis of two-dimensional perovskite materials and their applications in solar cells. The research was aimed at finding alternative and renewable energy sources to meet the global energy supply and protect the environment. CUI is a world-class University that provided me the enabling environment, equipment and all the required materials to conduct my research. CUI laboratories are equipped with the state-of-the-art instruments. The University is one of the best higher education institutions of Pakistan.



I also enrolled as an International intern at the Commission for Science and Technology for Sustainable Development in the South (COMSATS) Secretariat, Islamabad, Pakistan. My time at COMSATS as an intern exposed me to the knowledge of international relations and operations of international organizations. COMSATS Secretariat is staffed with seasoned administrators and international experts, headed by an able Executive Director, Dr. S. M. Junaid Zaidi, with whom I worked closely and from whom I learned a lot.

Convention Expo, University & Colleges Expo for marketing of CIS products and CTH. These stalls attracted a number of visitors and their interest.

Moreover, CIS demonstrated telehealth services in Mirpur, Rawalakot & Muzafarabad AJK on the directives of Mr. Masood Khan, President Azad Jammu Kashmir. The main objective of the demonstration was to educate the locals about the efficiency and effectiveness of tele-health. The activity was highly appreciated by the IT Board, AJK & Government of AJK.

Scholarships Available from COMSATS' Platform

COMSATS University Islamabad (CUI), Pakistan, has a standing offer of 100 scholarships for graduate studies and 10 PhD scholarships / postdoctoral fellowships. During 2018, twelve students from Sudan, Jordan, Nigeria and Gambia availed these scholarships by enrolling in MS and PhD programmes.

The offer of Al-Farabi Kazakh National

University (KazNU), Kazakhstan, makes available 05 PhD scholarships / postdoctoral fellowships to COMSATS Member States. One student from Pakistan is availing this opportunity and is enrolled at KazNU for PhD programme.

The National Research Centre (NRC), Egypt, offers 05 short-term (1-2 months) fellowships for PhD students.

A nomination from the Centre of Excellence in Sudan, Industrial Research & Consultancy Centre (IRCC), has been forwarded by COMSATS Secretariat to

NRC for evaluation.

Consultations are being made with the International Centre for Chemical and Biological Studies (ICCBS), Pakistan and TUBITAK-MAM, Turkey, regarding scholarships offered by them during 21st Coordinating Council meeting. COMSATS is considering ways of realizing 01 PhD scholarship/ postdoctoral fellowship from Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh.

Foreign Interns Programme

In March 2017, the Executive Director COMSATS, Dr. S.M. Junaid Zaidi initiated COMSATS Foreign Interns Programme for giving a more international outlook to COMSATS. Under this programme, 16 international students of COMSATS University Islamabad (CUI) belonging to Cameroon, Ethiopia, Nepal, and Nigeria were engaged as interns during the year 2018. While seven students left for their home countries after completing their studies at CUI, nine students are still serving the Secretariat.

The primary responsibility of interns has been to facilitate the operations of COMSATS with the reputed institutions of higher learning in the North and the South, and also to communicate with

the relevant ministries in these countries for extending their memberships to COMSATS. They have also facilitated research on member and potential member states and important R&D institutions highlighting their strengths and possible areas of cooperation. Further, they have helped in establishing contacts with them for possible collaboration on scientific research activities with COMSATS and its Centres of Excellence. Many universities in the member countries have also been approached so as to have their representation at International Thematic Research Groups (ITRGs) of COMSATS. One of the interns, has been rendering translation services from English to French.

During the reporting year, the interns were also tasked to assist senior officials of COMSATS Secretariat in their works. Under their respective supervisors, the interns have performed the following tasks:

- Assisting in drafting proposals in areas of sustainable socio-economic development of the South. These pertained to:
 - Technical and Vocational Education and Training in the East African Region;
 - Collaboration between COMSATS, Ghanaian and

Nigerian governments on clean energy powered water supply in rural communities in Ghana and Nigeria;

- Promoting technology among youth through training and development in Nigeria;
 - Petroleum refineries and petrochemicals in Nigeria;
 - Tanneries and sugarcane companies in Nigeria and neighboring nations;
 - UNESCO projects on climate.
- Developed proposals for various workshops and seminars that were to be organized by COMSATS, and were also a part of the organizers' team in these events;
 - Prepared reports on:
 - international funding agencies and their funding mechanisms which would be helpful in garnering the funds for research projects and programmes of COMSATS and its Centres of Excellence (CoEs);
 - status of higher education, and emerging fields in the countries of the South.
 - Rendered writing, review and editing services for COMSATS' publications.



10. PUBLICATIONS AND INFORMATION DISSEMINATION

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Publications and Information Dissemination

Information dissemination through publications and other means is an important mechanism of outreach for COMSATS, which is done through four major tools: bimonthly Newsletter, bi-annual journal 'Science Vision', COMSATS' Series of S&T Publications and COMSATS' official website, apart from other promotional material. From time to time, COMSATS also collaborates with different institutions to bring out joint publications.

COMSATS Newsletter

COMSATS Newsletter is not only the means of dissemination of information on COMSATS' own undertakings, but is also an effective science diplomacy tool. During the calendar year 2018, the last issue of the 9th volume (2017) and five issues of the 10th volume (2018) of the newsletter documented and presented the activities of COMSATS Secretariat as well as its Centres of Excellence.

Apart from the standard sections covering the activities of COMSATS Secretariat and Centres of Excellence, following reports were covered as 'Special Section': 21st Meeting of the Coordinating Council, Almaty, Kazakhstan; and COMSATS-HEC Seminar on SDGs: The Role of Universities. Furthermore, the special section in the last issue of volume 10 covered the news of Yemen's membership to COMSATS. The aim was to detail the readers about these activities due to their relative importance.

In the different issues of volume 10, comprehensive reports of the following events were covered under the section 'Highlights from COMSATS Secretariat': COMSATS-EU Awareness Seminar on Horizon2020; Knowledge Sharing Seminar on e-Health; 4th International Conference on 'Agriculture, Food Security, and Biotechnology'; Workshop on Metrology for the Least Developed Countries; Seminar on SDGs Implementation: The Collaboration among Universities; and International Workshop on 'Internet Security: Enhancing Information Exchange Safeguards'.

Opinion Articles included in these issues highlighted some important aspects of



S&T related development. These also touched on important themes of interest to the stakeholders of COMSATS. Broad themes of these articles were environment, cooperation in S&T, and science for development. These articles were:

- Biodegradation of Textile Industrial Waste Effluent: A Pivotal Remedy to Water Pollution authored by Ms. Nneoma Confidence J. Anyanwu;
- Science: A Common Heritage of Mankind authored by Ms. Farhana Saleem; and
- Cooperation for Development authored by Ms. Farhana Saleem.

The Science Diplomacy aspect of the information covered in the newsletter majorly comes from the two sections on Science, Technology and Development, and S&T and Development news from member states. The first aims to project important scientific and technological advancements that have potential to ameliorate the development process,

especially in the countries of the South. The second one tries to highlight similar S&T and R&D potential in member states as well as highlights in development sector.

The news covered in the section 'Science, Technology and Development' highlighted important advancements in S&T arena with a bearing on development. Such advancements are presented with a view to promote the potential of scientific interventions in development process especially in the South, where quick and scientific solutions to dire developmental issues are in great demand. The information presented in this section pertained to the following important topics: developments and breakthroughs in combating drug resistance, biofuel production, curbing plastic pollution, smart health monitoring, drug discovery, cancer therapy, microelectronics, climate change research, innovations in agriculture and farming, vaccine development, and nanotechnology.

COMSATS holds the members of its statutory bodies and assisting arms in great esteem. In this connection, profiles are included from time to time to showcase the expertise available. The first two and fourth issues brought out during the year featured profiles of the following members of COMSATS' Technical Advisory Committee (TAC):

- Prof. Dr. Sok Ching Cheong, Head and Neck Cancer Research, Cancer Research, Malaysia;
- Prof. Dr. Talgat M. Inerbaev, National University of Science and Technology Misis, Russia; and
- Prof. Dr. Mustafa Omari Nawari, University of Khartoum, Khartoum, Sudan.

The last issue of the year included profile of Prof. Dr. Yanhe Ma, Director-General, Tianjin Institute of Industrial Biotechnology, China. Various issues of the newsletter also contained the profiles of the following Centers of Excellence: Al Quds University (AQU), Palestine; Al-Farabi Kazakh National University (KazNU), Kazakhstan; and Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences (CAS), China.

The Newsletter is widely distributed to all the member countries, COMSATS' Centres of Excellence and other related organizations. Present and past issues of COMSATS Newsletter are available for viewing and downloading at the following URL: http://comsats.org/?page_id=150.

South-South and Triangular Cooperation – COMSATS' Experience (June 2018)

During the reporting period, a high-level COMSATS' delegation participated in the 74th Session of UNESCAP (covered in Section 6). A publication titled "South-South and Triangular Cooperation – COMSATS' Experience" compiled as COMSATS' profile on South-South and triangular cooperation since inception for presentation at the forum.

Along with an overview of organization's structure supporting South-South Cooperation, the report focused on COMSATS' efforts for strengthening cooperation within the South through various means and mechanisms such as institution building, policy and advocacy, promoting joint research, and facilitating academic and scientific programmes. COMSATS' collaborations and partnerships to this end as well as future aspirations were also one of the features of this publication.

The publication is available online at COMSATS' website on the following URL: [http://comsats.org/wp-content/](http://comsats.org/wp-content/uploads/2018/06/Booklet_South-South-Cooperation.pdf)



[uploads/2018/06/Booklet_South-South-Cooperation.pdf](http://comsats.org/wp-content/uploads/2018/06/Booklet_South-South-Cooperation.pdf)

SDGs Related Publications

In accordance with its renewed thrust towards the promotion, advocacy and implementation of Sustainable Development Goals (SDGs), COMSATS arranged activities for creating awareness about SDGs as well as to engage relevant stakeholders for the institutionalization of the 2030 Agenda for Sustainable Development. In line with this, two events were organized during the reporting period, the details of which are covered in Section 4.

Report on Seminar on Sustainable Development Goals: The Role of Universities

A seminar was organized by COMSATS for facilitating the understanding and response of universities towards the localization of Sustainable Development Goals. The event, titled SDGs: The Role of Universities, was organized in partnership with Pakistan Higher Education Commission.

The proceedings of the event were brought out in the form of report encompassing details of three technical sessions of the seminar along with opening and closing sessions.

Apart from sessions' details, the report also featured profiles and remarks of the speakers as well as recommendations made during the event. The electronic version of the report is available at the given URL: http://comsats.org/wp-content/uploads/2018/10/Report_Seminar_on_SDGs_July2018.pdf

Report on Seminar on SDGs Implementation: The Collaboration among Universities

In December 2018, COMSATS in collaboration with HEC and Inter University Consortium for Promotion of Social Sciences Arts and Humanities (IUCPSS) organized a seminar on SDGs Implementation: The Collaboration among Universities.

The proceedings of the seminar were compiled in a comprehensive report. The report included a foreword by the Executive Director COMSATS followed by an introduction of the event. The details of the inaugural and technical sessions formed the major part of the report. Besides, profiles of speakers also adorned the pages of the report.

The summary of the group discussions provided the important information and knowledge on the theme of the event that constituted the major constitutions of the participating universities. The report is available at the following URL: http://comsats.org/wp-content/uploads/2019/01/Report-Inner-Pages_SDGs-Implementation.pdf

Profiles of COMSATS' Centres of Excellence

COMSATS' Centres of Excellence are a major source of technical and human



resources for COMSATS' programmes. In order to provide ready information on the background, scope, history, human resources and expertise available in the Network, as well as to encourage important relevant collaborations, a document has been developed bearing brief profiles of the network of COMSATS' Centres of Excellence. These profiles provide a quick overview of expertise available, sought as well as the existing portfolios of these institutions.

All twenty-two (22) centres have been covered in this document with a uniform format. The document has been updated in view of new inductions and changing stats and constitutes a major means of information dissemination on COMSATS Network. The document can be accessed at the following URL: http://comsats.org/Publications/Profile_of_COEs_January_2019.pdf

Information Dissemination through other Media

As per practice, the official website of COMSATS was kept updated with information on various undertakings and related aspects of the organization. The information made available on the website included: announcements, news and reports of all major happenings of the organization; new and updated information material; and updated contact information of members of major organs of COMSATS.

The PDF versions of all the publications of COMSATS including the Newsletters, Annual Report, Brochure (updated in October 2018), Flyer (updated in December 2018), and other information material were made available on the website for easier access. The electronic copies of other publications brought out during the year are also available on COMSATS website.

As part of its advocacy of science and relevant issues, COMSATS engages with the local print media by means of important messages and information on the organization. Two major events of this sort had the participation of COMSATS: Anniversary of Prof. Dr. Abdus Salam (January 29) and World Science Day (November 10). Advertisements and relevant articles in these issues helped create awareness on the event themes as well as on the mandate and scope of the organization.

Moreover, another well reputed journal of Pakistan celebrated its 70th anniversary of advertising in 2018. COMSATS' contribution in the same highlighted the organization's major achievements in ICTs, which include CUI, CIS and tele-health. Additionally, COMSATS tele-health contributed an article and advertisement on the significance and impact of tele-medicine in Pakistan in a medical periodical.

11. FINANCIAL AFFAIRS

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Financial Affairs

COMSATS Secretariat manages the annual grant by the Government of Pakistan for meeting the recurring expenditure of the, Secretariat, as well as the Annual Membership Contributions received from COMSATS' Member States, as well as COMSATS' Endowment Fund.

Host Country Contribution

Being the host country of COMSATS Secretariat, the Government of Pakistan has been bearing the running costs of COMSATS Secretariat under the international agreement that resulted in the organization's inception in 1994. Currently, the Government of Pakistan annually contributes PKR 40.00 million annually towards the running cost of COMSATS Secretariat. An amount of US\$20,000 Annual Membership Contribution (AMC) is also made by the Government of Pakistan towards COMSATS annually.

Annual Membership Contribution

The voluntary Annual Membership Contributions made by the Member States are kept as "Trust Money" and utilized to support technical activities and programmes of the contributing country. During calendar year 2018, COMSATS received Annual Membership Contributions (AMC) from four (04) member states as shown in the table.

COMSATS' Endowment Fund

COMSATS' Endowment Fund was

Annual Membership Contribution - 2018	
Country Name	Amount (US\$)
China	51,568
Iran	10,000
Pakistan	20,000
Sri Lanka	20,000
Total	101,568

created during the 2nd General Meeting of COMSATS held on 16-17 April 2012 in Islamabad, Pakistan, on proposal by the then Prime Minister of Pakistan (Ex-Chairperson of COMSATS). The proposal called for an amount of US\$ 10M with a commitment of US\$ 1.00M as seed money from the Government of Pakistan. The Government of Pakistan has since issued US\$ 0.1 million equivalent to PKR 10 million out of the total commitment of US\$ one million (PKR 100.00 million). The balance amount of US\$ 0.90 million (PKR 90.00 million) is expected to be released soon. After receipt of the seed money from the Government of Pakistan, other Member States will be requested to make their contributions towards COMSATS' Endowment Fund.

Accounts and Audit

The accounts of COMSATS Secretariat are managed and maintained in compliance

with the International Accounting & Financial Standards. For a financial year (1st July to 30th June), the accounts are voluntarily subjected to external audit by a reputed chartered accountancy firm on closing of the accounts on 30th June every year. The audited accounts along with Auditors' Report for the year ending on June are submitted to COMSATS Management Committee for endorsement and the Coordinating Council for approval.

M/s. HLB IJAZ TABUSSUM & CO., Chartered Accountants were engaged to conduct audit of accounts for the financial year ending on June 30, 2017. The Auditors' Report and Audited Financial Statements for the said year (presented with this report) were approved by the Coordinating Council of COMSATS during its 21st Meeting of COMSATS Coordinating Council, 3-4 April 2018, Almaty, Kazakhstan.

The accounts for the financial year ended on June 30, 2018 have also been audited by the aforementioned audit firm. The Auditors' Report and Audited Financial Statements for the year 2018 will be submitted to the Coordinating Council of COMSATS in its 22nd meeting scheduled to be held in China, in April 2019.

Auditors' Report (Financial Year 2016-17)



HLB IJAZ TABUSSUM & CO.

Chartered Accountants

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INDEPENDENT AUDITOR'S REPORT TO THE MANAGEMENT COMMITTEE

Opinion

We have audited the financial statements of COMSATS Secretariat here-in-after referred to as ("the Secretariat"), which comprise of the balance sheet as at June 30, 2017, the income and expenditure account, cash flow statement and the statement of changes in funds for the year then ended, and notes to the financial statements, including summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the balance sheet of the Secretariat as at June 30, 2017 and the income and expenditure account and its cash flows for the year then ended in accordance with the approved Accounting and Financial Reporting Standards for Medium-Sized Entities (MSEs) issued by the Institute of Chartered Accountants of Pakistan.

Basis for Opinion

We conducted our audit in accordance with the International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Secretariat in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the code), and we have fulfilled our other ethical responsibilities in accordance with the code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those charged with Governance for the Financial Statements

The Management Committee is responsible for the preparation and fair presentation of the financial statements in accordance with approved Accounting and Financial Reporting Standards for Medium-Sized Entities (MSEs) issued by the Institute of Chartered Accountants of Pakistan, and for such internal control as the Management Committee determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, Management Committee is responsible for assessing the Secretariat's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Secretariat or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Secretariat financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate,

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Chartered Accountants

they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Secretariat's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of managements' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Secretariat's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Secretariat to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Date: 31-5-2018
Islamabad

HLB Ijaz Tabussum & Co.

HLB IJAZ TABUSSUM & CO.
Chartered Accountants
Engagement Partner:
Ijaz Akber – FCA

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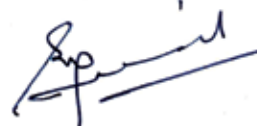
**COMMISSION ON SCIENCE AND TECHNOLOGY FOR
SUSTAINABLE DEVELOPMENT IN THE SOUTH (COMSATS) SECRETARIAT
BALANCE SHEET
AS AT JUNE 30, 2017**

	Note	2017 Rupees	2016 Rupees
NON-CURRENT ASSETS			
Property, plant and equipment	4	41,698,227	30,577,488
Investment property	5	743,973	783,130
Investment in joint venture	6	385,752	429,108
Long-term loan	7	43,943,487	48,049,387
Long-term security deposits		726,200	631,862
		87,497,639	80,470,975
CURRENT ASSETS			
Advances and prepayments	8	11,431,764	7,050,965
Short-term investments	9	49,484,407	57,705,656
Current portion of long term loan	7	3,600,000	3,600,000
Other receivables	10	3,777,139	1,800,885
Cash and bank balances	11	38,552,928	39,942,844
		106,846,238	110,100,350
TOTAL ASSETS		194,343,877	190,571,325
FUNDS AND RESERVES			
Technical Assistance Fund	12	32,000,000	32,000,000
COMSATS Endowment Fund	13	13,012,684	12,351,726
Accumulated surplus		67,466,678	72,272,868
		112,479,362	116,624,594
NON-CURRENT LIABILITIES			
Deferred grants	14	43,530,071	38,525,156
Deferred liabilities	15	20,727,388	19,021,485
		64,257,459	57,546,641
CURRENT LIABILITIES			
Creditors, accrued and other liabilities	16	3,539,156	3,611,090
Unearned income	17	14,067,900	12,789,000
		17,607,056	16,400,090
TOTAL FUNDS AND LIABILITIES		194,343,877	190,571,325
CONTINGENCIES AND COMMITMENTS	18		

The annexed notes from 1 to 24 form an integral part of these financial statements.



DIRECTOR (F&A)



EXECUTIVE DIRECTOR

**COMMISSION ON SCIENCE AND TECHNOLOGY FOR
SUSTAINABLE DEVELOPMENT IN THE SOUTH (COMSATS) SECRETARIAT
INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED JUNE 30, 2017**

	Note	2017 Rupees	2016 Rupees
INCOME			
Grant income	19	45,691,792	41,238,094
Other income	20	23,614,076	19,624,960
		69,305,868	60,863,054
EXPENDITURE			
Administrative expenses	21	74,098,480	67,317,258
Finance cost		13,578	14,609
		74,112,058	67,331,867
(DEFICIT) / SURPLUS FOR THE YEAR		(4,806,190)	(6,468,813)

The annexed notes from 1 to 24 form an integral part of these financial statements.


DIRECTOR (F&A)


EXECUTIVE DIRECTOR

LIST OF FOCAL POINTS IN COMSATS' MEMBER STATES

H.E. Mr. Yeafesh Osman

Minister
Ministry of Science and Technology
Dhaka, Bangladesh.

H.E. Mr. Wang Zhigang

Minister
Ministry of Science and Technology,
Beijing, China.

Dr. César Ocampo

Director General
The Administrative Department of Science,
Technology and Innovation - COLCIENCIAS
Bogotá D.C., Colombia.

H.E. Dr. Khaled Abdel Ghaffar

Minister
Ministry of Higher Education and Scientific Research
Cairo, Egypt.

H.E. Dr. Badara Joof

Minister
Ministry of Higher Education, Research, Science and
Technology
Kotu, The Gambia.

H.E. Prof. Dr. Kwabena Frimpong Boateng

Minister
Ministry of Environment, Science, Technology and
Innovation
Accra, Ghana.

H.E. Dr. Syed Zia Hashemi

Minister
Ministry of Science, Research and Technology
Tehran, Iran.

Hon. Dr. Andrew Wheatley

Minister
Ministry of Science, Technology, Energy and Mining
Jamaica, West Indies.

Dr. Khaled Elshuraydeh

Secretary General
Higher Council for Science and Technology (HCST)
Amman, Jordan.

H.E. Mr. Sagada Yerlan Kenzhegalievich

Minister
Ministry of Education and Science
Astana, Kazakhstan.

Mr. Jang Chol

President
State Academy of Sciences
Pyongyang, Korea, D.P.R.

H. E. Mr. Mohamed Hassad

Minister
National Education, Vocational Training, Higher
Education and Scientific Research
Rabat, Morocco.

Dr. (Mrs.) Amina M.B. Shamaki

Permanent Secretary
Federal Ministry of Science & Technology
Abuja, Nigeria.

Ms. Yasmin Masood

Federal Secretary
Ministry of Science and Technology
Islamabad, Pakistan.

H.E. Dr. Sabri Saidam

Minister
Ministry of Education and Higher Education
Ramallah, Palestine

Hon. Fortunato T. De La Peña

Secretary
Department of Science and Technology (DOST)
Manila, Philippines.

Hon. Mary Teuw Niane

Minister
Ministère de l'Enseignement Supérieur, des
Universités, des Centres Universitaires
Dakar, Senegal.

H.E. Mr. Abdi Dahir Osman

Minister of Education
Ministry of Education, Culture and Higher Education
Somalia

Hon. Susil Premajayantha

Minister
Ministry of Science, Technology and Research
Battaramulla, Sri Lanka.

H. E. Dr. Tahani Abd Allah Atia

Minister
Ministry of Science and Communications
Khartoum, Sudan.

H.E. Dr. Atef Nadav

Minister
Ministry of Higher Education
Damascus, Syria.

Hon. Prof. Joyce Ndalichako

Minister
Ministry of Education, Science & Technology
Dodoma, Tanzania.

H.E. Prof. Slim Khalbous

Minister
Ministry of Higher Education and Scientific Research
Tunis, Tunisia.

H.E. Prof. Hasan Mandal

President
The Scientific and Technological Research
Council of Turkey (TUBITAK)
Ankara, Turkey

Dr. Peter Ndemere

Executive Secretary
Uganda National Council for S&T
Kampala, Uganda.

Prof. Dr. Hussein Basalamah

Minister
Ministry of Higher Education and Scientific Research
Sana'a, Yemen.

Hon. Prof. Amon Murwira

Minister
Ministry of Higher and Tertiary Education, Science
and Technology Development
Harare, Zimbabwe.



COMSATS' Centres of Excellence



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