



Sept. - Oct. 2010, Vol. 2, Issue 5
Islamabad, Pakistan.

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.

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From the Executive Director's Desk

The world is in the throes of cataclysmic events triggered by the global warming. The adverse climatic changes witnessed in recent years are believed to be the result of greenhouse gas emissions, which lead to elevated global average temperatures. The floods in Pakistan, during the months of July and August 2010, have been linked by WMO scientists to higher temperatures in Atlantic Ocean. These floods have caused economic losses estimated to be of the order of US\$ 40B, besides immeasurable sufferings of 20M people. No country, least of all any developing country, can absorb the socio-economic shock of this magnitude. The United Nations Framework Convention on Climate Change (1992) notes that "the

largest share of historical and current global emissions of greenhouse gases has originated in developed countries". Thus, the benefits of development in the West are being paid for by the hapless millions in the developing countries. The South Centre (Geneva) has estimated that the

developing countries would need US\$ 1.7T annually to combat climate change through mitigation, adaptation and deployment of necessary technologies. 'Who would foot this bill?', is a question the World should seriously engage to answer.



The Executive Director COMSATS and the Vice-Chancellor UKM signing an MoU (19th October 2010). The Malaysian Minister of Science, Technology and Innovation (MOSTI), H.E. Dr. Maximus Johnity Ongkili witnessing the signing ceremony (Page 6)

At the heart of environmental plundering that has continued since the industrial revolution, is the use of fossil-fuels for energy production. The solution for stabilising Earth's atmosphere, therefore, lies in multi-prong approaches with a shift to the use of renewable energy as a major strategy. COMSATS has always considered this issue a crucial thrust area for capacity-building in its member States. It is with this consideration that COMSATS has recently concluded an agreement with the National University of Malaysia (UKM) to enhance South-South cooperation in the field of renewable energy technologies, especially in solar energy and hydrogen fuel cells. A report on this event along with other activities of COMSATS' delegation in Malaysia, during the month of October 2010, are included in this issue. It is sincerely hoped that the readers would find the contents of COMSATS Newsletter useful and informative. The editorial team would highly appreciate if any comments/suggestions or feed-back were sent for improving the quality and contents of this publication.

NEWS/ACTIVITIES/HIGHLIGHTS FROM COMSATS SECRETARIAT

COMSATS-ISESCO INTERNATIONAL SEMINAR IN SYRIA ADDRESSES ENERGY AND ENVIRONMENTAL ISSUES THROUGH NANOTECHNOLOGY

The Commission on Science and Technology for Sustainable Development in the South (COMSATS), in collaboration with the Islamic Educational, Scientific and Cultural Organization (ISESCO), and COMSATS Institute of Information Technology (CIIT), Pakistan, organized an International Seminar on “Nano-materials in Energy and Environment”, in Syria, from 21st to 23rd September 2010. This international Seminar, hosted by the Damascus University, Syria, was the first of the series of events to be undertaken under COMSATS-ISESCO Cooperation Programme 2010-2012.

The emphasis of the Seminar was on the use of nano-science and technology to address issues concerning renewable energy and environment preservation in Islamic countries. Key topics that were deliberated upon included: fundamentals of nano-science & technology; synthesis and characterization of nano materials and their applications in energy and environment; solar cells; catalysis; fuel cells; bio-fuels and sensors. Eighteen invited speakers from USA, Pakistan, Iran, Malaysia, Jordan and Egypt participated in the event as resource persons. In all, 38 contributory papers were presented by the participants. The Seminar provided the participating research scholars and engineers from various disciplines of nanotechnology a platform to share their research outputs. Also, the development of curricula for undergraduate and graduate programmes in nano-sciences for the scientific institutions of the Islamic countries was considered.

The major outcomes of the event included an understanding reached by the nano-technology institutions of Islamic countries for a stronger collaboration, and an enhanced awareness of participants regarding the latest developments in the field of nano science & technology.



Participants of International Seminar on “Nano-materials in Energy and Environment”, held in Damascus, Syria

COMSATS-ISESCO INTERNATIONAL CONFERENCE ON ‘DIFFUSION OF ICTs IN ACADEMIA: LEARNING IN DIGITAL AGE IN ISLAMIC COUNTRIES’, KHARTOUM, SUDAN

COMSATS and ISESCO held an International Conference on “Diffusion of ICTs in Academia: Learning in the Digital Age in Islamic Countries” in Khartoum, Sudan, on 4th & 5th October, 2010. The Conference was organized in collaboration with the Inter-Islamic Network on Information Technology (INIT); the University of Science and Technology Sudan; and COMSATS’ Centre of Excellence in Sudan, the Industrial Research and Consultancy Centre (IRCC).



Inaugural Ceremony of International Conference on “Diffusion of ICTs in Academia”, held in Khartoum, Sudan

Highlighting the potential of ICTs for increasing access to and improving the quality of education, the Conference stressed the need for more rapid infusion of ICTs into academia of the Islamic countries and deliberated on the key issues faced by the Islamic World in this information-age. Some issues indicated by the Conference are: the lack of skilled workforce and necessary infrastructure (especially Internet access); shortage of IT professionals due to brain drain; low level of indigenization; and the need for growth in software development. The Conference provided a forum for academicians and professionals from Islamic countries to deliberate on these issues with an aim to help find appropriate solutions.

Eighteen experts from Bahrain, Bangladesh, Brunei, Egypt, Iran, Malaysia, Mauritania, Pakistan, Tunisia, Uganda, and Yemen presented papers on various topics relevant to the theme of the Conference. The thematic areas included: Educational Policy and Planning for Integration and Diffusion of ICTs in Academia; Current Projects and Best Practices from Developed and Developing World; Institutional Capacity Building for Integration/Diffusion of ICTs; Delivery Mechanism and Options in an ICT-based Academic Environment; and Effectiveness and Impact of ICTs on Learning and Achievements.

COMSATS-ISESCO NATIONAL TRAINING WORKSHOP ON REPAIR & MAINTENANCE OF SCIENTIFIC INSTRUMENTS-DAKAR, SENEGAL

COMSATS and ISESCO organized a national training workshop on “Repair and Maintenance of Scientific Equipments in Teaching, Research Institutions and Small-Scale Industries” in Dakar, Senegal, from 18th to 21st October 2010. The workshop was organized in collaboration with the Senegalese National Commission for UNESCO.

The main aim of this four-day workshop was to impart hands-on training to the scientists, engineers and technicians in Senegal to become proficient in repair and maintenance of scientific instruments being used in their respective labs. The workshop provided a forum to these professionals to learn from Pakistani experts and build indigenous capacity in repair and maintenance of important lab equipments. The workshop that served as ‘trainers’ training programme’ comprised discussions and practical training sessions. It is expected that the beneficiaries of this training workshop will further impart training to fellow colleagues in their respective institutions in Senegal to upscale the impact/outcome of the workshop.

The two master trainers of the Pakistan Council for Scientific and Industrial Research (PCSIR), Mr. Arif Karim and Mr. Faisal Ghazanfar, provided training on scientific equipments, including spectrophotometer, chromatographic systems, transmission and scanning electron microscopes, HVAC systems and PCR systems. Around 20 participants benefitted from the training. It is hoped that as a major outcome of this workshop Senegal would be able to develop its own ‘Scientific Instruments Repair Centre’ for meeting day-to-day requirements of various scientific labs of the country.



Organizers and Resource Persons of National Training Workshop held in Dakar, Senegal

THE EXECUTIVE DIRECTOR COMSATS VISITS PCRWR, PAKISTAN

On September 21, 2010, the Executive Director COMSATS, Dr. I. E. Qureshi, visited the Pakistan Council of Research in Water Resources (PCRWR), Islamabad, Pakistan, to hold a meeting with its Chairman, Dr. M. Aslam Tahir, and to visit the National Water Quality Laboratory (NWQL) of PCRWR. Dr. Qureshi was accompanied by Dr. Amir H. Malik, HEC Foreign Professor at COMSATS Institute of Information Technology (CIIT); Dr. Hasibullah, Advisor (I.A) COMSATS;

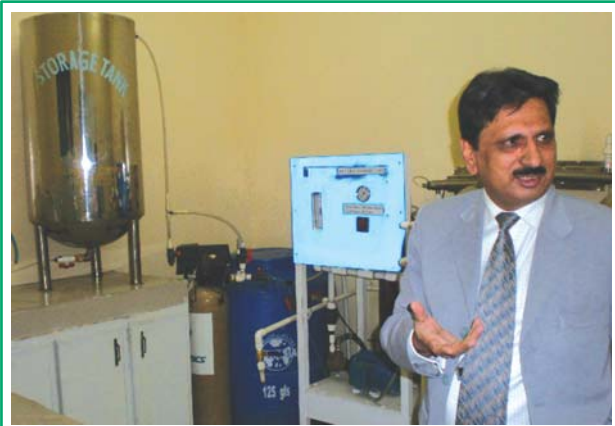
and Engr. Farhan Ansari, Assistant Director (Programmes) COMSATS.

PCRWR is an apex body, under the Ministry of Science and Technology of Pakistan, established with the objective to conduct, organize, coordinate and promote research in all aspects of water-resource management in the country, such as irrigation, drainage, surface- and ground-water management, ground-water recharge, watershed management, desertification control, rainwater harvesting, water quality assessment and monitoring, and development of innovative water-resource management techniques. The purpose of the meeting was to: assess the capacity and potential of PCRWR; explore possibilities of a potential scientific collaboration between PCRWR and COMSATS; recommend the testing of water-purifiers that are being provided to the flood affectees in Pakistan by various NGOs, and explore the possibility of manufacturing low-cost water treatment technologies locally in order to meet the present and future potable water needs of the country.

In a special briefing by Dr. Tahir, Dr. Qureshi was informed about the various activities of PCRWR, including the assistance it provides to the local NGOs in installing water-treatment plants in the flood affected areas of the country; capacity-building programmes for managers and technicians/sub-engineers, and manufacturing of low-cost water testing and treatment technologies. It was learnt that out of 10,000 professionals working in water-resource management in Pakistan, 6,000 have been trained by PCRWR through one-week intensive course for technicians and three-day course for managers. Water testing and instruments being manufactured at PCRWR include: bacteria, turbidity and arsenic removal kits; chlorinators for water purification; as well as low-cost kits/instruments for arsenic testing, bacteria testing, and water

and salinity monitoring.

Matters related to the availability of water treatment/testing labs in the country, need for water standardization, national and international collaborations of PCRWR, and efficacy of various locally manufactured, as well as imported water-purifiers were also discussed during the meeting. Dr. Qureshi laid emphasis on creating synergies among the organizations/institutions of the country working in the field of water-resource management, for the benefit of the masses. Dr. Qureshi was of the view that the organizations like PCRWR should develop strong linkages with the private



Chairman PCRWR, Dr. M. Aslam Tahir, briefing the COMSATS' delegation visiting NWQL, PCRWR

sector and academia. He invited Dr. Tahir, who is also the National Project Coordinator for United Nations University (Japan), to visit the campuses of CIIT in Islamabad and Abbottabad.

Dr. Qureshi also witnessed various lab-facilities of the National Water Quality Laboratory to gather first-hand information of the facilities available. These included: chemical lab, microbiology lab, waste-water lab, and the organic lab. He was pleased to note that NWQL is ISO 17025 certified and has recognition in America and Europe. During the visit, Dr. Tahir showed the equipment and facilities available at the Laboratory and explained different procedures of water-testing.

Later, the delegation from COMSATS visited RS/GIS & Hydrology Modeling Centre of PCRWR, where a presentation was made to acquaint the visitors with the activities of the Centre. PCRWR was found to have tremendous potential for national/international collaboration in the area of water-resources, and manufacturing innovative cost-effective technologies for water testing and treatment.

THE EXECUTIVE DIRECTOR COMSATS VISITS GCISC, PAKISTAN

The Executive Director COMSATS visited the Global Change Impact Studies Centre (GCISC), Islamabad, on October 7, 2010, to hold a meeting with its Executive Director, Dr. Arshad Muhammad Khan. He was accompanied by Dr. Amir H. Malik, HEC Foreign Professor at CIIT, and other officials of COMSATS Secretariat. Also representing GCISC in the meeting were Dr. M. Mohsin Iqbal, Head of Agriculture Section, and Mr. Ghazanfar Ali, Head of Water Section & Glaciology Group.

The purpose of the meeting was to: rejuvenate strong

collaborative relations between COMSATS and GCISC; exchange information regarding the past and present activities of the two organizations; and discuss the possibility of launching a collaborative effort focused on improving the water resource management in Pakistan, in collaboration with the International Institute for Applied Systems Analysis (IIASA), Austria, and two of the Centres of Excellence of COMSATS, namely COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan, and the International Centre for Climate and Environment Sciences (ICCES), Beijing, China.

During the meeting, Dr. Qureshi was informed that the climate and geographical modeling being performed at GCISC is of high standard and is being provided, on request, to the Newcastle University, UK; and the Massachusetts Institute of Technology (MIT), USA; as well as the World Bank. In exchange, the Newcastle University and MIT have been providing support to GCISC in building its research capacity. Dr. Khan also informed that GCISC has been providing technical training to the young scientists/engineers from Bangladesh, India, Nepal and Sri Lanka in the field of mathematical modeling. While discussing the facilities available at GCISC, Dr. Qureshi extended the offer of nominating a few suitable employees of GCISC for participating in a workshop to be organized by ICCES in November 2010.

The key outcome of the meeting was that Dr. Amir H. Malik (CIIT) and Mr. Ghazanfar Ali (GCISC), on behalf of their respective institutions, will coordinate with each other to propose a suitable project for solving the issues related to the management of water resources in Pakistan. COMSATS is determined to sensitize the organizations working in the area of water-resource management in Pakistan to the gravity of the situation and the centrality of availability of water resources in the process of sustainable development. The visits to PCRWR and GCISC are a part of COMSATS' efforts made in the same line.



The Executive Director COMSATS attending a presentation at GCISC, Islamabad, Pakistan

SPECIAL FEATURE: VISIT OF COMSATS' DELEGATION TO MALAYSIA

A delegation of the Commission on Science and Technology for Sustainable Development in the South (COMSATS), headed by the Executive Director COMSATS, Dr. Imtihan Elahi Qureshi, visited Malaysia in the later half of October to attend the 5th Islamic Conference of Ministers of Higher Education and Scientific Research (ICMHESR); sign a Memorandum of Understanding with the National University of Malaysia (UKM); explore cooperative mechanisms and possibilities of future collaboration with the Government and scientific institutions of Malaysia, including International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC).

Besides the salient features of this visit that would be covered in the latter parts of this section, some other highlights of the visit were:

- COMSATS Membership offers extended to Algeria, Azerbaijan, Brunei Darussalam, Iraq, Morocco and UAE. Official letters in this connection were presented to the Heads of country delegations;
- The representatives of the Governments of Tunisia and Bangladesh requested to nominate S&T/R&D institutions to join COMSATS' Network of Centres of Excellence;
- At the request of Syrian Minister of Higher Education, H.E. Ghiath Abdel Wahab Barakat, COMSATS agreed to hold a training workshop on 'Internet Security' in 2011 with the participation of senior IT administrators of Syria;
- Signing of CIIT-UTP MoU (details on page 9);
- Presentation of the Vice Chancellor, Albukhary International University;
- Meeting between the Executive Director COMSATS and Chairman Department of Physics, University of Malaya.

PARTICIPATION IN THE 5TH ICMHESR

The Islamic Educational, Scientific, and Cultural Organization (ISESCO) and the Organization of Islamic Conference (OIC) have been organizing ICMHESR since 2000 in collaboration with the institutions in the host countries, Kingdom of Saudi Arabia (2000), Libya (2003), Kuwait (2006), Azerbaijan (2008) and Malaysia (2010). The 5th ICMHESR was hosted by the Malaysian Ministries of Science, Technology and Innovation and Higher Education. Forty eight OIC member countries and twenty three international organizations were represented on this high-profile international event. Twenty Ministers and five Deputy Ministers heading their country delegations participated in the Conference. The three-member delegation of COMSATS attended the Conference under the category of international organizations/institutions.

The two-day ICMHESR was inaugurated on October 19, 2010, by Hon. Tan Sri Dato' Muhyiddin Yassin, Deputy Prime Minister of Malaysia, who also holds the office of the

Malaysian Ministry of Education. On the occasion, welcome remarks were given by Hon. Dato' Seri Mohamed Khaled Bin Nordin, Malaysian Minister of Higher Education; Hon. Ambassador Abdul Moiz Bokhari, Assistant Secretary General of the OIC; Hon. Dr. Abdulaziz Othman Altwaijri, Director General of ISESCO; and Hon. Dr. Peter Adwok Nyaba, Vice-President of the 4th ICMHESR. An august gathering comprising delegates from OIC member countries, international organizations, UN specialized agencies, states and territories having observer-status, as well as members of the Malaysian scientific community attended the opening ceremony at the Kuala Lumpur Convention Centre.



A group photo of winners of ISESCO Prize 2010 during the inaugural ceremony of the 5th ICMHESR, Malaysia

This year the Conference bore the theme 'Enculturation of Quality in Academia, Research and Innovation towards Prosperity of Ummah' and aimed to provide an opportunity for ISESCO member states and relevant organizations to reflect on matters relating to higher education and scientific research concerning the Islamic World. During the two-day proceedings, the Conference particularly held discussions on various reports and documents, namely: 'Creation of the Islamic Network of Women Scientists'; 'Recent Trends in Emerging Technologies and Current Commitments of Islamic Countries'; 'Ranking of Universities of the Islamic World'; 'Strategy for Promotion of Nanotechnology in Islamic countries'; and the project of 'Atlas of Science and Innovation in the Islamic World'. A regular highlight of this meeting is the presentation of "ISESCO Science Prize". The following scientists won the Prize this year: Dr. M. Qasim Jan of Pakistan (Geology); Prof. Dr. Ulmas Mirsaidov of Tajikistan (Chemistry); Professor Dr. Zaid Odibat of Jordan (Mathematics); Prof. Dr. M. Shabat of Palestine (Physics); Prof. Dr. Embi Mohamed Amin of Malaysia (Technology); and Prof. Dr. Mirsaidov Ulmas of Republic of Tajikistan (Chemistry).

On the second day of the event under the agenda-item: "Statements of the representatives of the international



The Executive Director COMSATS presenting a statement at the 5th ICMHESR

organizations on cooperation for promotion of Science and Technology in Islamic Countries”, Dr. Qureshi presented the statement on the objectives, programmes and future aspirations of COMSATS. He stated that COMSATS enjoys a close cooperation with TWAS, ISESCO, COMSTECH and Pakistan National Commission of UNESCO, apart from a number of international NGOs. During the last 2 years, 8 meetings/symposia have been arranged by COMSATS in partnership with COMSTECH and ISESCO.

Availing his presence in Kuala Lumpur, Dr. Qureshi held meetings and discussions on the sidelines of the ICMHESR with dignitaries from COMSATS and OIC member States. These included officials of the Government of Malaysia, including the Minister of Science, Technology and Innovation, H.E Y.B. Datuk Dr. Maximus Johnity Ongkili, delegates from common member countries of COMSATS and OIC, Bangladesh, Senegal, Syria, Egypt, Jordan, Tunisia, Uganda and Iran; as well as those from Algeria, Azerbaijan, Brunei Darussalam, Union of Comoros, Iraq, Gambia, UAE, and Morocco.

COMSATS AND UKM, MALAYSIA, AGREE TO COLLABORATE IN RENEWABLE ENERGY TECHNOLOGIES

An important highlight of the visit of COMSATS’ delegation to Malaysia was the signing of a Memorandum of Understanding between the COMSATS and the National University of Malaysia (UKM) for cooperation in the field of renewable energy, which took place on the 19th of October 2010. The MoU signing ceremony took place in conjunction with the inauguration of UKM’s ‘Ultra Low Energy House’ at the hands of H.E Y.B. Datuk Dr. Maximus Johnity Ongkili, the Minister of Science, Technology and Innovation (MOSTI), Government of Malaysia. The Minister also witnessed the signing of the MoU that is intended to promote collaboration in research and development in renewable energy

technologies for the benefit of common man and accelerate overall socio-economic progress in the developing countries.

Prof. Tan Sri Dato’ Dr. Sharifah Hapsah Syed Hasan Shahabudin, the Vice-Chancellor UKM, and the Executive Director COMSATS signed the agreement on behalf of their respective organizations. Under the agreement, COMSATS and UKM have agreed to undertake joint work for developing various renewable energy options, strategic planning and policy-making for optimizing the use of fossil-fuels, as well as energy conservation; and environmental preservation. These objectives are envisaged to be achieved through joint research projects between UKM and relevant Centres of Excellence of COMSATS; exchange of scientific, technical and other relevant information through mutually agreed channels; exchange of scientists, engineers, technicians and experts; organization of joint events; and transfer of technology.

During the MoU signing ceremony, Dr. Sharifah formally welcomed Dr. Qureshi and other members of COMSATS’ delegation to UKM and expressed her gratitude to the Minister for gracing the occasion with his presence. She noted with pleasure that Solar Energy Research Institute (SERI) of UKM has developed over 30 green products to promote the use of clean energy. Highlighting the achievements and activities of SERI, she informed a large gathering of students, researchers, representatives of industrial and private-sector of Malaysia that SERI has already made available grants to researchers for pre-commercialization of these products. Dr. Sharifah was pleased to state that collaboration with universities, and academic and R&D institutions is connecting UKM to the global networks. SERI of UKM is the only institute in Malaysia offering MSc and PhD programmes in renewable energy.

In his speech on the occasion, Dr. Qureshi noted with



Dr. Qureshi exchanging the MoU documents with the Vice Chancellor UKM, Dr. Sharifah



Malaysian Minister of Science, Technology and Innovation delivering an address during the signing ceremony

pleasure the excellent research facilities that UKM is offering at its various institutes, and the development that Malaysia has made over the years in terms of science and technology. He expressed confidence that the COMSATS-UKM MoU would help establish strong working relations between the two organizations. He further stated that the 16 Centres of Excellence of COMSATS provide an excellent mechanism of South-South cooperation for development. Furthermore, Dr. Qureshi expressed the desire of COMSATS to have steadfast S&T cooperation with Malaysia and invited the Government of Malaysia to become a member state of COMSATS. In this regard, Dr. Maximus Johnity Ongkili was presented the pertinent documents.

Speaking on the occasion, Minister Ongkili acknowledged COMSATS' offer to the Government of Malaysia and assured Dr. Qureshi of the due consideration on the part of his government.

After the signing ceremony, a short meeting was held with the Director of Fuel Cell Institute (FCI) of UKM, Prof. Dr. Wan Ramli Wan Daud and Director of SERI, Professor Dr. Kamaruzzaman Sopian. Matters of mutual interest were discussed and a stronger cooperation in the field of renewable energy was pledged. Later the COMSATS' delegates were shown around FCI by Dr. Wan Daud. He apprised Dr. Qureshi that FCI is fully engaged in all aspects of development of fuel cell technology in Malaysia. Highlighting his institute's potential for capacity-building, Dr. Wan Daud informed that an Iranian student, who had been conducting research under his supervision at FCI, has helped his institute in Iran in setting up a full-fledged Fuel Cell Lab. He further noted that there are more than 50 post-graduate students pursuing education at the Institute and nearly 50% of them are foreign students. Dr. Wan Daud showed his willingness in having students and researchers from Pakistan to get training at FCI, UKM.

AVENUES OF COOPERATION EXPLORED BETWEEN COMSATS AND ISTIC, MALAYSIA

The Executive Director COMSATS during his visit to Malaysia also paid a visit to the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC) located in the premises of the Academy of Sciences Malaysia. The visit took place on 22nd October 2010 and a meeting was held with ISTIC officials, the Chairman of its Governing Board, Dato' Ir. Lee Yee Cheong, and Director, Dato' Dr. Samsudin Tugiman. Other senior officials of COMSATS and ISTIC were also present on the occasion.

Highlighting the similitude of objectives and missions and the organizational structures of the two organizations, Dr. Qureshi introduced COMSATS to the officials of ISTIC and expressed a desire to have a cooperative mechanism for S&T-based development programmes. Mr. Cheong also elucidated various organizational and procedural aspects of ISTIC, especially about its membership that comprises senior scientists nominated by UNESCO and informed that ISTIC works in cooperation with the national commissions and academies of sciences of various developing countries. He strongly advocated having cooperation for specific programmes with common objectives for the development of the South. The meeting concluded with an exchange of souvenirs and publications.

The meeting with the officials of ISTIC was followed by a meeting between Dr. Qureshi and the President of Academy of Sciences Malaysia, Tansri Datuk Dr. Yusof Barison.



COMSATS' delegation accompanied by ISTIC officials

The interactions of COMSATS' delegation during this visit to Malaysia provided the organization with an opportunity to expand its international cooperation programmes in pursuit of its mission of socio-economic progress of the developing world. As a follow-up, COMSATS Secretariat is engaging itself to meet the commitments made during the visit.

ACTIVITIES/NEWS OF COMSATS' CENTRES OF EXCELLENCE

NRC-EGYPT HOLDS RESEARCH ON AUTISM

A study was carried out at National Research Centre (NRC), Egypt, which indicates a high percentage of cases in Egypt that exhibits the first symptoms of Autism within the two years after birth. Dr. Nagwa Abd El Megeed, Professor of Human Genetics and Dr. Gloria Sidhom, Professor of Clinical Pathology, showed that the lack of vitamin D leads to abnormal brain growth in addition to weakness of learning and memory, as well as hormone secretion. Dr. Nagwa confirmed that vitamin D has a positive impact on the production of glutathione that serves as an antioxidant to clean the body from heavy metals that lead to damage of brain tissues. The study recommends an exposure to sun rays for the expecting mothers that could help avoid symptoms of mental ailments like Autism. In addition early intervention by means of therapeutic methods could help improve the living conditions of autistic children, like food-intake, behaviour modification and speech. NRC's pediatric clinic attends to autistic children every Tuesday.

CIF-COLOMBIA TO MARK SILVER JUBILEE OF ITS FOUNDATION

The Centro Internacional de Física (CIF), Colombia, is going to celebrate its 25th foundation anniversary on December 4, 2010. The Director CIF, Dr. Eduardo Posada Flórez, and researchers and scientists of CIF have expressed pleasure in 25 years full of experiences and achievements, contributing to advancement of science in Colombia. CIF has felicitated the scientific community and fellow Network members of COMSATS and showed indebtedness towards all its supporters, sponsors and associates for helping CIF realize its organizational objectives, as well as to the businessmen and industries that showed their faith in the institution's capabilities to convert science into innovation.

ICCBS-PAKISTAN PROMOTES AGRO-BIOTECHNOLOGY IN OIC MEMBER COUNTRIES

OIC's Standing Committee on Scientific and Technological Cooperation (COMSTECH) has recently approved the project of the International Center for Chemical and Biological Sciences, Karachi, Pakistan, designed to promote agro-biotechnology in OIC member countries by creating an institutional mechanism for dissemination of information and training of stakeholders. Under the project,

named "Promotion of Applications of Agriculture Biotechnology in OIC Member Countries by the Establishment of Biotechnology Information Centers", five new biotechnology information centers (BICs) will be established through training of staff and with some logistic support of the OIC member countries, including Iran, Turkey, Kazakhstan, Qatar and Uganda. To establish the first BIC in Iran (IrBIC), Prof. Behzad Ghareyazie, President of Biosafety Society of Iran, Tehran, was invited to ICCBS in April 2010. Extensive discussions were held with Dr. Ghareyazie on the infrastructure and training requirements of the nominated staff for the proposed IrBIC. Thereafter, the training of the Society's staff was commenced that completed in October 2010. The official launch of the IrBIC is expected in December 2010.

A RESEARCH AT ICCBS-PAKISTAN ON THE USE OF MICROALGAE FOR PRODUCING BIODIESEL

Owing to its biodegradability, non-toxicity, low emission profile and economic viability, Dr. Musharraf and his research group at the ICCBS have been conducting research on the biodiesel production from microalga for the last two years. Seven micro algal species have been purified from various fresh and marine water resources, including Strain KU-001 (*S. quadricauda*), Strain KU-002 (*S. acuminatus*), Strain KU-003, Strain KU-004 (*Anabaena*), Strain KU-005 (*Chlorella* sp.), Strain KU-006 and Strain KU-007, each containing 7.4, 17, 10.4, 2.98, 5.25, 3.69 and 12.59% oil, respectively. Among all the microalgal species investigated, *Scenedesmus quadricauda* is found to be the most oil producing species so far and suitable for the production of biodiesel on large scale.



Princess Sumaya amongst the participants of the conference organized by RSS, Jordan

A CONFERENCE OF RSS-JORDAN ADVOCATES TALENT DEVELOPMENT IN SCIENCES

A three-day conference on 'Talent Development in Science and Mathematics within the BMENA Region' was hosted by the Royal Scientific Society (RSS), Jordan, under the Patronage of Queen Rania Al Abdullah from 27th to 29th September 2010. Delegates from 23 Arab League countries, as well as participants from the UK, USA and Russia deliberated on ways to build intellectual strength in science and mathematics, particularly in extra-curricular activities for talented students in grades 6 to 12.

Addressing the delegates at the inauguration ceremony, the

President of RSS, HRH Princess Sumaya bint El Hassan, hoped for a knowledge-based future for the Middle East. "I know that we all share an appreciation of the enormous challenges that face us," she stated. "We are fast running out of time and we have run out of excuses, for it is now imperative that we end our long and debilitating technological isolation." The Princess was of the view that the theme of the conference matched the very core aims of RSS.

CIIT-PAKISTAN SIGNS MOUs FOR SCIENTIFIC AND TECHNOLOGICAL COOPERATION

COMSATS Institute of Information Technology (CIIT), Pakistan, signed MoUs with the three leading organizations, i.e. Pakistan Telecommunication Authority (PTA), Pakistan, SciSoft Inc., and Universiti Teknologi Petronas (UTP), Malaysia, during the months September and October 2010. These agreements enable CIIT to have a closer cooperation with local and international organizations/Institutions to achieve its scientific and technological aims in various fields.

The MoU between CIIT and PTA was signed on September 24, 2010, in Islamabad. Dr. M. Saleem, DG (Commercial Affairs) PTA and Dr. Arshad S. Malik, Registrar CIIT, signed the agreement on behalf of their respective organizations. The ceremony was also witnessed by Chairman PTA, Mr. M. Yaseen; Rector CIIT, Dr. S.M. Junaid Zaidi; and a large number of faculty members, telecom officials and media personnel. The main purpose of this collaboration was to develop an agenda of relevant research-areas, which are of mutual interest to both CIIT and PTA. Whereas, an associated interest is to equip the future leadership cadre of Pakistan through theoretical knowledge as well as practical experience and training in policy issues pertaining to the Telecom sector in Pakistan. Under the MoU, PTA will provide telecom statistics and expertise, which CIIT students can use to undertake research in different areas of telecom.

On October 5, 2010, CIIT and SciSoft Inc., a premier telecom and IT/software solution provider operating in Pakistan with its head office in Lahore, reached an agreement by means of an MoU in a formal signing ceremony held in Islamabad, Pakistan. Assistant Professor, Computer Science Department of CIIT, Dr. Furukh Munir, and Project Director SciSoft Inc., Mr. Shoaib Hamid Khawaja, are the signatories to this MoU. The MoU, aimed at

industry-academia cooperation that calls for a joint pursuit of business opportunities and execution of commercial projects. Moreover, the provision of five internship positions at SciSoft Inc. for CIIT students is also contained in this MoU.

The third significant MoU has been signed between CIIT and a leading Malaysian institution, namely Universiti Teknologi Petronas (UTP), Malaysia. Rector CIIT, Dr. S. M. Junaid Zaidi, signed the agreement representing his institution on his recent visit to Malaysia from October 16-23, 2010. Executive Director COMSATS, Dr. Imtinan Elahi Qureshi, was also present at the MoU signing ceremony. The MoU establishes grounds for academic/research collaboration in different areas of mutual interest. As a result of an earlier negotiation between CIIT and UTP, thirty five faculty members are already pursuing MS and PhD education at UTP on fully-funded scholarships.

IFS FUNDS CIIT-PAKISTAN FOR RESEARCH ON BIOCONTROL OF MACROPHOMINA

The International Foundation for Science (IFS) has awarded a Research grant to Mr. Muhammad Nadeem Hassan of Department of Biosciences of CIIT, Pakistan, to carry out a



A group photo of participants present during the signing ceremony of MoU between CIIT and UTP, Malaysia

project titled "Biocontrol of *Macrophomina Phaseolina* Causing Charcoal Rot in Oil Seed Crops by using Plant Growth Promoting Rhizobacteria (PGPR)". Charcoal rot caused by a pathogen, *M. phaseolina*, is devastating to oil-seed crops as it reduces the production yield. The disease is controlled by using fungicides but the new races of pathogen become resistant to these chemicals. In this study, a virulent strain of *Macrophomina phaseolina* and bacteria helpful will be isolated from diseased and healthy plants of oil-seed crops like sunflower, soybean, groundnut. The antagonistic

bacteria, helpful to suppress charcoal rot, will be analyzed by in-vitro antagonism towards *M. phaseolina*. The antagonistic bacteria screened in- vitro will be evaluated in-vivo under controlled conditions. The potential antagonistic bacteria will be identified by sequencing 16S rRNA gene. This study is expected to help develop a cost-effective and eco-friendly solution for controlling diseases economically important plants.

The project is expected to be launched by 15th of November 2010 and would take approximately three years to achieve its targets.

SCIENCE, TECHNOLOGY AND DEVELOPMENT

MANGANESE ALERT

A recent study published in the journal "Environmental Health Perspectives" (October 2010) and reported by *SciDev.Net* (1st November 2010) shows that persistent exposure to manganese (a grayish looking metal, widely used in alloy industry, battery cells, etc.) can cause lowering of the intelligence quotient (IQ) in human beings. According to this report, girls in a manganese mining area in Mexico were found to have lower IQ than their counterparts in adjacent communities, due to chronic exposure to manganese present in the air, although both these groups shared similar socio-economic conditions and other factors associated with intellectual development. The manganese level in the lower IQ level group was 21 times higher than the non-exposed group. Interestingly, the girls had highest correlation between increased exposure to the environmental manganese and low IQ, whereas the boys showed little evidence of that correlation, probably due to each sex exhibiting different ways of metabolizing the metal.

The study shows that manganese exposure through air is most harmful. An organometallic compound of manganese is used as an additive in unleaded gasoline to boost octane rating and reduce engine knocking. Fumes from such automobile-exhausts must be avoided by general public. It has been reported (*Wikipedia*) that chronic exposures to excessive manganese levels can lead to a variety of neurological and motor disturbances termed as 'manganism'. Manganese was found in the bodies of the persons employed in the production of manganese alloys, workers exposed to manganese-containing fungicides and abusers of drugs made with potassium permanganate.

WATER PURIFICATION WITH NANOFILTERS

Global water scarcity and increasing inaccessibility to clean drinking water by the poor communities are raising world concerns. It is anticipated that even the rich and industrialized societies may not escape the adverse consequences of water-related problems in the future. The developing countries will suffer the most in terms of loss of human resources and economic development. The main cause of water contamination are the pathogens in water that cause great damage to the communities where cheap and effective water-treatment options are not easily available. These woes may soon be adequately addressed as scientists from Stanford University, USA, describe a new water filter to be effective against water contained pathogens (*SciDev.Net*, September 21, 2010). The filter consists of a piece of cotton cloth impregnated with carbon nanotubes and nanowires of silver. This could become a valuable technology to combat water-borne diseases due to the filter's simplicity, low-cost production and high efficiency. Instead of trapping bacteria, as most of the filters do, the nanomembrane actually kills them. Because the bacteria are destroyed, and not collected, fabric having large pores

can be used. This increases the water flow and prevents clogging. In laboratory tests, E. Coli, which cause serious infections, were effectively killed. This simple water purification can become a popular method of availability of safe water in the poor and marginalized societies of the world.

Further research is in progress in order to study more qualities of this filter, such as its ability to remove salts and organic matter, and its effectiveness towards a range of pathogens.

NEW HOPES WITH NEW VACCINES

Human development is closely linked with human health. Immunity to fight diseases is a great gift of nature to keep the human beings fit and healthy for their socio-economic development. Scientists and technologists all over the world are striving to enable mankind to enhance its disease combating ability in a variety of ways, including the research on new vaccines.

Two new vaccines have been reported recently that have brought fresh hope to the individuals and the societies. The first vaccine, discovered at Duke University Medical Centre, USA (*Eureka! Science News*, October 4, 2010), is meant for patients having brain cancer called 'glioblastoma'. This is a deadly type of brain cancers and is fueled, in many cases, by an aggressive gene known as 'EGRV III'. Glioblastoma is a common form of brain cancer with low chances of survival. In US alone, the reported new cases are around 10,000 each year. The new vaccine when added to the standard cancer therapy enhances the patients survival time. Further research is in progress to improve the beneficial effects of this vaccine and to discover other vaccines, as well as develop new treatment strategies.

The second vaccine reported is for polio-eradication that offers superior immunization against combating this dreadful disease (*The News, City News-Pakistan*, October 30, 2010, p. 20). According to this report, there are three types of polio virus. Type 2 has been almost eradicated through continued vaccination campaigns since 1988, but type 1 & 3 still remain to be global health hazard. The new bivalent vaccine targets type 1 & 3 and is said to be much more effective than the old trivalent variety (targeting all three types).

Polio is a pandemic threat in four countries, namely Afghanistan, India, Nigeria and Pakistan. In 1988, polio was prevalent in 125 countries. Last year, there were only 1,606 polio cases whereas in 1988 there were around 350,000. Australian researchers have reported encouraging experience with the new polio vaccine and have called for continued funding in the research in order to stimulate concerted efforts to eliminate the disease from the entire human population.

PROFILE OF COMSATS' INTERNATIONAL S&T CENTRE OF EXCELLENCE

TANZANIA INDUSTRIAL RESEARCH AND DEVELOPMENT ORGANIZATION (TIRDO), TANZANIA

Introduction

Tanzania Industrial Research and Development Organization (TIRDO) is a multidisciplinary research and development organization established in 1979. TIRDO's vision is to become a centre of excellence in the region for conducting quality R&D and providing technological support to create internationally competitive industrial sector in Tanzania. The Organization is mandated to promote environment-friendly industrial development through demand driven research and development and provide quality technical services to the public and private sector of Tanzania.

Functions

The primary functions of TIRDO are to undertake applied research that leads to industrial utilization of local materials and support industry in technology transfer and technical services, in order for them to become locally and internationally competitive in industrial production; promote industrial development in Tanzania leading to the evolution and development of local materials to be used in industrial processes; research into the local and foreign industrial techniques and technologies for adoption and use in industrial production. Moreover, the Organization renders its services for building human and infrastructural capacities for effectively carrying out applied scientific and industrial research.

Focus Areas

TIRDO is carrying out applied research and providing technical services to industries in the following core areas: agro technology and industrial chemistry, food and microbiology; energy and environment; information technology and instrumentation; leather and textile; and materials sciences.

Departments

TIRDO consists of five departments, namely Engineering Development; Industrial Research; Human Resources and Administration; Finance; and ICT. Under these departments, there are nine operating divisions and, in the office of Director General, there are three units. Each division and unit is responsible for its functions and activities including technology development, provision of technical services and specialized marketing. Centralized services cover finance, human-resource development, planning, legal matters and administrative issues. TIRDO has a staff of 83 out of which 46 are scientists, engineers and technicians, with PhD, MSc and B.Eng degrees.

Facilities

Through collaboration with international agencies and from self income generation, TIRDO has facilities which are in good physical condition. The Organization has been able to acquire more equipment and instruments, which are effectively used to develop technologies and provide technical services.

The Food and Biotechnology laboratory of TIRDO is ISO 17025:2005 certified on 5 test methods, while the Environmental Laboratory has had its initial assessment.

Research

Tanzania's growth strategy to recovery from its present position is embedded in its ability to improve market access within the continent and on the global stage by diversifying its agricultural products. This can be accomplished through value addition and optimal utilization of its natural resources.

The Organization has research programmes in the following fields: mineral value addition; food processing and biotechnology; energy efficiency and renewable energy; environment and pollution; materials research.

Various applications/projects of the research conducted at TIRDO include:

Production of Iodized Mushrooms: Research is conducted on Iodine rich seaweeds to be utilized as substrates for production of iodized mushrooms effective to combat goitre, which is endemic in the developing countries.

Seaweed Value Addition: The seaweeds are processed/treated for export.

Fruit and Vegetable Processing: TIRDO with the help from UNIDO developed a project to process fruits and vegetables for a longer shelf-life and thus adding value to those products. Besides value addition this project also aims to help small and medium enterprises to acquire technology for replication to high fruit-production areas.

Cassava Processing: TIRDO through EU funding ran a project to remove unwanted amounts of cyanide from the fermented cassava, a popular fruit in Tanzania.

Mushroom and Spawn Production Technology: TIRDO has experts in this area of mushroom farming technology and is Tanzania's focal point in mushroom production. TIRDO has disseminated mushroom seeds (spawn) to various African countries (Senegal, Malawi, Gambia, Namibia, Lesotho, Swaziland and Zambia). Also, TIRDO conducts courses on mushroom farming technology at its premises and in other regions of the country.

Improvement in Quality of Coffee: TIRDO in collaboration with four institutions from Germany, Denmark, Kenya and Ethiopia implemented a three-year project funded by EU that aimed at improving the quality of coffee in East Africa by preventing Ochratoxin A (OTA) contamination due to fungal attack.

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SELECTED FORTHCOMING SCIENTIFIC EVENTS IN COMSATS' COUNTRIES

07-09 Dec. 2010	International Seminar 2010 on Climate Change and Environmental Challenges of 21 st Century, Rajshahi, Bangladesh (www.ru.ac.bd/ies/ISCC-2010_flier.pdf)
13-15 Dec. 2010	Workshop on Using High-Performance Computing Technologies in Scientific Computations and Problems, Damascus, Syria (www.hiast.edu.sy/hpc-workshop)
3-6 Jan. 2011	3 rd International Symposium-cum-Training Course on Molecular Medicine and Drug Research, Karachi, Pakistan (www.iccs.edu/PCMD/MMDR.htm)
26-28 Jan. 2011	ICIET 2011 – 2011 IEEE International Conference on Information and Education Technology, Guiyang, China (www.iciet.org/index.htm)
14-17 Feb. 2011	ICEST 2011 – International Conference on Energy Systems and Technologies, Cairo, Egypt (www.afaqscientific.com/icest2011/)
03-05 March 2011	CCCA '11 – International Conference on Communication, Computing and Control Applications, Hammamet, Tunisia (www.hypersciences.org/ccca11)
15-17 March 2011	Third Lagos State Summit on Climate Change Lagos State Nigeria (www.preventionweb.net/go/15287)
29-31 March 2011	ICCIT 2011 – The International Conference on Communications and Information Technology, Aqaba, Jordan (www.iccit-conf.org)

CALL FOR PAPERS FOR COMSATS' JOURNAL – SCIENCE VISION

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 Vol. 16(1) and 16(2) 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.

For more details, please visit COMSATS' official website: www.comsats.org or the journal's website www.sciencevision.org.pk. Contributions may be sent to the Chief Editor 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 (HIAST), Syria
- Tanzania Industrial Research and Development Organization (TIRDO), Tanzania
- TÜBİTAK Marmara Research Centre (MRC), Turkey