



# COMSATS Newsletter

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

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Patron  
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Executive Director

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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.



Deputy Director General ISESCO awarding 'ISESCO Partnership Medal' to Executive Director COMSATS

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## From the Executive Director's Desk

The research work in basic sciences has two attributes which stand out as the most ubiquitous ones. First, with few exceptions, the researchers usually carry out their work in collaboration with their peers, either in local groups or in other institutions at national/international level. Second, barring certain categories of classified work, the research output is shared freely through journal publications, internet archives, or through scientific seminars and conference proceedings. Applied research directed at specific technological developments, on the other hand, involves commercial interests with economic dividends. There is consequently lesser tendency to openness and wider sharing. Generally, the issues of intellectual property rights take precedence over academic bonhomie. For the countries of the South, the only available option is to develop indigenous technology for self-reliance in industrial production. A South-South cooperation paradigm is one of the effective ways to go about it. This is what COMSATS and other similar fora and organizations have been trying to achieve through various mechanisms. The core concept of all such initiatives is to maximize S&T cooperation utilizing the most suitable channel available for a particular purpose. Undoubtedly, there are considerable opportunities of partnership available through the North-South collaboration mechanism, which was historically the most commonplace practice. There is no reason why this should not continue to flourish. However, the doctrine of 'technology transfer' should give way to a more equitable approach of 'technology sharing'.

COMSATS' endeavours, in all different modes and formats, revolve around aiding, facilitating and even managing cooperative research activities within its Member States, utilizing both the South-South and the North-South cooperation strategies. Knowing that there are scores of other actors engaged in this epic exercise, it was considered necessary to create synergies with other organizations, while capitalizing on COMSATS' own strengths, such as the access to huge human resources available in COMSATS' university (COMSATS Institute of Information Technology) and its seventeen other Centres-of-Excellence, spread across four continents. A shining example of this strategy is COMSATS-ISESCO partnership, which has led to 17 joint capacity-building events during the past five years, benefitting over 1,150 participants. The basis of this fruitful collaboration is COMSATS' ability to arrange and finance resource persons for various workshops, conferences and training programmes. The success of this partnership was acknowledged by ISESCO with the award of a medal to COMSATS in October this year (see page 2).

The effective utilization of available financial resources at the disposal of COMSATS must be a matter of satisfaction for COMSATS' Member States and an impetus for enhanced monetary inputs, in addition to the most valuable and highly appreciated in-kind contributions that are made by the majority of esteemed Member countries. The editors of the Newsletter would welcome any suggestions and comments with regard to contents of the present issue of the Newsletter and proposals for further improvements to be made in its fifth volume, starting next year.

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## NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

### COMSATS RECEIVES ISESCO MEDAL FOR COOPERATION IN S&T INITIATIVES

COMSATS has always been actively engaged in sharing expertise for implementing various S&T related programmes and projects in collaboration with its member countries, as well as international development organizations and donor agencies. The purpose of such collaboration and cooperation has been to optimally use the available resources for sustainable development at national, regional and international levels. A particularly productive collaboration over the last few years has been with the Islamic Educational, Scientific and Cultural Organization (ISESCO), based in Morocco.

COMSATS has been providing strong technical, administrative and financial support for S&T capacity-building events, organized jointly with ISESCO under specific agreements for each activity. In recognition of COMSATS' valuable contributions for advancing ISESCO's mission, the 'ISESCO Partnership Medal' was awarded to COMSATS on the occasion of the commemoration of ISESCO's 30 years of operations.

The Medal was awarded in a ceremony held at COMSATS Secretariat, Islamabad. On behalf of ISESCO, the Deputy Director General, Dr. Mukhtar Ahmed, presented the Medal to the Executive Director COMSATS, Dr. I.E. Qureshi. Apart from the officials of COMSATS Secretariat, representatives of the Ministry of Science and Technology (MOST), Government of Pakistan; COMSATS Institute of Information Technology (CIIT); COMSATS Internet Services (CIS); and representatives of print media attended the ceremony.

Dr. Ahmed stated that ISESCO aims at the national development of its 51 member States in the fields of education, science and culture. He further noted that to accomplish its development initiatives, the organization seeks collaboration with other organizations having similar mandates, such as COMSATS, COMSTECH, UNDP, and UNESCO. Based on common interests, ISESCO undertakes scientific activities with these organizations in common member States under short to mid-term collaborative arrangements, thus organizing 300 to 350 scientific activities every year.

Presenting the Medal to the Executive Director COMSATS,

Dr. Ahmed noted with great appreciation the scientific initiatives taken by COMSATS Secretariat. Speaking on the occasion, the Executive Director COMSATS thanked ISESCO for its generous recognition of COMSATS' efforts. Recalling the strong working relations with ISESCO, Dr. Qureshi noted that during the last five years COMSATS had co-organized 17 scientific capacity-building events with ISESCO, which benefited more than 1,000 scientists, researchers and policy-makers belonging to 26 developing countries.

Dedicating the Medal to his team, Dr. Qureshi lauded their hard work and dedication in pursuit of COMSATS' mission. He also thanked the Ministry of Science and Technology for its support to COMSATS and its programmes and projects. The Medal awarded to COMSATS has given a boost to the already thriving working relations of the two organizations. During 2012 alone, three collaborative events have been organized by the two organizations in Malaysia, Jordan and Bangladesh. Brief accounts of the most recent two events is given in the following reports.

### 2<sup>ND</sup> INTERNATIONAL WORKSHOP ON INTERNET SECURITY, AMMAN, JORDAN

The 2<sup>nd</sup> COMSATS-ISESCO-INIT International Workshop on 'Internet Security: Enhancing Information Exchange Safeguards' was organized in cooperation with the Inter Islamic Network on Information Technology (INIT); the Royal Scientific Society (RSS), Jordan; and the COMSATS Institute of Information Technology (CIIT), Pakistan, on 16-20 September 2012, in Amman, Jordan.

The workshop, second of the series, was hosted by RSS with an objective to train IT professionals to indigenously address computer network issues and challenges related to information and Internet security. The event was inaugurated on September 16, 2012, by Prof. Odeh Al-

Jayyousi, the Vice President – Science and Research, RSS. During his Inaugural Address, Prof. Al-Jayyousi stated that the smart use of information and communication technologies (ICTs) can help create a transparent society which can more effectively participate in problem-solving and decision-making. In his message read out on the occasion by Mr. Farhan Ansari, Assistant Director, COMSATS Secretariat, the Executive Director COMSATS asserted the need to ensure confidentiality, integrity, and



*A group photo of experts and participants of the Workshop on Internet Security, Amman, Jordan*

availability of the large amount of critical information on the computer networking infrastructures worldwide.

Conveying the greetings of Dr. Abdulaziz Othman Altwajri, Director General of ISESCO, Dr. Abdelwareth Sarhan, Expert of Science, Science Directorate of ISESCO, hoped that the event would facilitate the international community to exchange ideas and discuss best practices in keeping their respective networks secure. Other distinguished guests at the inaugural ceremony of the workshop included: H.E. Mr. Taofeek Oladejo Arapaja, Ambassador of Nigeria to Jordan; H.E. Mrs. Attiya Mahmoud, Ambassador of Pakistan to Jordan; Dr. Emmanuel R. Fernandez, First Secretary and Consul, Embassy of Philippines in Jordan; and Mr. Tahir Naeem, Coordinator/Executive Director INIT.

The four resource persons of the workshop conducted the workshop under five modules, covering wide-ranging tools to ensure cyber security. The resource persons included three from CIIT, Dr. Sheikh Ziauddin; Mr. M. Mustafa Khattak; Dr. Malik Najmus Saqib; and one from King Saud University, Saudi Arabia, Dr. Abbas Haider. The key topics covered during the workshop included: network security; modern cyber attacks, evasion techniques and defenses; malicious code analysis and detection; information security management; measuring security; ethical issues of ICT security; organizational security; hardware and physical security; operating system security; Android/mobile systems security; cryptographic techniques for network security; biometrics security; web security; social network security; and cloud security. Around 40 participants from Bangladesh, Brunei Darussalam, Egypt, Iran, Jordan, Nigeria, Pakistan, and Tunisia benefited from the proceedings of the workshop.

### COMSATS-ISESCO INTERNATIONAL WORKSHOP ON NANO-TECHNOLOGY, DHAKA, BANGLADESH

COMSATS-ISESCO International Workshop on Nano-technology was organized on 21-23 September 2012, in collaboration with the OIC's Standing Committee on Scientific and Technological Cooperation (COMSTECH); the University of Dhaka; and the Bangladesh University of Engineering and Technology (BUET), Bangladesh. The workshop was held with an objective to provide a forum for academicians and professionals from various developing countries to exchange ideas and enhance collaboration in the field of nano-technology, and to sensitize the policy-makers, academia, public and private sector businesses

and industries, as well as research organizations towards promoting studies, research and the use of nano-technology.

The three-day international workshop was inaugurated by the Prime Minister of the People's Republic of Bangladesh, H.E. Ms. Sheikh Hasina. Speaking on the occasion, Her Excellency stated that nano-technology can directly benefit the local industries in different sectors, and encourage public-private partnership in this regard. She also noted that, in 2010, the scientists of Bangladesh have made a breakthrough in the field of gene research by decoding genomes of jute and a devastating pathogen, harmful to nearly 500 crops.

H. E. Mr. Dilip Barua, the Bangladeshi Minister for Industries; the Vice-Chancellor BUET, Prof. S. M. Nazrul Islam; Vice Chancellor University of Dhaka, Prof. Dr. A.A.M.S. Arefin Siddique; and the Deputy Director General ISESCO, Dr. Mukhtar Ahmed, were also among the distinguished guests at the inaugural session of the workshop that was attended by about 300 people from different walks of life.



*The Minister for Education, Bangladesh, chairing the closing ceremony of the workshop on Nanotechnology (Bangladesh)*

The technical proceedings of the workshop were spread across 4 technical sessions comprising lectures and presentations on various aspects of nano-technology also covering its applications in other interdisciplinary fields.

These included: health and medicine; food and agriculture; energy and environment; nano-technology in ICT and electronic devices; and industry and consumer products. About 25 subject-experts belonging to important scientific and academic institutions of Bangladesh, Canada, Germany, India, Malaysia, Philippines, Pakistan, Sri Lanka, Thailand and USA, delivered lectures. Around 100 participants from different universities, research institutions, industries and government and private sector companies benefited from the lectures and oral presentations delivered during the workshop.

Highlighting the importance and potential benefits of nano-technology at the closing ceremony held on September 23, 2012, H.E. Dr. Nurul Islam Nahid, the Bangladeshi Minister for Education, urged the researchers of the country working in this field to utilize their research results for achieving progress in other scientific fields that are vital for the country's socio-economic development, including medicine, agriculture, engineering and environment.

## ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

### CIIT-PAKISTAN STRENGTHENS COLLABORATIVE LINKS WITH INTERNATIONAL INSTITUTIONS

Led by the Chancellor of COMSATS Institute of Information Technology (CIIT), H.E. Mir Changez Khan Jamali, the Federal Minister of Science and Technology, Government of Pakistan, a delegation of CIIT, comprising the Rector, Dr. S. M. Junaid Zaidi, and the In-charge of the International Liaison, Dr. Arshad S. Malik, visited UAE on 20-23 October 2012. The purpose of this visit was to explore possibilities of cooperation with the Ecole Polytechnique Federale de Lausanne (EPFL), which mainly focuses on Energy, Water, and Sustainability issues and has an off-shore facility functioning at Ras Al Khaima, UAE. EPFL is ranked among the top 20 engineering technology institutions and is overall one of the top 35 institutions of the world. CIIT aims to forge active academic and research based linkages with EPFL and sign a mutually beneficial Memorandum of Understanding (MoU) for the exchange of faculty, students, and collaborative research projects.

On September 08, 2012, a delegation of the University of Malaya (UM), Malaysia, headed by its Vice Chancellor, Prof. Dato Tan Sri Ghauth Jasmon visited CIIT-Islamabad to explore the possible avenues of collaboration between the two institutions. The delegation included senior faculty members of the University, including Dean Faculty of Science; Acting Registrar; Dean Faculty of Economics and Administration; Head of Department (Electrical Engineering); and Deputy Director International and Corporate Relations Office. A Memorandum of Understanding between CIIT and University of Malaya (UM) was also signed during the visit for scientific and academic cooperation.

Also, a six member delegation comprising senior faculty members of the Universiti Teknologi PETRONAS (UTP), Malaysia, visited CIIT and discussed matters of mutual interest, such as students and faculty exchange, and development of research proposals. Besides visiting different departments of CIIT and having meetings with CIIT officials, the delegation also visited the main library of CIIT.

### CIIT PARTICIPATES IN SCIENTIFIC EVENTS

A team of CIIT, Abbottabad Campus, comprising Dr. Iftikhar A. Raja and Dr. Arshid Pervez participated in the 11<sup>th</sup> International Workshop on "Terrestrial Ecosystems under the Changing Climate" held in Beijing, China, from 2 to 5 September 2012. During the workshop, the two senior faculty members presented papers on "Climate Change: Floods 2010-2011 Devastation in Pakistan", and "Climate Change and Water resources in Pakistan". They also held sideline meetings with the delegates from COMSATS' member countries and academic institutions of Chinese Academy of Sciences for possible collaboration.



From 8 to 9 October 2012, the Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) and CIIT Abbottabad Campus organized the World Space Week at the latter's premises. More than 40 schools across Abbottabad participated in the event. The theme of the World Space Week 2012 was 'Space for Human Safety and Security'. The event covered activities including rocket water competition, bi-lingual essay writing and declamation competitions, painting competition and a quiz competition.

### RSS-JORDAN AND USAID CONDUCT THE CLOSING SESSION OF A PROJECT FOR YOUTH AWARENESS IN WATER ISSUES

On September 5, 2012, the closing ceremony of the initiative, 'Increase Youth Public Discourse in Key Water Issues', was held by the Royal Scientific Society (RSS), Jordan, in cooperation with the Public Action for Water, Energy & Environment Project (PAP) of the United States Agency for International Development (USAID). The project has been launched in February 2012 and encompassed a number of training workshops targeting youth aged between 15 and 25 years belonging to the Jerash Governorate, which led to forming the 'Jerash Youth Commission for Water'. Since then, the Commission has held several workshops and brainstorming sessions with the housewives of the governorate to build awareness on water scarcity issues in Jordan.

Jerash Governorate has the lowest per capita share of water in Jordan. The Commission, in cooperation with the RSS' dedicated task force, Jerash Water Authority, and the private sector represented by Yarmouk Water Company, managed to conduct water audits for 150 houses in Jerash, Sakeb, and Souf, and accordingly managed to successfully install 600 water-saving devices.

## STUDENTS OF CIIT AND OTHER PAKISTANI INSTITUTIONS PARTICIPATE IN 'CERN SUMMER STUDENT PROGRAMME'

**Dr. Jean-Pierre Revol**

ALICE experiment at LHC, Physics Department, CERN

This year the ALICE Collaboration, a world-wide association of 140 institutions, running one of the four large-particle physics detectors at the CERN Large Hadron Collider (LHC), hosted a record number of summer students, 61 in total, coming from 27 countries, mostly from CERN member States. These included a record number of students from Pakistan: five students in total, two of them from COMSATS Institute of Information Technology (CIIT), Pakistan. The summer students start arriving at CERN in Geneva, Switzerland, mid-May and most of them leave by the end of August, each having spent a period of 4 weeks in the laboratory.

Hosting so many students represents a significant undertaking from the ALICE Collaboration, however, ALICE is making a special effort in order to promote the spirit of cooperation with Pakistan, in particular with the COMSATS' institute, which has recently joined the ALICE Collaboration, to take responsibilities in the detector upgrade programme. CIIT will participate in the construction of the new ALICE Inner Tracking System, which will use state-of-the-art silicon pixel technology. The financial support for these students came from CERN and from the ALICE Collaboration.

Hosting so many students is not only a financial engagement, it also requires supervisors who have to define projects and help students carry them through in a relatively short period of time. This effort is however rewarding for both parties, because most of these students are so enthusiastic about their stay at CERN and their experience of research life that they often decide later on to choose a professional field directly related to what they learned at CERN. Some of them will do their Master or Doctoral studies on the ALICE scientific programme: a wonderful return for ALICE. The training they receive is not limited to physics. Some of these students have backgrounds in engineering, computing, and electronics, etc. So, even if they do not pursue a career in physics, they will carry their experience to their professional environment, mostly industry, which will benefit from what they learned at CERN. One of the strongest motivations for the European states to support CERN, is that a large fraction of scientists who spent a few years at CERN join European industry, where they apply the skills developed at CERN. The research environment at CERN is one of the best training grounds a student can find. They acquire an innovator's spirit, which will be precious to them in any field they may join. Training and education for the brightest young students is a major part of CERN's mission. It is an excellent opportunity from which Pakistani students can benefit.

In practice, summer students stay at CERN for approximately two months. In the morning, they are given lectures by some of the best physicists in the world and in the afternoon, they work on CERN experiments, for them to discover life as a researcher.

In the evening, many of them pursue various social activities, which is not the least significant part of the programme. It gives them an opportunity to also discover other cultures, from all over the world.

The CERN Summer Student Programme is among the best educational programmes one can imagine. It combines high-quality lectures with practice in many fields of research, all happening in a unique international environment. It is one of the rare occasions in the world when political, religious and cultural barriers are lowered so that young students can freely share their interests in science.

The CERN summer students are a unique mix of very different origins and cultures and yet all of them share the same genuine interest for what CERN is doing so well over the years, i.e. particle physics. Discovering the secret of nature is a fascinating adventure that represents a universal attraction for students worldwide. This year, summer students arrived in the laboratory at an historical time, when CERN announced it had just found the first evidence for the existence of the Higgs particle. This great achievement is to be credited to the whole of mankind, and Pakistan can be proud of having contributed to this fascinating adventure. The National Centre for Physics of the Quaid-I-Azam University is a member of the CMS Collaboration, which together with the ATLAS Collaboration, announced the spectacular discovery.

The number of summer students, CERN can accept, is mainly limited by funding. Therefore, it would be possible for Pakistan to send more students to CERN next summer, if some funding could be provided. This would certainly be an excellent investment for all parties.



*A group photo of twenty-four ALICE summer students with Dr. Jean-Pierre Revol, in front of one of the LHC dipole structures of CERN.*

*(In the background: CERN Globe of Science and Innovation, donated to CERN in 2004 by the Swiss Confederation on the occasion of the 50<sup>th</sup> anniversary of CERN)*

## SCIENCE, TECHNOLOGY AND DEVELOPMENT

### DECISION-MAKING ABILITY IN RELATION TO INDOOR CARBON DIOXIDE LEVELS

Decision-making ability of individuals as well as groups of people is crucial for the benefit of society and institutions. It is generally assumed that moderately elevated indoor levels of carbon dioxide in the classrooms, meeting places, laboratories, etc. do not have any important effect on the decision-making abilities of people. This conventional wisdom has been overturned by the scientists who have found that even moderately high indoor concentrations of carbon dioxide can impair peoples' decision-making (*e!Science News*, October 17, 2012). The findings of the research were unexpected and may have particular implications for many spaces with high occupant density. The studies were conducted on nine scales of decision-making performance. Test subjects showed significant reductions on six of the scales at carbon dioxide levels of 1,000 parts per million (ppm) and even large reductions on seven of the scales at 2,500 ppm. The most dramatic declines in performance, in which subjects were rated as 'dysfunctional', were for 'taking initiative and thinking strategically'. Previous studies have looked at 10,000 ppm and 20,000 ppm that are the levels at which scientists thought the impairment effects started. The performance test used in the study was the Strategic Management Simulation (SMS) test developed at the State University of New York. If people cannot think or perform well, that could obviously have adverse economic, administrative, political, social and developmental impacts. The outcome of this research should be of high importance for the decision makers of the developing countries.

### NANO-FLOWERS FOR ENERGY STORAGE

Designing efficient devices at affordable costs for storage of energy is a key area of research these days. Such devices would play critical role in the development of next-generation energy storage technologies and solar cells. Currently, energy storage devices have limitations, mainly because of non-availability of large surface areas in small volumes of storage vessels. This crucial requirement has been addressed by the discovery of a new material created from germanium sulphide in the form of flower-like structures that have extremely thin petals with an enormous surface area (*e!Science News*, October 11, 2012). The use of germanium sulphide nano-flowers structure would significantly increase the capacity of lithium-ion batteries and could also lead to increased capacity of super-capacitors, which are used for energy storage. Germanium sulphide is a semiconductor material that settles into neat layers of sheets and is good at absorbing solar energy and converting it into useable power. This characteristic makes it useful for the solar cells, particularly because germanium sulphide is relatively inexpensive and non-toxic; while many of the materials presently used in solar cells are both expensive and toxic. Mass-scale availability of appliances at

affordable costs, used for efficient energy storage techniques, have great promise to bring significant improvements in the lifestyle and economic prosperity of the developing societies.

### GREEN SOLUTION TO ADDRESS GREENHOUSE EFFECT

Global warming is increasingly unleashing its devastating effects all over the world, creating higher socio-economic burden for the developing countries as compared to the richer nations. Greenhouse gases are major contributors to the global warming. Scientific research in many laboratories of the world is looking for ways and means to check and reduce the concentrations of greenhouse gases, such as carbon dioxide and sulphur dioxide in the atmosphere. A new low cost material which effectively adsorbs carbon dioxide and sulphur dioxide has been discovered and reported in *e!Science News* (September 24, 2012). The report shows how the exciting properties of this new material called NOTT-300 could provide a greener alternative to the existing solutions used for adsorbing carbon dioxide that are expensive and use huge amounts of energy. It has been reported that the new material is not only simple and cheap to produce, but also possesses highly desirable properties like high adsorption capacity; higher selectivity for sulphur dioxide and carbon dioxide than many other gases; and better ability to regenerate at lower costs. The adaptation of technologies by the developing countries involving this economically low-cost new material could be an attractive option to address the challenges of climate change.

### NEW HOPE FOR CONTROL OF DENGUE MOSQUITOES

According to the World Health Organization estimates, around 50 to 100 million dengue infections occur each year causing 500,000 cases of dengue haemorrhagic fever and 22,000 deaths, mostly among children (*SciDev.Net*, September 25, 2012). Many laboratories in the world are actively engaged in researching on this terrible disease. One method which has been under trial consists of producing genetically modified dengue-carrying male mosquitoes and releasing them in the selected target areas, where they produce off-springs that die before reaching adulthood, thus keeping them from breeding and further populating the area. Earlier the experiments in this regard had not been very successful, but a new report in the above quoted publication reveals that the trials have now shown promising results in Cayman Islands and Brazil, where 80% and 90% reductions in the dengue mosquito population, respectively, have been achieved. These are very encouraging results and a demonstration of the fact that the target population of dengue mosquitoes can be adequately suppressed through the release of such genetically engineered male mosquitoes. If further studies involving more trial areas succeed, it will be a major breakthrough in countering the deadly dengue fever from becoming a pandemic.

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

### PROF. ADEWALE ROLAND TUNDE SOLARIN, ACTING DIRECTOR NMC – NIGERIA

Prof. Adewale Roland Tunde Solarin is the Acting Director/Chief Executive of National Mathematical Centre (NMC), Abuja, Nigeria. He has been serving as the Coordinator of Mathematics Programme at NMC. From December 2004 to December 2006, Prof. Solarin served the University of Agriculture, Abeokuta-Nigeria, as Deputy Vice-Chancellor and from 2000 to 2006 as a member of the Governing Council. He holds a Ph.D in mathematics with a strong background in statistics. Prof. Solarin has taught various undergraduate and postgraduate courses in Mathematics, Statistics and Computer Science for over 31 years in Nigeria and abroad. He played a key role in establishing the Quality Control Society of Nigeria in 1990. Consequently, he became the foundation National President of the Society in the same year, a position he held till December 1994.



Since 1991, Prof. Solarin has been the principal consultant in implementing Total Quality Management (TQM) practices in many companies in Nigeria, including UACN Plc, which is ranked as the biggest private conglomerate in Africa. He has been the principal facilitator to foremost consulting outfits on TQM in Nigeria to design and conduct workshops on topics including TQM for managers; Training-the-Trainers in TQM; Building world-class customer-oriented culture in the banking industry. Prof. Solarin is also the Team Leader of the Inter-university Research Team on Quality Management (IRTQM), which is a university-based organization involved in conducting research into TQM implementation and development and organizing annual national and international conferences on TQM with the support of Nigerian private sector. Over the years, Prof. Solarin has played a leading role in the design and execution of TQM related training activities. These include:

- i. Quality and Productivity Improvement Project at Litho Factory, Bordpak Premier Packaging (BPP), Apapa – A division of UACN Plc (1992-1993);
- ii. Total Quality Management (TQM) Implementation in Bordpak Premier Packaging (BPP), Apapa (1994-1996)
- iii. Total Quality Management (TQM) Implementation in Eagle Package Printing, Otta (1993-1995);
- iv. TQM for Managers' Training Workshop for Lion of Africa Insurance PLC (1994);
- v. Training-the-Trainers in TQM for First Bank PLC Training Managers – Organized by Rockleads Limited (1994-1995);
- vi. Building World-Class Customer-Oriented Culture in the Banking Industry Workshop for First Bank Nig PLC Managers (1994-1995);
- vii. ISO-9002 Certification Programme for Vita Foam Nig. PLC (1999-2000).

As a researcher, Prof. Solarin has published more than 30 papers in statistics and mathematics in internationally reputable journals. He has written more than 20 papers on TQM and related topics for journals, seminars, workshops and conferences. To facilitate his research, Prof. Solarin has also written a number of computer programmes. As a well-respected academician, he has supervised a number of theses of students (B.Sc., M.Sc., Ph.D., PGD, MBA, and MBF) in topics related to Mathematics, Statistics, Quality Control, Computer Science, and Business Management. He also served as an external examiner for under-graduate and post-graduate programmes to universities in Nigeria and abroad, including University of Dar-es-Salaam, Dar-es-Salaam, Tanzania (2004-2006); and Makerere University, Kampala, Uganda (2006-2008). He is a member of the science accreditation team of the National Universities Commission (NUC) for Academic Programmes; and another team for accreditation of private universities.

Prof. Solarin pursued under-graduate studies with scholarship from the Nigerian Federal Government, and acquired for his M.Sc. and Ph.D. degrees studying at the University of Ife on scholarship of merit. He bagged the first Ph.D. (Mathematics) from Obafemi Awolowo University, Nigeria. Due to his high academic performance, Prof. Solarin was awarded a number of other international scholarships and fellowships including: Italian Foreign Affairs Fellowships (1980, 1981 & 1983); International Mathematical Union (IMU) – ICM-90 Scholar, Kyoto, Japan; and Deutscher Akademischer Austauschdienst (DAAD) - German Academic Exchange Award for Senior Academics (1996).

In 1993, Prof. Solarin received a Letter of Commendation from the Head of State of the Federal Republic of Nigeria, for designing a programme for achieving National Excellence using TQM principles and philosophy. In 1999, he had the honour of delivering the 9<sup>th</sup> University of Agriculture Abeokuta Inaugural Lecture titled 'Total Quality – A Mathematical Panacea for National Productivity Improvement'. Prof. Solarin is a member of a number of professional organizations including: (i) Quality Control Society of Nigeria (QCSO) - Life Member; (ii) Nigerian Mathematical Society (NMS); (iii) Science Association of Nigeria (SAN); (iv) Mathematical Association of Nigeria (MAN); and (v) American Mathematical Society (AMS).

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## COMSATS' BRIEF AND ANNOUNCEMENTS

SELECTED FORTHCOMING SCIENTIFIC EVENTS  
IN COMSATS' COUNTRIES

10-14 December 2012	National Training Workshop on Repair and Maintenance of Scientific Engineering Equipment in Universities, Research Institutions, and Small Scale Industries, Nabeul, Tunisia ( <a href="http://www.comsats.org">www.comsats.org</a> )
7-10 January 2013	4 <sup>th</sup> International Symposium-cum-Training Course on Molecular Medicine and Drug Research, Karachi, Pakistan ( <a href="http://iccs.edu/mmdr/index.php">iccs.edu/mmdr/index.php</a> )
14-18 January 2013	CBD Sustainable Ocean Initiative Capacity-Building Workshop for West Africa, Senegal ( <a href="http://africasd.iisd.org/events/">africasd.iisd.org/events/</a> )
15-17 January 2013	Global Maternal Health Conference 2013, Arusha, Tanzania ( <a href="http://www.gmhc2013.com/">www.gmhc2013.com/</a> )
04 - 07 February 2013	UNCCD 2 <sup>nd</sup> Scientific Conference, Fortaleza, Brazil ( <a href="http://2sc.unccd.int/home/?HighlightID=111">2sc.unccd.int/home/?HighlightID=111</a> )
18-21 February 2013	2 <sup>nd</sup> International Conference on Energy Systems and Technologies (ICEST 2013), Cairo, Egypt ( <a href="http://www.afaqscientific.com/icest2013/">www.afaqscientific.com/icest2013/</a> )
20-21 February 2013	9 <sup>th</sup> International Energy Conference, Tehran, Iran ( <a href="http://www.irannec.com">www.irannec.com</a> )
14 March 2013	Biochemical Journal Symposium 2013 - Cellular Processes: The Life and Death Decisions of a Cell, Beijing, China ( <a href="http://www.biochemj.org/bj/symposium/">www.biochemj.org/bj/symposium/</a> )
26-28 April 2013	8 <sup>th</sup> International Conference on Computer Science & Education (ICCSE - 2013), Colombo, Sri Lanka ( <a href="http://www.ieee-iccse.org">www.ieee-iccse.org</a> )

## CALL FOR PAPERS FOR COMSATS' JOURNAL – SCIENCE VISION: VOL. 18

Science Vision is a biannual scientific journal of COMSATS. It primarily aims at highlighting the important scientific and technological developments that have a bearing on socio-economic conditions of the people. It invites research as well as review articles that have general scientific descriptions, with comprehensive elucidation of the impact of S&T discoveries and innovations for creating understanding of the contemporary issues and challenges.

COMSATS invites scholarly contributions for the Volume 18 (January to December 2012) of its journal. Scientists, researchers, policy-makers and young scholars from S&T organizations and R&D institutions are encouraged to contribute articles on any scientific field of interest relevant to the focus of the journal. As per the policy of the journal, contributors are compensated for their time and efforts with a modest amount of honorarium.

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## 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](http://www.comsats.org).

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CENTRES OF EXCELLENCE

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- COMSATS Institute of Information Technology (CIIT), Pakistan
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- Iranian Research Organization for Science and Technology (IROST), Iran
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- Royal Scientific Society (RSS), Jordan
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- TÜBİTAK Marmara Research Center (MAM), Turkey
- The Biosphere Reserve – Beni Biology Station (BBS), Bolivia [Under Review]
- University Cheikh Anta Diop (UCAD), Senegal