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From the Chairman



"The best scientists and explorers have the attributes of kids! They ask question and have a sense of wonder. They have curiosity. Who, what, where, why, when, and how! They never stop asking questions, and I never stop asking questions, just like a five-year old, says Sylvia Earle, an American marine biologist, explorer, author, and lecturer.

It is an established fact that a child starts learning different things right from his birth through listening and observation and when he starts speaking then through questioning as well. According to the experts almost 60 percent of his/her vocabulary a child acquires in first three years of his life through listening and questioning while the remaining during the rest of life. It is a fact that this knowledge the child gets through listening and questioning from his/her parents and other family members and it has a great impact on his/her abilities and personality.

Being a scientist and educationist it is my personal experience that study tours of students make their concepts more clear about what they learn in classroom and from books. During study tours they get first-hand knowledge through asking questions which has far reaching impact on their learning process and polishing their talent. For example when a student learns in classroom or from a book that iron is an ore

Continued on page 2

Pakistan represented in workshop on Inquiry Based Science Education in Kazakhstan

A three-member team comprising Prof. Dr. Muhammad Ashraf, Chairman Pakistan Science Foundation (PSF), Mr. Amjad Hussain, Joint Scientific Advisor (IL), Ministry of Science and Technology and Dr. Iftikhar Ahmad, Head Education Center, Pakistan Atomic Energy Commission represented Pakistan in a capacity building workshop on Inquiry Based Science Education (IBSE), which was in Astana, Kazakhstan on 22-25 June, 2015.

The workshop was jointly organized by the Economic Cooperation Organization's Science Foundation (ECOSF) and the Committee of Science under the Ministry of Education and Science, Government of Republic of Kazakhstan in collaboration with *La main à la pâte* Foundation France, the Embassy of France in Kazakhstan, the International Science, Technology and Innovation Center for South-South Cooperation under the auspices of UNESCO (ISTIC) Kuala Lumpur and the

Inter-Academy Partnership (IAP) Science Education Programme (SEP).

The workshop was hosted by the "Palace of Students" Astana- a unique complex of science, technology, engineering, arts and sports Learning Centre for children. It was participated and contributed by 19 scientists, educationists, policy makers and global IBSE leaders from eight countries of ECO and above international institutions, and 59 young teachers and researchers from Kazakhstan.

The workshop was aimed at recognizing the philosophy of IBSE pedagogy in Science, Technology, Engineering and Mathematics (STEM) teaching; Experiencing the process of inquiry-based science teaching and learning, problem solving skills through hands-on, minds-on activities; Gaining insights into activities that not only can encourage and motivate students in science through the hands-on, minds-on activities but also convince



A group photo of delegates and participants of the workshop on Inquiry Based Science Education held in Astana, Kazakhstan.

Top scientists resolve to work tirelessly

3



Students learn through Museum visits

5



PASTIC Information Services at Doorsteps

7



From the Chairman

which is dug out from mines, but his/her concept about iron ore raw form is vague and the student thinks that the ore is similar to the items made of iron they see. When they visit museums, science centres or during field trip and see the iron ore then they come to know that it is just like a black sand stone and after a long process of impurity removal the iron is obtained from these stones for making different items of daily use.

Questions and curiosity are more important for science students especially as without using these tools they couldn't understand the reality and their knowledge would be superficial. But ironically, in present day education system the students feel shy asking questions from teachers during class due to many reasons such as lack of students confidence, fear of teacher, lack of communication gap between the student and teacher etc. The teachers also discourage students to ask questions and ridicule them. This trend, mostly prevalent in public sector educational institutions, need to be addressed by encouraging students to ask question to satisfy their queries and curiosity which further generates knowledge.

Pakistan Science Foundation (PSF) has taken many measures to arouse and satisfy curiosity of students about different phenomenon of nature and science. These steps include establishment of Pakistan Museum of Natural History in Islamabad and Science Centers, mobile science exhibitions through caravans, arranging science exhibits in almost all the parts of the country, PASTIC information centers, international travelling science exhibitions and introduction of inquiry-based science education program in the country.

In addition, PSF being a premier institution for promotion and popularization of science in the country has launched various programs for young students to provide them opportunities for expressing their talent and innovative ideas and learn through questions. These informal education programs include students' participation in London International Young Scientists Forum every year, Intel International Science and Engineering Fairs, Inter-/Intra-Board science exhibitions and project competitions etc.

Learning through inquiry, the basic instinct of a child to learn, has been taken up vigorously by many countries and PSF in collaboration with Embassy of France has also launched this programme in Pakistan. Under these programmes the students and teachers are provided very simple things of daily life use to understand science through questions. The schools and colleges should benefit from this programme of the foundation in order to strengthen science education base of their institutions.



Participants take part in the training programme during the workshop.

decision makers to pursue Inquiry based approach for education; and decide on strategic steps for implementation of IBSE – based STEM in the 10 ECO member countries.

Realizing the importance innovations in science and technology especially by the young people, ECO Science Foundation (ECOSF), an intergovernmental science organization of 10 member countries of the Economic Cooperation Organization (ECO), established in Islamabad has taken up the initiative to build the capacity of children and young people of the region. The Deputy Chairperson of Science Committee of MES Kazakhstan, Dr. (Ms.) Lazzat A. Kussainova opened the workshop.

President ECOSF Prof. Dr. Manzoor H. Soomro on his part as the initiator of the four-day workshop, introduced the workshop and gave a summary of the process of Inquiry in IBSE Programme of La main a la pate Foundation France- the main theme of the workshop.

Academician Prof. Dato Lee Yee Cheong, the Chairman ISTIC Governing Board and President IAP Science Education Programme also made a detailed

presentation and highlighted the programmes of ISTIC and IAP-SEP especially of science education. Then he presented a global picture of how S&T was linked with economic development; he shared numerous mega projects by China in various continents. He was of the view that UNESCO should patronize the IBSE approach for education of science, technology, engineering and mathematics (STEM). Dato Lee Cheong elaborated upon the UN SDGs with SDG-4 in detail and the road map for their achievement by the South countries. He assured the organizers for their continuous cooperation and support in future as well. Prof. Pierre Lena, the Co-founder and Chairman of La main a la pate Foundation, France shared the 20 years of their programme development and implementation in France. He shared the historical developments of the programme that was led by a Nobel Laureate in Physics Prof. Georges Charpak in 1996. He said that their IBSE programme was evaluated as successful and that it had spread to over 55 countries around the world now. Prof. Lena shared that the outcome of the IBSE in France was excellent, therefore, the Founders decided to expand the programme in other parts of world and many countries including Pakistan have already initiated the programme. He further added that through ECOSF the programme has successfully initiated in ECO region starting from Kazakhstan.

The ECO countries delegations also made presentations about their country programmes, highlighting the scientific and educational activities being carried out especially how the national education systems functions and whether any IBSE approach is being pursued by them.

Prof. Dr. Ashraf also made a presentation about IBSE programme introduction in Pakistan by PSF in collaboration with Embassy of France in Islamabad and spoke about the Foundations' future plans



Prof. Dato Lee Yee Cheong, Prof. Dr. Manzoor H. Soomro, Dr. (Ms.) Lazzat A. Kussainova and Prof. Pierre Lena at the inaugural session of the workshop.

Quote of the Month

“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science”.

—Albert Einstein

for promotion of scientific culture in the society especially at the school level.

The workshop devoted two days to the concepts of IBSE with hands-on/minds-on activities and global scenario of IBSE implementation and contributions to science and technology development around the globe; a day to review the

status and methods of science teaching in ECO member states; and finally round table discussions on the way forward.

The constructive deliberations and discussions culminated in the recommendations in this Astana Declaration. The Astana Declaration was adopted by the participants of the

international workshop. The Declaration reaffirms that; science and technology and engagement of youth is the key to economic and cultural development of all nations; and IBSE is the most efficient way to go about teaching science, technology, engineering and mathematics (STEM) at schools.

PSF conducts need assessment survey of science labs in Layyah District



Mr. Muhammad Hasnain, Deputy Director (STI), PASTIC Sub Centre, Faisalabad conducting need assessment survey at the schools of Layyah District.

Pakistan Science Foundation (PSF) has the mandate to popularize and promote science at grassroots level in the country. For this purpose the Foundation is undertaking various activities to support public high schools for strengthening their science laboratories. PSF conducted a survey in the July, 2015 to assess the

needs of schools' labs in Layyah District. Mr. Muhammad Hasnain, Deputy Director (STI), PASTIC Sub Centre, Faisalabad, visited the area and collected the data regarding the status of their science lab and equipment in 92 schools. The data collected is being analyzed to assess the cost of the equipment related to

Physics, Chemistry and Biology labs according to the requirement of each school in the district. Afterwards, a proposal will be prepared and submitted for approval to meet the needs of schools' science labs so that the students be able to practically learn different phenomenon of nature.

Top scientists resolve to work tirelessly under umbrella of National Science Complex

The top scientists of the country in a meeting resolved to work tirelessly under the umbrella of National Science Complex for development of science and technology in Pakistan, as science is the foundation of any country's

economy.

The meeting held on July 9, 2015 at the Academy's headquarters in Islamabad was chaired by Pakistan Academy of Sciences (PAS) President Dr. Anwar Nasim. PAS Secretary General Prof. Dr.

Zabta K. Shinwari; Islamic World Academy of Sciences Vice President Prof. Dr. M.D. Shami; COMSTECH Coordinator General Dr. Shaukat Hameed Khan, COMSTECH Advisor (Science) Prof. Dr. Qasim Jan, COMSATS Executive Director Dr. Imtihan Qureshi, Pakistan Science Foundation's Chairman Prof. Dr. Muhammad Ashraf, Pakistan Council for Science & Technology Chairman Prof. Dr. Anwar-ul-Hassan Gilani, PARC Chairman Dr. Iftikhar Ahmad and ECO Science Foundation President Dr. Manzoor H. Soomro

participated in the meeting. PAS convened the meeting of the country's top scientists to review implementation of the historical recommendations of the 1965 meeting of eminent scientists of that time in Swat. The Swat meeting was chaired by the then President of Pakistan General Ayub Khan. The Swat Meeting had made 20 recommendations for the development of S&T. The recommendations included allocating 2% of GDP for S&T in the federal budget. After a lapse of 50 years, in 2015 it was noted with a serious concern that most of those recommendations were not



Pakistan Academy of Sciences (PAS) President Dr. Anwar Nasim chairs a meeting of top scientists on July 9, 2015 at the Academy's headquarters in Islamabad.

heeded to till today, resulting in deplorable state of S&T and, hence, of the national economy.

The leading experts believe that investing upto 3.5% of GDP in science, technology and innovation can be “the game changer” to help alleviate poverty, reduce inequalities, increase income and improve health. Therefore, the top scientists of the country observed with serious concern that a meager allocation of 0.2% of GDP for S&T in the federal budget has resulted in deplorable state of S&T. To improve this situation, it was unanimously urged that the budget allocation for S&T must be enhanced to 1% of GDP immediately.

The Meeting also stressed the need for National Science

Complex to use it as a tool for promoting national development, peace and prosperity. The top scientists said that coincidentally scientific organizations such as Ministry of Science and Technology, Pakistan Science Foundation, Pakistan Council for Scientific and Industrial Research, Pakistan Academy of Sciences, Pakistan Council for Science and Technology, Pakistan Agricultural Research Council, Pakistan Medical Research Council, Pakistan Engineering Council, OIC Standing Committee on Scientific and Technological Cooperation (COMSTECH) and the Secretariat of Commission on Science and Technology for Sustainable

Development in the South (COMSATS) are situated in one area of less than half kilometer radius along Constitution Avenue, Islamabad. They said that the

area should be declared as National Science Complex. It was decided to meet once every three months to review the situation and formulate future line of action.



A group photo of the country top scientists after a meeting at Pakistan Academy of Sciences on July 9, 2015.

24th Intra Board Essay & Poster Competition

PSF Awards Cash Prizes to Winners of AJK Mirpur BISE

Pakistan Science Foundation (PSF) in collaboration with all the Boards of Intermediate and Secondary Education (BISEs) regularly organizes Annual Science Essay and Poster Competitions throughout the country. During the year 2014-15, the 24th Annual Intra and Inter-

Board Science Essay and Poster Competitions were organized for the students of all the BISEs of the country. The title of Essay Competition was “Why Students feel Difficulty in Science Education” and Poster Competition “Disadvantages of Mobile

Phones & Internet for Students”. More than 113 students were declared winners at Intra Board Level and cash prizes were awarded to them. The cash prize awarding ceremony for BISE Mirpur was organized on 27 July, 2015.

Prof. Muhammad Aslam

Chaudhry & Mr. Abdul Karim Chaudhry, Controller Examinations and Chaudhry Muhammad Taj, Deputy Secretary Admin of the Board distributed cash prizes among the students. From PSF, Mr. Allah Yar, ASO participated in the prize distribution ceremony.

Pakistan Museum of Natural History (PMNH)

Editor: Dr. Muhammad Ismail Bhatti

People flock to PMNH during Eid holidays

Eidul Fitr was celebrated with religious fervor and enthusiasm in the twin cities and its adjoining areas. The four official holidays also provided a chance to the citizens to enjoy the event. PMNH Display Centre remained open for Public during these holidays to provide an opportunity to them for learning through enjoyment. Thousands of

people from different walks of life (general public, children, families and foreigners) visited the display galleries of the Museum. In addition to displays in galleries some big specimens like Lion were exhibited in front of PMNH building for education and photography which attracted the people to the museum. The visitors appreciated the



Children visiting the Museum during Eidul Fitr holidays.

arrangements and duty staff cooperation during the Eid days. About 25,000 visitors of different age groups paid visit to the Museum and Rs 1,16,000 entry tickets were sold during Eid days. The scientists and other staff members of all divisions performed duties to facilitate the visitors and brief them about role and responsibilities of organization.



Visitors pose for photographs with different natural history specimens during Eid days.

Students learn through Museum visits

Visit of student groups to PMNH as a part of their study tour is a regular feature of the Museum under its public education programme. During the month of July 2015 a group of 45 students along with 6 their teachers from Presbyterian Church of Pakistan School and 60 students of 05-15 years age group from Pakistan National Art Gallery (PNCA), which arranged the Summer Art Camp 2015 for Children, visited PMNH. The PMNH staff guided the students and a documentary related to biodiversity was shown to them.

The number of visitors to the Museum remained high this month due to the summer vacations in schools and five-day official holidays in public sector offices. In the month of July 2015, the total number of visitors was 38,790 including 8,715 general visitors, 08 Foreigners and 28,968 children under 12 year age.



Student groups being educated about natural history of Pakistan during their visit to PMNH.

Specimen of the Month

Tusk of Proboscidean (Elephant)

This unique specimen is the fossil tusk of Proboscidean (Elephant) which was discovered from the rocks of Siwaliks exposed in Khokharzer Dam area of Chakwal district in province of the Punjab, Pakistan. The age of the fossil is 14 million years. This tusk is of very huge size (3.5 ft) which shows that elephants at that time were very big as compared to their modern day race. This specimen is displayed in Earth Sciences Division of Pakistan

Museum of Natural History, Islamabad. This specimen was discovered by Dr. Umer Iqbal of Earth Sciences Division (PMNH) in the year 1987. Cheema and Dr. Ghazala Roohi

**PMNH provides internship facility to geology students**

Earth Sciences Division (ESD), Pakistan Museum of Natural History (PMNH), is providing internship facilities to the students of Department of Geology, University of Haripur (UoH) during their summer vacation this year. The

objective of the internship is to provide them practical work experience to students and to train them to meet future challenges. The internship activity is being organized under a Memorandum of Understanding between

PMNH and UoH in collaborative research. This year 40 students were provided internship facility and Mr.

Hamad ur Rahim, Research Associate, ESD, PMNH is providing technical and practical guidelines to students.



The students of Department of Geology, University of Haripur, busy in their work during the internship at PMNH.

Pakistan Scientific & Technological Information Centre (PASTIC)

Editor: Mrs. Rahila Khurram

Indigenous S&T Databases at PASTIC Underway

• PASTIC is a gateway to S&T information for research and industrial community. In order to promote resource sharing activities among the S&T community, PASTIC has initiated collection of various kind of indigenous data related to S&T research and its outcomes. Currently, PASTIC is in the process of collection of following types of

data:

- Highly qualified Scientists, Doctors & Engineers.
- R&D projects data both national and international, executed by universities and R&D organizations, ongoing as well as completed.
- National & international data about patents granted to Pakistani scientists

& researchers.

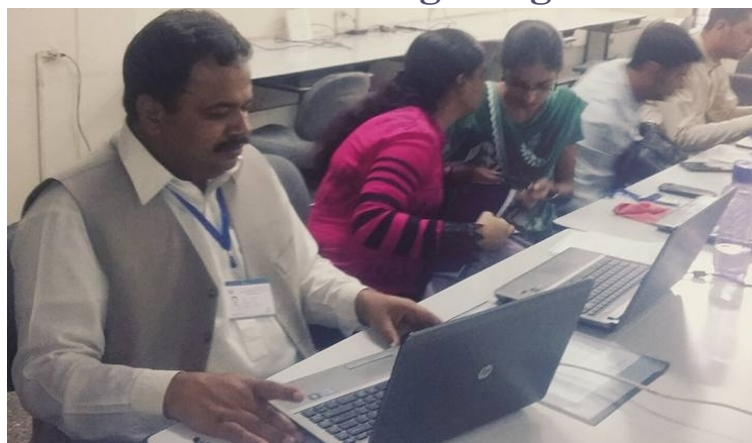
The data so far collected is being organized and developed into a database and uploaded on PASTIC website to serve as the secondary source of information for researchers across the country and would be used for networking amongst the Scientists & Researchers. It would also help in avoiding duplication of

research, waste of efforts and resources. The database would also promote the diverse R&D potential of Pakistan at international level. Other databases

already developed by PASTIC are Database of Research published in Pakistan, Database of journal holdings of Scientific Libraries of Pakistan and

Database of Scientific Periodicals of Pakistan. All these databases are available on PASTIC Website: www.pastic.gov.pk

PASTIC Officers getting International Training on “Office Automation”



Training on “Office Automation” at SDC, New Delhi, India

SAARC Documentation Centre (SDC), a regional centre of SAARC, organized a five weeks training course on “Office Automation” for the professionals working in Administration/Human Resource/Finance/Accounts Sections. This training commenced at SDC, New Delhi, India on 27th July and will continue till 28th August 2015.

PASTIC is the National Focal

Point for SDC in Pakistan. Two officers of PASTIC Mr. Muhammad Ghazi, Deputy Director (Admin) and Mr. Ghaffar Ahmad, Assistant Director (Accounts) are attending this five-week training course at SDC, New Delhi, India. This training opportunity has been provided to Pakistan under the human resource development programme of SDC for SAARC Member States.

PC-1 on Modernization of PASTIC National Science Reference Library approved

PASTIC had prepared and submitted a PC-1 on Modernization of PASTIC National Science Reference Library for Effective Resource Sharing among S&T libraries in Pakistan, which has been approved by the DDWP at a total cost of Rs. 54.30 Million. The duration of the project is 24 months. Main objectives of the projects are

1. Development of Information Communication Technologies (ICT's) infrastructure for PASTIC National Science Reference Library
2. Development of Consortium of selected S&T and R&D libraries of

Pakistan (CSTRDLP)

- Creation of digital repository of indigenous literature.
- Creation of Union Online Public Access Catalogue (Union OPAC) for books and monographs of literature.
- Generation of union list of International scientific research databases subscribed by S&T and R&D organizations of Pakistan.

3. Capacity building of library information scientists (librarians) for Library Automation, Digital Library & Library Management, etc.

4. Revamping and strengthening of PNSR library.

The Libraries of S&T and R&D organizations will be Interlinked through this project and a National S&T digital repository will be developed through digitization / preservation of scattered indigenous S & T data of entire scientific community of the country at one place for which web access will be provided. All this will help in provision of relevant information at the doorstep of the scientific research scholars using modern technology

PASTIC Information Services at Doorsteps of Universities /Institutions

PASTIC regularly organizes its information services awareness seminars and stalls at universities and R&D institutions to bring its services at the doorsteps of researchers. This month PASTIC Services Awareness Seminar and Stall was organized at Sardar bahadur Khan Women University, Quetta on July 7th, 2015 by PASTIC sub center, Quetta. Mr. Faisal Hilal, Acting Assistant Director (STI), PASTIC Sub Centre, Quetta delivered a Presentation on PASTIC Information Services to the Students and Faculty members. 80 Scholars visited the PASTIC Services Stall.



Mr. Faisal Hilal, Acting Assistant Director (STI), Quetta delivering a PASTIC Services Presentation at Sardar Bahadur Khan Women University, Quetta

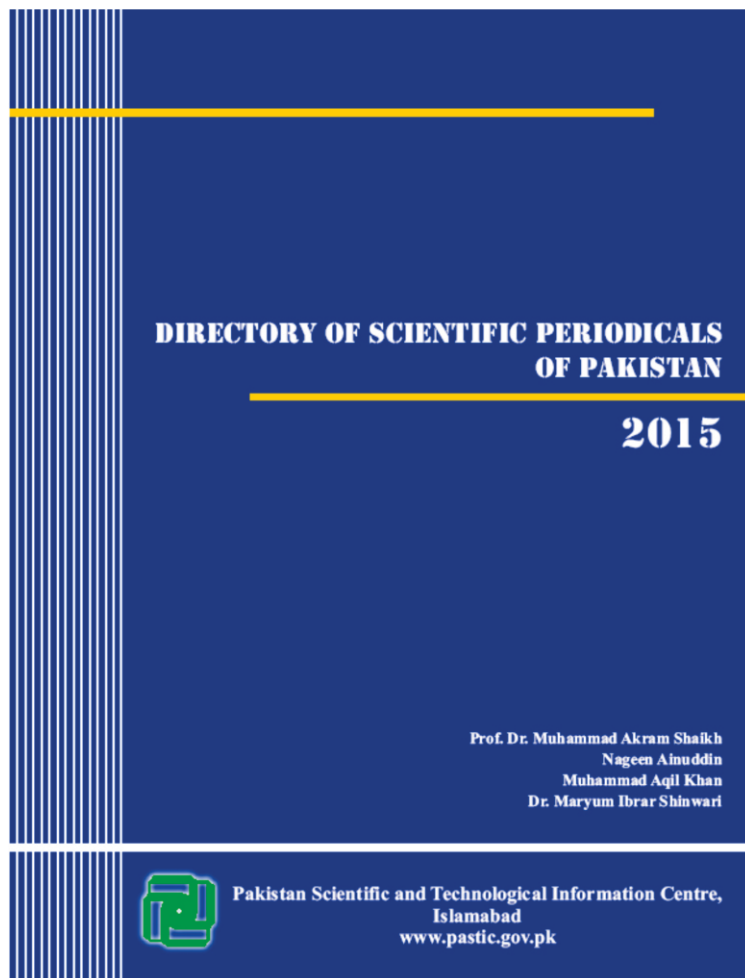
PASTIC Publishes Directory of Scientific Periodicals of Pakistan

Availability of a Reference Guide such as Directory of Scientific Periodicals is crucial for researchers as scientific periodicals are very important source of knowledge and information in which results of the research along with news, views and reviews on current issues are published. This resource is also important as it provides a medium for publishing research and extension work of scientists and researchers and for sharing ideas with their fellows.

PASTIC has compiled and recently published a directory of Scientific Periodicals of Pakistan which contains reference information about 480+ scientific periodicals of Pakistan, including primary journals, secondary journals, magazines, digests, newspapers, bulletins, etc. as well as those journals which have ceased to publish. The major information in the Directory includes title of periodical, subject, impact factor, publication fee, HEC

ranking, publishers contact details, price and frequency etc. Journals are rated according to the HEC criteria. A user guide has been given in the start and a subject index and a title index has been given at the end to facilitate the users of this directory

The said directory has been published in both print and electronic form. Its electronic version, which is accessible through PASTIC website, has been developed into an interactive, searchable database which covers all scientific disciplines and contains information about more than 480 periodicals. This comprehensive database of journal information is a powerful tool designed to help researchers search, filter, compare and finally select most appropriate Pakistani journal for submitting their manuscript for publishing. The information regarding periodicals can be searched by type of periodicals (primary journals, secondary journals and others), subject,



title, HEC category and ISSN. The directory can be searched at

<http://pastic.gov.pk/searchperiodicals.aspx>

Meetings/Workshops/Trainings Attended

- Prof. Dr. Muhammad Akram Shaikh, Director General, PASTIC/Member Science-PSF visited Balochistan University of Information Technology, Engineering and Management Sciences, Quetta for Re-accreditation of B.Sc Computer Engineering Programmes on July 13-15, 2015.
- Prof. Dr. Muhammad Akram Shaikh, Director General, PASTIC/Member Science-PSF visited NUST, Islamabad and Military College of Signals, Rawalpindi on nomination of Pakistan Engineering Council, Islamabad on July 28, 2015.
- Dr. Saima Huma Tanveer, Sr. Scientific Information Officer, PASTIC attended one day Public Private Dialogue on "Institutional and Policy reform of Export Success" at Crystal hall-A, Marriott Hotel, Islamabad on July 29, 2015. The event was organized by Pakistan Institute of Trade and Development, Ministry of Commerce, Islamabad.

Forthcoming Activities/Events

Pakistan Scientific and Technological Information Centre (PASTIC) Sub Centre, Faisalabad plans to organize a one-day workshop on "Intellectual Property Rights" at Government College for Women University, Faisalabad in the 3rd week of August, 2015. The University faculty and others will participate.

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