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Patron

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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.



Group photo of the participants of Regional Consultative Workshop on National Innovation System and Intellectual Property (7-9 October 2013)

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From the Executive Director's Desk

The realities of the contemporary world are stark and challenging for the development prospects of the South. Most developing countries have come a long way to realize what the root cause of their under-development is and how to change their priorities for enhancing prospects of economic success. Slowly but surely, it has now become a mainstream topic of development discourse to stress the importance of Science, Technology and Innovation (ST&I). With increasing emphasis on the role of ST&I, at least to the extent of national plans and policy directions, it would eventually be possible to actualize necessary resource allocation. The vicious cycle of low-level S&T capacity and economic under-performance could then be broken.

Would that scenario lead to unfettered socio-economic progress? Unfortunately, the answer is getting increasingly uncertain. Even theoretically speaking, if all 7B people on Earth start enjoying a quality of life comparable to that of the populations of USA and Europe, the planet would exhaust its carrying capacity. Further down the line, towards the middle of the century, the 9B expected inhabitants would necessarily remain highly polarized in terms of decent living standards. The nations with economic and technological strength would do anything to maintain their dominant status acquired over centuries through hard work and other means that could at best be considered as controversial. They are and will remain determined to keep in check new aspirants of high national

income brackets. Owing to the technological advancements it need not be a zero-sum game. However, eventually when the essential resources, such as clean water, energy and food, get further constrained, it will become a matter of survival. Only the fittest will prevail, the others could be eliminated or remain sunk in abject poverty.

Hopefully, the crunch can be delayed for a few decades. Developing countries are still a long way to put their own houses in order and enter an arena of serious competition with the North. There would continue to be avenues of progress for all, at least in the near future. The climate concerns will keep unbridled prosperity ambitions in control, the diminishing earth resources will probably lead to adjustments in consumption patterns, limited energy availability will keep extravagant life-styles within limits, while the enormous demographic pressure generated in the South would increase so much local demand that cheap raw material out-flow to the rich countries would be severely curtailed. A quasi-equilibrium condition of an egalitarian economic world order may hopefully emerge. If not, peace and stability in the world would be seriously jeopardized.

COMSATS has been playing a positive role to create equitable and stable socio-economic conditions in its Member

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NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

COMSATS-ISESCO REGIONAL CONSULTATIVE WORKSHOP ON NATIONAL INNOVATION SYSTEM AND INTELLECTUAL PROPERTY

National Innovation System (NIS) based on a sound Science, Technology and Innovation (ST&I) policy is universally regarded as the key driver of a country's sustainable economic development and a significant contributor in enhancing the social and economic well-being of its citizens. The Intellectual Property Rights (IPR) are of enormous importance to safeguard the business interests of the industries, which are part of the NIS. In the light of these facts, a Regional Consultative Workshop on National Innovation System and Intellectual Property (IP) was held in Islamabad on October 7-9, 2013, by COMSATS in cooperation with Islamic Educational, Scientific and Cultural Organization (ISESCO); Inter-Islamic Network on Information Technology (INIT), and COMSATS Institute of Information Technology (CIIT). The workshop was conducted with an objective of developing capability of the participants from the common members of COMSATS and OIC (Asian Region) to understand and possibly help develop NIS policies for strengthening technology capability.

The inaugural session of the event was held on October 7, 2013. The Executive Director of the Higher Education Commission (HEC) of Pakistan, Dr. Mukhtar Ahmed, presided over the ceremony that was attended by Executive Director COMSATS, Dr. Imtihan Elahi Qureshi; Rector CIIT and President INIT, Dr. S. M. Junaid Zaidi; and Head of ISESCO Centre for Promotion of Scientific Research (ICPSR), Mrs. Wafaa El Alami. Around 70 subject specialists and participants from Bangladesh, China, Iran, Kazakhstan, Malaysia, Nepal, Pakistan, South Korea, Sri Lanka, United States, and Switzerland, participated in the inaugural function.

The eight technical sessions of the workshop consisted of



Representative of WIPO sharing his views on IPR and related issues

talks and presentations that introduced innovation, its types and classifications; highlighted its impact and effect on national economy; discussed delivery mechanisms for and key agents and actors in a national innovation system; elaborated intellectual property and its role for knowledge-driven economy; covered the perspectives of universities, industries and R&D institutions and recommended strong linkages between them; as well as addressed key issues viz. patent filing, prosecution and enforcement. An insight into the innovation policies of developing countries was also provided during the event through the country-specific presentations made by participants from Bangladesh, China, Iran, Malaysia, Nepal, Pakistan, South Korea, and Sri Lanka.

During the closing ceremony of the event held on 9th November 2013, the Executive Director COMSATS opined that the developing countries will have to support and strengthen their intellectual property organizations in order to improve the delivery mechanism of National Innovation Systems. Dr. Qureshi especially appreciated the participation of World Intellectual Property Organization, Switzerland and Pakistan's Intellectual Property Organization for their inputs of crucial importance towards the theme of the workshop. The closing ceremony also comprised votes of thanks from Prof. Sirimali Fernando, the CEO of the Coordinating Secretariat for Science, Technology and Innovation (COSTI), Sri Lanka, and the Advisor (Programmes) COMSATS, Mr. Tajammul Hussain.

The 2nd and 3rd workshops on the theme are expected to be held in the near future for African and Middle East regions.

COMSATS OBSERVES UN DAY FOR SOUTH-SOUTH COOPERATION

Providing leadership and support for major North-South and South-South cooperation is one of the key objectives of COMSATS, on which COMSATS international projects and programmes are based. To express solidarity with the world community in promoting the cause of South-South Cooperation, COMSATS organized a Seminar on Strategies for Enhancing South-South Cooperation in Human Resource Development, on the United Nations Day for South-South Cooperation, September 12, 2013. Held at COMSATS Institute of Information Technology (CIIT) Islamabad, the event had a participation of around seventy representatives from UN agencies, government bodies, civil society, media and academia, as well as students of CIIT.

Speaking at the inaugural session of the seminar, the Executive Director COMSATS drew a correlation between the theme of the Day and COMSATS activities by highlighting its various programmes and initiatives that are aimed at fostering cooperation in S&T among the 21 Member States. A special mention of cooperative



Dr. Nagata speaking at Seminar on South-South Cooperation

mechanism through the 18 institutions of COMSATS Network of International S&T Centres of Excellence was made. Dr. Qureshi noted that annual meetings of Heads of the Network institutions and members of COMSATS International Thematic Research Groups are resulting in a wide sharing and exchange of expertise and knowledge among the countries of the South. Appreciating the working relations between COMSATS and Pakistan National Commission for UNESCO (PNCU), Dr. Qureshi expressed his desire to work directly with UNESCO Headquarters or through UNESCO institutions, such as ISTIC (Malaysia) and ST&I Policy Centre (China).

The Chief Guest for the inauguration, the UN Resident Coordinator and UNDP Resident Representative in Pakistan, Mr. Timo Pakkala, opined that the developing countries have assumed a greater role in the global development landscape and called for more cooperation among the developing countries for socio-economic growth. Mr. Pakkala noted that the combined economic output of three leading developing countries alone, Brazil, China and India, will surpass the aggregate production of Canada, France, Germany, Italy, the United Kingdom and the United States by 2020. He expressed the UN systems pledge to act as facilitator and knowledge broker to promote exchange of knowledge and experiences across the developing world.

Further views of UNESCO came from Director of UNESCO

in Pakistan, Dr. Kozue Kay Nagata, who advocated South-South cooperation as a key mechanism for development in her keynote address. The advantages of such cooperation enumerated by Dr. Nagata included fostering of economic, scientific and technological self-reliance; development of appropriate technology, regional human resources and skills better adapted to the local needs; low-cost solutions; and partnership for peace. In another keynote address, President Heartfile, Dr. Sania Nishtar, considered it important to have South-South cooperation in health sector based on the commonality of the issues faced by the developing countries.

The event included insightful presentations and speeches on the theme that covered perspectives from various organizations belonging to R&D and academia. The technical talks delivered by experts addressed various issues related to different aspects of South-South cooperation. Importance of cooperation among the developing countries for higher education was established while the role of academia for human resource development was explored. South-South Cooperation in Post 2015 MDGs scenario and COMSATS role in promoting science-led sustainable development through South-South Cooperation also formed a significant part of the deliberations of the seminar. Consensus prevailed during the event to optimally utilize the mechanism of South-South cooperation by reassessing strategies and future goals. It was noted that the potential of the developing countries in the form of natural and human resources needs to be duly tapped, and cooperative mechanisms among these countries can facilitate the development process.

SUDANESE MINISTER FOR HIGHER EDUCATION & SCIENTIFIC RESEARCH VISITS COMSATS SECRETARIAT

COMSATS desires to elevate cooperative ties with the Government of Sudan to a higher level and appreciates the continued support of the Sudanese Embassy towards COMSATS activities in Sudan. Executive Director COMSATS expressed these views during a meeting with the Minister for Higher Education & Scientific Research, Republic of the Sudan, H.E. Prof. Khamis Kajo Kunda, who

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

States. Our bet is that it will come through Science, Technology and Innovation. A three-day workshop (7-9 October 2013) held in this connection in Islamabad (see page 2) focused on multifarious aspects of framing as well as implementing policy interventions for national innovation systems by different countries in the Asian region. Other important inputs that were made on that occasion related to

Intellectual Property Rights (IPR) and their significance in international trade. The international norms and treaties for implementing a robust national IPR regime were discussed by an expert from World Intellectual Property Organization (WIPO). Some of the reflections made in this editorial were also discussed in the workshop.

Comments on the contents of this Newsletter and suggestions for improvement are most welcome.

visited COMSATS Secretariat, Islamabad on September 25, 2013. The Minister was accompanied by the Sudanese Ambassador to Pakistan, H.E. Mr. El Shafie Mohamed Ahmed. The Sudanese Minister, who was visiting Islamabad as a Head of Sudanese delegation for the Vice Chancellors Forum 2013 (page 6), co-organized by COMSATS Institute of Information Technology (CIIT) on September 23-24, 2013, received a briefing from the Executive Director COMSATS on COMSATS international role, S&T cooperation programmes, and research & training activities for member countries.

After the briefing, the international collaborations, education, training and capacity-building opportunities in the member countries created by COMSATS over the years that directly benefited policy-makers, researchers, scientists and students from Sudan were recounted by the Executive Director. The Minister was also informed about the National Workshop on Repair and Maintenance of Scientific, Engineering Equipment in Universities, Research Institutions and Small Scale Industries, held in Khartoum from August 18-22, 2013, that resulted in training over 35 Sudanese engineers, researchers and technicians. Dr. Qureshi also noted Sudan's representation in COMSATS international meetings: Commission Meeting 2012, seven meetings of Coordinating Council, and two meetings of Consultative Committee. Areas of cooperation explored during the meeting for future cooperation with Sudan included: education and training; joint-research; international S&T events; and international linkages.

The Minister was informed that currently two Sudanese students are undertaking their MS degrees from COMSATS Institute of Information Technology, and five applications from Sudanese researchers seeking Ph.D scholarships have been forwarded to COMSATS Centre of Excellence in Iran, the Iranian Research Organization for Science and Technology (IROST). COMSATS offer to involve scientific institutions of member countries in thematic research was

reiterated to the visiting Sudanese Minister and Ambassador.

The Sudanese Minister thanked Dr. Qureshi for his detailed presentation on COMSATS activities and programmes, especially the ones involving Sudanese researchers, scientists and students. He observed that a lot can be achieved for development through South-South cooperation, especially from the platform of COMSATS. He stated that his Ministry was making all-out efforts to providing necessary facilities at the higher education institutions in the country for conducting relevant scientific research and creating international linkages. Prof. Kunda considered the mechanism of establishing Centres of Excellence in specialized areas and using the network for conducting shared/thematic research cost-effective for developing countries like Sudan, and hoped the country could reap the benefits that the membership of the COMSATS Network offers. The Minister reiterated his pledge to follow up on the commitments made by his fellow colleagues in the government viz. COMSATS programmes and activities.

MEETING BETWEEN THE HEAD OF ICPSR-MOROCCO AND COMSATS' OFFICIALS

The ongoing and future of cooperation between COMSATS and ISESCO Center for Promotion of Scientific Research (ICPSR) was discussed during a meeting between Mrs. El Alami Wafaa, Head of ICPSR and COMSATS officials. The meeting was held at COMSATS Secretariat on October 08, 2013. The Executive Director COMSATS met Mrs. Wafaa in the presence of Mr. Tajammul Hussain, Advisor (Programmes); Mr. Nisar Ahmad, Sr. Assistant Director (Systems); and Mr. Farhan Ansari, Assistant Director (Programmes). Mrs. Wafaa was visiting Pakistan in connection with her participation in the COMSATS-ISESCO Regional Consultative Workshop on National Innovation System and Intellectual Property. While evaluating COMSATS-ISESCO Cooperation Programme for 2013, it was noted that two joint capacity-building events have been successfully held in the areas of Repair and Maintenance of Scientific Engineering Equipments (August 18-22, 2013, Sudan) and National Innovation System and Intellectual Property (October 7-9, 2013, Pakistan), whereas two more activities on the topics of Internet Security and Nanotechnology and Nano-biotechnology are scheduled to be held during December 2013, in Tunisia and Indonesia, respectively.

A regular feature of the Cooperation Programme is strengthening of the Islamic World Science Net (IWSN) web-portal in terms of its content and layout. The French version of the web-portal, it was noted, has been completed, whereas an Arabic version is planned to be developed during 2014. Other matters related to enhancing the efficacy



Meeting between Dr. I.E. Qureshi and H.E. Prof. Khamis Kunda

of the Virtual Scientific Thematic Groups (VSTGs) of the web-portal were also discussed during the meeting. A proposal for COMSATS-ISESCO Cooperation Programme - 2014 was handed over to the Head ICPSR for consideration.

COMSATS' OFFICIALS MEET THE SECRETARY GENERAL PNCU

The Executive Director COMSATS held a meeting with Ms. Amina Imran Khan, Secretary General Pakistan National Commission for UNESCO (PNCU), in Islamabad on October 10, 2013. He was accompanied by Mr. Tajammul Hussain, Advisor (Programmes), and Ms. Huma Balouch, Assistant Director (Programmes), COMSATS. Mr. Muhammad Dawood, Deputy Secretary General (PNCU) and Mrs. Sajida Nasreen, Assistant Secretary General (PNCU), were also present on the occasion.

Among the major points discussed on the occasion were: (i) upcoming visit of Executive Director COMSATS to UNESCO Headquarters, Paris, to attend the 37th session of General Conference of UNESCO (November 5-20, 2013) as a member of Pakistani delegation; (ii) proposal for establishing UNESCO Category-II Water Research Centre at CIIT Wah Campus; (iii) organization of IYCr South Asia Summit Meeting on Vistas in Structural Chemistry, to commemorate the International Year of Crystallography-2014, at International Center for Chemical and Biological Sciences (ICCBS), Karachi, Pakistan; and (iv) COMSATS contribution to UNESCO's participation programme during the past few years and possible collaboration for the promotion of scientific research and education. The Secretary General was requested to pursue with UNESCO Headquarters the release of allocated funds for the approved project COMSATS-UNESCO South-South Regional (Asia-Pacific) Technical Cooperation Programme (Biennium 2012-13).

CIS ACHIEVES A MILESTONE: 5000 TELE-CONSULTATIONS

CIS reaches a milestone in terms of its tele-health consultations branded as ComClinic service. The service is at present being provided to patients in remotely connected tele-health clinic at Gokina village, near the capital city of Pakistan. Through this tele-health clinic that was established this April, a total of about 5,000 tele-consultations in the fields of General Medicine, ENT, Gynecology and Dermatology have been given to out-door patients. Also, 50 different serious cases have been referred to different government hospitals for further treatment. CIS plans to expand its tele-health service to other areas of the country, especially in the provinces of Khyber Pakhtunkhwa and Punjab. A network of three hubs and fifteen Tele-health clinics will be established in this connection over the next couple of years.

Eminent Physicist of Pakistan, Prof. Riazuddin Passes away at 83.

Obituary by Executive Director COMSATS

With the death of Prof. Riazuddin, a glorious chapter of Pakistan's excellence in physical sciences has been closed. He was the most well-known physicist of Pakistan after Abdus Salam, under whose supervision he had earned Ph.D degree from Cambridge University in 1959.



Prof. Riazuddin dominated the scientific scene in Pakistan for over 40 years, leaving behind a rich legacy of world-class teaching and research, publications of high quality text books and building of institutions. His foremost contributions to academia were the establishment of the highly acclaimed Institute of Physics (now Department of Physics) in 1966 and the National Centre for Physics (NCP) in 1991, at Quaid-i-Azam University, Islamabad. He was the Director General Emeritus of NCP at the time of his death on 9th September 2013 at the age of 83 years.

In between the two positions of Director Physics Department and Director General NCP, he served Pakistan Atomic Energy Commission and made key contributions towards the nuclear deterrence of Pakistan. His other academic assignments in renowned universities in USA and R&D organization of the world and employment at King Fahd University of Petroleum and Minerals showed his international standing and respect in the field of Physics.

His life-long commitment towards the scientific programmes of the Abdus Salam International Centre for Theoretical Physics (Trieste, Italy) and Nathiagali Summer College (Pakistan) made him a ubiquitous figure in Trieste and Nathiagali on the occasions of international gatherings of scientists. Prof. Riazuddin spent an academically dynamic life and remained active in research until he breathed his last. To encompass his life-long achievements and honours, would require a voluminous book. In due course, it should be done, to preserve the story of a scientific giant of Pakistan, who taught, guided, and inspired thousands of students and research co-workers in different parts of the world. His closest partner in research was of course his twin brother, Prof. Fayazuddin, who survived him to carry the banner of scientific excellence. It should also be acknowledged that he was the pioneer of Pakistan's nuclear defense capability.

On personal level, Prof. Riazuddin was an extremely unassuming person, very mild in manners and soft in speaking. He never gave himself the airs of an important person, or mentioned his achievements to attract accolades. Among the unsung heroes of Pakistan, he would always stand tall as an icon of selfless commitment and life-long service to Pakistan. His loss will be mourned in the scientific circles of the world and remembered as the end of an era of Pakistan's scientific and technical achievements. May Allah bless his soul.

ACTIVITIES/NEWS OF COMSATS CENTRES OF EXCELLENCE

ICCES-CHINA HOLDS 12TH CAS-TWAS-WMO FORUM

The 12th CAS-TWAS-WMO Forum (CTWF) International Workshop on Operational Oceanography for Developing Countries was held on September 9-12, 2013, in Beijing, China. The workshop was organized by the International Center for Climate and Environment Sciences (ICCES) and Institute of Atmospheric Physics (IAP), China. Supported by the Chinese Academy of Sciences (CAS) and the World Academy of Sciences (TWAS), the event aimed at the advancement of science in developing countries. Prof. Romain Murenzi, Executive Director of TWAS; Dr. Mitrasen Bhikajee, Deputy Executive Secretary and Director for Capacity Development, Inter-governmental Oceanographic Commission of UNESCO; and Mr. Zhenyu Wang, Director of International Organization Programme, Bureau of International Co-operation, CAS, as well as the delegates from other 8 countries attended the workshop. During the 4-day workshop, 48 researchers presented their research results in sessions on: Operational Ocean Forecasting (short-range to ENSO); Ocean Research and Modelling; Ocean Observations and Data Analysis; and Ocean Data Assimilation.



Prof. Murenzi with Director and senior officials of ICCES

As part of his visit to Beijing, China, Prof. Romain Murenzi, Executive Director TWAS, visited ICCES and held a meeting with its Director, Prof. Zhaohui Lin, on September 13, 2013. Prof. Lin briefed Prof. Murenzi about the progress made at ICCES in terms of scientific research and international cooperation programmes. Prof. Murenzi spoke highly of the important role that ICCES is playing as one of the CAS-TWAS Centres of Excellence for the international cooperation between IAP and developing countries. He also expressed his desire to strengthen the cooperation and exchange between TWAS and IAP.

CIF-COLOMBIA INITIATES R&D ON LIDAR SYSTEM

Centro Internacional de Física, CIF-Colombia has initiated a new project to build a Laser Imaging Detection and Ranging

(LIDAR) equipment by developing a high speed laser scanner integrated with a navigation system. This multifunctional equipment will help in conducting topographical, geographical and environmental analysis useful for R&D institutions and business sector. The Colombian Administrative Department of Science, Technology and Innovation (COLCIENCIAS) will contribute a sum of US\$ 200,000 towards this project, which will cost US\$ 365,000 in total. The remaining finances will come from an engineering firm, Roadcon and CIF.

ICCBS-PAKISTAN SIGNS TWO MoU FOR SCIENTIFIC COOPERATION

The International Center for Chemical and Biological Sciences (ICCBS), Pakistan, signed two separate MoUs for scientific research and cooperation with Xinjiang Technical Institute of Physics and Chemistry (XTIPC), China, and National Centre for Research (NCR), Sudan. As per understanding reached with XTIPC, cooperative arrangements will be made in the areas of medicinal and edible plants, biological activity of natural compounds, synthesis, in-vivo studies, and clinical trials. The focus of scientific cooperation with NCR is on commercialization of herbal drugs and botanicals, and ICT-based education and training.

It was also agreed with both the organizations that efforts will be made to launch international journals in the field of chemistry, and hold bi-national workshops and conferences to develop linkages between academicians and researchers of China and Egypt.

RSS-JORDAN HOSTS BOARD MEETING OF WAITRO

The Royal Scientific Society (RSS), Jordan, hosted a board meeting of the World Association of Industrial and Technological Research Organizations (WAITRO) in Amman, Jordan, on September 24, 2013. Addressing the participants of the meeting, the President of RSS, HRH Princess Sumaya bint El Hassan, emphasized the need for considering enhanced leadership capacity at research and technology organizations (RTOs) as a priority, alongside research content and methodology. Last year, Princess Sumaya was appointed as WAITRO Regional Representative for the Middle East and North Africa for 2013-2014.

CIIT-PAKISTAN CO-ORGANIZES VICE CHANCELLORS' FORUM 2013

On September 23-24, 2013, COMSATS Institute of Information Technology (CIIT), Pakistan, organized the 2nd Vice Chancellors Forum (2013) in collaboration with ISESCO; Higher Education Commission (HEC) of Pakistan; Ministry of Science and Technology (MoST), Government of



Participants of the Vice Chancellor's Forum

Pakistan; and the Federation of the Universities of the Islamic World (FUIW). The theme of this year's Forum was Universities in the Islamic World: Challenges of Internationalization. More than 130 Vice Chancellors/Rectors/Presidents of universities and higher education institutions from the 26 countries participated in the Forum, which provided a platform to the academic and administrative heads of these institutions to build linkages for initiating joint academic programmes; endorsing one another's research activities; pooling resources for, inter alia, offering scholarships; promoting student and faculty exchange programmes, as well as establishing virtual centers of excellence.

The inaugural session of the Forum was graced by Mr. Zahid Hamid, the Federal Minister for Science & Technology, Government of Pakistan, as the chief guest. The Inaugural Session was followed by a Plenary Talk by Prof. Atta-ur-Rahman, President of Pakistan Academy of Sciences (PAS), who is also the former Coordinator General COMSTECH. In perspective of the issues related to internationalization of Islamic World universities, the talks covered various aspects including: human capital, case studies, university rankings, quality assurance, S&T parks, higher education, faculty and student exchange, quality standards system, as well as research and innovation. The Conference Resolution presented at the end of the Forum called, inter alia, for constitution of a committee of 10 selected Vice Chancellors to monitor the academic developments with a view to promoting cooperation for scholarship offers and research among the Islamic Universities.

An exhibition was held on the sidelines of the Forum to showcase the academic and research programmes being offered by different universities of Pakistan. There were more than 50 stalls representing different institutions at the venue of the meeting. The President of Pakistan, H.E. Mr.

Mamnoon Hussain, hosted a dinner in honour of the participants of the Forum.

NMC-NIGERIA BREAKS THE GUINNESS WORLD RECORD OF 'LARGEST SINGLE MATHEMATICS CLASS'

On July 1, 2013, as part of the pre-congress events of the Pan African Congress of Mathematicians (PACOM 2013), the largest mathematics class comprising 2,381 high-school students was held by the National Mathematical Centre (NMC), Nigeria, at the International Conference Centre in Abuja. By virtue of this, NMC sets a new Guinness World Record of largest single mathematics class, breaking the one earlier set by India with 2,000 students. The Director/Chief Executive of the NMC, Professor A.R.T Solarin, personally taught mathematical concepts to the class. The new record can be seen in line with one of the mandates of NMC which is to stimulate interest in and popularization of the teaching and learning of Mathematics at all levels.

BCSIR-BANGLADESH CO-ORGANIZES SEMINAR ON 'IMPACT OF R&D ON NATIONAL DEVELOPMENT'

Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh, and Committee of Action for Research, Extension and Services (CARES), Bangladesh, jointly organized a seminar on Impact of R&D on National Development. Held on September 8, 2013, this day-long seminar was inaugurated by the State Minister in-charge of the Ministry of Science and Technology, Government of Bangladesh, Architect Yeafesh Osman. Prof. Dr. Samir Kumar Brahmachari, Director General, CSIR India and Secretary, Department of Scientific and Industrial Research (DSIR), Government of India presented the key note papers on the theme of the seminar. A number of designated discussants attended the seminar.



Inaugural session of BCSIR's seminar on 'Impact of R&D on National Development'

BIOGRAPHIES OF EMINENT SCIENTISTS FROM DEVELOPING COUNTRIES: YUAN TSEH LEE

Yuan Tseh Lee was born on November 19, 1936, in Hsinchu, Taiwan. His father is an accomplished artist and his mother a school teacher.

He started his early education while Taiwan was under Japanese occupation - a result of a war between China and Japan in 1894. His elementary education was disrupted soon after it started during World War II while the city populace was relocated to the mountains to avoid the daily bombing by the Allies. It was not until after the war when Taiwan was returned to China that he was able to attend school normally as a third year student in grade school.



In 1955, with his excellent academic performance in high school, Lee was admitted to the National Taiwan University without having to take the entrance examination, a practice the Universities took to admit the best students. By the end of his freshman year he had decided chemistry was to be his chosen field. Although the facilities in the Taiwan University were less than ideal, the free and exciting atmosphere, the dedication of some professors, and the camaraderie among fellow students in a way made up for it. He worked under Professor Hua-sheng Cheng on his B.S. thesis which was on the separation of Sr and Ba using the paper electrophoresis method.

After graduation in 1959, he went on to the National Tsinghua University to do his graduate work. He received his Master's degree on the studies of the natural radioisotopes contained in Hukutolite, a mineral of hot spring sediment under Professor H. Hamaguchi's guidance. After receiving his M.S. he stayed on at Tsinghua University as a research assistant of Professor C.H. Wong and carried out the x-ray structure determination of tricyclopentadienyl samarium.

He entered the University of California at Berkeley as a graduate student in 1962. He worked under the late Professor Bruce Mahan for his thesis research on chemiionization processes of electronically excited alkali atoms. During his graduate student years, he developed an interest in ion-molecule reactions and the dynamics of molecular scattering, especially the crossed molecular beam studies of reaction dynamics.

Upon receiving his Ph.D. degree in 1965, he stayed on in Mahan's group and started to work on ion molecule reactive scattering experiments with Ron Gentry using ion beam techniques measuring energy and angular distributions. In a

period of about a year he learned the art of designing and constructing a very powerful scattering apparatus and carried out successful experiments on $N_2^+ + H_2 \rightarrow N_2H^+ + H$ and obtained a complete product distribution contour map, a remarkable accomplishment at that time.

In February 1967, he joined Professor Dudley Herschbach at Harvard University as a post-doctoral fellow. He spent half his time working with Robert Gordon on the reactions of hydrogen atoms and diatomic alkali molecules and the other half of his time on the construction of a universal crossed molecular beams apparatus with Doug McDonald and Pierre LeBreton. Time was certainly ripe to move the crossed molecular beams method beyond the alkali age. With tremendous effort and valuable assistance from the machine shop foreman, George Pisiello, the machine was completed in ten months and the first successful non alkali neutral beam experiment on $Cl + Br_2 \rightarrow BrCl + Br$ was carried out in late 1967.

He accepted the position as an assistant professor in the Department of Chemistry and the James Franck Institute of the University of Chicago in October 1968. There he started an illustrious academic career. His further development as a creative scientist and his construction of a new generation state-of-the-art crossed molecular beams apparatus enabled him to carry out numerous exciting and pioneering experiments with his students. He was promoted to associate professor in October 1971 and professor in January 1973.

In 1974, he returned to Berkeley as professor of chemistry and principal investigator at the Lawrence Berkeley Laboratory of the University of California. He became an American citizen the same year.

Professor Yuan T. Lee, was awarded the 1986 Nobel Prize in chemistry jointly with Professor Dudley R. Herschbach, Harvard University, Cambridge, USA, and Professor John C. Polanyi, University of Toronto, Toronto, Canada, for their contributions concerning the dynamics of chemical elementary processes. Yuan T. Lee, who initially worked in cooperation with Herschbach, had developed the method of crossed molecular beams further towards its use for general reactions. Most notably, he used this method for the study of important reactions for relatively large molecules.

In the ensuing years, his scientific efforts blossomed and the scope expanded. His world leading laboratory now contains seven very sophisticated molecular beams apparatus which were specially designed to pursue problems associated with reaction dynamics, photochemical processes, and molecular spectroscopy. His laboratory has always attracted bright scientists from all over the

world and they always seem to enjoy working together. He takes great pride in the fact that more than fifteen of his former associates are serving as professors in major universities, and many others are making great contributions at the national laboratories and in the private sector.

This autobiography/biography was written at the time of the award and later published in the book series Les Prix Nobel/Nobel Lectures.

FEATURE: THE NOBEL PRIZE 2013 (PHYSICS, CHEMISTRY, PHYSIOLOGY OR MEDICINE)

On 27th November 1895, Alfred Nobel signed his last will and testament, giving the largest share of his fortune to a series of prizes in Physics, Chemistry, Physiology or Medicine, Literature and Peace - the Nobel Prizes. In 1968, Sveriges Riksbank (Sweden's central bank) established The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. A total of 851 Laureates and 25 organizations have been awarded the Nobel Prize between 1901 and 2013.

Brief accounts of this year's Nobel prizes in Physics, Chemistry, Physiology or Medicine are given below:

PHYSICS

The Nobel Prize in Physics has been awarded 107 times to 196 Nobel Laureates between 1901 and 2013. The Royal Swedish Academy of Sciences has awarded the Nobel Prize in Physics for 2013 to François Englert, Université Libre de Bruxelles, Brussels, Belgium, and Peter W. Higgs, University of Edinburgh, UK

"for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider".

The awarded theory is a central part of the Standard Model of particle physics that describes how the world is constructed. According to the Standard Model, everything, from flowers and people to stars and planets, consists of just a few building blocks: matter particles. The entire Standard Model also rests on the existence of a special kind of particle: the Higgs particle. This particle originates from an invisible field that fills up all space. Even when the universe seems empty this field is there. Without it, we would not exist, because it is from contact with the field that particles acquire mass. The theory proposed by Englert and Higgs describes this process.

On 4th July 2012, at the CERN laboratory for particle physics, the theory was confirmed by the discovery of a Higgs particle. Even though it is a great achievement to have found the Higgs particle the missing piece in the Standard Model puzzle the Standard Model is not the final piece in the cosmic puzzle.

CHEMISTRY

The Nobel Prize in Chemistry has been awarded 105 times to 166 Nobel Laureates between 1901 and 2013. The Nobel Prize in Chemistry for 2013 was awarded to Martin Karplus, Université de Strasbourg, France and Harvard University, Cambridge, MA, USA, Michael Levitt, Stanford University

School of Medicine, Stanford, CA, USA, and Arieh Warshel University of Southern California, Los Angeles, CA, USA

"for the development of multiscale models for complex chemical systems".

The work of Karplus, Levitt and Warshel is ground-breaking in that they managed to make Newton's classical physics work side-by-side with the fundamentally different quantum physics. The strength of classical physics was that calculations were simple and could be used to model really large molecules. Its weakness, it offered no way to simulate chemical reactions. For that purpose, chemists instead had to use quantum physics. But such calculations required enormous computing power and could therefore only be carried out for small molecules.

This year's Nobel Laureates in chemistry took the best from both worlds and devised methods that use both classical and quantum physics. For instance, in simulations of how a drug couples to its target protein in the body, the computer performs quantum theoretical calculations on those atoms in the target protein that interact with the drug. The rest of the large protein is simulated using less demanding classical physics.

PHYSIOLOGY OR MEDICINE

The Nobel Prize in Physiology or Medicine has been awarded 104 times to 204 Nobel Laureates between 1901 and 2013. The 2013 Nobel Prize in Physiology or Medicine was jointly awarded to James E. Rothman, Professor and Chairman in the Department of Cell Biology, Randy W. Schekman, Professor in the Department of Molecular and Cell biology, and Thomas C. Südhof, Professor of Molecular and Cellular Physiology at Stanford University,

"for their discoveries of machinery regulating vesicle traffic, a major transport system in our cells".

Randy Schekman discovered a set of genes that were required for vesicle traffic. James Rothman unravelled protein machinery that allows vesicles to fuse with their targets to permit transfer of cargo. Thomas Südhof revealed how signals instruct vesicles to release their cargo with precision.

Through their discoveries, Rothman, Schekman and Südhof have revealed the exquisitely precise control system for the transport and delivery of cellular cargo. Disturbances in this system have deleterious effects and contribute to conditions such as neurological diseases, diabetes, and immunological disorders.

Source: NobelPrize.org

SCIENCE, TECHNOLOGY AND DEVELOPMENT

NEW ELECTRODE BREAKS THE WORLD-RECORD FOR SOLAR HYDROGEN PRODUCTION EFFICIENCY

A research team of Ulsan National Institute of Science and Technology (UNIST), South Korea, developed a worm-like hematite photoanode that can convert sunlight and water to clean hydrogen energy with a record-breaking high efficiency of 5.3%. This research was published in *Scientific Reports*, a journal of the *Nature Publishing Group* and reported by *Science Daily* on September 25, 2013.

The previous record of solar hydrogen efficiency among stable oxide semiconductor photoanodes was 4.2% owned by the research group of Prof. Michael Graetzel at the Ecole Polytechnique de Lausanne (EPFL), Switzerland. Solar water splitting is a renewable and sustainable energy production method because it can utilize sunlight and water (the most abundant natural resources on Earth). At the moment, low solar-to-hydrogen conversion efficiency is the most serious hurdle to overcome in the commercialization of this technology.

Prof. Jae Sung Lee of UNIST led the joint research with Prof. Kazunari Domen's group at the University of Tokyo, Japan, developing new anode material that has outstanding hydrogen production efficiency. "The efficiency of 10% is needed for practical application of solar water splitting technology. There is still long way to reach that level. Yet, our work has made an important milestone by exceeding 5% level, which has been a psychological barrier in this field," said Prof. Lee.

NOVEL AND ENVIRONMENTALLY FRIENDLY ADSORBENT FOR WASTEWATER MANAGEMENT

A novel new adsorbent for removing emerging contaminants from wastewater that is more effective, reusable and environment friendly, has been developed by researchers in Temple University's Water and Environmental Technology (WET) Center, as reported in the 24th September edition of *Science Daily*. The researchers used cyclodextrins, a family of compounds made up of bound glucose (sugar) molecules, to develop their adsorbent material, which could have a positive impact on the water treatment, pharmaceutical, chemical and manufacturing industries, according to Rominder Suri, Professor of Civil and Environmental Engineering and Director of the WET Center in Temple's College of Engineering.

Although cyclodextrins are soluble, meaning they dissolve easily in water, the new adsorbent has been made insoluble by the Temple researchers, and can easily be attached as a thin coating to surfaces such as sand, glass, silica and filter paper. So far, the researchers have tested their new adsorbent material against such contaminants as steroid hormones, detergent compounds and bisphenol A in both lab water and discharged wastewater and found that it has removed more than 90 per cent of the contaminants, said Suri.

Suri said the next step for the new adsorbent material is to do more extensive pilot testing.

GROWING THIN FILMS OF GERMANIUM FOR NEXT GENERATION ELECTRONICS

Researchers have developed a new technique to produce thin films of germanium crystals – key components for next-generation electronic devices, such as advanced large-scale integrated circuits and flexible electronics, which are required for gadgets that move or bend, as reported in *Science Daily* on September 6, 2013.

Unlike conventional methods, the new approach does not require high temperatures or other crystals to act as seeds to grow the germanium crystal. Researchers claim that the new method can be used to produce germanium films with a very large surface area, allowing for more potential applications. "This is the realization of the dreams of crystal-growth researchers," says Taizoh Sadoh of Kyushu University, Japan. "This unique method will open new ways to create advanced flexible electronics." Sadoh is an author of the paper describing the new work, which appears in the AIP Publishing journal *Applied Physics Letters*.

GENE MANIPULATION FOR EFFICIENT SUGAR PRODUCTION AND ENHANCING OIL CONTENT IN LEAVES

Scientists at the U.S. Department of Energy's Brookhaven National Laboratory have identified the key genes required for oil production and accumulation in plant leaves and other vegetative plant tissues. Enhancing expression of these genes resulted in vastly increased oil content in leaves, the most abundant sources of plant biomass, a finding that could have important implications for increasing the energy content of plant-based foods and renewable biofuel feedstocks. The research is described in two new publications in *The Plant Journal* and *Plant Cell*, according to a report of *Science Daily* appearing on October 18, 2013.

"If we can transfer this strategy to crop plants being used to generate renewable energy or to feed livestock, it would significantly increase their energy content and nutritional values," said Brookhaven biochemist, Changcheng Xu, who led the research. The experiments were carried out in large part by Xu's group members, Jilian Fan and Chengshi Yan. The scientists used a series of genetic tricks to test the effects of overexpressing or disabling genes that enable cells to make certain enzymes involved in oil production.

In an earlier news published in the *Science Daily* on October 17, 2013, a recent doctoral study indicates that their production can be made significantly more efficient with the help of genetically modified bacteria. This reduces prices and allows for their more versatile use in medicine, for example, says doctoral candidate, Anne Usvalampi, from the Aalto University in Finland. The efficiency of sugar production can be increased through gene technology. In her recent doctoral dissertation, Anne Usvalampi, Lic.Sc. (Tech.), studied the microbial production of three rare sugars: xylitol, l-xylulose and l-xylose with the help of genetically modified bacteria.

PROFILE OF HEAD OF COMSATS S&T CENTRE OF EXCELLENCE

PROF. SALIOU NDIAYE, RECTOR/PRESIDENT OF THE ASSEMBLY OF UCAD, SENEGAL

Prof. Saliou Ndiaye is at present the Rector and President of the Assembly of the University Cheikh Anta Diop of Dakar (UCAD), which is the largest and most historic university in Senegal that has six departments, ten research institutes, and five professional training centers serving a student community of over 60,000. By virtue of being the head of UCAD, Prof. Ndiaye is a member of COMSATS Coordinating Council. He is also the elected Vice-President and Member of the Board of Directors of the Agence Universitaire de la Francophonie (AUF), based in France, which is a higher education and research association having 70 institutions in 40 countries.



In 2010, Prof. Ndiaye became the Rector of the University. Before that he has served UCAD in various positions: Lecturer at the Faculty of Humanities (History Department) and Member of the Assembly of the Faculty of Arts and Humanities (1995); Chairman of the Committee on Publications of the Faculty of Humanities (1997); Member of the Committee on Publications of the University Press (PUD); Member of the Committee on Reform of the University; Member of the Scientific Committee of the Fundamental Institute of Black Africa (UCAD IFAN); Head of History of the Faculty of Humanities and Social Sciences Department (June 1998-January 2001); Full Professor of Ancient History; Member of the Assembly of UCAD; Assessor of the Faculty of Arts and Humanities (June 2000); as well as Dean of the Faculty of Arts and Humanities (Since June 2006).

Prof. Ndiaye's association with the education sector of Senegal dates back to the time when he first joined a school, Cours Sainte Marie de Hann, based in Dakar, as a teacher of History and Geography (1975-1979). He continued teaching the children in the same capacity at the Lycée Van Hoven Vollen, from 1979 to 1984. In 1984, Prof. Ndiaye proceeded to France and for the next two years taught at a higher school, Ecole Normale Supérieure de Saint-Cloud. From 1988 to 1992, he remained affiliated with the Faculty of Humanities (History Department), Dakar, first as Assistant and then as Assistant Professor. Thereafter, he became a lecturer at the Faculty of Humanities (History Department), Dakar (1993-1995).

As an academician, Prof. Ndiaye also served other universities and higher education institutions, including the Marc Bloch University (France) as Member of its Centre for Analysis of Religious Rhetoric of Antiquity (CARRA), and Gaston Berger University of Saint-Louis as Member of the Scientific Committee of its Journal - Africa-Research

Societies (AFRISOR). He is also the Editor-in-Chief of the Journal of African and Malagasy Council for Higher Education (CAM).

Mr. Ndiaye received his early education from Saint Louis, Senegal. He had interest in the subject of history and did his Certificat de Maîtrise, and first master's degree (D.E.A) in Ancient History. His second master's degree (D.E.S.S) was in Business Administration. In order to satisfy his thirst for further learning, Prof. Ndiaye continued his studies to finally receive a Ph.D in Ancient History. The higher education institutions that Mr. Ndiaye attended during his academic years, included the University of Dakar (Senegal); Ecole Normale Supérieure de Saint-Cloud (France); Université Paris-1 Panthéon-Sorbonne; and Université Nancy-2 (France).

In recognition of the services of Prof. Saliou Ndiaye, he was awarded Commander of the National Order of Merit of the Republic of Senegal in 1999.

Some of the scholarly contributions of Prof. Saliou Ndiaye, published in various journals and proceedings of conferences and seminars over the years, include the following:

- 'Nazism: birth and ideology' (1984);
- 'Results and current problems of oral history research: Theoretical and methodological problems' (1989);
- 'The use of hostages to Rome under the Republic' (1995);
- 'Rome and international public opinion in the Republican era' (1994);
- 'The treatment of populations in cities taken over by Rome during the Punic Wars' (1995);
- 'The contribution of Cheikh Anta Diop in African historiography' (1999);
- 'War games. Recreational aspects of the war in Rome at the Republican era' (1999);
- 'Trier, peace treaties and treaties of alliance with Rome in the Republican period (509-27 BC.)' (1999);
- 'Roles and status of ambassadors to Rome to the Republican era' (2000).

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COMSATS BRIEF AND ANNOUNCEMENTS

SELECTED FORTHCOMING SCIENTIFIC EVENTS IN COMSATS' COUNTRIES

16-18 December 2013	FIT 2013 11 th International Conference on Frontiers of Information Technology (FIT), Islamabad, Pakistan (www.fit.edu.pk)
04-06 January 2014	BioNat-III 3 rd Euro-Mediterranean Conference on Natural Products: From BioTechnology to NanoMedicine, Cairo, Egypt. (www.bionats.org)
13-14 February 2014	ICOIA 2014 International Conference on Intelligent Agriculture, Hong Kong, S.A.R. China (www.icoia.org)
25-27 March 2014	ICGE 2014 2014 International Conference on Green Energy, Sfax, Tunisia (www.icge.aiem-tn.org)

3rd COMSATS-ISESCO-INIT International Workshop on "Internet Security: Enhancing Information Exchange Safeguards" December 9-13, 2013, Nabeul, Tunisia

The widespread use of electronic devices and equipment for commercial, social and personal activities over Internet has raised many privacy and security concerns w.r.t unauthorized access, misuse, modification or denial of information and information systems. In view of the increasing needs to ensure the security of data transfer services in traditional and emerging Internet-based applications the Commission on Science and Technology for Sustainable Development in the South (COMSATS); the Islamic Educational, Scientific and Cultural Organization (ISESCO); and the Inter Islamic Network on Information Technology (INIT) took the initiative of spreading awareness on this important field in the developing countries, particularly in COMSATS Member States, by organizing a series of training workshops.

In this connection, the 3rd COMSATS-ISESCO-INIT International Workshop on Internet Security: Enhancing Information Exchange Safeguards is being held in Nabeul, Tunisia, on December 9-13, 2013. For more details, please visit www.comsats.org, or write to husseint@comsats.net.pk.

Symposium on "Nanotechnology & Nano-biotechnology Innovative Applications for Sustainable Green Economy and Climate Change Mitigation" December 16 - 18, 2013, Serpong, Indonesia

During the recent years, nano-science and technology has emerged as a field with great potential to address many vital needs of human society, including food security, health and environmental sustenance. COMSATS, in collaboration with the Islamic Educational, Scientific and Cultural Organization (ISESCO), and the National Nuclear Energy Agency (BATAN), Indonesia, is organizing the Symposium on "Nanotechnology & Nano-biotechnology Innovative Applications for Sustainable Green Economy and Climate Change Mitigation". This international event is scheduled to be held on December 16-18, 2013, in Serpong, Indonesia.

The event will provide a platform for scientists, researchers, technologists and scholars to learn and share recent developments in the field of nano science & nanotechnology. The event is expected to facilitate networking among the scientists working in various disciplines of nanotechnology for addressing common problems, and encourage them to share their research for applications of nano-materials in energy and environment.

For more details, please visit www.comsats.org, or write to husseint@comsats.net.pk.

A BRIEF ON COMSATS

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

COMSATS, currently, has 21 countries as its members, spread across three continents, i.e. Africa, Asia and Latin America. A network, of 18 International Science and Technology Centres of Excellence, is also affiliated with COMSATS to contribute to scientific development of its Member States. For detailed information, please visit COMSATS' website: www.comsats.org.

COMSATS NETWORK OF INTERNATIONAL S&T CENTRES OF EXCELLENCE

- Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh
- Centro Internacional de Física (CIF), Colombia
- COMSATS Institute of Information Technology (CIIT), Pakistan
- Council for Scientific and Industrial Research (CSIR), Ghana
- Embrapa Agrobiologia, Brazil
- Higher Institute for Applied Sciences and Technology (HIAST), Syria
- Industrial Research and Consultancy Centre (IRCC), Sudan
- Industrial Technology Institute (ITI), Sri Lanka
- International Center for Chemical and Biological Sciences (ICCBS), Pakistan
- International Center for Climate & Environment Sciences (ICCES), China
- International Centre for Environmental and Nuclear Sciences (ICENS), Jamaica
- Iranian Research Organization for Science and Technology (IROST), Iran
- National Mathematical Centre (NMC), Nigeria
- National Research Centre (NRC), Egypt
- Royal Scientific Society (RSS), Jordan
- Tanzania Industrial Research and Development Organization (TIRDO), Tanzania
- TÜBİTAK Marmara Research Center (MAM), Turkey
- University Cheikh Anta Diop (UCAD), Senegal