



COMSATS Newsletter

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

March-April 2016

2
2016

Vol.8

www.comsats.org



Group photo of the speakers, participants and distinguished guests of the Regional Workshop on Biosafety and Biosecurity in Life Sciences Research, Islamabad, Pakistan (26-28 April 2016)

Inside this Issue

From the Executive Director's Desk	01
News/Activities/Highlights from COMSATS Secretariat	02
Special Section: Workshop on Biosafety and Biosecurity	05
S&T Indicators of a Member State: Senegal	08
Activities/News of COMSATS' Centres of Excellence	10
Opinion: Seven Ideas for Science Diplomacy in the Middle East	12
Science, Technology & Development	14
Profile of Head of Centre of Excellence: Mr. Md. Nazrul Islam, Chairman BCSIR, Bangladesh	15
COMSATS' Brief and Announcements	16

Patron:

Dr. Imtihan Elahi Qureshi
Executive Director COMSATS

Editors:

Mr. Irfan Hayee
Ms. Farhana Saleem

Editorial Support:

Mr. Abdul Majid Qureshi

Designing & Development:

Mr. Imran Chaudhry

Contributions from readers are welcome on any matter relevant to the mission of COMSATS, namely the promotion of South-South cooperation in science and technology for sustainable progress of the developing countries. The responsibility for the accuracy of any information rests with the original source. Views expressed in this publication do not necessarily reflect those of its editors, publisher or COMSATS.

COMSATS Secretariat:

Shahrah-e-Jamhuriat, G-5/2
Islamabad - Pakistan
Tel: (+92-51) 9214515 to 17
Fax: (+92-51) 9216539
E-mail: comsats@comsats.org
URL: www.comsats.org

From the Executive Director's Desk

There is a popular view common among scientists that the 21st century would be the century of 'biology', just as the 20th century was that of 'physics', in so far as the new theoretical concepts as well as technological applications through research work of physicists fundamentally changed the world we live in. During the last century the luminaries of physics, like Marie Curie, Albert Einstein, Max Planck, Werner Heisenberg, Niels Bohr, Abdus Salam, Edwin Hubble, Enrico Fermi, Paul Dirac, Stephen Hawking, etc., revolutionized our understanding of the physical world and the laws of nature that govern the behaviour of matter at scales ranging from fermis¹ to parsecs². Whereas, the present millennium still occasionally echoes with grand physics discoveries, such as the discovery of particles in CERN³ that could be Higgs bosons or the detection of ripples in space attributed to gravitational waves, however, there is a growing sense that discoveries in biotechnology will loom large throughout several coming decades. The grand opening of the doors to the new world of biology happened in April 2013, when the complete sequencing of the human genome was announced by an

international consortium. In the same month 40 years earlier, there was a grand handshake of physics and biology, when the double-helix structure of DNA was discovered, using X-ray crystallography. The significance of these events is now widely celebrated through the observation of DNA Day on 25th April of each year. The month of April, on the one hand, saw the rainbow of flowers blossoming in the flower beds of COMSATS Headquarters in Islamabad, while a flurry of activity related to biosciences happened in and around its premises. On 19th April 2016, an expert, Prof. Habib Bukhari gave a talk on 'Biosurveillance: Science Needs for Microbial Forensics' under COMSATS Science Diplomacy Lecture Series (see page 02), followed by a three-day regional workshop on 'Biosafety and Biosecurity in Life Sciences Research' held in Pakistan Academy of Sciences, in partnership with ISESCO (see page 05). The speakers reminded us of the perils and promises of the advancements in biosciences, providing much food for thought.

Deciphering of human genetic code has already led inexorably to the possibilities of

¹) fermi = 10^{-15m}, ²) parsec = 31 trillion km,

³) CERN - the European Laboratory for Nuclear Research

continued on page 03

NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

COMSATS' Science Diplomacy Lecture on 'Biosurveillance: Science Needs for Microbial Forensics'

The COMSATS' Science Diplomacy Programme is gaining momentum with its series of lectures on scientific matters related to public policy. The 3rd lecture under this programme was delivered on 19th April while two more have been planned for May and June 2015.

The lecture entitled 'Biosurveillance: Science Needs for Microbial Forensics' held at COMSATS Secretariat in Islamabad, Pakistan, was delivered by Dr. Habib Bokhari, Professor of Microbiology & Immunology at the Department of Biosciences, COMSATS Institute of Information Technology (CIIT), Islamabad. A large number of participants comprising faculty members and students from Biosciences Department, CIIT; Faculty Development Academy (FDA), CIIT; Atta-ur-Rahman School of Applied Biosciences (ASAB), National University of Science and Technology (NUST), Islamabad; Islamic International Medical College (IIMC), Riphah University, Rawalpindi; Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad; Abasyn University, Islamabad; as well as representatives from National Veterinary Lab, Islamabad; Pathology Department of Pakistan Institute of Medical Sciences (PIMS); and COMSATS Secretariat, attended the lecture.

In his opening remarks, Executive Director COMSATS, Dr. I.E. Qureshi gave a brief introduction of COMSATS Science Diplomacy Programme and informed that the lectures under the Series delivered by relevant COMSATS Science Ambassadors and experts are an ongoing activity to create awareness among policy-makers and public on scientific issues of national and regional importance. He reminded the participants that he had raised two issues during his lecture delivered in February 2016 for which he considered that campaigning is necessary, and urged the participants to make necessary efforts in favour of both. These concerned:

- i) appointment of Science Advisor to the Government of Pakistan; and
- ii) launching of 'Grand Challenges Pakistan' competition.

Prof. Bokhari's lecture was aimed at increasing awareness regarding microbial forensics among the members of the larger scientific communities and elucidated the major issues that need to be addressed for global development of the science of microbial forensics. His presentation touched upon the fundamental understanding of microbial forensics, relationship between microbial forensics, public health and biosurveillance, unprecedented genomic diversity, factors responsible for emergence and re-emergence of infectious diseases, and history of biological warfare from 6th century B.C to the present.

He began his presentation with exploring the origin of genome, RNA as the earliest form of life on Earth, and molecular evolution of prokaryotes. He noted that little is known about most of the microbial world, and strain level differentiation in the microbes has added more complexities in their identification. However, the ability to sequence the

genomes of microbes has provided an enormous amount of new knowledge about microbial world. He gave an overview of the scientific discoveries and inventions in relation to the infectious diseases during the last few centuries that have changed the course of history.

He briefed the participants about the Epidemiologic Triad of disease causation, consisting of host, pathogens and environment. He informed that the role of an

epidemiologist is to break at least one of the sides of the triangle, disrupting the connection for stopping the propagation of disease.

He shared a 'Convergence Model' to simplify the understanding of the complex dynamics of emergence of infectious disease and to help conceptualize how microbe-host interaction is influenced by various factors leading to the emergence of infection. These factors, he noted, include: genetic and biological factors; physical environmental factors; ecological factors; and social, political, and economic factors.

He informed that a number of factors are at play behind emergence of infectious diseases and epidemics, which include: microbial adaptation and change; climate and weather; changing ecosystems; economic development and land use; international travel and commerce; lack of political will; poverty and social inequality; war and famine;



Prof. Bokhari delivering lecture on Biosurveillance

and intent to harm.

It was shown with instances of recent outbreaks around the globe that infectious diseases can take a huge economic toll on countries. A number of examples cited included that of SARS with economic tolls of US\$ 40-50 billion worldwide; foot-and-mouth disease (in UK), US\$ 18-25 billion; and Avian Flu, US\$ 25-30 billion. It was opined that the epidemics of cross-boundary nature can also result in strained relations among nations, such as the outbreak of Mad Cow disease resulted in trade conflict between the USA and Canada in early 2000s.

He also shared various examples of how hazardous nature of the infectious diseases was used to consciously inflict harm to masses, from the rudimentary knowledge of infectious diseases in ancient times to the use of sophisticated methods to spread biohazards as weapons during wars in modern times. He noted that due to low cost-of-production involved, bio-weapons/bio-terrorism could be major threats to public well-being in 21st century. He shared the list of bio-weapons reported to have been researched, developed, and weaponized in 1993 by USSR, and in US Bio-weapon Programme 1945-1969.

Dr. Bokhari noted that the world community has recognized that biological weapons have huge potential of adversely affecting the masses and adopted conventions to eliminate use by means of Geneva Protocol 1925, Biological Weapon Convention 1972, and U.N. Security Council Resolution 1540 (2004). The Resolution, he noted, addresses all weapons of mass destruction and obliges UN Member States "to refrain from supporting by any means non-state actors from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their delivery systems".

He considered it important to cater to relevant scientific needs for microbial forensics. The aim should be to prevent



Participants of the Science Diplomacy Lecture

and reduce the likelihood of outbreaks – natural, accidental, or intentional; detect threats early to save lives; and respond rapidly and effectively using multi-sectoral, international coordination and communication. He highlighted the role of microbiologists in identifying and responding to the infectious diseases and other biological threats and considered coordination between microbiologists, veterinarians and public health officers crucial for preparedness against the epidemics/pandemics that may emerge in future.

In the context of Pakistan, Dr. Bokhari noted that many of the infectious diseases in Pakistan are preventable with the help of some very basic measures. He noted that the country has one of the worst infant mortality rates, 2nd highest hepatitis prevalence; and 6th highest TB prevalence. He further informed that there are 100 million hospitalizations and more than 50,000 deaths per year due to naturally occurring food-borne illnesses in Pakistan. Other health risks of national and regional level include: polio re-emergence, respiratory infections, diarrhea, malaria, and dengue. He stressed the need for early detection, reporting and monitoring of such diseases for effective containment.

contd. from page 1 ... 'From the Executive Director's Desk'

tampering with this code, thereby bringing to the fore ethical issues of colossal proportions. Altering the genes of the food we eat may appear scary enough for some, but ability to create "designer" babies is surely a monstrous prospect. While there are many daunting challenges common for the whole humanity as we progress on the road to biotechnology, there are also alarming signs that the mankind will be further polarized on the basis of who has an upper hand in life-sciences. This may well be an existential threat to nations failing to prepare themselves for meeting new and emerging trends in biotechnologies. It is no longer a theoretical question as to whether the richest nations would like to control life processes as they did in the case of natural materials after the

industrial revolution. To imagine that the immeasurable powers of death and destruction amassed by a few countries will always remain in the hands of relatively sane leaders is unrealistic. Any doubts in this respect have been dispelled by the most talked-about election campaign in the world.

From the platform of COMSATS, we will keep on sounding the clarion call; 'hearken leaders of the developing countries! set your ephemeral political and economic concerns aside and get down to building your scientific institutions'. It is not a matter of choice any longer; it is a matter of survival. We will be glad to know and publish what the scientific community of COMSATS thinks about these issues. The pages of this Newsletter are available for comments, proposals or general observations.

Taking stock of the country's preparedness to issues related to pandemics, epidemics, and bioterrorism, he noted the lack of necessary facilities, data and R&D activities in the country. He emphasized that establishing robust microbial forensic capabilities could enable the epidemiologists, public health policy-makers, and law-enforcement agencies to prevent, attribute and apprehend effectively.

During the concluding Q&A session, key observations were made and issues were raised related to: potential of pathogens genome-sequencing for pathogens source tracing, attribution, and forensics; developing metadata standards for operational biosurveillance; monitoring of poultry farming as possible source of epidemics; need to create a regulatory body to monitor concerns regarding biohazards; and necessary sensitization of the public health specialists and legislators.

Preparations in connection with the 19th Meeting of COMSATS Coordinating Council (17-18 May 2016, Islamabad, Pakistan)

The 19th meeting of COMSATS Coordinating Council has special significance in view of the fact that it is being held in the capital city of the country hosting COMSATS Secretariat, Pakistan, and also for the fact that COMSATS Institute of Information Technology (CIIT), a flagship project of COMSATS, is hosting the event at its Islamabad Campus for the first time.

Being in the same country, CIIT enjoys direct support of the Secretariat and patronage of Ministry of Science and Technology, Government of Pakistan, which is the focal ministry of COMSATS in host country.

In view of the above, preparations for the upcoming Council meeting have been given special attention and importance by the Secretariat, which took necessary measures in coordination with CIIT to ensure maximum participation of members of COMSATS' Network of Centres of Excellence. Apart from the host Centre of the meeting, confirmation of participation has, so far, been received from the following 16 Centres of Excellence: BCSIR-Bangladesh, ICCES-China, CIF-Colombia, NRC-Egypt, CSIR-Ghana, IROST-Iran, RSS-Jordan, KazNU-Kazakhstan, NMC-Nigeria, ICCBS-Pakistan, ITI-Sri Lanka, IRCC-Sudan, UCAD-Senegal, HIAST-Syria, TIRDO-Tanzania and CERTE-Tunisia, as well as the Honourary Lifetime Member of Coordinating Council, Prof. M. H. A. Hassan, Former Executive Director TWAS. The representatives of UNESCO, ICGB, SESRIC and ECOSF, as well as a member of COMSATS' Technical Advisory Committee belonging to Pakistan will also participate in the meeting as observers. Moreover, the President of the Mohamed V University, Morocco, has been invited to participate in the meeting in order to make presentation on the activities and scientific profile of the

University for the Council's consideration of its request for induction in COMSATS' Network of International S&T Centres of Excellence.

The host institution has extended invitations to the confirmed participants of the meeting for visa formalities. COMSATS Secretariat is closely coordinating with the local Organizing Committee of the event at CIIT, inter alia, made the following arrangements:

- Visa facilitation to the delegates;
- Dispatch of invitation cards for the inaugural ceremony;
- Preparation of Meeting Documents and Conference Bags;
- Hotel reservation and venue arrangements;
- Airport pick & drop and local transportation;
- Electronic and Print Media projection; as well as
- Technical visits of the participants

The Working Paper of the meeting, including the annotated Agenda and Programme, has been electronically distributed to the Council members and other invitees on 15th April 2016, in order to facilitate meaningful discussions and decision-making by Council members on matters of strategic importance.

The Council will hold discussion on a 12-point agenda that includes:

- Election of the new Chairperson of Coordinating Council;
- COMSATS' new initiatives;
- Proposal to constitute Board of Management of COMSATS' Endowment Fund;
- The scientific and R&D activities of COMSATS' Centres of Excellence; and
- The activities of COMSATS' International Thematic Research Groups (ITRGs).

Important Meetings of the Executive Director COMSATS

18 th April 2016	Mr. Zahid Hamid, Federal Minister for Climate Change, Government of Pakistan, Islamabad
20 th April 2016	Mr. Syed Abu Ahmed Akif, Federal Secretary Ministry of Climate Change, Government of Pakistan, Islamabad
25 th April 2016	Mr. Ahmad Naseem Warraich, Director General (EC& OIC) at Ministry of Foreign Affairs, Government of Pakistan, Islamabad
27 th April 2016	H.E. Mr. Claudio Lins, Ambassador of Brazil, Embassy of Brazil, Islamabad

SPECIAL SECTION: WORKSHOP ON BIOSAFETY AND BIOSECURITY

Under the biennial cooperation agreement between COMSATS and ISESCO (2015-2016), a Regional Workshop on Biosafety and Biosecurity in Life Sciences Research, was held in Islamabad, Pakistan, in partnership with Pakistan Academy of Sciences (PAS), on April 26-28, 2016.

COMSATS' partnership with the Islamic Educational, Scientific and Cultural Organization (ISESCO) started in 2004. Since then, the two organizations have been collaborating for capacity building of common Member States, by means of joint events, publications and a web-portal, Islamic World Science Net (IWSN).

The workshop was held to raise awareness about biosafety among researchers, laboratory personnel and academicians; share recent developments, emerging trends and standards in the area of biosafety and biosecurity; as well as build and strengthen necessary linkages among researchers from the developing countries. The three-day workshop comprised of six technical sessions, a moderated discussion forum on 'Emerging Challenges in Biosecurity in Asia' and a poster presentation contest. There were 11 invited talks, 13 contributed lectures, and 10 poster presentations. The 22 resource persons of the workshop, including 8 foreign speakers, belonging to Bahrain, Jordan, Kazakhstan, USA, Iran and Nigeria, made technical presentations on various topics under the theme. The event brought together over 150 participants from over 40 R&D organizations, universities, and government institutions from 20 cities of Pakistan.

Inauguration

The workshop was inaugurated by the Federal Secretary, Ministry of Climate Change, Government of Pakistan, Mr. Syed Abu Ahmad Akif, on April 26, 2016, at the premises of PAS. The inaugural ceremony was attended by over 170 participants that included academicians, students, science administrators and media personnel.

Speaking on the occasion, the Secretary General PAS, Dr. Zabta Khan Shinwari, introduced the Academy as a supreme body of Pakistan promoting science in the country.

He shared the importance of the dates of the event in relation to the National DNA Day (25th April) that commemorates the completion of the Human Genome Project in April 2003, and the discovery of DNA's double helix in 1953. He highlighted the emerging technologies in life sciences, such as genetically modified organisms (GMOs), and more recently human gene editing. In view of the rapid advancements in the latter, he shared the possibility of soon developing a human devoid of any human gene template. In view of such radical trends, he called for strong ethical guidelines to check and monitor research work in life sciences to safeguard the moral fabric of the society.

The ISESCO Representative based in UAE, Dr. AbdulAzeez Hameed Ali, conveyed the greetings of Director General ISESCO, Dr. Abdulaziz Othman Altwajri, and thanked COMSATS and PAS for collaborating with ISESCO for co-organizing this workshop on a crucial theme of current

interest, and appreciated partner organizations' achievements over the years. Dr. Ali thankfully acknowledged the hospitality of the Pakistani Government and institutions provided to foreign participants and speakers of the event. Highlighting the key objectives of ISESCO, he noted that the organization's efforts spanning over thirty years for promotion of Science by holding workshops and seminars within and outside the Islamic World. He considered the event an

opportunity to sensitize the relevant quarters for taking necessary measures and launch campaigns on relevant emerging issues.

In his address, the Executive Director COMSATS, Dr. I.E. Qureshi, took stock of the rapid developments in life sciences research and highlighted the theme of the event and relevant issues in the developed and the developing world. He noted with satisfaction that many relevant individuals and organizations were participating in the event and recalled the efforts made by the organizers to invite representatives from government officials, R&D organizations and universities. He was especially pleased to note the participation of the life sciences students as he deemed them the custodians of morals and traditions in the future research, and hoped that they would be able to sensitize relevant circles about biosafety, and biosecurity. He appreciated ISESCO and PAS for their collaboration and



Distinguished Guests of the Inauguration Function, (L-R) Mr. Syed A. A. Akif, Dr. A. H. Ali, Dr. I.E. Qureshi, and Dr. Z. K. Shinwari



Foreign Speakers from Jordan, Nigeria, Iran and Kazakhstan Making Presentations

highlighted their mandates and their relevance to COMSATS. He recalled his recent meeting with the Director General ISESCO in Morocco, when the latter had termed COMSATS as “the most trusted partner”. He stated that this partnership works towards tangible gains for common Member States and recounted some important themes in which both the organizations have held joint activities in the recent years. These included serial/thematic events on: ICTs for Agriculture, Health and Education; National Innovation Systems; and Internet Security. Dr. Qureshi made a special mention of the upcoming 8th Review Conference of Biological Weapons Convention (BWC) that addresses weapons of mass destruction based on biological and toxin agents. He noted with concern some missing aspects in BWC, including the lack of universality especially with respect to the Middle East, and verification regime. On a related note, he recalled his participation in the 6th BWC, where developed and developing countries seemed at odds on some important issues, such as those concerning the Article X related to cooperation for biotechnology research for peaceful purpose. Referring to some trends and technologies in life sciences, such as CRISPR being used to tailor the human genetic code, he considered it important to have relevant legal obligations for scientists and research organizations working in sensitive areas of life sciences. Thanking the Federal Secretary, who also chairs Pakistan’s National Biosafety Committee, for presiding over the inaugural ceremony, he hoped that Pakistan’s Ministry of Climate Change would benefit from the technical deliberations and recommendations of the workshop.

Mr. Akif delivered the inaugural address on behalf of Pakistan’s Federal Minister for Climate Change. He highlighted the threats and opportunities in the life sciences research and informed that a handful of global corporations, research institutions, and governments could soon hold patents on all human genes cells, organs, and tissues, as well as on most of the known species of micro-organisms, plants, crops and animals, acquiring monopoly over major resources of the world. Referring to some positive trends, he noted the potential of tissue-culture in giant bacteria baths to

obtain increasing volumes of food and fiber grown indoors, helping to achieve optimization of time, space and money. He called for efforts to develop a National Biosecurity Plan to address concerns regarding Pakistan’s preparedness for bio-threats in various sectors, including environment, agriculture, and health. He pledged his Ministry’s support for any initiative in this regard. As the Chairperson of National Biosafety Committee of Pakistan, he appreciated the theme of the event and congratulated the participating speakers and experts for recognizing its importance. He congratulated COMSATS, ISESCO and PAS for co-organizing this workshop on a scientific theme which he deemed an important policy area.

Technical Deliberations

The deliberations of the three-day workshop were spread over seven technical sessions covering issues, research and findings related to: Biosafety and lab safe handling; Biosecurity; and Bioethics. Key topics discussed at the workshop included: international biosecurity treaties; sustainable biosafety education, training and networks; emergence of biosecurity, biosafety and bioethics in academic medicine and public health; biological risk assessment/mitigation and communication; role of institutional biosafety committees (IBC); global health security; issues related to transgenic plants; standardization and best practices for biosafety; biological waste management; and code of conduct for life scientists.

Country case-studies and overview of the trends in Islamic States including, Iran, Jordan, Pakistan, and Nigeria were also presented. The deliberations made during the discussion session called for sharing of information on global biological holdings, research facilities, and infectious disease patterns; increasing awareness of issues pertaining to biosafety and biosecurity among researchers; enhancing interdisciplinary coordination to support global biosecurity; and ensuring bio-scientists’ compliance with national and international laboratory biosafety and biosecurity guidelines.



Glimpses of the Q&A Session, General Discussion Session, and Poster Contest of the Regional Workshop

A poster exhibition during the event invoked interest of future scientists and researchers in adopting best practices in life sciences research. Postgraduate students and early-career researchers participated in the exhibition, which focused on current research topics in the field.

Before the concluding ceremony, Dr. Hameed Ali presented a brief overview of the event and expressed satisfaction over the meeting outcomes. His report covered key statistics and recommendations of the event. The event recommendations called for enhanced cooperation between the collaborating institutions; active participation of scientists and researchers from common Member States in building relevant capacities; increasing awareness and education in biotechnology ethics; developing relevant curricula; and creating necessary regulatory bodies.

Concluding Ceremony

The Federal Secretary, Ministry of Federal Education and Professional Training, Government of Pakistan, Mr. M. Humayun formally concluded the event on April 28, 2016. In his remarks at the concluding ceremony, Mr. Humayun observed some important trends in the state of education in Pakistan, specifically the number of out-of-school children, which is estimated to be 24 million. Quoting the example of Singapore as a small country with good global standing in education sector and having two of its academic institutions among the top ten universities of Asia, he hoped that other developing countries, like Pakistan, would strive to have similar achievements. Commenting on the theme of the workshop, he considered biosafety, biosecurity and biocontainment important areas of concern around the globe and lauded COMSATS, ISESCO and PAS for successfully holding the event on this crucial topic. He considered the strong participation of both young and experienced researchers as an indication of the event's success.

Speaking on the occasion, Dr. Qureshi noted the participation of two Federal Secretaries of Pakistani

Ministries as a strong endorsement and support from Government of Pakistan towards the event and its objectives. He stated that he was pleased with the outcomes of the event. He emphasized that such events have a strong intrinsic significance in view of the opportunities provided for information-exchange, and scientist-to-scientist interactivity, as well as the inspiration gained by junior researchers from the work of experienced scholars. Underscoring the importance of the theme of the event, he hoped that this activity could be continued for other countries and regions with support from ISESCO. Dr. Hameed Ali extended special gratitude of ISESCO to COMSATS for its partnership.

The event concluded with presentation of souvenirs to the distinguished guests, and certificates to the participants and organizers. The winners of the poster presentation contest were awarded cash prizes. The posters presented by students from Quaid-i-Azam University and Abasyn University, Islamabad, took the top positions in the contest.

At the end, Dr. Shinwari presented a vote of thanks, in which he admired the commitment of COMSATS' team for conceiving and planning this much-needed workshop, and thanked ISESCO for its support.



Mr. M. Humayun Awarding Participation Certificate to a Speaker

S&T INDICATORS OF A MEMBER STATE



In Spectrum: Republic of Senegal

Senegal, officially the Republic of Senegal, is located in West Africa. The country shares borders with Mauritania in the north, Mali in the east, Guinea in the southeast, and Guinea-Bissau in the south-southwest. The country also shares a maritime border with Cape Verde. Senegal's financial and political capital is Dakar. The country covers a land area of almost 197,000 square kilometres (76,000 sq. mi) and has an estimated population of about 14.7 million (World Bank, 2015 estimates).

The French colonies of Senegal and French Sudan were merged in 1959 and granted independence in 1960 as the Mali Federation. Despite several territorial mergers and breakages after the French colonial era, Senegal still remains one of the most stable democracies in Africa and has a long history of participating in international peacekeeping and regional mediation since its independence (World Factbook 2015).

The country gradually put in place a sound governance system for science and technology starting as early as 1960. The establishment of Ministry of Scientific Research and Technology (MRST) in 1994 was a significant step on part of the government for promotion of the country's Science and Technology sector. This move was welcomed not only by the national scientific and technical community, but also by all those who understand the major role that research plays in the process of economic and social development. Since the change in government in March 2000, the Ministry of Scientific Research has been associated with higher education and other sectors such bio-fuels and renewable energy. Today, all scientific and technical activities of Senegal fall under the Ministry of Higher Education and Research (MESR).

In Senegal, political support for Science, Technology and Innovation (ST&I) was affirmed with the implementation of various inter-ministerial councils (May 1981, September 1982, April 1984, and January 1989). However, several decisions and recommendations remain unimplemented to this day. This is particularly the case regarding expenditure on R&D, which has yet not reached the targeted 1% of GDP. The most recent consultation initiated by the government, entitled 'National Dialogue on the Future of Higher Education', was held from January to April 2013. This dialogue also focused on issues relating to research and resulted in a report containing 78 recommendations, entitled 'Priority Programme Reform and the

Development Plan for Higher Education and Research', 2013–2017' (PDES). According to the World Science Report 2015, in the first year of implementation, PDES created three new public universities: the University of Sine Saloum in Kaolack in Central Senegal, the University of Dakar, and the Virtual University of Senegal.



Some key reforms that were a part of the PDES and favoured strengthening of the steering of national system included: establishment of an Information and Management System for higher education and research (SIGESR).

Other key reforms required to boost research included:

- Development and adoption of a decree on creation and organization of the Directorate for Research;
- Establishment of a National Fund for Research and Innovation (FNRI) to ensure the implementation of priority research;
- Defining of a strategic research agenda, enshrined in law and specifying research priorities for the next ten years;
- Implementation of short-term special laboratory equipment of higher education and research initiated by the President of the Republic schools programme;
- Establishment of a National Centre for Scientific and Technical Research (CNRST) that will pool human resources and heavy equipment;

Key Development Indicators of Senegal				
Development Indicator	2000	2010	2013	2014
Population, total (in millions)	9.86	12.96	14.22	14.67
Military expenditure (% of GDP)	1.33	1.51	1.58	1.53
Mobile cellular subscriptions (per 100 people)	3	64	93	99
Internet users (per 100 people)	1	8	13	18
High-tech exports (% of manufactured exports)	7.29	1.19	2.72	3.55
Technicians in R&D (per million people)	..	34
Researchers in R&D (per million people)	..	361
Food Production Index (2004-2006 = 100)	106.62	154.55	128.14	..
Livestock Production Index (2004-2006 = 100)	92.3	125.95	133.4	..
Crop Production Index (2004-2006 = 100)	110.65	163.27	125.33	..
Agriculture, value added (% of GDP)	19.14	17.69	15.62	15.83
Scientific and technical journal articles	117	199	296	..

Source: World Bank Development Indicators, 2016

Senegal's HDI Trends Based on Consistent Time Series Data

Year	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2011 PPP\$)	HDI value
1980	48.9	3.6	2.2	1,902	0.325
1990	57.2	4.5	2.2	1,789	0.367
2000	57.8	5.4	1.9	1,878	0.38
2010	64.1	7.9	2.4	2,159	0.456
2014	66.5	7.9	2.5	2,188	0.466

Courtesy: UNDP Human Development Report 2015

- Respect commitment to allocate 1% of GDP to research in 2017.

According to the CIA World Factbook, Senegal's economy is driven by mining, construction, tourism, fisheries and agriculture, which is the primary source of employment in rural areas. The country's key export industries include phosphate mining, fertilizer production, agricultural products and commercial fishing. The country is also working on oil exploration projects. It relies heavily on donor assistance, remittances and foreign direct investment.

President Macky Sall, who was elected in March 2012 under a reformist policy agenda, inherited an economy with high energy costs, a challenging business environment, and a culture of overspending. President Sall unveiled an ambitious economic plan, the 'Emerging Senegal Plan', which aims to implement priority economic reforms and investment projects to increase economic growth while preserving macroeconomic stability and debt sustainability.

Senegal is receiving technical support from the IMF for the period 2015-2017, under a Policy Support Instrument to assist with the implementation of the 'Emerging Senegal Plan'. Investors have expressed confidence in the country through Senegal's successful Eurobond issuances in recent years.

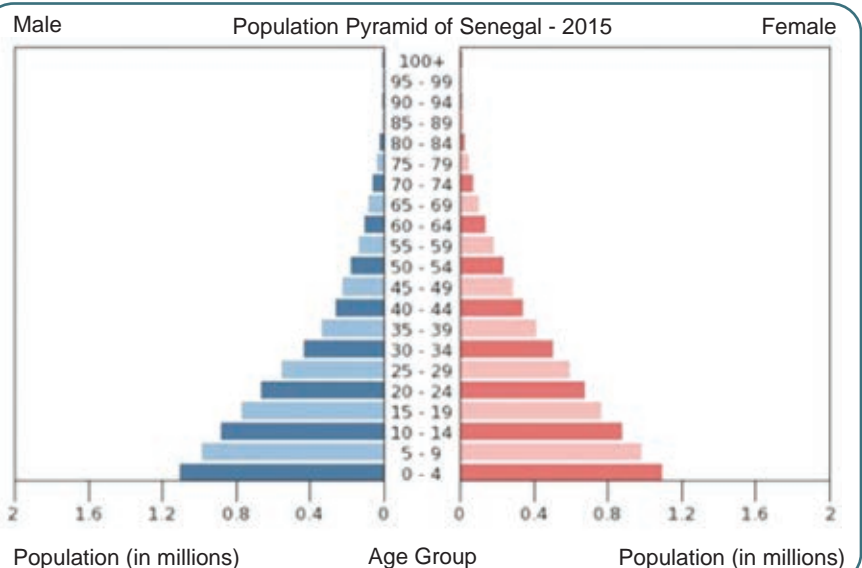
The country's services sector is the major contributor to the GDP, contributing 58.6%, followed by industry (24.3%) and agriculture (17.1%), according to the World Factbook 2015. Over the course of 2015, Senegal's macroeconomic performance has been strong with a GDP growth rate of 6.5%, a rate which has not been achieved since 2003. This performance is remarkable given the depressed global environment that has contributed to many African countries registering a marked slowdown in their economic activities. As a result, Senegal was the second fastest growing economy in West Africa, behind Côte d'Ivoire. The main drivers of growth were higher private sector demand,

stimulated by lower energy and transport prices, as well as the ambitious public investment programme carried out by the government, up by almost 0.4% of GDP in 2015.

According to the World Bank, the economic outlook of the country remains favourable in the short-term having growth projected to reach 6.5% in 2016, with the economy driven mainly by the services sector, particularly telecommunications and financial services. The rebound in agriculture coupled with the end of the Ebola epidemic will benefit the national economy. Future economic activity will be reinforced by lower oil prices, reduced production costs, and electricity subsidies.

The World Bank reckons that an unfavourable investment climate, costly energy, and weak governance systems had in the past prevented the private sector from stimulating the economy. External shocks and natural disasters have also slowed growth and increased the vulnerability of the entire economy. In order to strengthen the national economy and increase its resilience to internal and external shocks, more efforts are needed to diversify the economy in the areas of horticulture, mining, telecommunications, and manufacturing.

The potential of ICTs in improving governance, particularly in the agriculture sector cannot be undermined, and more so, a focus is required on improving water and sanitation for reducing disease transmission to achieve healthier future generations. A lot also needs to be achieved to push Senegal to the 'Medium Income' category by 2035 through increasing R&D funding, and improving quality of equipment and researchers, as well as building industry-academia linkages.



ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

CIIT-Pakistan Ranked among the Top 20 Asian Institutions

COMSATS Institute of Information Technology (CIIT), Pakistan, has been ranked 18th among top western Asian institutions as per the high-quality research outputs ranking table 2016. Each year, the Nature Index publishes tables based on counts of high-quality research outputs in the previous calendar year. The data behind the tables are based on a proportion of total research papers, covering natural sciences.

The rankings have been released by the internationally reputed organization, Nature. CIIT has showed remarkable performance, with 246.2% increase in weighted fractional count (WFC) in 2015 as compared to 2014. Among top western Asian institutions five universities are from Iran, three from Turkey, and one each from Saudi Arabia and Pakistan.

Among the top global institutions, China succeeded to get top position as Global Academy of Sciences China stood first followed by Harvard University, USA, French National Centre for Scientific Research, France, Max Plank Society, Germany, and Stanford University, USA, and University of Tokyo, Japan.

CIIT-Pakistan Faculty gets US Patent

Patent registered by Prof. Dr. Robina Farooq and Prof. Dr. Saleem Farooq Shaukat of CIIT, Pakistan, has been approved by the US Patents and Trademark Office (USPTO). The patent pertains to a novel method for recovery of nickel from wastewater that can be applied for the recovery of heavy metals, including copper, silver and gold.

The novel method can also be efficiently used to recover metals from ores. The wastewater containing nickel is the cause of severe toxicity and is responsible for bone, liver, and nervous system diseases. This cost effective method could aide in addressing a number of diseases saving revenue in the healthcare sector. Moreover, with this method, the industrial effluents can be safely treated while also getting wasted metal back for use in industry.

RSS-Jordan co-organizes the First Middle East and South Asia Conference on Epigenetics and Genomics of Infectious Diseases

With a view to facilitate communication of epigenetic and genomic pathogen research between U.S., Middle Eastern, and South Asian scientists, and explore ways in which research in these fields could be applied to improve regional



HRH Princess Sumaya bint El Hassan, and U.S. Ambassador to Jordan, Alice G. Wells along with other participants during the Opening Session of the MESA Conference, 2016

biosurveillance and characterization of novel infectious disease outbreaks, the Middle East and South Asia (MESA) Conference on 'Epigenetics and Genomics of Infectious Diseases' was organized by Royal Scientific Society (RSS), Jordan, in partnership with Gryphon Scientific, USA, in the Jordanian capital, Amman, on March 7-8, 2016.

Held at RSS, the two-day event had participation of 100 scientists from 16 countries, Afghanistan, Egypt, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Turkey, United Arab Emirates, Uzbekistan, Yemen, and the United States. The conference provided an opportunity to the participants to benefit from scientific exchange and networking with relevant scientists and scientific communities. Advances in the field were shared under diverse topic covered during the course of the conference, which related to biorisk management and biosurveillance; characterization of infectious diseases that different illnesses; cloud-based genetic and epigenetic data sharing, genomic analyses, genetic and epigenetic analyses; endemic diseases, such as MERS-CoV and influenza; epigenomics, genetics, genomics; microbial ecology of endemic pathogens; new and re-emerging infectious diseases; next generation sequencing (NGS); as well as human, animal, plant, and environmental health.

Congratulations to ICCBS-Pakistan and ITI-Sri Lanka





Participants of the MFCA Workshop in Amman

RSS-Jordan Organizes Material Flow Cost Accounting Workshop in Amman

As part of SwitchMed Transfer of Environmental Sound Technology (TEST) II Project, Jordan, which is being implemented by UNIDO and the Royal Scientific Society (RSS), Jordan, a training workshop on 'Material Flow Cost Accounting (MFCA)' was conducted on 10th April 2016. The Amman Chamber of Industry provided supported to RSS in organizing this workshop for the selected 12 service providers (consulting firms in the area of cleaner production and energy audit) and the selected 12 demonstration manufacturing companies in Food & Beverage sector of the country. The workshop was conducted by Dr. Christine Jasch, the international MFCA expert and the author of the book titled: "Environmental and Material Flow Cost Accounting Principles and Procedures".

President of Mauritius Visits ICCBS-Pakistan

On April 19, 2016, the President of Republic of Mauritius, Dr. Bibi Ameenah Firdaus Gurib-Fakim, visited the International Center for Chemical and Biological Sciences (ICCBS), Pakistan. During an informal talk session, moderated by former Chairman Higher Education Commission (HEC) of Pakistan, Prof. Dr. Atta ur Rahman, she emphasized the need for strengthening bilateral ties in different areas including education, health, tourism and trade. She noted that the Mauritius government would also like to have joint education and research training programmes with Pakistani institutions. Also present in the session were Adviser to Sindh Chief Minister, Sharmila Farooqi; Vice Chancellor, Karachi University, Prof. Dr. M. Qaiser; Director ICCBS, Prof. Dr. M. Iqbal Choudhary; Chairman HEJ Foundation, Mr. Aziz Latif Jamal; Chairperson Memorial Trust Nadira Panjwani, Dr. Panjwani, Mauritius officials, and students and faculty members of ICCBS.

She lauded the quality of Pakistani educational institutions, especially University of Karachi. After the session, the



President of Mauritius with Prof. Dr. Atta-ur-Rehman at ICCBS

Mauritius President along with her delegation paid a visit to different laboratories of the Center.

ITI-Sri Lanka Celebrates its 60th Anniversary

The Industrial Technology Institute (ITI), Sri Lanka, celebrated its 60th Anniversary on 16th March 2016. A ceremony in this regard was held at the Water's Edge Hotel, Colombo, Sri Lanka. His Excellency the President of Democratic Socialist Republic of Sri Lanka, Hon. Maithripala Sirisena, graced the occasion as the Chief Guest and distributed awards to the employees who had served ITI for more than 25 years. Awards were also given to researchers under the categories of 'Best Invention' and 'Best Technology Transfer'.

The Sri Lankan Minister of Science, Technology and Research, Mr. Susil Premajayantha, speaking at the occasion, commended the service rendered by the Institute to the country.

A stamp and a first-day cover were also launched at the occasion to commemorate the 60th Anniversary.



President of Sri Lanka at the ITI 60th Anniversary Celebrations

OPINION: SEVEN IDEAS FOR SCIENCE DIPLOMACY IN THE MIDDLE EAST

Nart Dohjoka*

Science diplomacy has re-emerged as an essential tool for building bridges between nations. For Middle East, particularly, it offers new prospects for cooperation and negotiation. This article suggests seven ways in which science diplomacy can be fostered in the region.

In recent years, a revitalized interest in 'Science Diplomacy' has emerged. This interest could be seen as a response to the complex, scientific and technical nature of today's challenges. Indeed, if we look at global issues, such as epidemics, water scarcity, energy security and climate change, one could not help but consider science diplomacy as a viable option and a solution. Based on this, in several countries, particularly certain developed ones, science diplomacy has become the currency for soft power of the new era. States and regional bodies, including the United States, the United Kingdom, New Zealand, Japan and the European Union, have developed strategies and policies that provide an enabling backdrop for science diplomacy. Indeed, it is fair to say that science diplomacy has found its foothold in the developed world. However, that can only lead us to ask what the prospects of science diplomacy are in a region such as the Middle East, where the need for engagement through science diplomacy can only be greater.

Science diplomacy has become the currency for soft power of the new era

The Middle East, the land of ancient cultures and home to the Islamic civilization in its Golden Age, has a very different outlook today. The region is plagued with enormous challenges that threaten its future sustainability and stability. Violence and extremism dominate media headlines and the real challenges facing its populations remain unaddressed. In this difficult environment, we may well ask, 'what hope has any great science diplomacy project?'

Although the prospects are weak, particularly in the short-term, science diplomacy must be considered a necessity in the Middle East. Water scarcity, energy insecurity and environmental degradation are some of the key challenges that pose a threat to the region's long-term prosperity. Above all, although solutions are rooted in science and technology, addressing these issues requires regional collaboration as no single country is capable of effectively managing such challenges.

This situation calls for joint efforts in the form of projects at the nexus of science and diplomacy. However, for such initiatives to be successful and deliver maximum output, there are certain prerequisites that need to be fulfilled. To follow are ideas drawn from a recent regional forum on science & technology diplomacy that took place in Amman, Jordan, at the end of 2015. This first-ever event on the topic of science diplomacy in the region was jointly organized by the UN ESCWA Technology Centre, CRDF Global and the Royal Scientific Society, and I was privileged to play a part in organizing this event.

Based on the deliberations of the event, here are seven actions that need to be taken to make science diplomacy a reality in the Middle East:

1. Support Scientific Communities

For a successful implementation of science diplomacy, there is a need for a strong and coherent scientific community. The majority of countries in the region (with a few exceptions) have no scientific communities or, at best, weak structures. In order for science diplomacy initiatives to be effective, more support needs to be given to help create, grow and strengthen scientific communities in the Middle East. One step to realize this is to build science academies. The role of these academies is an indispensable vehicle for sustainable development in the world and manifests itself in terms of both advancing science and scientific excellence and serving as a vital and credible instrument to engage and inform policy-makers and the public at large.

2. Change the Mindset

Science diplomacy is not simply about science experiments; it is a mindset. Meaningful cooperation between scientific and diplomatic communities in the region requires a clear understanding of the value each of them brings to advance their missions. For the diplomatic community, science at the heart of diplomacy must be considered a national and regional priority. In this regard, the benefits that science brings to diplomacy are many. For example, science could serve as a tool for regional cooperation, complementarity efforts, and even a pathway to integration (e.g., the European model). In turn, the scientific community must also see the benefits gained from such opportunities as this means more recognition and access to other pools of

***About the Author:** Nart Dohjoka is currently the Programme Manager of the Science Diplomacy Programme at Royal Scientific Society (RSS) in Jordan. He also serves as a Consultant for Science & Technology Diplomacy at the UN-ESCWA Technology Center (ETC). Nart is a Chevening Scholar and has a Master's degree from the University of St. Andrews (UK) in the field of Peace and Conflict Studies.
Email: Nart.Dohjoka@rss.jo



resources in the region.

Meaningful cooperation between scientific and diplomatic communities requires a clear understanding of the value each of them brings to advance their missions.

3. Consider all Stakeholders

Science diplomacy requires the engagement of multiple stakeholders. The prospects without the involvement of such alliances from different disciplines, including government, industry and civil society, are rather poor. Each discipline offers a unique range of perspectives, insights and knowledge. Such contributions would enable individual countries in the region to design a framework and set of policies to maximize the use of science diplomacy strategies.

4. Open Lines of Communication

Science diplomacy is about strong communication. Building the right capacity and capability for science communicators, media, scientists, researchers, and S&T policy experts, among others, are necessary towards building a culture of science in which science diplomacy can flourish. To reach this goal, science communication must be institutionalized. Unlike developed countries, the majority of Middle Eastern states lack the institutional capacity or effective systems to support science communication – let alone science diplomacy. Hence, there is need to build structural framework models that capture the instrumental role of science communication. Universities, research institutions, ministries and other relevant bodies need to develop the right capacities as a main component of their activities.

Science diplomacy is about strong communication.

5. Put Good Science at the Helm

“Good science” must be at the heart of science diplomacy efforts. When considering science diplomacy initiatives, it is imperative for countries in the region to make sure that the quality of science produced is at the highest standard. “Big science” projects are a case in point. By nature, such projects are expensive to set up and, perhaps, in some instances, politically difficult to achieve particularly in a region like the Middle East. However, if realized, it is important to ensure that the quality of the work carried out is not compromised. Otherwise, stakeholders will lose interest and ultimately the project could fail. Against this backdrop, SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) is an example of regional cooperation in Science and Technology that is hoped to usher a new era in the region’s history, which will only

succeed with excellent first-class science.

6. Champion Science Diplomacy

Science diplomacy needs to be championed. Young people and members of the diasporas are potential candidates to lead such efforts. While diasporas bring key resources – human and capital – with an embedded international outlook, young people are the drivers of innovation. This powerful mixture of hands-on experience, passion and entrepreneurial spirit, could provide the critical mass for future science diplomacy champions. However, countries in the region need to capitalize and invest more time and effort in creating programmes aimed at brain circulation and mobility of youth across the region.

While diasporas bring key resources – human and capital – with an embedded international outlook, young people are the drivers of innovation

7. Create Long-term Commitment

The Middle East is in need of a clear roadmap with a strong long-term vision that would transform shortfalls into opportunities. The first step in this direction is to articulate a clear definition of science diplomacy that is sensitive to local and regional needs. The region has its own unique characteristics and problems. Hence, a careful examination is needed to find relevant and applicable forms and models of science diplomacy that are adaptive to its internal structures.

In summary, for the prospect of workable science diplomacy initiatives to emerge in the Middle East, we need to:

- build a culture of science;
- understand its value in addressing uncertainties;
- view it as a vehicle for cooperation and as a tool to rebuild bridges between nations marred by political conflicts.

However, this requires a long- term commitment that reflects a mature mindset and solid government and civil structures.

On a final note, Jordan will be hosting the World Science Forum in 2017 under the theme “Science for Peace.” This effort could not have been possible without the tireless dedication of HRH Princess Sumaya bint El Hassan, a champion of science diplomacy with a holistic vision. It is hoped that this unique gathering of minds will pave the way for a robust dialogue, inspire a new generation of science diplomats and reposition the voice of science in the Middle East.

SCIENCE, TECHNOLOGY AND DEVELOPMENT

Wonder Drug for Deadly Antibiotic-resistant Bacteria Uncovered by Screening Method

According to a report published in the April 29, 2016 issue of the *Science Daily*, investigators at Beth Israel Deaconess Medical Center (BIDMC) have developed a promising method of identifying new antimicrobials that target carbapenem-resistant Enterobacteriaceae (CRE), a class of deadly bacteria resistant to customary antibiotics. To identify new or existing drugs that can destroy multidrug-resistant CRE, James Kirby, MD, Director of the Clinical Microbiology Laboratory at BIDMC examined approximately 10,000 compounds with known activity, including most FDA-approved drugs, veterinary drugs and inhibitors of various cellular processes not currently used as therapeutics. Through high throughput screening, the investigators tried to examine these compounds for ability to directly inhibit the growth of CRE or restore the effectiveness of carbapenem against these organisms. Seventy-nine compounds were found to inhibit CRE. Of these, three had already been approved for human and veterinary use: azidothymidine, spectinomycin and apramycin. When tested against a large number of CRE strains, the three compounds were found to be broadly active. Apramycin and spectinomycin are of particular interest due to having minimal side effects, making them potentially ideal new therapeutic options for CRE infection. These drugs could also be used as starting points for further drug development, as they structurally modified to further increase their activity and prevent resistance from developing against them.



Using Synthetic Biology to Improve Anti-venom for Snakes

A research published on March 3, 2016 in *PLOS Neglected Tropical Diseases* may help in addressing the issue of low venom yield from coral snakes resulting in insufficiently available anti-venom for snake bite patients. The research from the Butantan Institute in Brazil shows the use of synthetically designed DNA to produce coral-snake antivenom. The researchers identified 5 toxins within the snake venom and used a technique called SPOT-synthesis to identify the sections of the toxin (epitopes) that are recognized by coral snake antivenom antibodies. They then designed two DNA strings that coded for these epitopes and used them to immunize different groups of mice. The serum collected from the immune challenged animals, which contained antibodies to the five toxins, was then tested for anti-venom capabilities, by mixing with coral snake venom before being administered to healthy mice. Results suggested that the anti-venom was found to neutralize 40% of the venom. To improve on this result, the researchers used recombinant DNA techniques to generate purified recombinant proteins from the designed multi-epitope DNA strings, and gave the mice a series of booster shots to



increase their immune response. This approach resulted in a final serum with 60% neutralization capability against coral snake venom. Scientists say that techniques to increase the yield of antibodies are likely to lead to even higher neutralization rates, producing a much-needed readily available source of coral snake antivenom.

New Method Reduces Biofuel Production Time by Using Microalgae

A joint research of students of the Engineering Institute at the National University of Mexico and University of Newcastle has shown a possibility of producing biofuel in approximately three hours. The process proposed aims to improve processing operations involved in the transformation to biodiesel. The research used sampling of mixed microalgae: *Chlorella*, *Scenedesmus* and *Desmodesmus* native to the Lake of Texcoco in Mexico. Being a cell, Microalgae, grows in less than 24 hours, so its transformation into biodiesel is very fast (only about three hours) due to that the algae are harvested daily and biofuel could be produced every day. The use of this biodiesel has great benefits for environment by reducing emissions of greenhouse gases. It could also result in boosting local economy and presents a viable alternative to fossil fuels. The report was published in *Science Daily* on April 27, 2016.



Low Power Sensors for Internet of Things

As Internet of Things (IoT) comprises of devices and applications that gather and distribute data for everyday life, therefore its sensor devices and processes that will underpin the IoT need to be small, versatile and energy efficient. Researchers at Agency for Science, Technology and Research (A*STAR) have developed a sensor processor node that is capable of intelligent sensing while using ultra-low levels of power reports an article published in *Science Daily* on April 27, 2016. In many applications, sensor signals take the form of sudden spikes, which are best-processed using cognitive sampling technologies. The advantage of those techniques is that they reduce the amount of data that needs to be processed by about 40 per cent which greatly reduces the power consumption. Using such techniques, the researchers were able to develop a sensor node processor design that can operate on ultra-low operating voltages as low as 0.5 volts, and that use only 29 to 39 pico Joule per operation cycle. The design represents a step toward a more comprehensive set of hardware systems. Most IoT devices are tiny in size, consuming a small amount of power. This is particularly challenging for processors that sample the information from sensors and analyze the data, as their power demands, in contrast, are intense. The Institute of Microelectronics research team adopted ultra-low voltage circuitry and system design techniques, and further developed diverse hardware accelerators for high-energy efficient signal processing of sensor information.



PROFILE OF HEAD OF COMSATS' S&T CENTRE OF EXCELLENCE

MR. MD. NAZRUL ISLAM, CHAIRMAN, BCSIR, BANGLADESH

Mr. Md. Nazrul Islam is a seasoned civil service officer of the Government of Bangladesh at the rank of Additional Secretary. Currently he is posted as the Chairman of COMSATS' Centre of Excellence in Bangladesh, the Bangladesh Council of Scientific and Industrial Research (BCSIR) on deputation.



Mr. Islam obtained his B.Sc. (Hons.) in Zoology and M.Sc. (Special Entomology) from the University of Rajshahi, Bangladesh. After completing his higher studies, he joined a reputed international pharmaceutical company, Smith, Kline & French, Bangladesh, and served for one year. Then he got appointed as the Senior Officer of Bangladesh Krishi Bank, a Government owned financial and development institution for one year. In 1986, Mr. Islam joined Bangladesh Civil Services (Administration Cadre) as Assistant Commissioner and Magistrate.

Serving the Government of Bangladesh, Mr. Islam was subsequently promoted as Senior Assistant Secretary, Deputy Secretary and Joint Secretary. During his service, he disposed of many criminal cases in the criminal court in the capacity of first-class Magistrate. After separation of judiciary in 2009, Mr. Islam chose executive rather than judiciary with executive magistracy power of first class, allowing him to exercise executive Magistracy power when the Government of Bangladesh desires.

In his early association with the Bangladesh Civil Services, he performed in multifarious capacities as Officer-in-Charge at the Deputy Commissioner and District Magistrate's office in various sections, like Trade & Commerce, Education, Judicial Munshikhana, Treasury, and Special Passport. Mr. Islam worked as General Certificate Officer to recover Government lending from different types of borrowers/defaulters. He performed diligently as a leader of a team consisting of Police, Border Security Force and Army in different law and order situations through his career.

He served as Assistant Commission (Land) in two different Upazila (Field level administrative unit/area with more or less 300,000 people) for land management and collection of revenue. He served as Upazila Nirbahi Officer (chief executive) of three different Upazila for about seven years, where he coordinated development and social activities, like health, education, agriculture, livestock, fisheries, sanitation, infrastructure (road, bridge, culvert, school/collage building, etc.) and control law and order, as well as land management and collection of revenue. Mr. Islam served as Deputy Director to the Department of Narcotics under the Home Ministry to administer and control narcotics & liquor.

He served as Additional Deputy Commissioner and Deputy

Commissioner in charge for two years in one of the districts of Bangladesh. Mr. Islam served as Chief Executive Officer of different District Councils, an important tier of Local Government system, for about five years, performing diverse assignments related to Education, Health, Religion, Connectivity, Park, Ferry, Rest House, and Plantation, etc. He also served as Zonal Executive Officer of Dhaka City Corporation – the largest Local Government Organization of Bangladesh.

In the city corporation, Mr. Islam was responsible for delivering all kind of services to the citizens and exercised Magistracy powers for maintenance of law and order, eviction of unlawful/unauthorised occupants and holding mobile courts.

Before joining as the Chairman BCSIR, Mr. Islam was Member (Admin & Planning) of Chittagong Port Authority for more than five years. During his service at the Port, he performed many important tasks, which include:

- drafting of law for a new sea port named Payra Sea Port that was inaugurated by the Prime Minister of Bangladesh in 2012;
- formulation of a new tariff for Chittagong Sea Port and Pangaon Container Terminal;
- modification and updating rules and regulations under the Port Act;
- formulation of policy for establishment & operation of private-owned Container Depot;
- arrangement and signing of tetrapartite MoU between labour leaders, Stevedor, Chittagong Port and Ministry of Labour;
- long-term negotiation regarding fees of services between Shipping Agents Association and port users like exporter, importer, chamber of commerce, clearing and forwarding agent, freight forwarder, private-owned container depot association, etc.

Mr. Islam rendered invaluable services for the development of Chittagong Port, which has been upgraded from its position from 98 to 76 among top 100 ports in the world within the last 5 years. He undertook several trainings during his long standing career both in and outside Bangladesh, which notably includes trainings on survey & settlement; law and administration; administration & development; port management and operations; policy planning & management; military training and foundation courses for civil servants.

Contact Details:

Mr. Md. Nazrul Islam
Chairman
Bangladesh Council of Scientific and Industrial Research (BCSIR)
Dr. Quadrant-i-Khuda Road, Dhanmondi,
Dhaka-1205, Bangladesh.
Tel: (+880-2) 58610634/9635468; Fax: (+880-2) 8613022
Email: chairman@bcsir.gov.bd

COMSATS' BRIEF AND ANNOUNCEMENTS

Selected Forthcoming Scientific Events in COMSATS' Countries

27 June - 1 July 2016	Data Science Africa 2016, Kampala, Uganda (www.datascienceafrica.org/dsa2016/)
24 - 30 July 2016	IYNC 2016 — International Youth Nuclear Congress 2016, Hangzhou, China (www.iync.org/iync2016/)
28 - 29 July 2016	ICOPH 2016 — 2 nd International Conference on Public Health, Colombo, Sri Lanka (publichealthconference.co/2016/)
07 - 10 September 2016	ICAAM 2016 — Third International Conference on Analysis and Applied Mathematics, Almaty, Kazakhstan (www.icaam-online.org)

1st International Conference on Science, Technology and Innovation Policy and Management (STIPM-2016), November 16-17, 2016, Jamshoro, Pakistan

As an ardent supporter of S&T, COMSATS proudly announce the holding of the 1st International Conference on Science, Technology and Innovation Policy and Management (STIPM-2016) to be hosted by Mehran University of Engineering and Technology, Jamshoro, Pakistan, on November 16-17, 2016. With COMSATS as one of the partner organizations, the Conference will cover the following S&T Policy themes: ST&I Policy and Governance; Economics of Innovation and Development; and Innovation and R&D Management. Experts from Malaysia, Pakistan, Sudan, and the UK will deliver keynotes. For more information visit: <http://stipm2016.muet.edu.pk/>.

Scholarships offered by the COMSATS' Centres of Excellence for Member States

COMSATS Institute of Information Technology (CIIT), Pakistan, offers 100 scholarships for students/researchers for post-graduate studies in all disciplines offered by the university at its 7 campuses, as well as five post-doctoral fellowships.

The Iranian Research Organization for Science and Technology (IROST), Iran, offers 7 Ph.D scholarships [4 fully paid and 3 partially paid (50%)] and five-post-doctoral fellowships in disciplines offered by the Organization.

The International Center for Chemical and Biological Science (ICCBS), Pakistan, offers scholarships for MS and Ph.D studies in disciplines offered by the Center.

For more details, please write to Mr. Tajammul Hussain, Advisor Programmes, COMSATS Secretariat at hussient@comsats.net.pk.

Science Vision - Call for Papers

COMSATS invites scholarly contribution for Volume 21 of its bi-annual journal Science Vision, which aims at highlighting the important scientific and technological developments that have a bearing on socio-economic conditions of the people.

For more information, visit the journal's website: www.sciencevision.org.pk



A BRIEF ON COMSATS

The Commission on Science and Technology for Sustainable Development in the South (COMSATS) is an intergovernmental organization, with its Secretariat located in Islamabad, Pakistan.

COMSATS, currently, has 23 developing countries as its members, spread across three continents, i.e., Latin America, Africa and Asia. A network, of 20 International S&T Centres of Excellence, is also affiliated with COMSATS to contribute to scientific development of its Member States. The mission of COMSATS is to help create a world where all nations are at peace with one another and capable of providing good quality of life to their populations in a sustainable way using modern S&T resources. For detailed information, please visit COMSATS' website: www.comsats.org.

COMSATS NETWORK

 BCSIR-Bangladesh www.bcsir.gov.bd	 ICENS-Jamaica www.icens.org	 UCAD-Senegal www.ucad.sn
 Embrapa Agrobiologia-Brazil cnpab.embrapa.br	 RSS-Jordan www.rss.jo	 ITI-Sri Lanka www.iti.lk
 ICCES-China english.icces.ac.cn	 KazNU-Kazakhstan www.kaznu.kz/en/	 IRCC-Sudan www.ircc.gov.sd
 CIF-Colombia www.cif.org.co	 NMC-Nigeria www.nmcabuja.org	 HIAST-Syria www.hiast.edu.sy
 NRC-Egypt www.nrc.sci.eg	 ICCBS-Pakistan www.iccs.edu	 TIRDO-Tanzania www.tirdo.org
 CSIR-Ghana www.csir.org.gh	 CIIT-Pakistan www.ciit.edu.pk	 CERTE-Tunisia www.certe.mrt.tn
 IROST-Iran www.irost.org	 TÜBİTAK MAM-Turkey www.mam.gov.tr	