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Patron

Dr. Imtihan Elahi Qureshi, T.I.
Executive Director

Inside this Issue

From the Executive Director's Desk	01
News/Activities/Highlights from COMSATS Secretariat	02
Activities/News of COMSATS' Centres of Excellence	04
Science, Technology and Development	06
Profile of COMSATS' International S&T Centre of Excellence – ICCES, China	07

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.

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From the Executive Director's Desk

The disparities between the quality of life enjoyed by populations of the developed and those of the developing countries are continuing to persist, and widening in some respects. This situation is untenable, but the evolution towards an egalitarian world is facing major setbacks due to environmental concerns, global financial uncertainties, and diminishing resources of fossil fuel, arable land and potable water. The energy demand of the world is on the rise as the populations expand and material requirements of decent living increase in regions of the world previously content with subsistence living. In this unfolding scenario, the best bet is to harness S&T resources with equitable distribution of their benefits across the globe. COMSATS is one of the players to make this happen, through S&T cooperation among its 21 Member States.



The Executive Director COMSATS and the Ambassador of Pakistan to China during a meeting with the Vice Minister, Ministry of Science and Technology, China

An excellent mechanism in the form of a Network of Centres of Excellence affiliated with COMSATS provides opportunities to share scientific know-how and coordinate transfer of technology among the Network members. In order to reinvigorate the participation of Centres of Excellence in COMSATS' programmes, a number of visits were undertaken previously and reported in the last Newsletter. An account of the visit to China is included in this issue (page 2).

The activities of COMSATS Secretariat during the last couple of months were dominated by preparations for the 13th Coordinating Council meeting, which will take place on 12-13 May 2010 at the Headquarters of the Academy of Sciences for the Developing World (TWAS) in Trieste, Italy. Normally, such a meeting of COMSATS takes place in one of the sixteen Centres of Excellence. However, this year an exception was made to recognize the intimate association of COMSATS with TWAS and to acknowledge the key role of the Executive Director TWAS, as the Chairman Coordinating Council, in the establishment of the Network. The Council meeting provides an opportunity to share information on the progress achieved by different centres. This occasion, in itself, constitutes an effective mechanism of South-South cooperation in science and technology.

NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

EXECUTIVE DIRECTOR COMSATS VISITS PEOPLE'S REPUBLIC OF CHINA

Executive Director COMSATS, Dr. Imtihan Elahi Qureshi, undertook a visit to People's Republic of China as per the recommendations of the 12th Coordinating Council meeting held last year in Nigeria. The Council mandated the Executive Director to visit COMSATS Member States to gauge the scientific capacity and cooperative potential of its Centres of Excellence. In this connection, the Executive Director had previously visited Syria, Egypt, Iran and Jordan earlier this year. The reports on visits to these five countries are expected to generate healthy discussions during the 13th Coordinating Council meeting, in order to enhance the level of cooperation among different centres.

The visit to China took place from March 22 to 26, 2010. Matters related to stronger participation of Centres of Excellence in COMSATS' scientific activities in different Member States was the main agenda. The preparations for the 13th Coordinating Council meeting were also reviewed. During his five-day visit, the Executive Director met Chinese Vice Minister for Science and Technology; Director, Department of International Cooperation; Head of International Center for Climate and Environment Sciences (ICCES); and Deputy Director of the Bureau of International Cooperation of the Chinese Academy of Sciences (CAS). He also visited Guanghua School of Management Sciences in Peking University and Zhongguancun Software Park (Z-Park) in Beijing.

Visit to the Ministry of Science and Technology, China

On March 22, 2010, Dr. Qureshi met the Vice Minister, Ministry of Science and Technology, China, H.E. Mr. Cao Jianlin. The two officials, inter alia, extensively discussed a proposed programme for S&T cooperation between COMSATS and the Ministry of Science and Technology, China. In the light of the unprecedented development that China has made in a relatively short span of time, the

programme has been developed by COMSATS Secretariat to showcase Chinese S&T capacities and technical expertise as an impetus for member countries of COMSATS. Based on China's strengths, the programme defines major areas of cooperation between China and other COMSATS' member countries, explores means for joint research, and aims at capacity-building of scientists/students from COMSATS' member countries. The Vice Minister suggested that scientists from COMSATS' member countries may be encouraged to visit Chinese research centres relevant to their interests and explore possibilities of collaboration under the patronage of COMSATS. Mr. Cao pledged to continue the financial and technical support to COMSATS and agreed to enhance China's role in COMSATS' activities through active participation in its statutory bodies.

Visit to the International Center for Climate and Environment Sciences (ICCES)

Dr. Qureshi visited ICCES on March 23, 2010, where he met its Director, Prof. Dr. Lin Zhaohui. The matters brought under discussion included: reinvigoration of the role of ICCES as member of COMSATS' Network of Centres of Excellence; research activity of COMSATS' thematic group on "Climate Change and Environmental Protection"; technology sharing and joint research projects between ICCES and other members of COMSATS. The Director ICCES and the Executive Director COMSATS agreed to plan a joint strategy for developing ICCES as a role model for other Network members of COMSATS. A Memorandum of Understanding (MoU) was signed on this occasion to undertake joint academic activities under a yearly action plan. The MoU provides for the training of upto three scientists from COMSATS' member countries at ICCES. As indicated by its officials, the Chinese Academy of Sciences may also render financial support for training programmes. The Executive Director toured the research laboratories, weather stations and super computer facilities of ICCES to gather first-hand



Signing of MoU between ICCES and COMSATS



Supercomputer at ICCES

knowledge of its scientific capacity.

Visit to Guanghua School of Management Sciences (GSM), Peking University

The Executive Director, being the Chairman of the Board of Governors of one of its flagship projects, the COMSATS Institute of Information Technology (CIIT), visited Peking University. He had a meeting with the Director of the Office of International Cooperation of Guanghua School of Management to explore avenues of collaboration for the faculty- and student-exchange between the two institutes.

Visit to Chinese Academy of Sciences (CAS)

On 25th of March, the Executive Director visited the Chinese Academy of Sciences (CAS) where he met the Deputy Director Bureau of International Cooperation of CAS, Dr. Cao Jinghua and discussed matters related to the proposed cooperation between COMSATS and CAS. Dr. Qureshi sought the Academy's support in terms of funding for Ph.D students inducted at ICCES from COMSATS' member countries. In response, Dr. Cao promised to take up the matter with the Director of the Bureau and, moreover, assured Dr. Qureshi that COMSATS' Member countries would be invited to participate in the Chinese Ecosystem Research Network (CERN) on request.

Visit to Zhongguancun Software Park (Z-Park)

On his visit to Zhongguancun Software Park (Z-Park), the Chairperson Z-Park, Ms. Zhou Fang, assured the Executive Director that Z-Park would provide COMSATS the necessary advisory consultations for establishing similar software parks in COMSATS' member countries on request. It was learnt that the Z-Park has high-quality office space in an environment-friendly setting, providing excellent utility services, broad-band internet connectivity, training centres, and conference halls, etc.



Dr. Qureshi & Counsellor, Embassy of Pakistan in China with the Chairperson Z-Park and her colleagues

The visits to Chinese scientific institutions and discussions held with relevant authorities are expected to promote closer cooperation among COMSATS' Centres of Excellence and Chinese institutions, which have attained very high scientific standards in a relatively short span of time.

COMSATS CONTRIBUTES TO NATIONAL S&T POLICY MAKING OF PAKISTAN

The first meeting of sub-committee to review 'Draft National S&T Policy – 2009' was held at COMSATS Secretariat on April 27, 2010. The sub-committee comprises the Executive Director COMSATS as Convener and the Chairman Pakistan Council for Science and Technology (PCST) as ex-officio member, with co-opted members from Planning Commission of Pakistan, Higher Education Commission, Pakistan Atomic Energy Commission, PCST, Sustainable Development Policy Institute, COMSATS, and Federation of Pakistan Chamber of Commerce and Industry. The main task of this sub-committee is to re-draft the policy document and present it before the Review Committee constituted under the directives of the Prime Minister of Pakistan in April 2009, headed by the Minister for Science and Technology, Government of Pakistan.

In the first meeting of the sub-committee, a work-plan was agreed and distribution of assignments was made for incorporating specific proposals in the revised draft, keeping in view the interests of different stake-holders.

29TH REGULAR MEETING OF COMSATS MANAGEMENT COMMITTEE

The 29th regular meeting of COMSATS Management Committee was held on April 28, 2010, at COMSATS Secretariat, Islamabad. The meeting, chaired by the Executive Director COMSATS, was attended by Dr. S. M. Junaid Zaidi, Rector CIIT; Mr. Parvez Ahmad Butt, Director General CIS; Mr. Zhang Qi, First Secretary, Science & Technology Section, Embassy of People's Republic of China; Dr. Tariq-ur-Rahman, Former Chairman, PCST; as well as other senior officials of COMSATS Secretariat. The Committee deliberated on a six-point agenda that included: status of implementation of decisions taken during its 28th meeting; the Executive Director's visits to COMSATS' Member States and Centres of Excellence; update on the preparations for 13th Meeting of COMSATS Coordinating Council; and administrative and financial matters. The Committee, inter alia, agreed that honorary life-time membership of the Coordinating Council may be offered to Prof. M. H. A. Hassan, as his ex-officio membership to the Council is to expire on his retirement from his present post of Executive Director TWAS in 2010. It was decided that a resolution to this effect would be tabled in the 13th Meeting of the Council. The budget proposal for the year 2010-11 was also endorsed for the approval of Coordinating Council.

ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

ICCBS CONDUCTS RESEARCH ON PRODUCTION OF FUELS BY CO-PROCESSING MUNICIPAL-WASTE PLASTICS

In a recent study, funded by the Higher Education Commission of Pakistan, researchers at HEJ Research Institute of Chemistry (HEJRIC) of International Center for Chemical and Biological Sciences (ICCBS), investigated thermal and catalytic co-processing of plastics, petroleum residues and coal (alone and blended together), using six different catalysts.

The research was conducted with a realization that the disposal of municipal solid waste (MSW) has become a major social concern in Pakistan owing to the great proportions of mixed plastic products. The researchers of HEJRIC have attempted to convert the issue of disposal of post-consumer plastics into an opportunity for their utilization as a valuable hydrocarbon resource. The study has tried to explore petroleum residues that have a chemical composition compatible with both waste-plastics and coal to serve as a vehicle for their co-processing.

Reaction systems that were studied included polypropylene (PP), residues and Thar coal. A series of single (PP, resid. or coal only), binary (PP/resid. or coal) and ternary (PP/resid./coal) reactions were carried out in a 25cm, 3 micro autoclave reactor, under different conditions of weight and type of catalyst, time-duration, pressure and temperature. The product-distribution for the binary and ternary systems using PP, coal and petroleum residue provided some encouraging results. High yields of liquid fuels in the boiling range 100-480°C and gases were obtained along with a small amount of heavy oils and insoluble material, such as gums and coke.

The results obtained on the co-processing of plastics with coal and petroleum residues are very encouraging as this method appears to be quite feasible to convert plastic materials into liquefied products and to upgrade the residue, coal and waste plastics. The results suggest that a new industry can be developed to convert waste plastics into high-quality oil and valuable by-products.

DIRECTOR ICCBS CONFERRED WITH JABER IBN HAYAN AWARD

In recognition of his services in the field of Natural Product Chemistry, Prof. Dr. M. Iqbal Choudhary, Director of ICCBS,

has been conferred with "Jaber Ibn Hayan Award". The award was given to him by the academic faculty of King Saud University and Saudi Chemical Society during a special ceremony held at the auditorium of Faculty of Science, King Saud University, Riyadh, on April 06, 2010. Prof. Choudhary has written or edited 24 books that have been published internationally and has more than 600 research papers in journals of international repute to his credit.

EMBRAPA'S RESEARCH NETWORK CONTRIBUTES TO SUSTAINABLE ORGANIC FARMING SYSTEMS

A research network was constituted to work for technological development of sustainable organic systems of farming. This network has been established to work on the project "Scientific and Technological Basis for Development of Brazilian Organic Agriculture". The network, led by Embrapa Agrobiologia, comprises 26 other Embrapa centres with 360 researchers, as well as 25 partner institutions, including various NGOs, universities and extension service providers. The project aims to obtain products and processes for organic agriculture, such as suitable genotypes of animals and plants and techniques for soil-conservation and ecological management of pests.



A farm being used by Embrapa for research on sustainable organic farming

IRCC WORKSHOP VENTURES TO OPTIMIZE THE USE OF SORGHUM IN SUDANESE INDUSTRY

Industrial Research and Consultancy Centre (IRCC) of Sudan and Sayga Food Industries, organized a regional workshop on 'Optimum Industrial Utilization of Sorghum in Sudan', on April 18 and 19, 2010. The inaugural session was chaired by the State Minister of Science and Technology Sudan, while the closing session was presided over by the State Minister of Industry, Sudan. Many prominent scientists from Sudan and abroad participated in this events, including Professor J.R.N Taylor, the President of the International Association for Cereal Science and Technology (ICC), South Africa, and Dr. Mukhlis Shahrily of the Arab Center for Statistics of Arid Zones and Dry Lands (ACSAD), Syria.

The main objective of the workshop was to maximize the application of research in industrial utilization of sorghum and to promote its industrial use. Twenty three papers were presented during the event that covered various topics, such as sorghum breeding, biotechnology application on



A session of the workshop on 'Optimum Industrial Utilization of Sorghum in Sudan' in progress

sorghum products, sorghum milling techniques, sorghum composite flour products, starch and glucose industry, food and non-food uses, and economy related measures for sorghum and sorghum products.

IRCC PARTICIPATES IN ARAB CONFERENCE ON 'DEVELOPMENTAL AND ECONOMIC IMPACT OF NANOTECHNOLOGY'

Director General of IRCC, Dr. Ahmed Obeid Hussan, participated in the Arab Conference on 'Developmental and Economic Impact of Nanotechnology', held at King Fahd University of Petroleum & Minerals in Dhahran-Saudi Arabia from March 27-29, 2010. Among other participants, there were scientists and researchers from universities and research centres of the region, as well as scientists of Arab origin from USA, Sweden and UK. The purpose of the conference was to study the possible actions to be taken by Arab Countries to join the international nanotechnology revolution.

CIIT'S MoU ESTABLISHES ACADEMIA-INDUSTRY LINKAGE FOR BIOFERTILIZER DISTRIBUTION

Prof. Dr. Fauzia Yusuf Hafeez, Chairperson, Department of Biosciences, COMSATS Institute of Information Technology (CIIT), Islamabad, has developed a phosphate fertilizer that will enhance the growth of plant by providing a major nutrient, phosphorus, and certain growth hormones. The fertilizer is also believed to improve soil quality by decreasing soil pH and improving its texture. As opposed to the use of available chemical fertilizers, the use of this fertilizer is more cost-effective and carries more prospects of income-generation for farmers. The Auriga Chemical Enterprises and Sayaban International with the brand name Humiphos™ and Biophos™ have agreed to market this bio-product having great potential towards sustainable agriculture.

A Memorandum of Understanding (MoU) to this effect has been signed between the Department of Biosciences of CIIT Islamabad and Auriga Chemical Enterprises, which is based in Lahore, Pakistan. The two signatories have agreed to have the biofertilizer developed at Auriga Chemicals Enterprises using the technology provided by scientists from CIIT, Prof. Dr. Fauzia Yusuf Hafeez and her team, while the quality of the products will be certified at the Metabolomics and Genomics Laboratory of CIIT - Islamabad campus.

CIIT HOSTS THE CENTENNIAL CHAPTER OF MOBILEMONDAY IN PAKISTAN

The Centre for Advanced Studies and Telecommunication (CAST) of COMSATS Institute of Information Technology (CIIT) will house the centennial chapter of MobileMonday Global (MoMo). The chapter was launched during a formal ceremony held in Islamabad, Pakistan, on April 19, 2010. Based in Helsinki, Finland, MoMo is an open networking organization for mobile industry professionals that aims at fostering cooperation and cross-border business development through virtual and live networking events to share ideas, best practices and trends from global markets. CAST will soon be responsible for launching and maintaining the website of this chapter of MoMo.

The Pakistan Chapter of MoMo will bring together the leading companies and personalities related to the Pakistani telecommunication business, enabling them to: join the global family of MoMo; exchange ideas; find resources; and, most importantly, to participate in the development of the mobile industry and mobile eco-system in Pakistan.

The event was attended by over 200 guests from diplomatic community, educational and telecommunication sectors, and I.T industries in Pakistan, including the Minister for Science and Technology, and Minister for Education, Government of Pakistan. The Executive Director COMSATS distributed commemorative shields to the sponsors of the event and the panelists of the open-discussion session.



Launching Ceremony of the Pakistani Chapter of MobileMonday, held in Islamabad

SCIENCE, TECHNOLOGY AND DEVELOPMENT

AFRICA TO JOIN HIGH-SPEED SCIENCE NETWORK

According to a *SciDev.Net* report (March 18, 2010), four developing countries, Egypt, India, Singapore and Vietnam, were added to the Global Ring Network for Advanced Applications Development (GLORIAD) via the 'Taj' expansion, officially launched at the fourth meeting of the African Ministerial Council of Science and Technology (AMCOST IV) in Egypt, held during March 7–10, 2010.

GLORIAD, which began in 1998 as MIRnet – a US-Russian network, connects national laboratories and institutes across Canada, China, Korea, the Netherlands, Russia, the United States and the five Nordic countries, enabling scientific collaboration in areas ranging from weather forecasting to high-energy physics. The Network provides high-volume data transfer, video-conferencing and remote control of scientific instruments, and is largely funded by the US National Science Foundation (NSF), which raised US\$2.3 million for the extension to Egypt. "All the ministers [at AMCOST IV] agreed that we will use the hub established in Egypt to extend the network into the African continent," said Maged Al-Sherbiny, Assistant Minister for Scientific Research in Egypt.

Several institutes in Egypt, including Cairo University, the Ministry of Water Resources and Irrigation, and Mubarak City for Science and Technology, are already coordinating projects with US agencies such as the National Oceanic and Atmospheric Administration and the US Agency for International Development.

SOLAR CELL ROOF-TOPS TO OPTIMIZE THE USE OF SOLAR ENERGY

Continuous growth in the world's population and diminishing resources of energy are creating immense socio-economic problems all across the developing world. Scientists are striving to harness solar energy for the benefit of everyone, especially for the poor. According to some estimates (*SciDev.Net*, April 14, 2010), about 1.5 billion people in the developing countries do not have access to electricity. Lack of access to affordable energy hinders human, social and economic development.

One of the major impediments in the easy availability of solar electricity is the lack of commercially viable production of cost effective and efficient solar cells. A significant breakthrough in the technology of solar cell production has been reported by *Eureka! Science News*, (April 20, 2010). According to this news, researchers have succeeded in depositing nanostructure films on various surfaces in a continuous flow micro-reactor. The researchers believe that thin-film solar cells, produced by applications such as this one, could ultimately be used in the creation of solar energy roofing systems. Conceptually, instead of adding solar panels on roof-tops of residential, industrial or commercial

buildings, the solar panel itself would become the roof, eliminating such traditional approaches as plywood and shingles. Production of cost-effective solar-energy generating roofs would revolutionize the use of solar energy for socio-economic development.

NANOTECH DEVELOPMENTS FOR HUMAN HEALTH AND SAFETY

Nanotechnology is coming to human aid in practical life as fast as it is being researched in the laboratories. Three most useful applications of nanotechnology in saving human lives have been reported by *SciDev.Net* during the last ten days of April 2010. The first one (April 20, 2010) describes an easy test to detect food contaminant melamine by using gold nanoparticles. Melamine is a harmful chemical that often becomes part of dairy and other food products from packaging or by its other uses. The test gives reliable results in 15 minutes to check the presence of melamine in milk and could be developed into a simple kit, which may be easily used in developing countries. Scientists in China are trying to develop similar test that could give the result in less than 5 minutes and would cost less than three US cents per test.

The second reported discovery (April 23, 2010) on the use of nanotechnology for human safety in a bigger way is related to acquiring fore-warning on the vulnerability of building structures against the earthquakes. Hundreds of thousands of casualties can occur due to collapse of buildings in earthquakes causing tremendous losses. Most of the time it is due to lack of reliable information about the structural status of the buildings, such as existence of cracks or deformities in the hidden parts of walls, roofs or beams, etc. But the scientists have now come up with a solution. Cheap nano-sensors could be embedded in buildings to give early warnings of defects that make them vulnerable to earthquakes. The data from these sensors are transmitted wirelessly to a receiver connected to a computer. The cost of such sensors would be in the range of US\$ 5 to 10. The sensors can help developing countries keep bridges, water systems and roads in good shape.

The third reported nanotech development (April 26, 2010) deals directly with human health. Vaccines are widely used against a variety of diseases throughout the world. However, in poor and developing countries, the supply of vaccines and their storage is often a daunting problem. Scientists have developed a skin vaccination patch – Nanopatch – that is smaller than a postage stamp and uses 100 times less vaccine to elicit immune responses similar to those of traditional needle and syringe vaccinations. As the nanopatch requires neither a trained practitioner to administer it nor refrigeration, it has enormous potential to cheaply deliver vaccines in developing countries. Vaccination through this method could revolutionize immunization programmes in the developing world.

PROFILE OF COMSATS' INTERNATIONAL S&T CENTRE OF EXCELLENCE

INTERNATIONAL CENTER FOR CLIMATE AND ENVIRONMENT SCIENCES (ICCES), CHINA

Introduction

The International Center for Climate and Environment Sciences (ICCES), China, originated from the former Center for Climate and Environmental Prediction Research (CCEPRE), which was established in 1991, in order to meet the urgent need for studying climate and environment problems. Since its establishment, ICCES has been continuously supported by Chinese Academy of Sciences, Ministry of Science and Technology, National Natural Science Foundation and Ministry of Finance of China. In 1994, ICCES was selected as the representative centre of China to join COMSATS, and was subsequently certificated as the Centre of Excellence of COMSATS and the Academy of Sciences for the Developing World (TWAS).

ICCES is capable of giving consultancies and making predictions, which are required in urgent cases by the government and the related authorities of China, in order to meet urgencies in areas such as agriculture, aviation, navigation, transportation, irrigation and pollution-control. These include prediction of drought and flood, forecast of disastrous weather (especially the heavy rainfall during summer season), dust-storm, air pollution, as well as environment studies for specific needs.

Currently, there are 35 research scientists at ICCES, including 2 academicians of Chinese Academy of Sciences, 2 academicians of international Eurasian Academy of Sciences, 11 professors and 6 associate professors on climate and environmental sciences. There are also 7 adjunct professors from both domestic and international institutions and universities. More than 50 graduate students in total, from China and other foreign countries, are now studying at ICCES; in addition 2 visiting scholars from the developing countries are now conducting collaborative research at ICCES.

Research and Development

The main research fields are focused on the following: Earth System Model Development; Seasonal-to-Interannual Climate and Hydrological Prediction; Disastrous Weather Dynamics and Prediction; Climate and Monsoon Dynamics; Data Assimilation Theory and its Applications; Ecological Dynamics and Natural Cybernetics. Currently, there are more than 40 on-going research projects related to these research areas. Due to its great contribution to the basic and applied research on climate and environmental sciences in China, ICCES has won many awards and honours for its excellent academic research since the establishment, including 1st Natural Science Prize of Chinese Academy of Sciences in 1991, 1998 & 2001; the 2nd National Natural Science Prize of China in 2005; and the 1st Prize for the Progress of Science and Technology of Ministry of Education of China in 2008.

Research Projects

The national projects funded by the Ministry of Science and Technology of China that ICCES is undertaking are: Structure and Mechanism of Meso-beta Scale Strong Convective Systems during Heavy Rainfall in South China; High Capability Scientific Computation; Atmospheric Chemistry Data Assimilation and its Evaluation; and the Chinese Cooperative Observation and

Forecast Study. While key knowledge-innovation projects sponsored by CAS are: Decadal Variability of Asian Monsoon System and its Mechanism; Ocean Data Assimilation and the Coming Forecast Study; New Generation of Atmosphere-land-hydrology Models and their Coupling; CAS International Partnership Creative Group; Climate System Model Development and Application Studies; and Study of the Impacts of Inter-basin Water Diversion on Terrestrial Hydrological Cycle and Water-Resources Security.

Education and Training

ICCES provides different degree-programmes and training courses for young scientists from China, as well as other countries, including the ones from the developing world. ICCES offers: Masters and Ph.D degrees; post-doctorate programme for young scientists; and training programmes on climate research for young scientists, especially those from the developing countries. The Center also hosts the visiting scholars from all over the world, including the visiting scientists under various fellowship schemes of TWAS.

International Collaborations

International cooperation and exchange have always been a major emphasis of ICCES, which has scientific exchanges with over 10 countries. Under the established cooperative connections with scientific research institutions in the US, the European Union, Germany, Italy, Canada, Japan, Australia, Thailand, Pakistan and Korea, ICCES has made a series of promising achievements and trained scores of young people. Also, the Center has been an active part of international cooperation with renowned international research institutions and universities, and worked on international research programmes, such as WCRP, ESSP, etc. ICCES is keen to establish and enhance collaboration with the developing countries through its various programmes.

CAS-TWAS-WMO Forum

ICCES hosts the secretariat of CAS-TWAS-WMO Forum (CTWF), which is a regular international forum for physico-mathematical problems related to climate modeling and prediction. CTWF serves as a platform for high-level experienced mathematicians, physicists, atmospheric and oceanic scientists, to exchange ideas, discuss scientific problems in depth and find solutions through joint efforts. Since its establishment in 2000, CTWF has organized eight international conferences/workshops under different themes related to climate sciences. The 2010-CTWF International Workshop on "Climate and Environmental Change: Challenges for Developing Countries" will be held in Beijing, on 17-20, Nov. 2010.

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SELECTED FORTHCOMING SCIENTIFIC EVENTS IN COMSATS' COUNTRIES

4-6 June 2010	9 th All Pakistan Inter-Colleges/Universities COMPUTER Project Exhibition & Competition (COMPPEC-2010), Islamabad, Pakistan. (www.comppec.com)
22-24 June 2010	2 nd International Conference on Education Technology and Computer (ICETC - 2010), Shanghai, China. (www.icetc.org)
26-30 June 2010	15 th Annual Conference on Innovation and Technology in Computer Science Education (ITICSE 2010), Bilkent, Ankara, Turkey. (iticse2010.bilkent.edu.tr)
9-11 July 2010	3 rd IEEE International Conference on Computer Science and Information Technology (ICCSIT), Chengdu, China. (www.iccsit.org)
19- 24 July 2010	2 nd Mathematical Chemistry Workshop of the Americas, Universidad de los Andes, Bogota, Colombia. (www.1.ams.org)
1-4 August 2010	6 th International Conference on Computing and ICT Research (ICCIR), Makerere University, Kampala, Uganda. (www.cit.mak.ac.ug/iccir)
21-23 September 2010	2010 International Conference on Sustainable Development and Environmental Protection: Strategies and Procedures for Developing Nations, OTANear Lagos, Ogun, Nigeria. (www.ierdafrica.org)
4-5 October 2010	National Software Engineering Conference 2010, National University of Science and Technology, Rawalpindi, Pakistan. (www.mcs.nust.edu.pk)
6-10 October 2010	11 th EurAsia Conference on Chemical Sciences, Amman, Jordan. (www.euasc2s-11.ju.edu.jo)

CALL FOR PAPERS FOR THE JOURNAL – SCIENCE VISION

COMSATS invites scholarly contributions for Vol. 16 (1) of its scientific journal - Science Vision - that will be exclusively covering research and review papers on the theme of 'ICTs as means to addressing socio-economic challenges and achieving sustainable development'. This issue of the journal is expected to highlight the role of ICTs as a transformational development effecting the way of life of common people across the globe. In view of the revised focus of the journal, authors are requested to address issues that are relevant to the socio-economic and environmental impact of new technologies on the society, especially in the developing world. Scientists, researchers, policy-makers and young scholars from S&T organizations and R&D institutions are encouraged to contribute to this Issue.

COMSATS maintains a policy to acknowledge the contributions from authors, whose articles are selected for publication, with a modest amount of honorarium. For more details and guidelines for the authors, please visit COMSATS' official website: www.comsats.org. Contributions may be sent at comsats@comsats.org.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.

COMSATS, currently, has 21 countries as its members, spread across three continents, i.e., Latin America, Africa and Asia. A network, of 16 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.

LIST OF COMSATS NETWORK OF INTERNATIONAL S&T CENTRES OF EXCELLENCE

- The Biosphere Reserve – Beni Biology Station (BBS), Bolivia
- Embrapa Agrobiologia, Brazil
- International Center for Climate & Environment Sciences (ICES), China
- Centro Internacional de Fisica (CIF), Colombia
- National Research Centre (NRC), Egypt
- International Centre for Material Science and Technology (ICMST), Ghana
- Iranian Research Organization for Science and Technology (IROST), Iran
- International Centre for Environmental and Nuclear Sciences (ICENS), Jamaica
- Royal Scientific Society (RSS), Jordan
- National Mathematical Centre (NMC), Nigeria
- International Center for Chemical and Biological Sciences (ICCBS), Pakistan
- COMSATS Institute of Information Technology (CIIT), Pakistan
- Industrial Research and Consultancy Centre (IRCC), Sudan
- Higher Institute for Applied Sciences and Technology (HIAS), Syria
- Tanzania Industrial Research and Development Organization (TIRDO), Tanzania
- TÜBİTAK Marmara Research Centre (MRC), Turkey