



Second Commission Meeting Of COMSATS

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

16-17 April 2012 Islamabad, Pakistan

Member States



Hosted by: **Ministry of Science & Technology, Government of Pakistan**
and **Commission on Science and Technology for Sustainable Development in the South**

M E S S A G E S



H.E. SYED YUSUF RAZA GILANI
Prime Minister, Islamic Republic of Pakistan

It is a matter of honour for Pakistan to host the Second Meeting of the Commission on Science and Technology for Sustainable Development in the South (COMSATS). The presence of Ministers of Science and Technology and other high level officials from COMSATS' 21 member countries in Islamabad is most welcome. I wish all delegates productive and comfortable stay in Pakistan and sincerely hope that their deliberations would lead to enhanced S&T cooperation among developing countries.

Established over 17 years ago, with the patronage of Shaheed Mohtarma Benazir Bhutto, COMSATS has made commendable progress for achieving developmental objectives in countries of the South through the application of science and technology. It is, therefore, a matter of pride for this government, in particular, to see the Commission play a leading role in promoting sustainable development.

It is also heartening to note that, over the years, COMSATS' efforts in promoting and advancing scientific and technological capacity have benefited its member countries significantly. In this age of global competitiveness, there is an acute need to galvanize the strengths of countries of the South, for effectively utilizing their collective human and natural resources, and to forge greater solidarity in support of South-South cooperation, especially in the fields of science and technology. COMSATS, in this regard, has a more proactive role to play as platform for collaborative research activities through its network of Centres of Excellence. The nations of the South must share resources, knowledge and experience to help them expand their scientific capacity. As the Chairperson of this inter-governmental organization, I am pleased to acknowledge and appreciate COMSATS' international role in organizing numerous events of S & T capacity building in its member countries.

I believe that in order to keep pace with the rapid growth of scientific breakthroughs, Pakistan needs to harness scientific knowledge and come up with new technologies to improve the socio-economic condition of its people. COMSATS can effectively facilitate this process through numerous science-led development initiatives. The Government of Pakistan has always provided full support to COMSATS and would continue to do so in order to let it play its international role with renewed determination and commitment. I wish COMSATS every success in all its future endeavours, and look forward to expressions of support from all delegations during the course of the Commission Meeting.



MIR CHANGEZ KHAN JAMALI
Federal Minister for Science & Technology

On behalf of the Ministry of Science and Technology of Pakistan, I feel highly honoured to host the Second Commission Meeting of COMSATS, during which delegates from Member Countries will review activities carried out by this inter-governmental organization over the past decade-and-a-half and set its future direction with renewed vigour.

COMSATS' commitment and dedication to its basic goal of facilitating the exchange of scientific knowledge, expertise and information for socio-economic progress in the South, has resulted in a number of noteworthy achievements over the years. I feel COMSATS' S&T-based initiatives within Pakistan are of special mention. Its role for the creation of the COMSATS Institute of Information Technology (CIIT), is a remarkable success story. A flagship project of COMSATS, CIIT has been supporting the development of highly skilled human resources. I have the privilege to be the Chancellor of this progressive scientific institution, which has been ranked as the top-most I.T. educational Institute of the country by the Higher Education Commission of Pakistan.

COMSATS Internet Services (CIS) has also made remarkable progress and has been providing quality services at competitive prices to a broad base of satisfied customers throughout the country. On the other hand, numerous under-privileged people have benefited from COMSATS' Tele-health services. All such measures tend to generate considerable goodwill for the beneficial work being done by the COMSATS in aid of socio-economic development and indirectly contribute to ameliorating the impoverished masses by reducing the digital divide.

COMSATS' successes in the creation of networks, formation of partnerships among developing countries for promoting excellence in scientific research as well as in providing sponsorship for research, education and training have earned commendations from all developing countries.

I assure COMSATS all possible support from the Ministry in its revitalized efforts of finding scientific and technological solutions to societal problems, common to countries of the South and see it playing a leading role in the advancement of science and technology in developing countries in the future.



AKHLAQ AHMAD TARAR
Federal Secretary, Ministry of Science & Technology

I would like to felicitate the Commission on Science and Technology for Sustainable Development in the South (COMSATS) on the auspicious and much awaited occasion of its Commission Meeting. The meeting of COMSATS' highest forum, I believe, is a matter of great pride and satisfaction for all its member countries and affiliated institutions, which will bring national commitments and give a strategic direction to the programmes and operations of the organization.

Built on the foundation laid by the Late Prof. Dr. Abdus Salam's belief that Science and Technology is the major distinguishing factor between the levels of progress of the developed and developing countries, COMSATS was established to provide a common platform to the countries of the South to make concerted efforts for their development. Banking on the commonality of the socio-economic conditions of its member countries, COMSATS' initiatives have remained focused on areas of crucial importance to development of these countries. Some of the areas being focused upon are: Information and Communications Technologies (ICTs); Natural Products; Agriculture Biotechnology; Climate Change and environmental protection; and Materials Sciences. The capacity-building events over the years and the recent collaborative research activities have contributed greatly to enhancing the role of S&T in the development of the member countries, especially Pakistan, where more than 60 Conferences/Seminars were organized or sponsored by COMSATS.

On the other hand, the organization's two major I.T. based projects in Pakistan, the COMSATS Institute of Information Technology and the COMSATS Internet Services, have flourished and bloomed into full-fledged institutions benefiting the country greatly. These initiatives are a testament that COMSATS has remained conscious of the mandate and vision with which the leaders of the developing countries gathered to establish the organization in 1994.

I am pleased to note that the Ministry of Science & Technology provided patronage in holding the COMSATS Consultative Committee Meeting in Abuja, Nigeria in 2009, under the chairmanship of my predecessor at the Ministry. The Meeting was instrumental in gathering the support of governments of COMSATS' member countries. I believe the 2nd Commission Meeting of COMSATS will have an even bigger impact for the organization and member countries and affiliated institutions of COMSATS. I sincerely hope that the deliberations of the Meeting would facilitate COMSATS in achieving its organizational objectives.



DR. EDUARDO POSADA FLÓREZ
Chairman COMSATS Coordinating Council

It is a matter of great satisfaction to note that the Commission on Science and Technology for Sustainable Development in the South (COMSATS) is holding its Second Commission Meeting. The Commission, which provides highest level forum to the developing countries to address their common developmental challenges, can truly feel proud of its journey so far and the success it has had on way of achieving its mission of promoting judicious use of science and technology for socio-economic development.

I strongly believe that the progress of the developing countries can be considerably achieved through pooling of resources and collaborative work. COMSATS, the brainchild of the late Nobel laureate, Dr. Abdus Salam, is a unique organization which can not only help strengthen cooperative ties amongst the countries of the South but also provide them the necessary impetus to realize growth and development based on science and technology. The role it is playing through its Network of International S&T Centres of Excellence is commendable, which is providing effective means for regional self-reliance through South-South cooperation mechanism.

Having realized that the scope for scientific collaboration among the countries of the South is immense, the need of the hour for the developing countries is to help identify key areas of focus and to use science and technology as a catalyst for a positive impact the socio-economic development of the South. COMSATS' member countries share many similarities in terms of climatic conditions, geographical characteristics, biodiversity and ecosystems. In this context, by sharing of experiences and knowledge, it is quite possible to achieve breakthroughs to overcome their problems.

I take this opportunity to acknowledge and laud COMSATS' effective role in sensitizing its member countries to the centrality of science and technology, in the development process and its integration in their national and regional developmental plans. The development projects and programmes initiated by COMSATS over the years have been sharply focused in terms of their objectives and expected results. I hope that the organization's dedication to the cause of promoting science and technology would continue to favour the socio-economic interests of the South. Once again, I extend my heartfelt felicitations to all the Member States of COMSATS and hope that their deliberations at the forum of the upcoming meeting of Commission Meeting would be consequential in terms of achieving the organization's objectives.



DR. IMTINAN ELAHI QURESHI
Executive Director COMSATS

COMSATS has the proud privilege of welcoming Ministers of Science and Technology or other high-level officials from its twenty-one Member Countries for their participation in the 2nd COMSATS Commission Meeting being hosted by the Ministry of Science and Technology, Government of Pakistan.

This occasion provides the opportunity to focus on the role that Science and Technology plays in the socio-economic development of nations. The growing gap in the quality of life between affluent and poor countries has been a source of concern not only for developing countries but also for the global community at large. It is a matter of urgency to reflect on the reasons for this consistent disparity and to make amendments in order to avoid destabilizing the world economic order.

Since its establishment in 1994 under the leadership of the then honourable Prime Minister of Pakistan, Mohtarma Benazir Bhutto (Shaheed), COMSATS has been striving hard to devise vital policy and implementation strategies for the benefit of developing countries, in general, and its Member Countries, spread over the continents of Asia, Africa and Latin America, in particular.

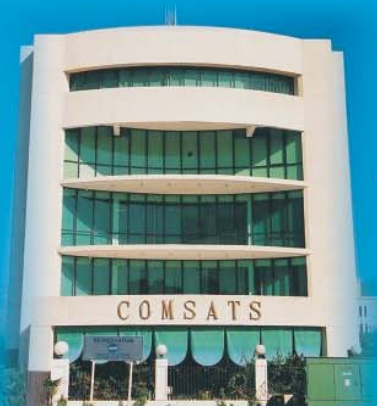
It is always emphasized through COMSATS fora and publications that any future plan of action for positive change in any developing country must have these three elements:

1. A political will and national consensus that the country's human and financial resources will be adequately and consistently assigned to the development of S&T capacity, through training and R&D.
 2. Putting in place a legal and institutional frame work for ensuring that scientific knowledge and modern technological know-how will be effectively incorporated in all sectors of the economy.
 3. Based on the realization that international cooperation is indispensable for the development or utilization of S&T capacity, a firm commitment to participate in programmes of international S&T organizations and to sponsor them to the maximum extent possible within the available financial constraints. In addition, bilateral arrangements with friendly countries and S&T organizations devoted to the development of specific disciplines is to be given serious consideration.
- COMSATS is ideally suited for facilitating South-South cooperation in various high-priorities areas of S&T, such as Environmental Science, Biotechnology, Renewable Energy sources and Information and Communication Technology, through its Network of Seventeen Centres of Excellence spread over three continents. The generosity of the Government of Pakistan, as a host country of COMSATS, in supporting COMSATS operations has been a source of encouragement and a commendable contribution of Pakistan to the international community. The patronage of the host country has been amply reciprocated by COMSATS through its services rendered to the nation by establishing the COMSATS Institute of Information Technology, the COMSATS Internet Services and COMSATS e-Health programmes for remote areas of Pakistan.
- The COMSATS' team is committed to playing a stronger role on the international level for the realization of its mission.



COMSATS

Paving the Way for Sustainable Development through:



- Promotion of Science, Technology and Innovation as a means to fast track socio-economic development
- Mobilization of scientific and technological resources through South-South cooperation
- Capacity building of Member States through a Network of S&T Centres of Excellence



COMSATS gratefully acknowledges the support of the Government of Pakistan for holding its 2nd Commission Meeting and welcomes the member countries' delegates



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

COMSATS Secretariat, Shahrah-e-Jamhuriat, G-5/2, Islamabad
Tel: 051-9214515-7, Fax: 051-9216539
Email: comsats@comsats.org, URL: www.comsats.org

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Establishment of science universities



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Second Commission Meeting Of COMSATS

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Member States



The Ministry of Science and Technology (MoST) is the national focal point and enabling arm of the Government of Pakistan for planning, coordination and execution of scientific and technological programmes and projects in accordance with national needs for accelerating the pace of socio-economic and industrial development of the country.

The major achievements of S&T organizations working in consonance with the Ministry of Science & Technology in recent years are summarized below:

Formulation of Science, Technology & Innovation Policy - 2012

The Ministry prepared the National Science, Technology & Innovation (ST&I) Policy in consultation with all stakeholders, which has been approved in principle by the Prime Minister and the Council for Common Interests. The ST&I Policy, in line with the new Economic Growth Strategy, aims at making science, technology and innovation a major vehicle for progress of the country through coherent efforts of S&T organizations, academia and industry.

Expansion of International Linkages in S&T Cooperation

During the period 2008-12, MoST pursued and undertook a number of activities within the framework of bilateral cooperation in S&T through agreements and MoUs, signed with 35 member countries of SAARC and ECO, as well as China. The 17th Protocol on S&T Cooperation with China was signed, which helped collaborating organizations undertake various joint activities and R&D projects. A programme of cooperation in emerging fields of S&T was signed with Argentina as well. A number of Pakistani institutions have benefitted from the ongoing Pakistan-United States S&T cooperation and completed R&D projects of national importance.

The 13th and 14th sessions of the COMSTech General Assembly were organized by the Ministry in 2008 and 2011, respectively. These meetings were attended by S&T Ministers and high-level representatives of the OIC member countries. Similarly, cooperation with regional and inter-governmental organizations, such as UN-Agencies (CSTD, UNESCO, APCCT); OIC institutions (COMSTech, ISESCO, IAS, IDB); the NAM Centre for Science and Technology; COMSATS, and other regional bodies such as ASEAN, ECO and SAARC was vigorously pursued.

Human Resource Development

The Ministry of Science and Technology through its two universities, i.e. COMSATS Institute of Information Technology (CIIT) and National University of Sciences and Technology (NUST), continued to impart quality education in various disciplines of engineering, health, business education, and emerging sciences.

During the recent past, NUST made remarkable progress and is now counted among the top 400 universities in the world. NUST was shifted to its newly constructed campus in Islamabad and a number of new courses have been instituted at the university. It established an International Standard Research Centre for Modeling and

Simulation; Research Institute for Microwave and Millimeter-Wave Studies; and Centre for Energy Systems (CES). Establishment of the Corporate Advisory Council and Centre of Innovation & Entrepreneurship are some of its recent initiatives. NUST launched a National Business Plan Competition, under the Programme Prime Minister's Entrepreneurial Challenges: DISCOVER - Prosperity through Entrepreneurship.

The COMSATS Institute of Information Technology (CIIT) established its new permanent campus in Islamabad, with state-of-the-art infrastructure, and another in Vehari. The Institute showed remarkable achievements with 100 percent increase in the number of academic programmes from 30 to 63, a 90 percent increase in enrollment, from 10,500 to 20,000, and a seven-fold increase in graduate output, from 2,570 to 17,993, including 26 Ph.Ds and 951 MS, since 2008. The establishment of 'Class-1,000' Clean Room facility for research in nanotechnology is another landmark. CIIT is the only public-sector university in the country that has launched a dual-degree programme, in collaboration with

submission of case for the extension of Pakistan's continental shelf to the United Nations' Commission on the Limits of the Continental Shelf. It is estimated that an area of over 50,000 square kilometers of the extended continental shelf could be annexed to Pakistan's existing 240,000 square kilometers offshore area of EEZ, which may enhance the country's oceanic resources by almost 20 percent.

Renewable Energy Technologies

Pakistan Council for Renewable Energy Technologies (PCRET) installed 117MHP plants, of 5-50KW each, electrifying 9,515 houses for 16 hours daily. In addition, 2,113 biogas demonstration plants, 100 PV systems (40KW), 15 solar dryers and 300 solar lighting systems were also installed in flood affected areas.

Advances in Water Management

Pakistan Council for Research in Water Resources (PCRWR) completed a number of water conservation and safe drinking water schemes. It developed a network of rainwater harvesting system, spread over 26,000 square kilometres in the Cholistan desert by developing 110 especially designed reservoirs with a storage capacity of 440 million gallons of water; PCRWR developed and demonstrated desertification control technologies over 550 acres in Cholistan and Thar deserts; mapped groundwater quality zones in Thal, Bari and Chaj Doabs, which can irrigate 1.34 million hectares; demonstrated water conservation technologies at 12 pilot sites; developed improved farm level water management, conservation and groundwater recharge practices; enhanced analytical capabilities for over 200 parameters in ISO-17025-accredited National Water Quality Laboratory, in Islamabad and established a network of 26 water quality laboratories at the district level; undertook a nation-wide Assessment Survey of 10,000 water supply schemes; carried out capacity-building of 3,000 professionals associated with water supply agencies; prepared the First National Water Quality Profile (urban and rural); continued the quarterly monitoring of commercially produced bottled water brands; developed innovative and low-cost water testing kits and treatment products; installed 650 chlorinators in flood affected areas; and launched a public awareness campaign to encourage water conservation.

Conclusion

The Ministry of Science and Technology is continuing its journey for the sustainable progress of the country by providing policy guidelines and making suitable interventions in the key areas, ranging from renewable energy technologies, molecular biology, water resource management and nanotechnology, as well as supporting the development of private and industrial sectors. The Ministry's main focus is on building Pakistan's technological competence to face challenges of the 21st century, developing a larger pool of human resources to contain the brain-migration, and integrating the existing technological infrastructure for strengthening of technology institutions through effective governance of Science, Technology & Innovation.



Prof. Dr. Mudassir Asrar
Chairperson, PCST

Science and Technology (S&T) have always been important elements in the promotion of human welfare and progress of civilizations. In the last few decades, however, scientific and technological capacity of a country has emerged as a key to its socio-economic development and political status in the world. Recognizing the importance of sound indigenous scientific and technological base for sustainable economic development, industrialized countries are spending about 2.0 to 3.5 percent of their large GDPs on research and development. Moreover, all technologically advanced countries and most of the developing countries have constituted various institutions to undertake science and technology policy research, develop S&T indicators, provide analytical reports on different national S&T/R&D issues and programmes and advise the government in order to help it to formulate effective science and technology policies and programmes.

In Pakistan, Pakistan Council for Science and Technology (PCST) being the only such organization has a great responsibility to assist the government to formulate policies and plans to link its research and development activities with the socio-economic well-being of the common people. PCST is committed to streamline its extremely limited manpower and financial resources, to focus on formulating sound science and technology policy measures for improving the national innovation system, enhance production and export of value-added products and thus, play a key role in socio-economic uplift of the country. For Pakistan, development and strengthening of S&T infrastructure is the key to catch-up with high living-standards and political stature of industrialized nations. The policy measure suggested by PCST and national S&T statistics & indicators collected and published by PCST can be utilized for strengthening of national S&T infrastructure as per needs of the country, and formulation of sound S&T policies and planning the future course of action. Successful implementation, continued monitoring and evaluation of policies and plans can be expected to result in enhanced productivity, increase employment and increased GDP. However, the real benefits of the efforts of PCST can be achieved only if the policy measures proposed by PCST are implemented in true letter and spirit.

PAKISTAN COUNCIL FOR SCIENCE AND TECHNOLOGY

Pakistan Council for Science and Technology (PCST) is the only organization in the country which is mandated to provide advice to the government on various issues related to the science and technology policy. For performance of its duties the Council collects national S&T data through scientific surveys and maintains a databank about S&T/R&D organizations, their budget, manpower and output. It also carries out analytical studies on important S&T issues and publishes the results in the form of S&T Indicators, reports and articles. Besides this for seeking expert opinions and advice regarding development and application of science and technology in different S&T areas, the Council constitutes "Think Tanks" and Expert Committees as and when needed.

Major S&T Councils and R&D Organizations such as Pakistan Atomic Energy Commission, Council for Works and Housing Research, Irrigation, Drainage and Flood Control Research Council (now Pakistan Council of Research in Water Resources) have been established as a result of work done and recommendations framed by the Council.

The Council also evaluates the research work undertaken by the scientists of the country based on various parameters of evaluation of research activities. In this regard the reports prepared by the Council help the government to select scientists and technologists for national awards / honours and prizes.

Recent Achievements:

National Science, Technology and Innovation (ST&I) Policy 2012

PCST played a significant role in preparation of the Policy. The main aim of the ST&I Policy is to make science, technology and innovation a vehicle for sustainable progress through a strong political commitment and coordinated actions, affecting all economic sectors and all strata of society.

Evaluation of Research Output of Scientists for Grant of Research Productivity Award (RPA)

For award of RPA, research output of 1662

scientists was evaluated. Research output was evaluated as per internationally accepted criteria of Impact Factor, Citation Index, Patents & Crop varieties. 810 scientists were found eligible who will be awarded RPA during 2012.

Evaluation of Productivity and Numerical Rating of Scientists of Pakistan

Productivity of 2071 of scientists was measured utilizing various parameters of productivity of scientists (in addition to parameters utilized for RPA). Based on this evaluation, a directory "Productive Scientists of Pakistan" was published.

Establishment of Database of S&T Manpower and Expenditure

A comprehensive questionnaire was designed for data collection from 338 S&T organizations and Higher Education Institutions. Received data was scrutinized, verified and entered into the Database. The database includes information about scientists (by gender, field of Science & Technology, level of qualification etc.) and sources of funding & details of expenditure.

Industrial Innovation Survey of KPA

The survey was conducted in collaboration with KPK Department of Science and Technology. This is the first ever survey of its kind in Pakistan which attempts to gain insights into the process of innovation in industry in Pakistan. During the study, 304 firms across 8 industrial sectors were surveyed.

Future Plans of PCST

Following major activities have been planned to be executed in the near future.

- Establishment of Science and Technology Policy Research Institute (STPRI) at Islamabad
- Development of Technology Facilitation Centers
- Establishment of Technology Facilitation Centers, Innovation Centers and Industrial Clusters
- Promoting Public Health Through Awareness
- Past glacial history reconstructed using tree-rings from Northern Pakistan (Ice-Tree)
- Pak-Tajik joint workshop on S&T policy & Planning.
- Exchange and training program of S & T policy experts between Pakistan & Japan

Recent achievements of Ministry of SCIENCE & TECHNOLOGY

Lancaster University, U.K. Recently, the Higher Education Commission of Pakistan ranked CIIT as the top-most IT Institute of the country, while placing it among the top 10 universities in the overall ranking of the 132 universities in the country.

Research and Development

The Pakistan Council of Scientific & Industrial Research (PCSIR) upgraded its research and pilot plant facilities and launched new initiatives, such as development of nano-coatings for surgical/auto and tool industries, bio-compatible coatings for bio-implants for total hip arthro-plasty and orthopedic implants and production of diesel from coal gas. It also established the first of its kind Cast Metals and Foundry Technology Centre at Daska, which has produced thousands of skilled workers and imparted training to foundry engineers, process engineers and metallurgists.

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[The program was initiated in 1988; so far more than 2.05 million students from about 7492 schools have participated in Science Caravan activities. Presently, PSF has nine Caravan units; four new are being added under a PSDP project]

S&T Fairs and Traveling Expos

Four National S&T Fairs, and a number of Expos including S&T Expo 2007 "Shaping the Future" (Islamabad-2007) have been organized. Due to law and order situation the focus was shifted to organize International traveling Expos prepared by Centre Sciences, France-UNESCO and partners. In this regard, three International Expos viz; "Experiencing Mathematics", "The Earth's Future in Our Hands" and "Biodiversity is Life; It's Our life" have been organized in eight cities from all provinces. The next episode of this series is on Chemistry "It's all about Chemistry" Jan-April, 2012 in Pakistan]

Science Essay and Poster Competitions among all Boards of Intermediate and Secondary Education

Establishment of Science Centres, Museums, Herbaria & Planetaria

Establishment of Science Clubs in schools

Financial assistance to schools for strengthening of Laboratories

Provision of Popular Science Magazines and Scientific literature to Schools

Popular Science Lectures

Science Popularization through Mass Media

Preparation and Dissemination of Science Posters, Brochures, and Booklets

Commemoration of Special days and events like World Science Day for Peace and Development, Space Week, International Year of Physics, etc.

Implementation of Inquiry Based Science Education-IBSE "La main a la pate-LAMAP" in Pakistani schools.

Indigenous Technology Development and its Commercialization under R&D Industry Programme to pass on domino effect of research to the Society

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COMSATS - AN INTER-GOVERNMENTAL ORGANIZATION OF DEVELOPING COUNTRIES

The Commission on Science and Technology for Sustainable Development in the South (COMSATS) was established in 1994 as a realization of a grand vision, conceived by the Pakistani Nobel Laureate, Prof. Dr. Abdus Salam, whereby the developmental gap between the North and the South was to be bridged through S&T capacity-building in developing countries. Dr. Salam firmly believed that "this globe of ours is inhabited by two distinct species of human beings: the developed and the developing, the rich and the poor. What distinguishes one type of human from the other is the ambition, the power, the élan, which basically stems from their differing mastery and utilization of present day science and technology". He had earlier established the 'International Centre for Theoretical Physics (ICTP)' in Trieste (Italy) as an institution providing world-class infrastructure to scientists from the developing countries, who are often isolated and lack adequate facilities necessary for high-quality research in their home countries.

The structure of COMSATS goes a step further from a single research facility catering to the training and research requirements of scientists from a vast group of countries with a wide spectrum of research interests. It envisioned clusters of high-quality R&D centres working independently in their national capacities but cooperating with one another as a part of COMSATS' Network of Centres of Excellence. Currently, 17 such Centres spread across three continents are affiliated with COMSATS and provide it an enormously rich resource for scientific cooperation at the level of working scientists. The Heads of these Centres of Excellence are members of the COMSATS Coordinating Council, which holds its meetings in different countries on a yearly basis. The Coordinating Council is a unique platform, which enables the leaders of R&D organizations to consult one another about the latest developments in their scientific programmes, learn from the best practices and successful initiatives, and, in general, exchange among each other the offers of cooperation and requests for technical assistance.

It was further realized by COMSATS' pioneers that the decision-making process in developing countries is heavily

dependent upon political patronage and the cooperation of civil bureaucracies. Thus, an international initiative to make Science and Technology the central pillar of the development agenda in the countries of the South can be successful only by adopting a top-down approach to bring about significant shift in how countries perceive the role of S&T and what resources are allocated for its development. Consequently, COMSATS is an apex body, comprising Heads of State/Government as its Members, while the highest level functionaries responsible for S&T affairs in member countries, acting as COMSATS' Focal Points, constitute its Consultative Committee. Currently, there are 21 Member States of COMSATS with the Prime Minister of Pakistan as its Chairperson.

The mission statement of COMSATS "to help create a world where all nations/states are at peace with each other and capable of providing a good quality of life to their populations in a sustainable way, using modern scientific and technological means".

The major objectives of COMSATS, as outlined in its Foundation Agreement are to: i) sensitize the countries of the South to the centrality of science and technology in the development process, to the adequate allocation of resources for research and development, and to the integration of science and technology in the national and regional development plans; ii) support the establishment of a Network of International Science and Technology Centres of Excellence for Sustainable Development in the South; iii) support other major initiatives designed to promote indigenous capacity building in science and technology for science-led sustainable development, and to help mobilize long-term financial support from international donor agencies and from governments/institutions in the North and the South to supplement the financing of international scientific projects in the South; iv) provide leadership and support for major North-South and South-South cooperative schemes in education, training and research; and v) support the relevant programmes and initiatives of major international organizations working for the development and promotion of science and technology in the South.

In order to achieve its objectives, COMSATS

has been using a variety of conventional and innovative mechanisms, over the last 17 years. The capacity-building at the level of individuals and institutions has been conducted through seminars, symposia, workshops, training programmes, pilot-projects and sponsorship of scientific visits. Over 160 national and international events have been organized in the specific areas of science and technology that have a direct relevance to the socio-economic development of the member countries. The thrust areas identified in this context are: information and communication technologies; natural products and agriculture, biotechnology, climate change and environmental protection, materials science, mathematical modeling, water resource management, and renewable energy technologies. COMSATS keeps a close watch on scientific breakthroughs and



emerging technologies to alert its Member States about their potential benefits and risks.

COMSATS, however, is not a funding agency. It has limited financial resources to execute its programmes. Its major contribution comes from the Government of Pakistan, which generously provides adequate funds to cover all establishment expenditure of COMSATS' Secretariat in Islamabad. Amongst the member countries making voluntary contributions, China is the biggest donor, which provides an annual grant on a regular basis. The payments from all other countries are made on voluntary basis from time-to-time. In spite of its financial limitations, the organization has instituted a number of mechanisms to boost its funding requirements. First and foremost in this

connection is the policy of organizing international capacity-building programmes in partnership with other international organizations, such as Pakistan Commission for UNESCO, ISESCO, NAM S&T Centre, and Academy of Sciences for the Developing World, in order to gain maximum benefits with limited monetary input. Significant in-kind contribution of member countries is received in the form of hospitality to visiting scientists, local organizational expenditures of international events and travel for participation in COMSATS related meetings. All member countries, especially the host country of COMSATS' Secretariat, Pakistan, should be lauded for their commitment to the cause of COMSATS.

In return for their contributions, all member countries have gained tangible benefits, especially the host country,

20,500 enrolled students, and 2,000 faculty members, more than 400 of which have Ph.D degrees. The Institute offers 63 degree programmes spread in seven Campuses across Pakistan. The quality of education can be judged by its ranking as the top-most institution of the country in the field of I.T. education, according to a report issued in 2012 by the Higher Education Commission of Pakistan. CIS is operating successfully although a multitude of Internet service providers have entered the field with corporate investment, offering services on highly competitive rates. COMSATS also launched other pioneering projects, which were later taken up by other organizations, such as pilot-project of bio-gas production and the tele-health programme. The COMSATS' project on the provision of medical consultation to remote areas of Pakistan through tele-health facility is being



Pakistan. Soon after the establishment of COMSATS, ways and means were considered to bring the benefits of science to the common people in Pakistan. It was realized during early 90's that Information and Communication Technology is going to dominate the world in future, affecting all segments of society with respect to information dissemination and interactivity among scientists as well as common people. Two institutions were, therefore, set up by COMSATS to get the country ready for this unfolding information age. The COMSATS Internet Services (CIS), started in 1996, was the pioneer of high-quality Internet access, while in 1998, an I.T. training Centre was launched under the name of COMSATS Institute of Information Technology (CIIT). The latter is now a public sector degree-awarding institute with over

expanded under a grant approved by the Planning Commission of Pakistan. The remarkable success of these projects is a testimony of how investment in a scientific organization pays back several-times of the original investment. On the part of COMSATS, for good or bad, its local projects have become its public image in Pakistan, whereas its true status as an organization of 21 countries has been to some extent overshadowed.

In fact, the true worth of COMSATS for Pakistan is its international programmes that make it possible for Pakistan to be recognized as a country taking a leadership role in promoting S&T in developing countries and providing them a platform to cooperate with one another. To further augment its efforts of making S&T a vehicle for progress, COMSATS has devised a five-

year strategy, the lynch-pin of which is a radically new initiative of conducting COMSATS' sponsored thematic research in areas relevant to direct socio-economic benefits. This will complement COMSATS' role as a facilitator of scientific cooperation to promoter of research in specific scientific and technical areas. During the last two years, three 'International Thematic Research Groups (ITRGs)' have been launched. This concept is based on extending the most common way modern research is conducted. Generally, there is always a senior professor as Group Leader with several students/post-doctorate or other co-workers as Group Members; all engaged in work on a well-defined theme of research. COMSATS' ITRGs are different only in the sense that the Group Leader is an outstanding international scientist in one of the member countries, while the Group Members are a combination of local and other scientific workers distributed in different countries interested in the project. The theme of the group activity and the size of the group are left to the discretion of the Group Leader. The three ITRGs currently undertaking research are in Thematic areas of: 'Information and Communication Technologies (ICTs)'; 'Natural Products Sciences'; and 'Climate Change and Environmental Protection'.

The 2nd Commission Meeting of COMSATS, with participation of Science Ministers of member countries is being held with the objectives, inter alia, of: renewing the commitment of the member countries for participating in and supporting the programmes and initiatives of COMSATS; working out solid policy guidelines for the future functioning of the Commission; sensitizing the Member States/Governments and institutions of COMSATS towards the importance of South-South and North-South cooperation in S&T; and mobilizing adequate financial support for the scientific and technical programmes of COMSATS.

It is hoped that deliberations of the 2nd Commission Meeting being held on April 16-17, 2012, would facilitate COMSATS in achieving its organizational objectives, and result in the decisions, recommendations and resolutions that would lead to streamlining COMSATS' future activities aimed at the socio-economic development of its member countries.



COMSATS Institute of Information Technology



CIIT Welcomes the Delegates from Member Countries at the Second Commission Meeting of COMSATS

April 16-17, 2012

COMSATS Institute of Information Technology (CIIT) being a Center of Excellence of COMSATS dedicated to empowering the people of Pakistan and Muslim Ummah through modern world-changing research and technology. Some of the distinguished features of CIIT are:

- 07 State-of-the-art campuses
- Ranked among top 10 universities of Pakistan based on International QS Ranking criteria
- ISO-9001:2008 Certified
- Internationally renowned faculty
- Internationally indexed research
- More than 1100 research papers published in International Journals
- Globally academic and research linkages.

Key Programs

Computer Science, Chemical Engineering, Chemistry, Electrical Engineering, Mathematics, Management Sciences, Physics, Bio Sciences, Environmental Sciences, Nanotechnology, Pharmacy, Project Management and Telecommunication Engineering

Pakistan's No. 1 Computer Science & IT University as per HEC latest ranking



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PAK-CHINA BUSINESS FORUM 2012 Industrial Exhibition

April 15-18 2012

PAK-China Friendship CENTER

Garden Avenue, Shakar Parian, Islamabad

The COMSATS Institute of Information Technology (CIIT) is organizing Pak-China Business Forum in order to promote University-Industry linkages to enhance the business and economic activity in the country. The Industrial exhibition aims to provide a platform for interaction between Chinese and Pakistani entrepreneurs and businessmen. It is a unique opportunity for companies, SME's, entrepreneurs, R & D organizations and students to explore business possibilities.

VISIT TIMINGS	Apr 15, 2012	Apr 16, 2012	Apr 17, 2012	Apr 18, 2012
Universities/Colleges/Schools	-	10 a.m - 2 p.m	10 a.m - 2 p.m	10 a.m - 1 p.m
Families	11 a.m-6 p.m	-	2 p.m - 6 p.m	10 a.m - 1 p.m
Business Executives	All day (By Appointment)	All day (By Appointment)	All day (By Appointment)	All day (By Appointment)



COMSATS Institute of Information Technology

Park Road, Chak Shahzad, Islamabad

www.comsats.edu.pk

PID(1) 4716/11



Second Commission Meeting Of COMSATS

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

16-17 April 2012 Islamabad, Pakistan

Member States



COMSATS Institute of Information Technology

History:

COMSATS Institute of Information Technology (CIIT), a Degree Awarding Institute (DAI) in higher education, was established in 1998 as a Centre of Excellence of the Commission on Science and



Technology for Sustainable Development in the South (COMSATS), which is an inter-governmental organization with 21 member states in three continents; Asia, Africa and Latin America. CIIT established its first campus in 1998 at Islamabad and was chartered as a DAI by the Government of Pakistan in August 2000. The journey of success continued for CIIT when it opened up campus in Lahore, Abbottabad, Wah, Attock, Sahiwal and Vehari. This expansion continues as few more campuses are in different planning stages and is likely to be continued.

Mission and Vision:

The Institute's mission is threefold: Teaching and Learning, Research and Discovery and Outreach and Public Service. Vision of CIIT is dedicated to the search for truth through advancement of learning and extending the frontiers of knowledge; to the sharing of this



knowledge through education in academically diverse disciplines; and to the application of this knowledge to benefit the people of Pakistan in particular, and the Muslim Ummah and the world, in general.

Academic Profile:

The CIIT currently comprises of five faculties, 16 departments and six research centers. Presently 63 degree programs are on offer in which around 20,000 students are enrolled. There are 2,056 faculty members working in CIIT out of which 444 faculty members and academic managers have PhD qualification, while the remaining have MS/MPH degrees in relevant fields. 460 faculty members are undergoing advanced education leading to MS and PhD degrees in USA, UK, China,

France, etc. The Faculty Development Academy (FDA) of the Institute is also quite active in the trainings of the newly recruited faculty at CIIT.

Graduates:

To celebrate its success, CIIT has been organizing convocations for graduating students with their parents and faculty members alike, on a regular basis. Till now 42 convocations have been organized in which degrees were conferred on 16,730 graduates. While another 1,263 students will be graduating in four more convocations for Spring 2012 series making a grand total of 17,993. The Alumni of CIIT are bound together through its 'COMSIAN Association' as well.

Ranking:

In February 2012, HEC announced Quality & Research based Rankings of Pakistani Higher Education Institutes where CIIT has been ranked at number 9 among all 132



universities of Pakistan while it has been ranked number one (1) as Computer Science & IT University of Pakistan.

Research & Development:

The CIIT provides state of the art facilities such as specialized research labs, well-stocked libraries including digital library, Wi-Fi and video conferencing facility to promote the research culture among the faculty and students. The total number of research articles published by the CIIT's faculty from 2000 till 2010 is 1,118. The data for 2011 is being compiled and verified by the office of Research, Innovation & Commercialization (ORIC) at CIIT. 28 books, five patents, and more than 300 research-based workshops have also been organized by CIIT. The Institute has also constituted Intellectual Property Rights Management Team to safeguard the intellectual property rights of the faculty including copyrights of software, architectural work, patents and trademarks of their inventions, trade secrets, etc., against entrepreneurs and third parties.

Quality Assurance:

In addition to above, CIIT has also been awarded international certificate of quality ISO 9001:2008 in 2011. Besides, the Quality Enhancement Cell (QEC) of CIIT has also been placed in the top category of 'W' by the HEC in the first ever ranking of 84 QECs in the country.

Internationalization:

To broaden the horizon of its students, CIIT is establishing professional linkages with prestigious universities and institutions around the globe. CIIT has already signed over 45 Memoranda of Understanding with leading universities of the world, like University of Illinois at Urbana-Champaign, USA, Karlsruhe Institute of Technology, Germany, Tampere University, Finland, etc. In the same spirit, Dual Degree Program at CIIT Lahore Campus in collaboration with Lancaster University UK has been launched. CIIT has also the distinguished honor of being visited by the British Prime Minister, Mr. David Cameron in April 2011 besides having the honor of Prime Minister of Pakistan as well as other dignitaries on various occasions.

International Students:

The CIIT also welcomes the international students for admission into its main degree program. In this regard, CIIT has also announced 100 scholarships, which are offered to students from COMSATS Member Countries for MS program in selected fields at its Islamabad campus. Further, CIIT has also announced 50 scholarships for the students for OIC Member countries.

Scholarships:

CIIT admits students solely on the basis of merit without any discrimination, however, merit-cum-need-based scholarships are offered to students living in remote areas who hardly have access to quality education. CIIT has a special Taleem fund, Qarz-i-Hasna, kinship/siblings concession, academic



excellence incentives, financial assistance programs and various other scholarship programs for this purpose such as National ICT Scholarship Program, D.I.K Scholarship, and the scholarships for the students from FATA, Balochistan, Gilgit, Baltistan areas etc. CIIT distributed Rs. 845 million to over 30% of the total students' enrollment under various scholarship programs.

Outreach and Public Service:

The contribution of CIIT towards the society is evident through its swift, timely and effective response in case of October 2005 earthquake; the IDPs of Swat in 2009; the flood affected citizens in August 2010 and the floods of 2011 in Sindh. CIIT also adopted 100 orphans under Pakistan Sweet Home program.



National Testing Service-Pakistan

Building Standards in Educational and Professional Testing



National Testing Service (NTS) was emerged in response to expressed need for a testing service in the National Education Policy Document (1998-2010) of Government of Pakistan (GoP). The Information Technology (IT) Policy also encouraged the establishment of a testing service to assess the IT graduates for next level of education and career progression. Therefore, NTS was established in July 2002 and commenced operation under the leadership of Dr. Haroon Rashid, the Director CIIT.

NTS is Pakistan's first independent premier testing service in public sector established with an aim to provide quality students to educational institutions and organizations by conducting standardized tests. It is an autonomous, self-reliant and self-sustained organization of national importance envisioned in the best interest of the country to promote credible educational and recruitment testing. It is governed by a Board of Governors under the Federal Government. However, the Executive and Management Committees ensure execution of the policies.



Having completed nine (9) successful years in operation, NTS has now emerged as the only credible testing organization of the country which assesses the competency of candidates for admission, scholarship and recruitment purposes in an efficient and transparent manner. It is playing a major role to

get rid of the discriminatory quota system, an obstacle for deserving students to enter in a university for higher education purpose and now being followed by the public sector universities. NTS has contributed tremendously in human resource development (HRD) by virtue of improved testing and assessment, training and capacity building and research and development.

NTS ensures quality assessment through Standard Operating Procedures (SOPs) at every process of testing and assessment. Following its core value, NTS always strives for excellence in its overall endeavours to improve systems, procedures and issues attribute to the traditional testing services. It also ensures efficiency, reliability, accuracy and most important credibility of the entire system in a transparent manner under strict security arrangements. It follows a ZERO tolerance policy in conducting the tests and thereby facilitates standardized selection and authentic measurement of candidate's knowledge and skills.

NTS has partners & associates all over the country including Federal and Provincial Government Ministries and departments, COMSATS, Higher Education Commission (HEC), public and private Universities, Autonomous Public sector and many private

sector and international organizations which are benefiting from the specialized services provided by NTS professionals for admissions, scholarships, recruitments and exit tests. With its visionary and dynamic leadership and committed staff, NTS is expanding the horizon of its test categories and subjects. Most modern technologies are used for developing Test Items, building test databank, paper generation, paper and E-Marking and compilation of results. NTS conducts both paper and computer based tests (CBT), online registration, etc.

NTS databank contains enormous number of test items in all well known disciplines of Engineering, Information Technology, Medicine, Management, Natural and Social Sciences. For this purpose, NTS engages eminent scholars, educationists, technical experts, subject specialists and faculty members from R & D Organizations/Universities of well repute of the country who ensure quality in content development (Test Items). They provide valuable services to NTS in developing curriculum in their area of specialization and regulating standards of testing. Each test item of the databank is peer reviewed by HEC experts, supervisors for PhD and Productive Scientists. The testing and assessment tools available are:

- National Aptitude Test (NAT I&II).
- Graduate Assessment Test-General (GAT-General) - similar to International GRE-General.
- Graduate Assessment Test-Subject (GAT-Subject) - similar to International GRE-Subject.
- Graduate Employment Examination (GEE) Comprising TOEIC®: An English Proficiency Test by NTS for organizational communication bundled with GAT-Subject.
- National Teachers Database program (NTD) - NTD is a standardized recruitment test for potential and existing faculty, teaching, at national level.
- The program is expected to provide valuable services to the NTD Associates and Potential Teachers.
- Medical Representatives Certification Program - Medical Representatives Certification Program is an entry level job in the pharma industry with tremendous career growth.
- English Proficiency Tests (UKBA approved English language tests including TOEIC-S&W, TOEIC-L&R, TOEFL-ITP) - NTS in collaboration with ETS-USA is offering convenient and affordable English Proficiency tests approved by UKBA that can be used for immigration, academic & institutional placement, progress evaluation, exit testing and other purposes.
- Customized Tests are prepared and conducted to gauge the intellectual ability or aptitude of an individual as per the requirements of associate organizations.

NTS customized tests actually measure the attributes such as general mental ability, critical thinking, problem solving communication skills, empathy and grip on the specialized subjects of the candidate which are required for further development in

every discipline. These tests aim to assess more than intellectual ability and have added value alongside with regular board examinations. Such test distinguishes candidates on the basis of the cognitive functions and personality, independence of social class and schooling.

NTS professionals also offer consulting services, Capacity Building, Teachers' Training, Technical Assistance, Custom Assessments and other solutions for institutions, businesses and government agencies throughout Pakistan. Therefore, NTS can meet educational needs in the following ways:

- Measuring Knowledge Base and Skill Levels
- Test Preparation i.e. a complete guideline for Test Preparation
- Establishing Performance Ranking
- Score Reporting
- Capacity Building
- In addition, following specialized services are provided:
- Action-oriented research, analysis and training
- Teachers' Training and Professional Development
- Strategic Planning
- Project Identification, Design, Monitoring and Evaluation
- Baseline Surveys
- Impact Assessment Studies
- Documentation/reporting

NTS has a nationwide network and offices in all major cities of Pakistan thus capable of conducting tests all over the country.

- NTS Support Pool has facility (with about 10,000 highly trained personnel for test administration and invigilation) to meet the growing challenges of testing and assessment in the country.
- NTS has its head office in Islamabad and four provincial offices in Karachi, Lahore, Quetta and Peshawar which are responsible for carrying out entire business independently. Another office in Abbottabad is responsible for content management.
- Capable of conducting paper-based test for 300,000 candidates in 60 cities and computer-based (online) tests in 20 cities (could be extended to 36 cities) of Pakistan simultaneously.
- Capable of processing about 20,000 application forms per day.
- About 300 institutions are on NTS panel as test centers.
- Conducted 3897 tests in various disciplines for educational and recruitment purposes in which more than 2.9 Million candidates have appeared.
- NTS has Different subject panels with more than 2,000 test item contributors from prestigious universities and reputed professional organizations of Pakistan.
- An ISO 9001:2008 Certified Organization.



NTS mission is "to build and promote standards in education and professional testing and assessment"



PCST

Pakistan Council for Science and Technology

Ministry of Science & Technology

Development through

technology

PCST believes that progress in science and technology is the way forward. That is why we believe in supporting research, development and capacity building in scientific fields to help nations in regional and national development

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Shahrah-e-Jamhuriat, G-5/2, Islamabad,
 Phone #: (051) 9205157, Fax (051) 9205171
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National Testing Service-Pakistan

Building Standards in Educational and Professional Testing

Member International Association for Educational Assessment USA (IAEA)

Our Outstanding Record in Providing Testing Services for

- HIGHER EDUCATION COMMISSION
- ABASYN UNIVERSITY, PESHAWAR
- AGRICULTURE UNIVERSITY, PESHAWAR
- AIR FOUNDATION SCHOOL SYSTEM
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- ALLAMA IQBAL OPEN UNIVERSITY
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- ANGLO ARABIC PUBLIC SECONDARY SCHOOL, RAWALPINDI
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- BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN
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- BOLAN MEDICAL COLLEGE, QUETTA
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- DIRECTORATE OF STAFF DEVELOPMENT PUNJAB
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- DISTRICT PUBLIC SCHOOL & COLLEGE, FAISALABAD
- DISTRICT PUBLIC SCHOOL & COLLEGE, GUJRAT
- DISTRICT PUBLIC SCHOOL & COLLEGE, OKARA
- DIVISIONAL MODEL COLLEGE, FAISALABAD
- DIVISIONAL PUBLIC SCHOOL (DPS) PUNJAB
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- NTD is a standardized recruitment test for potential and existing faculty, teaching, at national level. The program is expected to provide valuable services to the NTD Associates and Potential Teachers.



National Testing Service-Pakistan

For further information, please contact:

Headquarter:
 402, Street No. 34
 Sector I-8/2
 Islamabad
 Tel: +92-51-9258479-79

Karachi Office:
 POF Complex 3rd Floor,
 252 Sarwar Shaheed
 Road Saddar, Karachi
 Lahore Cantt
 Tel: +92-21-35215013

Lahore Office:
 Plaza No. 170, 2nd Floor,
 Y-Block, Phase III, DHA
 Commercial Area
 Lahore Cantt
 Tel: +92-42-99239022

Peshawar Office:
 B-2, Rahat Abad Colony,
 Near Pakistan Forest
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