



From the Executive Director's Desk

Governments across the globe are looking to technology innovation as a driver for national economic growth, and to universities and research organizations as incubators of this national capacity. But creation of conducive environment, autonomy and incentives to researchers and provision of adequate funding are pre-requisites to accomplish the desired goals. When we talk about Pakistan, our R&D spendings were 0.67% of the GDP in the year 2007 and now it is about 0.3%.

In the current circumstances, Government of Pakistan has taken a good initiative by approving a new development project titled, "HEC Technology Development Fund (TDF)" with a total cost of PKR 3 billion. Under this programme, Higher Education Commission (HEC) will provide financial support to academia and R&D for developing marketable products, technologies or services which may have a substantial impact on the economy, by solving current industrial problems, meeting market needs, utilizing local raw materials, ensuring value addition as well as creating large scale employment.

Technology Development Fund offered by HEC is indeed a great opportunity and need of the time. HEC would also encourage participation of researchers from R&D organizations as Co-PIs in various research proposals to be prepared in collaboration with academia and industry. Our universities and R&D organizations have now developed sufficient infrastructure, as well as human resource and are competent enough to provide the required support to the industry. HEC has made a lot of efforts for grooming thousands of foreign as well as local PhDs who can play a vital role in introducing and developing new and marketable technologies. R&D organizations of MoST, beside good industrial linkages, are having excellent research, designing and development facilities as well as pilot plants in different disciplines, which give them distinct competence in handling research projects of applied nature. Thus, they can play a vital role to make TDF programme fruitful, productive and a real success.

Minister for S & T inaugurates "First International Conference & Expo on Biomass Gasification Technologies in Pakistan" at NUST

First International Conference & Expo on Biomass Gasification Technologies kicked off at National University of Sciences and Technology (NUST) on July 27, 2016. The two-day conference was organized by US-Pakistan Centre for Advanced Studies in Energy (USPCAS-E) in collaboration with UNIDO Pakistan, under a GEF-funded project "Promoting Sustainable Energy through Biomass in Pakistan".



Federal Minister for Science & Technology Rana Tanveer Hussain graced the occasion as the chief guest. The conference speakers elucidated critical barriers, pivotal challenges and attainable solutions for the promotion of market-based execution of biomass gasification technologies in Pakistan. It brings together participants from all over Pakistan, including senior government officials, representatives from the private sector, industry associations, academia and the civil society. The conference aimed to address the industrial applications of Biomass Gasification Technologies (BGTs) as alternative, sustainable and effective fuel for our future to reinforce the Small and Medium Enterprise (SME) industrial sector in Pakistan. Speakers, panelists, and experts in the field of energy and industry from across the globe including Germany, USA, UK, Netherlands, South Africa and Finland participated in the conference. Congratulating USPCAS-E and UNIDO for organizing the conference on such an important area, the Federal Minister said that the universities must invest in renewable energy technologies. Considering the availability of biomass residues in abundance, it also holds promise to rein in environmental degradation, he added. He stressed upon the need for increased partnership between the industry and the academia for fast-paced development on the basis of collaborative research. The chief guest also congratulated NUST on its silver jubilee and admired it for attaining international stature in a very short span of time. He said that the university was playing a key role for the promotion of quality higher education in Pakistan. Later, he inaugurated the expo showcasing various projects from biomass to energy.

2nd Meeting of Pakistan-Belarus Joint Commission

Under the framework of agreement on Scientific & Technological Cooperation signed in May 2015, the second meeting of Pakistan – Belarus Joint Commission on Science & Technology (JCST) was held on September 22, 2016 at PCSIR Head Office, Islamabad. The Belarusian delegation was led by



Mr. Viktor Volosalikov, Vice Chairman – JCST/ Head of the Department on Science & Innovation Activities, Ministry of Education of the Republic of Belarus, whereas, Dr. Shahzad Alam, Chairman PCSIR presided over the meeting as Co-chair from Pakistan side. The JCST reviewed the progress of the decisions made during the first JCST's meeting held in August 2015 in Minsk, Belarus. Moreover, the Statute for the establishment of the Belarus – Pakistan Joint Centre for Science & Technology Cooperation was also firmed up. Under the scope of this statute, two centers for Belarus - Pakistan S&T Cooperation are being established

in both the countries. The Belarusian branch will be operated through its state institution namely "Belarusian Institute of System Analysis and Information Support in Science & Technology (BelISA), whereas, the Pakistani branch will be operated through PCSIR. The Pakistani Centre will formally get into operation in October, 2016 and the opening ceremony is being planned during the forthcoming visit of the Belarusian President. The goals and scope of activities of these Centre are to assist the education institutions, research organizations, innovative and innovative-industrial enterprises of both the countries in expanding their business and academic relations and contract in the field of scientific and technological research.

Discussions were also held regarding cooperation between Pakistan National Accreditation Council (PNAC) and its Belarusian Counterpart in the field of Accreditation. In the meanwhile, an action plan for implementation of MoU signed earlier between Pakistan Standards & Quality Control Authority (PSQCA) and Belarus State Committee for Standardization (SCS) was also discussed. The JCST also had a brief in the bilateral R&D projects that were conceived as follow-up of the 1st JCST meeting. The JCST accorded its approval to go-ahead for implementing these projects. The JCST ensured its full support in enhancement of cooperation & collaboration between the two countries for promotion of Science and Technology for mutual benefits.



3rd International Water Conference, 23-25th August Islamabad Club



The 3rd International Water Conference was jointly organized by RIPAH was International University, University of Haripur, PCRWR and SHFINT. This three-day event took place during August 23-25, 2016 at Islamabad Club. A total of 70 publications on water security and sustainable development were presented during the conference. Minister for Planning, Development and Reforms, Mr. Ahsan Iqbal, Secretary, Ministry of Science and Technology, Dr. Anis Ahmad, Dr. Nasir Ali, ambassadors of Palestine, Tajikistan and counselor Sudan graced the inaugural ceremony of the conference.

The conference highlighted critical water issues and challenges and explored ways and means for integrated water recourse development and management to attain sustainable development through scientifically-sound advice under the various themes including; climate change, water security, trans-boundary water quality and water policies & practices. Leading national and International Universities and R&D Organization, Water experts participated in the conference through scholarly paper presentations.

Prof. Ahsan Iqbal, Federal Minister for Planning, Education and Reforms was the chief guest at the inaugural session. He appreciated the unique combination of government, educational and development sectors to highlight the most alarming issue of water scarcity. He apprised the audience about the ongoing projects of government to overcome the water challenges that Pakistan is facing with. He appreciated the efforts of Riphah International University in organizing thought provoking session on a challenging issue.

Mr. Fazal Abbas Maken, Federal Secretary S&T, Mr. Nisar Memon, Former Federal Minister, Dr. Anis Ahamd, V.C Riphah University, Dr. Naseer V.C, Haripur University, Dr. Ashraf, Chairman, PCRWR and ambassadors of Palestine, Tajikstan and Counselor of Sudan were also present at the conference. They were of the view that water is the key element for the socio-economic development of any country and we must not only view sustainability as a problem of science, engineering, or economics; it is also founded on values, ethics, and the equal contributions of different cultures. It was further stressed that comprehensive consensus oriented National Water Policy is the need of time to pursue an effective water strategy considering climate change factor which is a serious threat to Pakistan's water supply system.

The conference deliberations and technical sessions stressed to take holistic approach to address serious issues of water scarcity, resource depletion and contamination. The participants were of the view that the uncertainty introduced with climate change has further complicated the scenario.



Our Ocean Conference at Washington, DC, USA

United States' Secretary of State John Kerry hosted the third Our Ocean conference in Washington DC from September 15-16, 2016. Federal Minister for Climate Change and Director General, National Institute of Oceanography (NIO) attended the conference.

The Conference focused on the key ocean issues of our time; marine protected areas, sustainable fisheries, marine pollution, and climate-related impacts on the ocean. The overarching objective of the conference was to inspire and empower a new generation of leaders, entrepreneurs, scientists and civil society to identify solutions and commit to actions to protect and conserve our ocean and its resources. The Conference was a visually engaging, inspiring, and interactive event with an unwavering emphasis on commitments for action by participants and other stakeholders around the globe including foreign ministers, Climate, Environment, Oceans and Fisheries ministers, and other established and up-and-coming ocean leaders in government, science, industry, and civil society.

Federal Minister for S&T Visited PCSIR Laboratories Complex, Lahore

The Federal Minister for Science & Technology, Rana Tanveer Hussain visited PCSIR Laboratories Complex, Lahore on July 4, 2016. Dr. Shahzad Alam, Chairman PCSIR, welcomed the Minister. The Minister visited the newly constructed office for the establishment of Pak-China Technology Transfer Center within the premises of PCSIR, Lahore. The Chairman PCSIR briefed the Federal Minister about R&D activities being carried out at PCSIR, Lahore. He further briefed about the progress of need-based R&D projects and necessary measures to achieve the target of self-sustainability. The Minister also visited the facilities of the Computerized Numerical Controlled Machine Shop.



The Federal Minister appreciated the services of PCSIR being rendered to Public & Private Sector Organizations. He further directed to establish strong liaison with the relevant stakeholders and boost-up the services for the industrial sectors. The Chairman, PCSIR assured the Minister to comply with his directions and bring further improvement in the performance.

Chairman PCSIR Visits Swat Chamber of Commerce & Industry and the University of Swat



Dr. Shahzad Alam, Chairman PCSIR along with senior management from PCSIR Laboratories Complex, Peshawar and PCSIR Head Office Islamabad visited Swat Chamber of Commerce & Industry and the University of Swat on Thursday September 9, 2016.

During the visit Mr. Ahmed Khan, President, SCCI welcomed the Chairman and his delegation. In his opening remarks, Mr. Ahmed Khan briefed that several industries related to Pharmaceuticals, Cosmetics, Textile, Marble and Food Sector are located in Swat – Mingora region. Unfortunately, none of the public sector R&D organization is available in Swat to cater their requirements. He further informed that in the history of Swat Chamber, PCSIR is the first organization who visited this Chamber to explore the local industrial problems and for establishing Research & Industrial support center.

Chairman PCSIR assured full cooperation of PCSIR for resolving industrial problems, improvement in their products and skilled training courses. The industrialists urged Dr. Shahzad Alam to establish a research laboratory and technical training centre in Swat for which Haji Zahid, President of Swat Hotel Association offered his land to PCSIR on gratis. The Chairman PCSIR appreciated his passion and assured the industrialist that PCSIR will soon establish its institute and laboratory in Swat. Afterwards, the Chairman, PCSIR visited the University of Swat, wherein, both the entities discussed, in detail, the areas of collaboration of mutual interests. At the end, Dr. Shahzad Alam hoped that the cooperation between PCSIR and the University of Swat will help strengthen Research, Academia & Industrial linkages.



SEGA Meeting and Training Course on Halal Accreditation

Pakistan National Accreditation Council (PNAC) is the first accreditation body, starting Halal Accreditation and has already accredited 04 certification bodies on Pakistan Standard i.e. PS 4992. To share this experience, Director General, PNAC, Ms. Ismat Gul Khattak conducted a training course on Halal Accreditation in Bangladesh. This course was attended by the representatives of SAARC countries.

REAP and STEDEC delegations Visit PCRWR

A six member delegation from REAP (Renewable & Alternate Energy Association of Pakistan) along with a member from STEDEC (STEDEC Technology Commercialization Cooperation of Pakistan) visited PCRWR on September 6, 2016. This meeting was held in continuation of joint meeting held on June 23, 2016 at Ministry of Science and Technology, Islamabad. The aim of this consultation was to help PCRWR in commercialization of its products, process and technologies in general and PCRWR's work on renewable energy sector in particular.



NIO Scientist elected as Member of Legal & Technical Commission in the International Seabed Authority (ISBA)

The Council of the International Seabed Authority, in a meeting in Kingston on July 22, 2016 completed the election of a new cadre of experts to serve on the Legal and Technical Commission (LTC) for the next five years. Mr Khalid Mehmood Awan of National Institute of Oceanography (NIO) is one of the 30 members elected as member of Legal & Technical Commission for the term of five years (2017 – 2021). Dr. Shahid Amjad and Dr. Asif Inam of NIO have served as members of Legal & Technical Commission during the terms 2002 – 2006 and 2007 – 2011, respectively.

NCBI for Water Quality Management at PCRWR

A meeting regarding construction of National Capacity Building Institute (NCBI) for Water Quality Management at Pakistan Council of Research in Water Resources (PCRWR) was held at Ministry of Science & Technology, Islamabad on August 02, 2016. Mr. Fazal Abbas Maken, Secretary, Ministry of Science & Technology chaired the meeting while Director General KOICA, Mr. Sung Choon Ki, Chairman PCRWR, Dr. Muhammad Ashraf and senior officers of PCRWR were also present in the meeting.



PCSIR Organized a One-Day Seminar on “Role of PCSIR for Industrial Development & Its Impact on National Economy” at Skardu

Pakistan Council of Scientific & Industrial Research (PCSIR), Ministry of Science & Technology (MoST) organized a one-day seminar on “Role of PCSIR for Industrial Development and its Impact on National Economy” at Skardu in a local hotel on July 25, 2016. Mr. Muhammad Ashraf, Additional Secretary, MoST was the Chief Guest of the Inaugural Ceremony, whereas, Dr. Shahzad Alam, Chairman PCSIR alongwith his senior management was also present at the occasion.



The basic theme of the seminar was to enhance awareness among the local community of Gilgit-Baltistan (GB) region regarding importance of knowledge based technology development, inventions & innovations achieved by utilizing indigenous resources for economic growth of the country. In the seminar, three potential areas of GB region i.e, Food Preservation/ Processing, Medicinal Plants/ Herbal Resources and Exploitation of Precious Stones/ Minerals & its value addition were focused. In this context, lectures were delivered by relevant technical experts.

Dr. Shahzad Alam in his keynote address disseminated that Research & Development plays a critical role in the innovation process. It has the ability to foresight the future problems and their remedies. It's essentially an investment in technology & future capabilities which is transformed into new products, processes & services.

The Chief Guest in his speech emphasized that to achieve the level of developed countries, we need to focus on every field of Science & Technology. Likewise by adopting modern post harvest technology, we can reduce major income losses in terms of agri-product loss. He congratulated the management of PCSIR, especially Dr. Shahzad Alam for organizing such a meaningful activity & appreciated the efforts and firm commitment of PCSIR's scientists/ technologists for contributing in national economy. In the end souvenirs were distributed among the resource persons of the seminar.

International training programme on “Strategies for sustainable manufacturing and operations

The University Tun Hussein Onn Malaysia (UTHM) organized a 14-day international training programme on “Strategies for sustainable manufacturing and operations: theory and practice” under the Malaysian Technical Cooperation Programme (MTCP) from August 06-19, 2016, in Malaysia. The course was designed to enable the participants for identifying alternative interpretation of sustainability in the field of economic, ecology, business and resource accounting. Engr. Muhammad Irfan from PCSIR, Lahore attended this International course/ training. Ten candidates from seven different countries participated, wherein, Engr. Muhammad Irfan was awarded the Best Participant Award by the management of Malaysian Technical Cooperation Programme and UTHM, Govt. of Malaysia.

Engr. Muhammad Irfan chalked out potential areas like; sustainability and renewable energy in which PCSIR may seek collaboration with the University Tun Hussein Onn, Malaysia.



NUST Incubatee wins an award at International Conference on Intelligent robots and systems

Technology Incubation Center - NUST Incubatee makes to the world's biggest robotics event, IROS 2016 (International Conference on Intelligent robots and systems).

TIC's incubatee Wonderful Engineering (Tech Valley) has been awarded Runner Up position in Robotics Entrepreneurship forum.

Dr. Mohsin Tiwana and Fahad Tiwana represented NUST at the event.

This is the first time that Pakistan has won an award at this forum. IROS has highest H-index in Robotics in the world and over 1500 researchers participated this year in various categories of the event from over 70 countries of the world.



NUST TIC Incubatee Cargar Brings First Motorbike Taxi Service to Pakistan

Cargar at TIC NUST has introduced Pakistan's first Motorbike Taxi service with aim to provide efficient, secure & inexpensive mode of transport to general masses in Islamabad & Rawalpindi. Cargar plans to expand to other major cities of Pakistan soon. This startup is backed by vision of Faran Ahmad who is the CEO of Cargar, NUST graduate and Software Engineer by trade & seed funded by Dr. Faisal Shafait who is serving as professor at SEECs



NUST and also assuming role of Chief Strategy Officer. Cargar aims to become Pakistan's leading application based Taxi service. Cargar is providing the economical and most efficient transport service since it is based on motorcycles. Hence the service is particularly good for the students and working community, who have to travel on daily basis. The other good thing about Cargar is the efficiency of motorcycle based taxi as it doesn't get stuck in traffic jams and can easily pass through the heavy traffic. Cargar with its unique service has attracted media attention. Platforms like BBC News Urdu, Propakistani, Express Tribune, SAMAA News, Dawn News and several others have hailed to the efforts



of Team Cargar. Team Cargar has also been invited to different TV shows like World This Morning hosted on PTV World English & Morning Radio show hosted by Power FM99.

Visit of MoST's Sub-Committee to SIMAP, Sialkot

In order to explore the possibilities for automation/ CNC requirements of the surgical industry, MoST constituted a Sub-committee headed by Dr. Shahzad Alam, Chairman, PCSIR and comprising members from Pakistan Machine Tool Factory (PMTF), Karachi. The said Sub-committee visited the Surgical Instruments Manufacturers Association of Pakistan (SIMAP), Sialkot on July 15, 2016.

Mr. Muhammad Ashraf Raza, Chairman, SIMAP welcomed the delegation and acknowledged the efforts and commitments of Chairman, PCSIR for helping out the local surgical industry.

In his opening remarks, Dr. Shahzad Alam briefed the local surgical industry that Ministry of Science & Technology (MoST) and State Engineering Corporation (SEC) have recently joined hands for evolving technical cooperation and strong relationship to identify demand driven/ research based innovative technologies/ products/ prototypes for the local industry. The basic purpose of the visit was to assess the requirements of local surgical industry for switching over to mechanized operation in the manufacturing of surgical tools.

At the end, the Chairman, SIMAP offered Association's platform to enhance interaction & coordination between MoST's constituted Sub-committee & local surgical industry for the benefits & development of national economy.

NUST TIC launches Ilm Idea 2 Program

Ilm Ideas 2, a programme funded by UK aid, provides a platform for the generating, piloting and scaling up of innovative solutions to address critical education challenges in Pakistan. Ilm Ideas 2 and NUST's Technology Incubation Center (TIC) recently came together in a partnership to support the incubation of innovative startups in the education domain. The partnership aims to serve the vision of Ilm Ideas 2 to create a sustainable community that will have the capacity to identify and support new education innovations. "Education Innovation Challenge 2016" was organized by TIC in collaboration with Ilm Ideas 2. It invited educationists, professionals, students and startups to propose innovative solutions to the problem of enrollment, retention and learning in education. The education Innovation Challenge took place on 1st September, 2016 at the CIE Building NUST, where the shortlisted candidates pitched their ideas to TIC's team and a panel of judges. The winners from the challenge included Learn-O-Box - a mobile learning unit, Edify - an online teachers training platform and 3k Education - a content server for digital education. The top three finalists have been selected for a four months' incubation program at TIC that will run from October 2016 to January 2017. During this period, these startups will be provided extensive support from TIC in the form of mentorship, business advisory services, regular educational workshops, access to office space, and networking opportunities to help them refine their ideas and scale their education solutions.



Quarterly Monitoring of Bottled Water Brands (July-September 2016)

In pursuance of the Cabinet's Decision, Ministry of Science and Technology has assigned PCRWR the task to carry out quarterly monitoring of bottled/mineral water brands and publicize the results. For the quarter July-September 2016, 109 samples of bottled water brands were collected from Islamabad, Rawalpindi, Peshawar, Muzaffarabad, Lahore, Faisalabad, Sargodha, Bahawalpur, Sialkot, Multan, Tandojam, Karachi and Gilgit. Those samples were tested at National Water Quality Laboratory (NWQL), according to Pakistan Standards and Quality Control Authority's (PSQCA) standards. Out of 109 bottled water brands, 11 were found unfit for drinking. Out of the 11 unsafe brands, 04 brands were having comparatively high level of Arsenic ranging from 15-60 ppb, whereas, PSQCA Water Quality Standard for Arsenic is 10 ppb. The other brands were found having excessive levels of either of Sodium or Potassium. The detected contaminants in the bottled water may have serious health implications and is a major concern for public, who pay their hard earned money on bottled water for the sake of their health. The detailed report can be seen on PCRWR website.

Assessor Training course on PS

Pakistan National Accreditation Council (PNAC) conducted its first assessor training course on Pakistan Standard PS 4992:2016 (Halal Certification Bodies) from 07-09 September 2016. More than 20 participants from different Halal certification bodies including the Sharia Experts participated in the training course. Director General, PNAC, Ms. Ismat Gul Khattak was the Trainer for the course.



NUST TIC Incubatees Winning The Startup Cup Competition 2016

StartUp Cup is one of the most diverse and comprehensive startup competition in Pakistan. More than 900 startups participated in the competition, which included mentoring and judging session in 5 cities across Pakistan. The victory stand was dominated by TIC incubatees with Cowlar (E4 Technologies) taking home the 1st prize of 1 Million rupees and CricFlex, standing 2nd, with the prize of 0.75 Million rupees. This achievement is a testament to the entrepreneurial spirit of the incubatees at TIC NUST and also reflects NUST's commitment and focus towards innovation and entrepreneurship. TIC NUST is currently incubating more than 30 promising startups with credible teams and proven business models.



LRC-PCSIR, organizes Seminar on saving the skin/hide from various defects

Due to lack of awareness & inadequate management, the raw material from sacrificial animals had cost Pakistan almost US\$ 40 million last year. To keep in view the commercial significance of skin & hide which are the major input for the processing of Leather Industry, PCSIR's Leather Research Centre (LRC), Karachi, organizes seminar every year for the benefit of welfare trusts, Madrasas & Allied groups on the occasion of Eid-ul-Adha. The main aim is to raise awareness among hide & skin collectors for ways to preserve hide & skin.



Representative of LRC delivered a detailed lecture on "Flaying, Curing & Transportation of Skin / Hide" in a seminar which was jointly arranged by the management of LRC and Saylani Welfare Trust, Karachi. LRC expert provided awareness to save the skin/ hide from various defects like butcher cuts, salt stains, drying, corrosion & putrefaction etc. The seminar was organized at the Auditorium of Saylani Welfare Trust, Bahadurabad, Karachi on September 05, 2016.

Farmer Day for Awareness Bed on Plantation of Rice Crop

Regional Office PCRWR Lahore in cooperation with District Administration of the Toba Tek Singh organized the Farmers Day for awareness on bed plantation of the rice crop in Moza Veraana, Tehsil Kamalia District T.T Singh on September 26, 2016. Mr. Shahid Iftikar, District Officer Agriculture (Extension) was the guest of honor. Mr. Khalid Mehmood DDO Agriculture managed internal activities of the day. Agriculture Officers, Field Assistants and more than 60 progressive farmers from different areas of the tehsil Kamalia attended the event. This event was the first fruit of the awareness seminars arranged at T.T Singh and Kamalia, wherein DCO T.T Singh and AC Kamalia were the guests of honor.

In current Kharif season, trials on bed plantation of rice crop have been made on 05 sites in tehsil Kamalia Viz: Moza Verana, Moza Azmat Shah, Moza Saad Moosa, Moza Shamoo wala and Berooni kamalia. The Farmer Day was aimed to demonstrate the bed plantation of rice on site. The owners of the trial sites as well the neighboring farmers were convinced on the crop look of bed plantation as compared to conventional practice. Most of the farmers are willing to adapt the bed plantation technology in coming wheat as well as rice seasons.



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