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Establishment of ECO Science Foundation Expert Group Meets at Islamabad



Representatives from ECO member States with Chairman, PSF

The Economic Cooperation Organization (ECO), an inter-governmental regional organization intends to establish "ECO Science Foundation" at Islamabad with the collaboration of Government of Pakistan. Pakistan Science Foundation is entrusted to work as its focal point in Pakistan. The basic purpose of the Foundation is to build up a reservoir of highly skilled scientific and technical manpower and to strengthen scientific and research institutions in the ECO member states. To meet its objectives, an Expert Group Meeting (EGM) was organized by PSF and Ministry of Science & Technology (MoST) at Best Western Hotel, Islamabad from September 2-3, 2007. It was chaired by Dr. N. M. Butt, Chairman, PSF / Head of Pakistani delegation.

The experts from ECO Secretariat and Member States Afghanistan, Azerbaijan, Iran, Pakistan, Turkey, and Uzbekistan participated in the meeting. The modalities for the establishment of ECO Science Foundation Headquarter at Islamabad, Host Country Agreement and Charter of ECO Science Foundation were discussed in detail. The budgetary requirements, mandatory contribution, and creation of separate ECO fund were also discussed. The participants of EGM unanimously drafted an additional protocol, proposing amendments to the ECO Science



ECO Expert Group discussion for establishment of ECO Science Foundation at Islamabad



Dr. N M Butt, Chairman PSF presiding over the ECO Expert Group Meeting

Foundation Charter for consideration of the forthcoming ECO Ministerial Meeting.

PSF Collaborates with Intel for Science Teacher Training

Teaching of scientific subjects, more effectively at school level paves the way for preparing research-oriented students at graduate level. In view of its importance, PSF collaborated with 'Intel Education Initiative Pakistan' and Ministry of Education to organize Science Teacher Training Workshop at PSF from August 21-23, 2007. The Workshop was aimed at training science teachers on scientific methodology and to provide them necessary guidance in preparing projects for 'National Science Olympiad' which is a part of Intel International Science and Engineering Fair (Intel- ISEF). The Chairman PSF, Dr. N.M. Butt presided over the workshop sessions. He briefed the participants about science popularization activities of the Foundation. Special programme to provide financial assistance to public sector schools for preparation of science and mathematics models was also chalked out. Accordingly, PSF will provide grants ranging from Rs.15,000 to Rs.20,000 to interested Government Schools through respective Directorates of Education.



Chairman PSF presiding over a session of Science Teacher Training workshop

Progress of R&D-Industry Programmes

The progress of PSF funded industry-related projects was reviewed in a meeting convened at PSF on September 12, 2007. The presentations were given by respective Principal Investigators in presence of representatives from end-user organizations as below:

- *Disbondment of Epoxy Coating and Integrity of Gas Transmission Pipeline (P.I. Dr. Ijaz Hussain Khan).* Engr. Mustafa Abdullah from Sui Southern Gas Company opined that coating techniques developed at Institute of Chemical Engg. & Tech., Punjab University, Lahore are better than international standards and also cost effective.
- *Establishment of Pilot Green Tea Processing Plant (P.I. Mr. Farrukh Siyar Hamid).*

The green tea processed under this project was served and samples distributed among the participants of the meeting. The taste was considered as very good.

- *Design and Manufacturing of Light Weight Composite Reinforced CNG Cylinders P.I. Engr. Abdul Kaleem Azad).*
- *Production of Iron and Steel from Kalabagh Iron Ore through Direct Reduction Process P.I. Engr. M. Shafique Anwar.*

The Chairman PSF was appreciative of the progress of above Projects. The researchers were confident about the success of these two very important projects.

- *Establishment of Sustainable Model Agriculture Farm in Basol Area Balochistan using Wind Energy and Drip Irrigation System (P.I. Dr. S. Shahid Hussain).*

Regretfully it was informed that the infrastructure (like water wells, land leveling) developed under this project was damaged during recent floods which has affected their activities adversely. However, Dr. N. M. Butt, Chairman PSF advised the researchers to accelerate the pace of work so that the projects could be completed within their stipulated time.

Science Promotion Activities

• Financial Support to Scientific Societies in Pakistan (Phase II)

Scientific Societies work as non-governmental professional bodies for the development of specific scientific disciplines. They provide forum for dissemination of scientific knowledge through conferences, symposia, seminars, publication of journals and through their linkages with counterpart societies in advanced countries. In view of their important role, a development project was initiated in 2001 which was successfully completed on June 30, 2007. Under this project, PSF supported 32 societies and provided them annual grant-in-aid amounting to Rs.39 million. These societies organized 125 science conferences/ symposia/

workshops, published 214 volumes of 16 scientific journals, 30 volumes of 10 newsletters/ pamphlets and five societies developed linkages with counterpart societies in advanced countries. After successful completion of the phase-I of the project, a PC-I for Phase-II costing Rs.36 million for a period of three years has been submitted to MoST for consideration.

- **Participation of Scientists/ Technologists in International Science Conferences, Seminars, Workshops and Trainings Abroad (Phase-II)**

Three meetings of Travel Grant Award Committee were held to consider 23 travel grant requests. Fourteen cases at a total cost of Rs.1.724 million were approved. However, the payment would be released after receipt of funds from Government.

- **Financial Assistance for Holding Conferences, Seminars and Workshops**

Rs.0.245 million was paid to five organizations for holding science conferences, workshops and symposia as per detail below:

- 2nd Int'l conference on "Environmentally Sustainable Development: ESDev-2007" held from August 26-28, 2007 at COMSATS Institute of Information Technology, Abbottabad.
- Conference on "Failure of Engineering Materials & Structures: FEMS-2007" to be held from October 22-23, 2007 at University of Engineering & Technology, Taxila.
- First Int'l workshop on "Hydrogen Technologies" scheduled to be held from April 21-23, 2008 at University of Balochistan, Quetta.
- First symposium on "Genomics, Proteomics, Metabolomics: Recent Trends in Biotechnology" to be held from October 22-23, 2007 at University of the Punjab, Lahore.
- 4th Int'l symposium on "Biotechnology" and "1st Pak-China-Iran International Conference on Biotechnology-Bioengineering-Biophysical Chemistry" to be held from November 4-8, 2007 at University of Sindh, Jamshoro.

- **Research Support Grant for Universities and other R&D Organizations**

Meeting of the Technical Committee in Physics was held on Sep. 11, 2007, wherein seven new projects were submitted. Out of them, five research proposals were approved as per detail below:

1. "Measurements of Photo-Ionization Cross Section of Atoms", 3-year project costing Rs.966,700 awarded to Prof. Dr. M. Aslam Baig, Deptt. of Physics, Quaid-i-Azam University, Islamabad.
2. "Fabrication and Characterization of Proton Exchange

Membrane Fuel Cell (PEMFC)", 2-year project, costing Rs.973,000, awarded to Prof. Dr. M. Ashraf Chaudhry, Deptt. of Physics, Bahauddin Zakarya University, Multan.

3. "Investigation of the Scope of Plasma Focus as Radiation Source for Material Processing Surface Treatment", 3-year project costing Rs.994,000, awarded to Dr. Muhammad Shafiq, Assistant Professor, Deptt. of Physics, Quaid-i-Azam University, Islamabad.
4. "Developing a Prototype Processing Reactor for Plasma Ionitriding of Steels", 3-year project costing Rs.964,380, awarded to Prof. Dr. M. Zakaullah, Deptt. of Physics, Quaid-i-Azam University, Islamabad.
5. "Search for Light Magnetic Monopoles (SLIM) using Solid State Nuclear Track Protector", 3-year project costing Rs.999,600, awarded to Dr. M. Ikram Shahzad, Principal Scientist, PINSTECH, Islamabad.

As regards the on-going projects, 12 progress reports (semi-annual/annual/final) were received and sent to subject experts for evaluation. After necessary processing, an amount of Rs.2.929 million was released on account of due installments of these research projects.

- **Funding of Research Under NSLP Endowment Program**

The governments of Pakistan and USA signed an agreement for establishment of Natural Science Linkage Program (NSLP) under PL-480 scheme and created an Endowment to expand research and commercial activity in the field of agriculture. The endowment account is maintained in PSF under the umbrella of Ministry of Science & Technology (MoST). It is governed by a Board of Governors, headed by the Minister of S&T with members including Secretaries of MoST, MoF, EAD, MINFAL, Chairman PSF, Chairman PARC and Director NIAB. A Technical Committee in Agriculture, during its meeting in August, 2006 prioritized research areas. Accordingly, the research proposals were invited from scientists working in universities and R&D organizations. PSF received 27 research proposals, which have been evaluated by subject experts. The projects will be placed before the Technical Committee for final approval.

New Initiative

- **Automation of PSF Research Support Programme and Other Activities**

This project at a total cost of Rs.19.081 million was approved by Ministry of Science & Technology to establish LAN and WAN facilities in PSF, PASTIC and PMNH. It aims to strengthen its various programmes and to facilitate the scientists in Pakistan and abroad to get on-line information about PSF activities. After obtaining necessary hardware and joining of technical manpower, the

subsequent activities have been initiated.

Science Popularization Activities

• Training Workshop Arranged for Science Caravans

PSF arranges mobile science exhibitions in schools throughout Pakistan. For this purpose, it has set up "Science Caravans" at federal and provincial level in various cities. Presently, five Science Caravans are operating in the areas of Punjab (Faisalabad), NWFP (Peshawar), Sindh



A view of Science Caravan training session

(Sukkur), Balochistan (Quetta) and Federal Area (Islamabad). The officers and staff of these Caravans are responsible for maintenance and organization of mobile exhibitions, which include; science film shows, planetarium shows, scientific exhibits, working models, etc. In view of their specific role in different types of science popularization activities, they require special training and guidance for smooth running of the programme. Hence, a two-day training workshop was arranged for officers and staff of Science Caravan units at PSF from August 28-29, 2007.



Participants of Science Caravan training with Chairman, Member Science & CSO, PSF

The Officer Incharge of these Caravans presented their annual progress reports, plans and budgetary requirements

for 2007-08. The training on "Facilitation Skills" was provided by Mr. Munawar Raza Kazmi and Mr. Roshan Zada, National IPM Experts, NARC, Islamabad.

Dr. N. M. Butt, Chairman, PSF speaking in the concluding session informed that the Foundation is enhancing its Science Popularization activities and going to establish further six Science Caravans, 500 Science Clubs and 15 Science Centres in the country through development projects. He also briefed about "International French Mathematics Exhibition", which will be arranged in Pakistan through Science Caravan Units during the month of February-April, 2008.

• Science Caravan Exhibitions

Federal and Provincial Science Caravans arranged seven exhibitions in the schools of Islamabad, Rawat Tehsil Murree, Faisalabad, Chiniot, Districts of Shangla, Badin and Jamshoro.

• Scientific Magazines and Literature

Three thousand copies of popular science magazine, monthly "Global Science" were provided to 1000 High Schools of the country. Further, more than 5000 posters/brochures/ booklets were distributed during Caravan exhibitions arranged at different locations.

• Financial Assistance

Rs.50,000 were released to two Govt. High Schools of Sahiwal and Budh Distt. Muzaffargarh (Rs.25,000 each) for purchase of laboratory equipment.

• Provision of Scientific Films to NMST, Lahore

In continuation of its activities for popularization of science among the masses, the Foundation provided 54 CDs of scientific films to National Museum for Science & Technology (NMST), Lahore. The films will be used for large scale screening in the Hall of NMST, Lahore on regular basis.

• UNESCO Project "Breaking the Poverty Cycle of Women"

Under a UNESCO funded project "Breaking the Poverty Cycle of Women in Rural Areas", PSF has prepared four booklets (500 copies each) entitled *Aids, Hepatitis, Maan Bachaey Key Sehat and Saada Aur Dilchasp Science*. These booklets are prepared especially for neo-literates and out of school adolescent girls living in remote areas of Pakistan.

PSF-Hazara University Sign MoU

Pakistan Science Foundation has planned to establish fifteen Science Centers in various cities of the country. Under this programme, the universities were contacted to provide a piece of land within their premises for construction of science centre. The Hazara University offered about two acre land for this purpose. Hence, an MoU was signed between PSF and Hazara University on August 22, 2007 for its allotment. Earlier, two MoU were signed with Shah Abdul Latif University, Khairpur and

Balochistan University of Information Technology & Management Sciences, Quetta, for the establishment of Science Centres at these places.

Young Medical Graduates Meet Nobel Laureates in Lindau

Dr. N.M. Butt, Chairman PSF accompanied seven young Pakistani graduates in Medicine to interact with Nobel Laureates at 57th Meeting in Lindau, Germany which was held from July 1-6, 2007. Pakistan Science Foundation made necessary arrangements for the selection of most bright scholars and organized an Orientation Camp to prepare them, before proceeding to Germany. The Pakistani students remained prominent by asking meaningful questions during the lectures and question/ answer sessions. The Nobel Laureates, Prof. Craig C. Mello was invited at a luncheon discussion in a Pakistani restaurant to discuss the prospects of higher studies for bright Pakistani students. He promised to come to Pakistan for forthcoming Meeting of Nobel Laureates in Islamabad/ Lahore during March 2008. At the end of the Meeting, Pakistani participants visited highly advanced medical facilities at Ulm and other important places with personal efforts of Dr. N.M. Butt, Chairman PSF / Incharge of this programme.

Lectures Delivered by Dr. N. M. Butt

Dr. N. M. Butt, Chairman PSF delivered lectures at various institutions as below:

- "Nanotechnology and Its Wonders" at Deptt. of Physics, Quaid-i-Azam University Islamabad on July 20, 2007.
- "Nanotechnology and Its Current Status" at Pakistan Academy of Sciences, Islamabad on April 6, 2007.
- "Nanotechnology and Diffraction from Materials" presented on Aug. 15 at 'National Workshop on Crystal Structure Determination using Powder X-Ray Methods' held at Centre for Solid State Physics (PU), Lahore from August 15-17, 2007.
- "Nanotechnology and Molecular Biology" as the Chief Guest in concluding ceremony of the workshop on 'Recent Advancements in Microbiology' organized by Deptt. of Microbiology, University of Karachi on September 1, 2007.
- "Overview of Nanotechnology and Biotechnology in Pakistan" as the Chief Guest in inaugural ceremony of 'Nanobiotech Seminar' at NIBGE, Faisalabad on September 10, 2007.

Establishment of "National Science Museum" at Islamabad

PSF plans to establish a state-of-the-art "National Science Museum" at Islamabad, which is directly related to its statutory role and mission of science popularization. The science museums are recognized worldwide for their importance to people of all ages in appreciating aspects of

science in a leisurely and entertaining manner. They illustrate scientific principles, their relevance to everyday life and bring science closer to the people to promote understanding of the natural processes. First-of-its-kind in Pakistan, this museum will particularly serve as the repository of scientific heritage of the country.

In this connection, a draft PC-1 is being prepared to be submitted to Ministry of Science & Technology shortly. The important issues regarding this project were discussed with the Chairman, CDA during a meeting held on August 21, 2007. Mr. Kamran Lashari, Chairman, CDA promised to allocate a piece of land at Garden Avenue for this purpose. Further, he assured his full cooperation for execution of this project of national importance.

Independence Day Celebration at PSF

Pakistan Science Foundation organized meetings of all employees at PSF auditorium, PMNH and PASTIC on August 8, 2007 to celebrate Pakistan Independence Day. Dr. N.M. Butt, Chairman PSF exhorted the employees to remain grateful to Almighty Allah for His blessings and perform duties with honesty, dedication and devotion to our homeland.

Meeting of Board of Trustees (BoT)

30th Meeting of PSF Board of Trustees (BoT) was held on September 8, 2007 at PSF Committee Room.

Training Aailed

Dr. Farid Asif Shaheen, Sr. Scientific Officer attended the training workshop on "Controlled and Modified Atmospheres to Preserve Post-Harvest Quality of Stored Grains" held from July 30-31, 2007 at University of Arid Agriculture, Rawalpindi.

Promotions at PSF

- Engr. Iftikhar Ahmad Soomro, PSO has been promoted to Director Research Support (BS-20) w.e.f. Aug. 06, 2007.
- Mr. Muhammad Iqbal Khan, AD (Estt.) has been promoted to Dy. Director (Estt.) (BS-18) w.e.f. Aug. 06, 2007.
- The post of Mr. Munir Ahmed, PA to Chairman (BS-17) has been redesignated as PS to Chairman (BS-17) w.e.f. Aug. 06, 2007.
- Mr. Ameer Khan, Caravan Assistant, Punjab Unit, Faisalabad has completed his Ph.D. in Agriculture from University of Agriculture, Faisalabad.

New Appointments for Development Projects

Following employees have joined PSF under its two development projects:

- Ms. Arooj Fatima, Data Coordinator

- Mr. Noman Masood Khan, System/Database Administrator
- Mr. Shoaib Ahmad Ghazi, Senior Scientific Officer
- Mr. Muhammad Israr, Scientific Officer
- Mr. Mazhar Ali, Technical Assistant.
- Mr. Farhan Khan, Scientific Assistant.
- Mr. Kamran Latif & Mr. Asif, Data Entry Operators

Pakistan Museum of Natural History (PMNH)

Addition of Animated Exhibits at PMNH Display Centre

PMNH Display Centre has quite attractive exhibits in the form of three-dimensional dioramas. However, moving pictures or models using advanced computer techniques have gained worldwide popularity among children as well as elderly visitors. As such, the art of animation makes learning fun and extremely enjoyable experience.

Keeping in view the importance of animation in education, a new gallery of animated exhibits is being added as an important segment of the development project, "Completion of Block-II and Strengthening of Research and Display Activities of Pakistan Museum of Natural History, Islamabad". The project costing Rs.3.638 million has been approved by PSDP and work under various heads has been initiated.

The preparation of fifteen animated exhibits including, Dinosaur, Earth Globe, Solar System, Earthquake Simulator is in progress. These will be depicted through a mix of graphics, models, sets and behind the scene documentaries. Moving models and animals in action will certainly attract more students and other visitors in future.



Thai delegation with Chairman, PSF and PMNH scientists after their visit

Thai Science & Technology Delegation Visits PMNH

A high level science and technology delegation headed by Mr. Pathom Yamkate, Deputy Permanent Secretary of Thai Ministry of Science and Technology visited Pakistan

Museum of Natural History on September 12, 2007. The members of the delegation held discussions with PMNH scientists on issues of mutual interest. Dr. N.M. Butt, Chairman, Pakistan Science Foundation and Dr. M. Rashid Awan, Director General, PMNH briefed the delegation on PMNH activities. The members of Thai delegation visited various display galleries and laboratories of the scientific divisions of PMNH.

US Director Visits PMNH

Mr. Bruce Howard, Director, Office of Science and Technology Cooperation, U. S. Department of State visited Pakistan Museum of Natural History on September 13, 2007. The visit was aimed to facilitate coordination with organizations of Ministry of Science & Technology. Dr. N. M. Butt, Chairman, Pakistan Science Foundation and Dr. M. Rashid Awan, Director General, PMNH briefed them about PMNH activities. They also visited the galleries and laboratories of PMNH.



US delegation being briefed about PMNH during their visit

Field Work

- The geologists of PMNH carried out one-day field tour in Pabbi area, NWFP and Ramli area, Islamabad to study the geology and stratigraphy of the area. Fifty geological samples were collected for research and their display at Earth Sciences gallery.



Dr. M.K. Leghari, Curator working at Humdrap Lake, Shandur Park

- A team of Zoologists and Botanists of PMNH visited Salt Range and Northern areas to study the fauna and vegetation of the lakes of these areas under "Pakistan Wetlands Programme". They collected some 6,050 animal and 450 plant specimens along with field data on ecological conditions of these areas.

Publication

- Jagoutz, O., Muntener, O., Ulmer, P., Petteke, T., Burg J.P., **Dawood, H.** and **Hussain, S.S.** 2007. Petrology and Mineral Chemistry of Lower Crustal Intrusions: The Chilas Complex, Kohistan (NW Pakistan). *Journ. Petrology*, Vol. 48(10): 1895-1953.

PMNH Visitors

Pakistan Museum of Natural History provided educational guidance to a total number of 4,586 visitors during this quarter. These include; students 2,389, general public 2,113 and foreigners 84.

Educational Services

Dr. M.K. Leghari, Curator, BSD evaluated M. Phil. thesis of a student of Department of Botany, University of Peshawar and conducted viva voce as External Examiner.

Promotions at PMNH

Mr. Muhammad Akhtar Javed has been promoted to Senior Operational Manager (BS-20) in Public Service Division.

Following officers have been promoted to BS-19 as Curators:

Dr. Saleem Ahmad (Botanical Sciences Div.)

Dr. Muhammad Rafique (Zoological Sciences Div.)

Mr. Hamid Dawood and Ms. Ghazala Roohi (Earth Sciences Div.)

Mr. M. Ishaque Baig has been promoted to Additional Director Admin (BS-19).

Pakistan Scientific & Technological Information Centre (PASTIC)

Golden Jubilee of PASTIC

PASTIC, which was established in 1957 is celebrating its 50th anniversary with former employees, users and partner organizations, in December 2007. In this connection, a one-day seminar will be arranged besides the publication of a "Newspaper Supplement" and "Fifty Years Report" about PASTIC achievements.

PASTIC, formerly named as PANSDOC (Pakistan Scientific and Technical Documentation Centre) was established at Karachi, under the administrative control of PCSIR to provide S&T information services to researchers all over the country. Soon after the establishment of Pakistan Science Foundation (PSF) in 1973, government approved a similar project for the establishment of a national information network named as "Pakistan Scientific and Technological Information Centre (PASTIC)" for performance of its statutory functions. Thus, it was established as a subsidiary organization of PSF around the nucleus of the Pakistan Scientific and Technical Documentation Centre (PANSDOC), which was transferred to the Foundation at Islamabad with effect from 1st January, 1974. PASTIC has its own building at Quaid-e-Azam University Campus, Islamabad.

Documentation & Bibliographic Services

126 articles and 58285 abstracts were provided to scientists/researchers through on-line and off-line information resources.

Library Acquisition and Services

160 issues of journals, 10 documents and 14 books were received in PASTIC library. 105 articles were supplied to users.

Training Provided

Training on WIN/ISIS software package was provided to two Librarians from AJK University for automation of their library.

Training/Seminar Attended

- Ms. Nageen Ainuddin, Director PASTIC, Ms. Kausar Sohail, Sr. Bibliographic Officer and Syed Aftab Hussain Shah, Scientific Information Officer attended the workshop on "Promoting University-Industry Relationship through Technology Incubation" organized by NUST and HEC on September 12, 2007 at HEC.
- Dr. Saima Tanveer, Senior Scientific Information Officer and Syed Aftab Hussain Shah, Scientific Information Officer attended a seminar on "Integrated Intellectual Property Management in Pakistan" on August 23, 2007 at PCST, Islamabad.
- Mr. Muhammad Khalid, Officer Incharge, PASTIC Sub-Centre, Karachi has proceeded to New Delhi, India to attend a training course on "Information Technology for Information Management" to be held at SAARC Documentation Centre (SDC) from September 12, 2007 to October 17, 2007.

Scientific Documentaries Prepared at PASTIC

The foreign S&T documentaries acquired under the

development project "Science Awareness through TV Channels" are being dubbed and translated into Urdu. In the meanwhile, production of the following local S&T documentaries has been completed to be aired on different TV channels shortly:

• **Deforestation and its Impact on Environment:** This



documentary is about types of forests, their socio-economic importance and their distribution in Pakistan. The focus is on deforestation, growing consumption of wood and timber as fuel, its impact on local and global climate and its role in conservation of water.

• **Medicinal Plants in Pakistan:** This documentary



focuses on medicinal plants of Pakistan. It covers the history and importance of traditional medicines, contribution of famous Muslim Hakims, export of herbal products and their contribution to poverty alleviation. Various organizations dealing with medicinal plants and the rules and regulations about herbal products are also discussed.

• **Environmental Health Hazards:** It describes all types



of pollution. The industrial effluents/emissions, pesticides, hospital and household wastes, as a source of air, water and environmental pollution are discussed. It also explains health effects of chemicals used in various activities and suggests various ways to minimize different kinds of pollution.

• **S&T Museums in Pakistan:** This documentary talks



about the role of Museums in informal education. It covers the activities and scientific exhibits, models, dioramas of National Museum of S&T, Lahore, Pakistan Natural History

Museum, Islamabad and Science Centre, Faisalabad. The role/ contribution of Pakistan Science Foundation and the need to develop a network of S&T Museums in Pakistan is also highlighted.

• **Earthquake Prone Areas of Pakistan:** It talks about



different earthquake prone areas of Pakistan, previous earthquakes and detailed study of 8th October 2005 earthquake. It covers the importance of building codes and safety measures needed to

minimize the casualties during the earthquake.

• **Salt Range (Khewra Mines):** This documentary gives



the interior view of the Khewra mines, the second largest mine in the world, its structure and process of salt drilling inside the mine. It shows different types of salt, their extraction and transportation to

outside of mine.

• **Biotechnology in Pakistan:** This documentary covers importance of biotechnology and its role in improving health, medicines, vaccines, food, agriculture and forestry. Importance of industrial biotechnology and role of different institutes like; NIBGE, NIAB, CEMB and National Commission on Biotechnology has been highlighted.

Promotions / Repatriation

• Dr. M. Ashraf Chaudhary, Officer Incharge/ Chief Liaison Officer, PASTIC Sub-Centre, Lahore has been promoted to (BS-20).

• Mr. Muhammad Aqil Khan, Chief Editor (BS-18) has been promoted to Deputy Director (Documentation) in (BS-19).

• Mr. M. Ghazi, Accountant (BS-17,SG) has been promoted to Assistant Director Admn (BS-17).

• Dr. Saima Tanveer, Sr. Scientific Officer, PSF has been repatriated to PASTIC as Sr. Scientific Information Officer (BS-18).

Raja Razi-ul-Hasnain, Senior Scientific Information Officer has completed his Ph.D in Biochemistry from University of Arid Agriculture, Rawalpindi.

PASTIC S&T Documentaries are scheduled to be aired on PTV News Channel from January 2008 at 3.05 pm. every Sunday.