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2020-2021



PAKISTAN SCIENCE FOUNDATION

1 - Constitution Avenue

Islamabad

**PAKISTAN SCIENCE FOUNDATION
ISLAMABAD**

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ACRONYMS

AGR	Agricultural Sciences
AJK	Azad Jammu and Kashmir
AKU	Agha Khan University
B	Balochistan
BIO	Biological Sciences
BIOTECH	Biotechnology & Genetic Engineering
C	Capital
CDWP	Central Development Working Party
CEMB	Center of Excellence in Molecular Biology
CEME	College of Electrical and Mechanical Engineering
CEWRE	Center of Excellence in Water Resources Engineering
CIIT	COMSATS Institute of Information Technology
COMSATS	Commission on Science and Technology for Sustainable Development in the South
COMSTECH	OIC Standing Committee on Scientific and Technological Cooperation
DDWP	Departmental Development Working Party
EARTH	Earth Sciences
ENG	Engineering Sciences
ENVR	Environmental Sciences
ILG	Industrial Linkages Group
KPK	Khyber PakhtoonKhwa
PU	Peshawar University
FJWU	Fatima Jinnah Women University
GCU	Government College University
GU	Gomal University
KU	Karachi University
MED	Medical Sciences
NARC	National Agricultural Research Center
NIBGE	National Institute for Biotechnology and Genetic Engineering

NNSFC	National Natural Science Foundation of China
NSLP	Natural Sciences Linkage Programme
NSTC	National Science and Technology Commission
P	Punjab
P-AU	Agriculture University
P-PU	Punjab University
PHYS	Physics
PINSTECH	Pakistan Institute of Nuclear Science and Technology
PCCC	Pakistan Central Cotton Committee
PSDP	Public Sector Development Programme
S	Sindh
SALU	Shah Abdul Latif University
SUIT	Sindh Institute of Urology & Transplantation
SU	Sindh University

EXECUTIVE SUMMARY

PAKISTAN SCIENCE FOUNDATION (PSF)

Pakistan Science Foundation (PSF) is apex body for promotion and funding of scientific and technological research and other related activities in the country. The tasks undertaken by the Foundation for the performance of its statutory functions are divided into two broad categories viz., Science Promotion and Science Popularization. Some of these activities pertaining to above mentioned categories are undertaken by Pakistan Museum of Natural History (PMNH) and Pakistan Scientific and Technological Information Centre (PASTIC), the two subsidiary organizations of PSF, while others are performed by PSF Science Wing and are reflected as under:

RESEARCH SUPPORT

During 2020-21, a total of 129 research proposals/concept papers in 10 scientific field namely Agricultural Sciences, Biological Sciences, Biotechnology & Genetic Engineering, Chemistry, Computer Sciences/Maths, Earth Sciences, Engineering Sciences, Health sciences, Environmental Sciences and Physics remained under active consideration. Among these, 61 projects were under-process, of which, 27 projects were recommended by Technical Committee for the approval of Foundation. Finally, 03 projects were approved by the Executive Committee for funding at total cost of Rs.3.59 million. Total 50 research projects were remained on-going and an amount of Rs.11.87 million was released on account of due installments and evaluation fee of these projects. 31 progress reports (semi annual, 1st, 2nd annual & final) of these projects were received. Semi annual reports were scrutinized by PSF staff, whereas the annual and final reports, after initial scrutiny, were sent for evaluation to the subject experts to assess the interim progress of the projects. One of the main achievements and usefulness of any research is the publication of its results in scientific journals. Based upon the results of 16 completed projects, 34 research papers were published in national/international journals. In addition, 06 Ph.D. and 18 M.Phil./M.Sc. (Hons) students secured their respective degrees while working as Research Associates in these completed projects.

SCIENCE PROMOTION ACTIVITIES

During the report period, an amount of Rs.1.397 million was released to various institutions for organizing 13 conferences, seminars, and workshops on important scientific topics and Rs.0.2 million was released to scientific survey. However, Institutional Support and PSF Fellowships programmes were not entertained due to paucity of funds.

INTERNATIONAL LIASION

PSF has the mandate to liaise with similar international bodies across the globe and is in active collaboration with many similar International bodies. In the prevalent global scenario, the importance of international collaborations has become vital for the technological developments and advancement of knowledge. Therefore, PSF has re-vitalized its international collaborations and embarked upon new linkages to harness potential of technologically advanced nations like China, Turkey, Iran and Sri Lanka. In addition, PSF regularly plays role as a facilitator to link various international organizations/ universities with local universities and research institutions. Delegates from the reputed universities and similar collaborating bodies regularly hold meetings with PSF to discuss the areas of joint collaboration.

Over the years, PSF has established cordial bilateral relations with various international bodies to synergize efforts for achieving technological excellence and socioeconomic well-being of the people at large. Joint research projects are already ongoing with The National Natural Science Foundation of China (NSFC); Scientific and Technological Research Council of Turkey ([TÜBİTAK](#)): Ministry of Science, Research and Technology (MSRT), Iran and National Science Foundation, Sri Lanka.

During the year 2020-21, fourth joint call for proposals was launched with NSFC, China, NSFC-China and 3rd joint call with TUBITAK-Turkey. The calls were highly appreciated by the scientific community. International Linkages activities of Pakistan Science Foundation were expanded to the greater extent. More effective linkages were developed with international counter parts to benefit the scientific community of Pakistan. During the report period, 74 projects remained ongoing under 03 calls with NSFC, 02 with TUBITAK, and 02 with MSRT. While 06 projects awarded under “PSF-NSF, Sri Lanka first call were also ongoing. A total of

34 technical reports (semi-annual and annual) of ongoing projects were received and an amount of Rs. 28.5 million was released on account of due installment of already ongoing projects and first installment of newly initiated projects with and NSFC-China.

COMPETITIVE RESEARCH PROGRAMME

The Competitive Research Programme is the PSDP awarded to PSF to finance research projects under four streams viz., Individual Research, Consortium Research, Triple Helix Model and International Linkages. Its main objectives are: (i) Provision of the Research Grants to address the mega national issues and promote world class research, (ii) Development of the new processes/ products/ applications/ technologies through native knowledge / skills of the researchers working in the universities and R&D Institutions, (iii) Multi-disciplinary Research on the mega issues of National importance through provision of Consortium Research Grants, (iv) Collaborative projects with the established International Partners for Indigenous Technology Development particularly for substitution of imports, (v) Public-Private collaborations by providing strong platform to R&D institutions to liaise with Industry and Academia for the improvement and commercialization of their end-products so as to enhance the exports, (vi) Technological transformations in the specified thrust / priority areas to boost the economy that may result in the generation of S&T Human resource as well as financial capital, (vii) Promotion of demand-driven research by linking public sector capability and private sector marketability, and (viii) Capacity building trainings for the project staff (National) and Project Formulation Workshops for the researchers.

An amount of Rs. 136.00 million was utilized under the on-going development project titled “Competitive Research Programme”. This is an important umbrella project first of its kind in Pakistan to fund research projects of mega national issues through consortium of scientists from multiple professions and organizations with specific target of socio-economic gains. Another important objective is to resolve industrial issues to substitute imports and enhance exports through indigenous research and value addition. Moreover, bilateral research projects in collaboration with international research organizations to take benefit from the research of technically advanced countries are also the part of this programme. During the financial year, 24 research projects were funded under 1st Call, COVID-19 Call, PAK-China 18th Protocol and Special Intervention.

SCIENCE TALENT FARMING SCHEME (STFS) FOR YOUNG STUDENTS PHASE-I

This Development project “Science Talent Farming Scheme (STFS) for Young Students, Phase-I, Component-I (Revised)” was conceived by the Pakistan Science Foundation. Its main objectives are: (i) To support and groom the talented but less privileged science students from government schools, in their studies and groom them to become productive scientists, (ii) To groom and support the selected students by progressively exposing them to advancements in science and mathematics through inquiry based learning approach, (iii) To arrange training sessions for students on Inquiry Based Science Education (IBSE), (iv) Promotion/Popularization of S&T through different platforms including but not limited to social, print and digital media for teenagers, young adults and specifically out of school children and (v) To establish a database/tracking system of all the beneficiary students of the project.

During 2020-21, an amount of Rs.47.81 million was utilized under this project for the monetary benefits and the additional interventions designed for the students.

FINANCIAL SUPPORT TO SCIENTIFIC SOCIETIES IN PAKISTAN (PHASE II)

Under this on-going development project titled “Financial Support to Scientific Societies in Pakistan (Phase II)”, an amount of Rs.10.52 million was utilized as financial assistance to the registered Scientific Societies for undertaking their regular scientific activities.

NATURAL SCIENCES LINKAGE PROGRAMME ENDOWMENT FUND

Natural Sciences Linkage Programme (NSLP) Endowment Fund is an important component of Pakistan Science Foundation (PSF) which is aimed at enhancement of agricultural production through effective research. The outcome of this research will benefit the end user by uplifting the life standard and income of the farmers. Project proposals which highlight main problems of agricultural sector are invited from universities and R&D organizations across the country. Research work is emphasized on the food production & food security issues in Pakistani scenario. Currently 168 projects are being funded in different Universities and R&D organizations around the country under this programme.

Projects are received from researchers throughout the year; they undergo scrutiny and peer review before presenting to the Technical Committee, which comprises of eminent scientists from different specialized areas of agriculture and natural sciences. The target areas of these projects include germplasm screening of different crops, insect and pest management for the disease free crop production, nutrition management of crops and post-harvest technology.

SCIENCE POPULARIZATION

Popularization of science, increasing science awareness and development of scientific culture in the society are major functions entrusted to Pakistan Science Foundation. Under the action plans of various S&T Policies, the task of popularization of science at grass roots level in the country has also been assigned to PSF. Popularization of science plays a central role in the socioeconomic, cultural, and environmental development of any country. It is usually understood as the system of measures aimed at the dissemination, appropriation, and valuing of science and technology goods, which include critical thought, ideas and values, the history and sociology of scientific knowledge, how science is practiced, and the results of scientific research and technological development. Popularization of science makes it possible to spark vocations and encourage talent for scientific research, technological development, and intellectual endeavors in general. It fosters creativity and innovation, further contributes to producing better trained human resources, expands social opportunities, and strengthens the educational system. It also helps to enhance the critical sense of the population, by increasing its involvement in decision-making and contributing to sustainable development.

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTER (PASTIC)

Pakistan Scientific and Technological Information Center (PASTIC) is the premier organization for dissemination of Scientific and Technological Information to the Scientists, Researchers, Engineers, Entrepreneurs, Industry and Citizens of Pakistan. PASTIC National Center is located at Quaid-i-Azam University Campus, Islamabad. It has 06 Sub Centers throughout Pakistan including Karachi, Lahore, Peshawar, Quetta, Faisalabad and Muzaffarabad. The main objective of PASTIC is to acquire, process and disseminate

information in all S&T disciplines. PASTIC's services include Bibliographic & Document Supply Service, Abstracting and Indexing Service, National Science Reference Library, Reprographic Services, Technology Information Services, Awareness and Promotion of PASTIC Services, Capacity/skill development of researchers & entrepreneurs and International Liaison. Major achievements and initiatives taken during 2020-21 are summarized below:

Under Bibliographic & Document Supply Service: Some 35891 S&T documents and 2350 bibliographies in digital form were supplied to 1555 R&D workers, and in Abstracting and Indexing service: 8851 abstracts were processed for import into the PSA database. For National Science Reference Library, about 3847 users visited PASTIC library for getting references, reading, photocopying, internet browsing and web searching. Besides, the library received 144 issues of national and international journals in exchange and on gratis basis. Twelve issues of Fresh Arrivals of PASTIC library published online as well as in print form and distributed among the members. The Library was renovated to improve ambience and affectivity of library services. Under Reprographic Services, 96 printing jobs from 13 R&D organizations were completed and Technology Information Service, 6 online issues of “Technology Roundup” a bimonthly Trade and Technology news e-bulletin and 02 IP-TISC/UIP Seminars/workshops have been arranged.

Regarding Awareness and Promotion of PASTIC Services, 01 stall and 19 awareness seminars at various departments of universities across the country through sub-centers were organized, and for Capacity/skill Development of researchers & entrepreneurs: Capacity/skill Development of researchers & entrepreneurs, 34 workshops on various themes were organized. During the year, a total number of 5402 users/researchers have been served through various PASTIC S&T Information services while 2269 researchers were trained.

PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Pakistan Museum of Natural History, the only natural history museum of Pakistan was established in 1976 under patronage of Pakistan Science Foundation, Ministry of Science & Technology, (Government of Pakistan). Pakistan Museum of Natural History (PMNH) has 04 principal divisions namely Earth Sciences Division, Botanical Sciences Division, Zoological Sciences Division and Public Services Division. First 03 scientific divisions are engaged in the

collection, identification and research activities pertaining to plants, animals, fossils, and mineral resources of Pakistan, while the 4th one is responsible for mass education and popularization of natural history through various displays, exhibits and dioramas. Generally, PMNH serves in 03 main areas; Research, Conservation and Informal Education. Researchers of PMNH carried out extensive field works from the Coast of Arabian Sea to the Alpine regions, roamed through barren areas for the collection of flora & fauna, rocks, fossils and minerals not only for research work but also for the purpose of education because education is also one of the main objectives of PMNH. For this purpose, PMNH regularly organized trainings, workshops, seminars, symposia, and other educational interactive activities related to natural history, environment, and biodiversity of Pakistan. International days are also observed by PMNH. The PMNH has developed many national and international liaisons with the other research institutes in the country and abroad. Due to these collective efforts of scientific and technical staff of PMNH and collaborations with other research institutions, PMNH has around 1.5million natural history specimens in its repositories. Research outcome of these field works and with National and International projects are published in the form of research papers in reputed national and international journals. PMNH is not only conducting research on the natural resources of Pakistan which exists in the form of flora & fauna, rocks, fossils, and minerals but also educating the students of Pakistan along with the common people with the help of informative, interactive, educative 3-dimentional dioramas and exhibits. Students of schools, colleges and universities from all over the Pakistan visit PMNH as a part of their educational tours. Scientific and Technical staff of PMNH also facilitate the students and researchers from the other universities and institutes by providing help in the research in the form of information, technical assistance, specimens as a loan and guidance in their research work. The detail of activities and progress of 2020-21 are given next in the text.

INTRODUCTION

Pakistan Science Foundation was established on June 30, 1973, under the Pakistan Science Foundation Act No. III of National Assembly (*Annexure-I*) as an autonomous body to promote and finance scientific and technological activities bearing on the socio-economic needs of the country. The tasks undertaken by the Foundation for the performance of its statutory functions are divided into following three broad categories:

- i) Science Promotion supports basic and fundamental as well as applied research involving researchers/academia at universities and R&D organizations focusing socio-economic needs/development of the country.
- ii) Science Popularization endeavoring to image scientific ideas to grasp the concept of fundamental science.
- iii) Science Centers to encourage all segments of society in thinking, understanding and exploring science.

Under the Act, the Foundation has been entrusted to carry out the following functions:

- i) Establishment of comprehensive scientific and technological information and dissemination centers.
- ii) Promotion of basic and fundamental research in universities and other institutions on scientific problems relevant to the socio-economic development of the country.
- iii) Utilization of the results of scientific and technological research including pilot plant studies to prove the technical and economic feasibility of processes found to be promising on a laboratory scale.
- iv) Establishment of science centers, clubs, museums, herbaria and planetaria.
- v) Promotion of scientific societies, associations and academies engaged in spreading the cause of scientific knowledge in general or in the pursuit of a specific scientific discipline or technology in particular.
- vi) Organization of periodical science conferences, symposia and seminars.
- vii) Exchange of visits of scientists and technologists with other countries.

- viii) Grant of awards, prizes and fellowships to individuals engaged in developing processes, products, and inventions of consequence to the national economy.
- ix) Special scientific surveys not undertaken by any other organization and collection of scientific statistics related to the scientific efforts of the country.

The Foundation shall also:

- i) Reviews the progress of scientific research sponsored by it and evaluates the results of such research.
- ii) Maintain a National Register of highly qualified and talented scientists/engineers and doctors both in and outside Pakistan, and to assist them in collaboration with concerned agencies to seek appropriate employment.
- iii) Establish liaison with similar bodies in other countries.

The activities performed under the above-mentioned statutory functions are as under, however, the details are given in different chapters:

ACTIVITIES AND PROGRAMMES

The activities and programmes undertaken by the Foundation to perform its statutory functions can be divided into the following four categories:

- i) Promotion and Financing of Scientific Research in the Country and the Utilization of the Research Results.
- ii) Promotion and Popularization of Science in Society.
- iii) International Liaison.
- iv) Establishment of Comprehensive Scientific and Technological Information Dissemination Centers.

The main functions of the Foundation i.e., research support, and science popularization, planning and development etc., are performed by the Science Wing of the Foundation and their detail is given as under:

Research Support is performing the following activities:

1. Research Support
 - a) Grants for Research Projects
 - b) Grants for Institutional Support
2. Research Evaluation
3. Promotion/funding of Scientific Societies/Learned Bodies
4. Funding of Conferences, Symposia, Seminars & Workshops
5. Travel Grants
6. International Liaison
7. Awards and Fellowships
8. Survey and Statistics
9. Scientists Pool
10. Innovations & Inventions
11. Planning and Development Programme

Science Popularization carries out science popularization activities including Science Caravans, Science Clubs, Science Fairs and holding of Popular Science Lectures, Workshops, Conferences and Symposia.

Pakistan Scientific and Technological Information Centre (PASTIC) is another subsidiary organization of PSF, performs as Scientific and Technological Information Dissemination Center with its sub offices in all provincial capitals of the country.

Pakistan Museum of Natural History (PMNH) is a subsidiary organization of PSF, established in 1979 to serve the national needs in the vitally important areas of research, conservation and education involving Pakistan's heritage of natural resources. The Museum is a National Repository for permanent storage of plants, animals, rocks, minerals and fossils of the country.

PAKISTAN SCIENCE FOUNDATION (PSF)

1. RESEARCH SUPPORT

1.1. Research Funding

1.1.1. Research Projects Funded

Research Support is the principal programme of Pakistan Science Foundation for the promotion of basic and applied research relevant to the socio-economic development of the country. Research Support Section of the Foundation provides funding for research projects in natural and physical sciences. The criteria for funding of research projects include the availability of basic equipment and laboratory facilities, scientific and technical merit of the proposed research projects and likelihood of completion of the proposed research within the stipulated time and budget. Each proposal after getting reviewed from subject experts in the particular fields is placed before the relevant Technical Committee for technical and fiscal evaluation. Technical Committees evaluates each proposal on the basis of technical merit and relevance to the socio-economic needs of the country and recommend it for provision of funds and finally the Executive Committee approve the funds. To keep all process of funding transparent and get acquired results from each project, the progress of research is monitored through evaluation of semi-annual and annual progress reports by obtaining subject experts opinion on each stage. Multi-disciplinary research projects in areas of economic significance to Pakistan are given special priority for award of financial support.

a. Under Process Projects

During the report period, 129 research proposals/concept papers remained under active consideration of the Foundation. Out of these, 61 projects were under-process, 27 projects were recommended by the Technical Committee for the approval of the Foundation and 03 were approved by the PSF Executive Committee at a total cost of Rs. 3.719 million (**Annexure-II**). Whereas Rs.3.59 m were released on account of first installments of already approved projects.

b. On-Going Projects

During the period, 50 research projects remained on-going and 34 progress reports (Semi-annual, 1st, 2nd annual & final) were received. Semi-annual reports were scrutinized by PSF staff, whereas the annual and final reports, after initial scrutiny, were sent for evaluation to the

subject experts to assess the interim progress of the projects. The due installments of ongoing projects are released only if the interim progress of the projects is satisfactory. An amount of Rs. 11.87 m was released on account of due installments and evaluation fee of ongoing projects. A list of the semi-annual, annual and final reports is given in **Annexure-III**.

c. Completed Projects

During the year, 16 Research projects were completed. The subject experts evaluated the final technical reports of these projects, which were subsequently placed before the respective PSF Technical Committees for consideration. After the adoption of these reports by the Committee, the accounts of these projects were settled and files closed. A list of the completed projects followed by their scientific output is given below:

S.#	Project No.	Project Title
1.	PSF/Res/B- DAEB/Agr. (379)	Population Dynamics and Life Table of Dubas Bug (<i>Ommatissus lybicus</i>) on Date Palm In District Punjgur, Balochistan
2.	PSF/Res/P-UVAS/Bio (544)	The Development and Evaluation of Thermostable Vaccine against Peste des Petits Ruminants
3.	PSF/Res/B-BUITMS/Bio (388)	Studies on the Regeneration of Juniper (<i>Juniperus excels Bieb</i>) in Balochistan.
4.	PSF/Res/KPK-MU/Chem (461)	The Efficient and Facile Synthesis of Asymmetric Aldol Adducts Catalyzed by Bi-functional Diamine Organo-catalysts
5.	PSF/Res/S-SU/Chem (465)	Metal Ion Imprinted Polymers (MIIPs): Novel Material for Pre-Concentration and Separation of Total Arsenic in Aqueous Systems
6.	PSF/Res/S-PCSIR/Chem (478)	Synthesis of Heterocyclic Organic Compounds for Drug Development
7.	PSF/Res/P-CUI/Chem (570)	Development of Mechanically Reinforced Silica Based Bioactive Glass (SiO ₂ CaO-P ₂ O ₅) Polymer Composites for Potential Application in Osteochondral Defect Site
8.	PSF/Res/P-GCU/Chem (436)	Synthesis, Characterization and Biological Evaluation of Bimetallic Sn (IV) and Pd (II) Complexes with Ligands having O- and S-Donor Sites

9.	PSF/Res/P-NUST/Comp (38)	Indigenous Development of Multi-Biometric Authentication system
10	PSF/Res/P-PU/Earth (82)	Sediment logical Studies of the Lower Eocene Sakesar Limestone Salt Range, Pakistan
11	PSF/Res/C-NUST/Engg (136)	Plasmons Effects in Nano-Structures of Inorganic Polycrystalline Materials (ZnS, CdTe, CdS) by Embedding Different Metallic NanoParticles (Ag, Au,Cu) for Improving Photovoltaic Efficiency in Photovoltaic Industry
12	PSF/Res/P-CUI/Engg (159)	Evaluating the performance and Power Effectiveness of Asynchronous Processors Customized for many Core Systems
13	PSF/Res/C-NORI/Med (497)	Prediction of Gastric Cancer in <i>Helicobacter pylori</i> Infected Gastric Mucosa
14	PSF/Res/P-CUI/Med (477)	Label Free, non-Invasive Biomimetic Sensor for Detecting Oral Cancer
15	PSF/Res/C-CUI/Med (297)	Next Generation Granular Biomedical Ceramics for Rapid Bone Defect Repair
16	PSF/Res/C-NILOP/Phys (183)	Development of Flour sensor for <i>In-vivo</i> Characterization of Skin Tumors

i. AGRICULTURAL SCIENCES

Project No: PSF/Res/B-DAEB/Agr (379)
Project Title: Population Dynamics and Life Table of Dubas Bug (*Ommatissuslybicus*) on Date Palm in District Punjgur, Balochistan
Duration: 03-Years
Date of Initiation: 01.06.2010
Date of Completion: 31.05.2013
Total Cost: Rs. 1,998,792/-
Total Expenditure : Rs. 575,100
Principal Investigator: Dr. Arif Shah Kakar
Associate Professor
Name of Institution: Balochistan Agriculture & Cooperative Department,
Directorate General Agriculture Extension Balochistan,
Quetta

SUMMARY:

Dubas bug (*Ommatissus lybicus*) is one of the most important sucking pests of date palm in district Panjgur of Balochistan. It apparently originated in the Tigris-Euphrates river valley. Both nymphs and adult of this bi-voltine cause damage to date palm by sucking the sap from all green parts. In case of heavy infestation, produce extremely large quantities of honeydew droplets, which cover the leaves and reduce the photosynthetic activities. First instar nymphs of summer (2nd) and spring (first) generation emerged in 22nd August and 1st week of March, respectively. Numbers of bugs gradually increases and reached to its peak in 6th sampling week in both generations. Honeydew droplets had positive correlation ($r=0.91$) with number of dubas bug per leaflet. In both summer and spring generations, maximum numbers of honeydew droplets were scored on WSP in the 7th sampling week (average of three years). Regression analysis of honeydew droplets of summer and spring generation estimated to be ($Y = -2.6x^2 + 25.2 + 0.15 =$, $R^2 = 0.6$) and ($Y = -2.25x^2 + 21.8x + 1.15$, $R^2 = 0.7$). Placement of yellow sticky traps (YST) significantly affected the trapping of bugs. YST placed at basal portion (P-I) caught more bugs compared to middle portion (P-II) of frond. Trapping of bugs gradually increased with age and reached to its peak in 9th sampling week in summer and spring season. Life table data showed that Eggs mortality under field and caged (in bracket) condition in spring and summer was 13.83(14.96) and 8.82(7.55) %, respectively. The main causative effect in spring was infertility, while in summer along with above mentioned factors desiccation also contributes considerable eggs mortality. Percent mortality at nymphal (1st -5th instar) stage under caged and un-caged (in bracket) condition in spring and summer (2011) generation (average of 2011-13) was 7.20 (4.75) and 9.36(6.26), respectively. Hence predators (spider and ant) were the most responsible factor for the mortality at nymphal stage in un-caged life table study.

ii. BIOLOGICAL SCIENCES

Project No:	PSF/Res/P-UVAS/Bio (544)
Project Title:	The Development and Evaluation of Thermostable Vaccine against Peste des Petits Ruminants
Duration:	02-Years
Date of Initiation:	23.06.2015
Date of Completion:	22.12.2017 (extended)
Total Cost:	Rs. 1,773,780

Total Expenditure: Rs. 1,563,087/-
Principal Investigator: Prof. Dr. Tahir Yaqub
Name of Institution: University of Veterinary and Animal Sciences, Lahore

SUMMARY:

Peste des Petits Ruminants (PPR) is an acute and highly contagious fatal disease of small ruminants mainly affecting sheep and goats, and camels. PPR is endemic disease in many developing and tropical countries including Pakistan, and vaccine is currently the only means of disease control. However, lack of established infrastructures and high temperature, maintaining cold chain for effective delivery of the vaccine is a challenge. All vaccines that are currently being applied for the control of PPR are thermo-labile and require cold chain for stability. In this study, we assessed the efficacy of different stabilizers on the thermostability of live attenuated vaccine of PPR virus (PPRV). Five formulations of four thermo stabilizers including Lactalbumin hydrolysate Sucrose (LS), Trehalose Dihydrate (TD), Weybridge Medium (WBM) and Buffered Gelatin Sorbitol (BUGS) were used to prepare vaccine using Nigeria 75/1 strain of PPR virus. Results revealed that vaccine having LS proved maximum stability as it reduced minimal viral infectivity ($0.42 \log_{10} \text{TCID}_{50}$) during lyophilization as well as three-time higher shelf life (3.69 days) as compared to commercial vaccine (1.23 days) at 37°C . Moreover, it was also revealed that PPR vaccine lyophilized with LS, WBM and TD, and was more stable than commercial vaccine having shelf life of 206-304 days at 4°C , 8-10 days at 25°C and 2.5-3.7 days at 37°C . Using regression analysis on the shelf life of vaccine preparations in different thermo stabilizers, we can demonstrate that BUGS provided minimal stability as well as maximum viral infectivity loss ($1.49 \log_{10} \text{TCID}_{50}$) after lyophilization. The efficacy of thermostable vaccine was also assessed in field animals and it was found that the commercial and thermostable vaccine has almost similar percentage inhibition (PI) value in both sheep and goats. So the results revealed that these stabilizers have no effect on viability of virus. Taken together, we provide foundation studies to improve the thermostability of PPRV to facilitate the immunization of susceptible animals in situations where meeting cold chain is not feasible. Efforts are required to genetically select strains that confer protection at higher temperature without compromised immunogenicity which is potentially feasible with the established reverse genetics.

Project No: PSF/Res/B-BUITMS/Bio (388)
Project Title: Studies on the Regeneration of Juniper (*Juniperus excelsa* Bieb) in Balochistan.
Duration: 03-Years
Date of Initiation: 01.09.2009
Date of Completion: 31.08.2012
Total Cost: Rs. 1,089,972/-
Total Expenditure: Rs. 964,110/-
Principal Investigator: Prof. Dr. Muhammad Saeed
Name of Institution: Balochistan University of Information Technology, Engineering & Management Sciences, Quetta

SUMMARY:

Juniperus excelsa (Juniper) در نوب ص is found in some of the inner valleys of Himalaya and Balochistan at the altitude of 2000-4000 m above sea level. There are three spatially separated pockets of *J. excelsa* in Balochistan, namely, Harboi in district Kalat. Zarghun and Ziarat district Ziarat.

The present study aimed at the study of Juniper found at three separate areas of Balochistan. The study focused on regeneration of juniper through conventional and unconventional methods with emphasis on various aspects of reproductive biology of the species, to induce buds from mature embryos of *J. excelsa* and to study the chemical constituents of cone (berry) essential oils of *J. excelsa*. We examined the efficacy of various seed pre-treatments to overcome seed dormancy and to explore the role optimum temperature regime in the germination of *J. excelsa* under controlled laboratory conditions. As the percentage of filled and viable seed in *J. excelsa* was found very low in present study, consequently, germination percentages were also recorded low. Nevertheless seeds of *J. excelsa* were exposed to different pretreatments were germinated under laboratory conditions, though in low numbers.

The cone and seed morphological traits of the whole range of *J. excelsa* in Balochistan were also investigated with an aim to determine the quality of seed produced and to compare the cone and seed morphological characteristics of distantly located populations of *J. excelsa*. The comparison of morphology of cones and seeds from three areas revealed varied size and

health attributes among these localities. The highest percentages of number of filled seeds were found to be 25% in Ziarat, 19% at Zarghoon Ghar and 21% at Harboi. The number of filled seeds was found to vary with varying levels of altitude. Upto 75 percent seeds were found to contain empty and dead filled seeds. To induce buds from mature embryos of *J. excelsa* a variety of plant growth regulators were used. After several attempt at the embryos cultures in numerous growth media, and different cytokinins. Explants have shown no response. During course of experiments the fungal and bacterial contaminated containers were regularly replaced with fresh ones. However there was no result in the form of either bud formation or callus formation.

As a third objective of the study, the chemical constituents of cone (berry) essential oils of *J. excelsa* were analyzed in order to compare the quantitative and qualitative characteristics of essential oil constituents among the areas. Cones of *J. excelsa* were collected from Ziarat, Zarghoon Ghar and Harboi provenances and essential oil contents were extracted by employing standard solvent method. The biochemical assay of oil contents were performed on (GCMS). The identification and quantification of the oil constituents was performed with the help of Wiley and NIST spectral library and HP Chemstation software. Ninety nine compounds were reported in our studies from the cone oils of *J. excelsa* in Balochistan. The diversity of compounds recorded among the provenances and the prevalence of unique compounds exclusively at each station call for more research in order to establish phylogenetic relationship among the localities of *J. excelsa* on genomic and molecular basis of the species. The possible causes of compound diversity may be investigated with respect to climatic conditions and array of pathogens prevailing in each area.

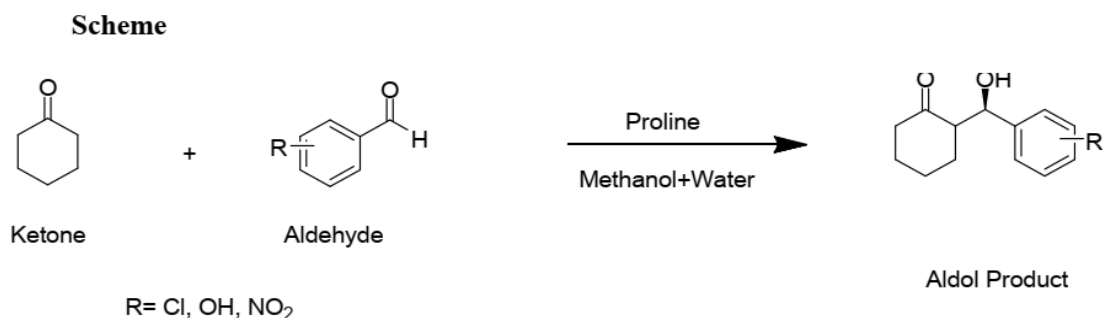
We have concluded that prolonged cold stratification of 150 days initiates to break embryo dormancy in some seeds, for a significant number of seeds to germinate even longer treatment may be required. Mechanical scarification of seeds had a slightly positive effect on the germination of *J. excelsa*. There is still a need for effective protocol for in-vitro propagation of *J. excelsa*. The large numbers of empty and unviable seeds were found in every examined area which partly explains low regeneration potential of juniper.

CHEMICAL SCIENCES

Project No:	PSF/Res/KPK-MU/Chem (461)
Project Title:	The Efficient and Facile Synthesis of Asymmetric Aldol Adducts Catalyzed by Bi-functional Diamine Organocatalysts
Duration:	02-Years
Date of Initiation:	01.11.2016
Date of Completion:	31.10.2018
Total Cost:	Rs. 1,848,240/-
Total Expenditure:	Rs. 1,843,784/-
Principal Investigator:	Dr. Muhammad Naveed Umar Assistant Professor
Name of Institution:	University of Malakand Chakdara Distt. Dir (L)

SUMMARY:

Aldol reactions are an important class of organic reactions in which two carbonyl compounds are used, in which one act as electrophile and the other as nucleophile forming a new carbon-carbon single bond and leads to the formation of β -hydroxycarbonyl compound. Our main focus was to synthesize enantiomeric aldol products. The starting materials used were aldehyde and ketone which condense in the presence of chiral amine version catalyst proline and lead to the formation of β -hydroxycarbonyl compounds (enantiomeric). The structures of resulted products were determined by NMR and were compared with the literature and its *ee* and *de* were determined by HPLC using chiral OD-H and AS-H columns.



Project No: PSF/Res/S-SU/Chem (465)
Project Title: Metal Ion Imprinted Polymers (MIIPs): Novel Material for Pre-Concentration and Separation of Total Arsenic in Aqueous Systems
Duration: 03-Years
Date of Initiation: 22.07.2016
Date of Completion: 21.07.2019
Total Cost: Rs. 2,472,684/-
Total Expenditure: Rs. 2,469,146/-
Principal Investigator: Dr. Amna Balouch
Associate Professor
Name of Institution: NCE in Analytical Chemistry
University of Sindh, Jamshoro

SUMMARY:

In current project we have prepared arsenic ion imprinted polymer via three different experimental procedures.

In **first** procedure, we prepared synthetic arsenic imprinted polymer (As-IP) by simple precipitation polymerization method by using 4-vinyl pyridine and 2-hydroxyethyl methacrylate as ligand and functional monomer use for the selective elimination of arsenic (As³⁺) from the aqueous environment. To achieve maximum sorption capacity several factors i.e. pH, agitation time, shaking speed, and sorbent dose were optimized. This prepared polymer was characterized by using SEM, EDX, and FT-IR. Adsorption isotherm and kinetic data of As³⁺ follow the Langmuir isotherm and pseudo-second-order kinetic model. The maximum sorption capacity of As-IP is 106.3mg/g. The limit of detection (LOD) and limit of quantification (LOQ) was found to be 0.87 and 2.9µg/L. The relative selectivity factors of AsIP as compared to NIP for As³⁺/Cr³⁺, As³⁺/Al³⁺, As³⁺/Ni²⁺, As³⁺/Cu²⁺, As³⁺/NO₃⁻, As³⁺/PO₄³⁻ and As³⁺/SO₄²⁻ are 1.445, 1.779, 1.469, 1.168, 1.481, 1.802 and 2.367 respectively. The adsorption efficiency of As³⁺ ions by using As-IP from real water samples is approximately 99% which shows that As-IP has good sorption capability and highly selective for the extraction of arsenic ions.

After that in **second** procedure, we report the synthesis of arsenic-imprinted polymer (As-IP) through the combined effect of dual functional monomers, 4-vinyl pyridine and methacrylic

acid based ionic interaction by a simple and cost-effective ultrasonic-mediated precipitation polymerization. Ultrasonic energy application reduces the reaction time as compared to conventional protocol. Surface morphology and functionality were examined using SEM and FT-IR. Adsorption and kinetics mechanism was best describes by Langmuir, followed by pseudo-second-order. The repeatability and selectivity of As-IP were also evaluated. The AsIP revealed excellent selectivity toward As³⁺ in the presence of Al³⁺, Cr³⁺, Hg²⁺ and Ni²⁺ high anti-interference ability in the presence of various coexisting ions. An excellent linear range of concentration (2-100) µg L⁻¹ as well as Limit of detection and quantification was obtained 0.65 and 1.8 µg L⁻¹ respectively. The synthesized As-IP was used for selective elimination of toxic As³⁺ ions from real samples.

In **third** process, arsenic imprinted polymer as an active detoxification material was synthesized through microwave assisted preparation method. By inducing the microwave radiation during the polymerization process decreases the reaction time to about 10 folds than conventional method. The imprinted polymer is one of the best possible techniques for the removal of arsenic, and various other contaminants from drinking water. The SEM and FTIR analyses were conducted to clarify microstructure, surface morphology and size distribution of the synthesized imprinted polymer. The main parameters affecting the pzc, pH, agitation time, shaking speed, concentration, the temperature of adsorbent and percent of sorption, were examined and optimized by Taguchi design. Taguchi L9 orthogonal array was employed to optimize the important factors versus % sorption values with nine experimental runs at 3 levels. Moreover, to understand the reaction phenomenon Langmuir and Freundlich isotherms, kinetic models and thermodynamics of adsorption process were calculated. The relative selectivity coefficient of imprinted polymer for As³⁺/Cd²⁺, As³⁺/Zn²⁺, As³⁺/Ni²⁺ were respectively 45.93, 131.01, 262.63 times greater than for non-imprinted polymer. The limit of detections (LOD) and limit of quantification (LOQ) of the proposed procedure for As³⁺ ion was found to be 1.0 µg/L and 3.3 µg/L for the As³⁺ ion respectively, with the relative standard deviation (RSD) of 4%. The excellent adsorption performance alongwith their low cost and convenient synthesis makes this range of adsorbent highly promising or commercial applications in drinking water purification and water treatment. The excellent adsorption performance along with their low cost and convenient synthesis

makes this range of adsorbent highly promising for commercial applications in drinking water purification and water treatment.

Project No:	PSF/Res/S-PCSIR/Chem (478)
Project Title:	Synthesis of Heterocyclic Organic Compounds for Drug Development
Duration:	03-Years
Date of Initiation:	01.08.2016
Date of Completion:	31.07.2019
Total Cost:	Rs. 1,933,818/-
Total Expenditure:	Rs. 1,862,834/-
Principal Investigator:	Dr. Shahnaz Parveen Chief Scientific Officer
Name of Institution:	Pharmaceutical Research Centre PCSIR Laboratories Complex, Karachi

SUMMARY:

Synthesis of heterocyclic organic compounds and discovery of new lead molecules that is the synthesis and purification of a new compound with expected biological activity and therapeutic value. Enzyme inhibition is an important area of pharmaceutical research, since studies in this field have already led to the discovery of wide variety of drugs useful in a number of diseases. Urea derivatives are an important class of organic compounds because they often display biological activity and are widely used as agricultural pesticides, or as pharmaceutical, they are the components of drugs including HIV protease inhibitors that are trypsin and α -chymotrypsin to CCK- β receptor and endothelin antagonist, antiulcer and they are also reported as inhibitors of acetyl and the most common usage is a medication taken to alleviate clinical depression or dysthymia (milder depression). Several groups of drugs are particularly associated with the term, notably MAOIs and tricyclics. These medications are now amongst the most commonly prescribed by psychiatrists and general practitioners, and their effectiveness and adverse effects is the subject of many studies and competing claims. Hydantoins analogues (heterocyclic organic compounds) have been identified as anticancer, anti-convulsants, anti-inflammatory, anti-HIV, anti-diabetics, anti-muscarinics, anti-ulcers and anti-arrhythmics, anti-hypertensive, serotonin and fibrinogen receptor antagonists, inhibitors of the glycine binding site of the NMDA receptor and antagonists of leukocyte cell adhesion acting as allosteric inhibitors of the protein-protein interaction. Diphenyl hydantoins (DPH)

and its analogs exerted an inhibitory effect on the Neuronal Voltage Sodium Channel (NVSC) and are anti-MES. Hydantoin and thiohydantoins derivatives have capacity to penetrate the blood-brain barrier, hence provide an anti-convulsant activity against generalized tonic-clonic seizures. More research is required for the innovation of novel compounds as drug candidates with fewer side effects.

Project No:	PSF/Res/P-CUI /Chem (570)
Project Title:	Development of Mechanically Reinforced Silica Based Bioactive Glass (SiO ₂ CaO-P ₂ O ₅) Polymer Composites for Potential Application in Osteochondral Defect Site
Duration:	02-Years
Date of Initiation:	03.04.2017
Date of Completion:	02.10.2019 (Extended)
Total Cost:	Rs. 3,798,480/-
Total Expenditure:	Rs. 2,326,040/-
Principal Investigator:	Dr. Farasat Iqbal Associate Professor
Name of Institution:	Interdisciplinary Research Centre in Biomedical Materials (IRCBM), COMSATS University, Lahore Campus

SUMMARY:

Osteochondral defect describes the localized gap based morphological change in subchondral bone and the articular cartilage. Treatment depends on the size of the defect and location, as well as the occurrence of secondary degenerative changes. Joint replacement is the only possible treatment in the later case. Generally, the porous biocompatible implants are used with a defined complex structure which is similar to the strength, morphology, porosity, bioactivity and load-bearing ability of bone tissues. Free form fabrication of ceramics can be accomplished by stereolithography by using as ‘resin’ a suspension of ceramics powder in a photo-curable medium. Bioactive glass a biomaterial having an ability to form carbonated hydroxyapatite, a chemical bond with bones. In biomedical applications it is widely used in dental filling and as a synthetic bone. But this use is restricted to at weight bearing areas in bones and tissue engineering due to its less mechanical strength and brittle nature in the form of scaffolds. Geometry determined the mechanical and physical properties of scaffolds. For fabrication of 3D structure along with resolution and control architecture stereolithography is the oldest AM technique.

In this project new bioactive glass compositions with better mechanical strength has been prepared and bioactive glass photocurable resins compositions for additive manufacturing and cellular resins for additive manufacturing and cellular implants with high density of a bioactive glass scaffolds have been prepared. In the first part of the project bioactive glass and bioactive glass graphene oxide composites have been prepared by simple sol-gel method. Bioactive glass (BG) prepared by using Ca(OH)_2 showed mechanical hardness two-times higher than conventional. Graphene oxide also improved its mechanical strength; however, it slightly effected the cytocompatibility of bioactive glass. In the second step an optimized bioactive glass resin composition was prepared. The high refractive index of ceramics (bioactive glass) is still a challenge for their additive manufacturing by stereolithography due to light scattering effect. Homogenous distribution along with high loading ceramics is demanded for fabrication of high density scaffolds. Curing behavior and viscosity of filler resins are strongly influenced by the particle size distribution, volume fraction and type of fillers. Light scattering phenomena is used to determine cure depth which further depends upon particle size, photo initiator, and amount of ceramics for glass contain slurries. Thus, effect of concentration of photo initiator, monomers, and bioactive glass on rheology along with photocuring behavior is studied in this research. To ensure effective nature of ceramic polymerization layers the curing conditions are noted which include exposure time and energy dose while scattering effect of ceramics particle are tried to be minimized. The photocurable resin composition with 40% monomers (acrylates) and 60% (w/w) bioactive glass and 1% photo initiator (with respect to monomer) was found to be one of best compositions with good hardness value. Porous scaffolds were fabricated using these resin compositions. Furthermore, the sintering conditions were also optimized for these green body resin get pure bioactive glass scaffolds. Next step was to prepare the polymer composites for cartilage regeneration. Three different polymer composites were prepared including photocurable hyaluronic acid composites, hyaluronic acid-chitosan composites and bioactive glass-PCL/PU composites. These composites were biocompatible and porous to support the cartilage regeneration. Hence the two layered (bioactive glass and polymeric layer) structure with good mechanical strength was successfully prepared for osteochondral defect site

Project No: PSF/Res/P-GCU/Chem (436)
Project Title: Synthesis, Characterization and Biological Evaluation of Bimetallic Sn (IV) and Pd (II) Complexes with Ligands having O-and S-Donor Sites
Duration: 02-Years
Date of Initiation: 01.07.2011
Date of Completion: 31.12.2013 (Extended)
Total Cost: Rs. 1,209,100/-
Total Expenditure: Rs. 898,046/-
Principal Investigator: Dr. Saira Shehzadi
 Assistant Professor
Name of Institution: Govt. College University, Faisalabad

SUMMARY:

PART-I: Organotin (IV) esters with general formulae $LSn(Cl)R_2$ (R=Me: **1**; Bu: **2**; Ph: **3**) and $LSnR_3$ (R= Me: **4**; Ph: **5**) were synthesized by the reaction of 4-piperidine carboxylic acid (LH) with KOH and R_3SnCl/R_2SnCl_2 in methanol. The complexes have been characterized by elemental analysis, FT-IR, (1H , ^{13}C) NMR, EI-MS technique, DFT calculations and semi-empirical studies. The FT-IR data indicates bidentate chelating mode of carboxylate ligand with Sn(IV) demonstrating give coordinated geometry around metal in solid state. In solution state trigonal bipyramidal and tetrahedral geometry around tin was confirmed by NMR spectroscopy for di- and triorganotin complexes, respectively. The EI-MS fragmentation patterns agreed well with the molecular structures of the complexes. Compound negative heats of formation indicate that all the molecules are thermodynamically stable. The complexes exhibited significant antimicrobial activities against various strains of bacteria (*Escherichia coli*, *Bacillus subtilis*, *Staphylococcus aureus* and *Pasturella multocida*) and fungi (*Alternaria alternate*, *Trichoderma harzianum* and *Aspergillus niger*). The hemolytic activities of the complexes show that complexes exhibit comparatively higher hemolytic activities as compared to the free ligand.

PART-II: Homobimetallic organotin(IV) carboxylates with the general formulae $R_2(Cl)SnSSCLCOOSn(Cl)R_2$ (R=Me: **1**; Bu **2**; Ph: **3**)/ $R_3SnSSCLCOOSnR_3$ (R=Me: **4**; Bu: **5**; Ph: **6**)/trinuclear tin(IV) dericatice, $[R_2(Cl)SnSSCLCOO]_2SnR_2$ (R=Ph:**7**) as wellas the heterobimetallic (Sn, Pd) products of the type $Cl_2PdSSCLOOSnR_3$ (R= Me: **8**; Bu: **9**; Ph: **10**) and the palladium complex $KOOCCLSSPdSSCLCOOK$ (**11**) were synthesized from potassium

1-dithiocarboxylatopiperidine-4-carboxylate (HSSCLCHOOH) prepared *in situ*. The complexes have been characterized by FT-IR, UV-Visible, (^1H , ^{13}C) spectroscopy. The mass fragmentation and thermal degradation patterns were excellently agreed with the molecular skeleton of the complexes. Computed negative heats of formation indicate that all molecules are thermodynamically stable except the phenyl substituted homobimetallic derivatives **4** and **7**. Single crystal XRD crystallography of the complex **7** has described the geometry of Sulphur bonded tin (IV) as between tetrahedral around Sn(IV) coordinate with oxygen donor site of the ligand. The Pd(II) derivatives shows inhibition of alkaline phosphatase (ALPs) and also expressed their interaction with **SS-DNA** (salmon sperm). The complexes were screened against various strains of bacteria (*Escherichia coli*, *Bacillus subtilis*, *Staphylococcus aureus* and *Pasturella multocida*) and fungi (*Alternaria alternate*, *Trichoderma harzianum* and *Aspergillus niger*). The homobimetallic (Sn, Sn) complexes exhibited more powerful action against synthesized complexes possessed hemolytic activities which were sufficiently lower compared to triton X-100 (positive control, 100% lysis) and higher than PBS (negative control, 0% lysis).

PART-III: Di-/triorganotin(IV) dithiocarboxylates with the general formulae $\text{R}_2\text{SnL}_2\cdot\text{H}_2\text{O}$ (R=Me: **1**)/ $\text{R}_2(\text{Cl})\text{SnL}$ (R= Bu: **2**; Ph: **3**)/ R_3SnL (R=Me: **4**; Bu: **5**; R= Ph: **6**) where L = 4-(2-hydroxyethyl)piperazine-1-carbodithioate ion, have been synthesized by stirring 1,2-hydroxyethylpiperazine and CS₂ in methanol at room temperature followed by refluxing the reaction mixture in the presence of di-/triorganotin chloride. The synthesized complexes have been characterized by IR, (^1H , ^{13}C) NMR, thermogravimetric and theoretical (semiempirical and DFT) studies. FT-IR data indicated the bidentate mode of binding of dithiocarbamate with tin and non-involvement of hydroxyl oxygen in coordination. The NMR data shows that complexes exhibited four coordinate geometry. EI-MS data agreed very well the expected chemical composition and molecular skeleton of the synthesized complexes. DFT calculations and semi-empirical studies show the thermal stability of the complexes and indicated distorted tetrahedral geometry of triorganotin (IV) complexes **4-6**. Single crystal XRD study confirmed the distorted tetrahedral coordination in dimethyltin (IV) derivative **1** and triphenyltin (IV) complex **6**. The complex **1** and **6** have been tested for their biopotency, hemolytic activities and interaction with salmon sperm DNA (SS-DNA). The complex **6** exhibited interaction with salmon sperm DNA (SS-DNA) with significant hypochromic effect and intercalating mode of

binding. The investigated diorganotin (IV) complexes (**2** & **3**) generally exhibited poor antibacterial/antifungal activity as compared to their trialkyltin (IV)/triaryltin (IV) complexes (**5** & **6**) as shown by disc diffusion method. The antimicrobial activities were varied according to substitution pattern at Sn (IV). The in vitro hemolytic activity investigations showed that average lysis of human red blood cells was significantly lower as compared to triton X-100 (positive control, 100% lysis) but not very much higher than **PBS** (negative control, 0% lysis).

PART –IV: Four heterobimetallic derivatives of the type, $[R_2(Cl)SnLCS_2]PdCl_2$ (R= Bu: **1**)/ , $[R_3(Cl)SnLCS_2]PdCl_2$ (R= Me: **2**; Bu: **3**; Ph: **4**) where $LCS_2 = 4-(2\text{-hydroxyethyl})\text{piperazine-1-carbodithioate}$ ion, have been synthesized *in situ* by stirring 2-(1-piperaziny)ethanol (LH) and CS_2 in methanol followed by refluxing with R_2SnCl_2/R_3SnCl and subsequently treating with $PdCl_{2(aq)}$. A mononuclear palladium complex, $[(LCS_2)_2Pd]$ (**5**) has also been synthesized by room temperature by reaction of KOH, 2-(1-piperaziny) ethanol (LH) and CS_2 in methanol and then stirring with aqueous solution of $PdCl_2$. The synthesized complexes have been characterized by IR, UV-Visible, (1H , ^{13}C) NMR, EI-MS, thermogravimetric analysis and theoretical (semiempirical and DFT) studies. FT-IR data demonstrated the bidentate binding of dithiocarbamate moiety with Pd(II) and deprotonation of hydroxyl oxygen. UV-Visible data verified the square planer geometry around Pd(II), in the solution state. The magnitude of 2J ($^{119}Sn-^1H$) and the calculated C-Sn-C bond angle in the trimethyltin(IV) derivatives **2** demonstrated tetrahedral environment around Sn(IV) in solution state. The thermogravimetric analyses shows the evolution of volatile organotin(IV) fragments during thermal degradation. DFT calculations and semi-empirical studies indicate that the hydroxyl and the thiocarboxylate donor sites of the ligand bind to Sn(IV) and palladium(II) in a monodentate and bidentate fashion, respectively. The synthesized complexes have been tested for their biopotency, hemolytic activities and interaction with salmon sperm DNA (SS-DNA)/alkaline phosphatase enzymes. Complex **4** and **5** exhibited their interaction with salmon sperm DNA (SS-DNA) with significant hypochromic effect and intercalating mode of binding. The complex **2** was found most active for inhibition of alkaline phosphatase enzyme (ALPs). The antibacterial/antifungal activities of the heterobimetallic complexes were varied according to their substitution at Sn(IV), while palladium coordinated **5** rendered no antimicrobial activity. The in vitro hemolytic activity of heterobimetallic complexes showed that average lysis of human red blood cells was significantly lower as

ompared to triton X-100 (positive control, 100% lysis) and not very much higher than PBS (negative control, 0% lysis), except in case of dibutyltin(IV) derivative².

PART-V: The Schiff bases ligand has been synthesized by reacting tranexamic acid with indol-3-carboxyaldehyde in the first step and then with carbon disulphide at room temperature in the second step. The homobimetallic complexes have been synthesized by reaction of Schiff base ligand with R_2SnCl_2 and R_3SnCl_3 in 1:2 molar ratios under stirring condition where R= methyl, n-butyl and phenyl. The ligand and complexes have been characterized by elemental analysis, FT-IR, multinuclear NMR (1H , ^{13}C and ^{19}Sn) and semi-empirical study. IR data reveal the bidentate nature of the ligand. Five or six coordinated complexes along with ligand were tested in vitro against some pathogenic bacteria and fungi to assess their antimicrobial properties. The complexes show significant biological activities with few exceptions.

PART –VI: Homobimetallic carboxylates with genera; formulae $(R^3SN)_2 L$ (Where R= Me, N-Bu, Ph and L= acetylene dicarboxylate dianion) have been synthesized by refluxing disodium salt of acetylene dicarboxylic acid with trioganotin chlorides in 1:2 (L:M) molar ratio in methanol under reflux conditions. These complexes have been characterized by elemental analysis, FT-IR and multinuclear NMR (1H , ^{13}C) spectroscopy. DFT calculations have been performed for structural elucidation and results were compared with semi-empirical data. The FTIR data indicates the bidentate mode of chelation of the ligand with tin metal and the complexes exhibits penta coordinated geometry in the solid state. Such type of coordination behavior is also supported by DFT and semi-empirical studies. NMR data confirms the four coordinated geometry in solution.

iv. MATHS AND COMPUTER SCIENCES

Project No:	PSF/Res/ P-NUST/Comp (38)
Project Title:	Indigenous Development of Multi-Biometric Authentication System
Duration	02-Years
Date of Initiation:	01.02.2013
Date of Completion:	31.01.2015
Total Cost:	Rs.1,824,780/-
Total Expenditure:	Rs.612,340/-
Principal Investigator	Prof. Dr. Muhammad Younas Javed Associate Dean

SUMMARY:

Fingerprint matching techniques can be broadly classified into three main categories: minutiae based, image-based and hybrid. Minutiae-based fingerprint matching technique first locates the minutiae points in a given fingerprint image and matches their relative placements in a stored template fingerprint. A good quality fingerprint image contains between 40 and 80 minutiae, but different fingerprints have different number of minutiae. The performance of minutiae-based techniques relies heavily on the accurate detection of minutiae points and the use of complex matching techniques to compare two minutiae fields which undergo non-rigid transformations. Image-based fingerprint matching methods use features such as texture information, ridge shape, ridge frequency and ridge orientation for matching. Hybrid fingerprint matching technique is usually the combination of minutiae-based and image-based fingerprint matching techniques

A fingerprint matching technique proposed by Tico is based on minutiae descriptor which contains orientation information of sampling points around each minutia in a fingerprint image. These sampling points are extracted around each minutia in a circular pattern. For multiple circles of different radii, different numbers of sampling points are selected on each circle. Orientation information of each sampling point is extracted and stored as a feature vector. Number of circles, their radii and corresponding sampling points are selected empirically. Tico evaluates the dissimilarity between orientation angles and their corresponding minutiae pairs. Greedy Search algorithm is used to calculate matching score of only those minutiae that fall inside the region of interest of both fingers.

Rotational invariant features of Zernike Moments give us an important aspect – we do not need to orient the 70x70 block with respect to the direction of the minutia around which the features are extracted. Unlike MCC, which requires the cylinders to be oriented in the same direction of minutia? Detection of partial fingerprints is an important aspect on acquisition level.

v. EARTH SCIENCES

Project No:	PSF/Res/P-PU/Earth (82)
Project Title:	Sedimentological Studies of the Lower Eocene Sakesar Limestone Salt Range, Pakistan
Duration:	03-Years
Date of Initiation:	16.06.2011
Date of Completion:	15.06.2014
Total Cost:	Rs. 1,934,560/-
Total Expenditure:	Rs. 1,585,473/-
Principal Investigator:	Prof. Dr. Shahid Ghazi
Name of Institution:	University of the Punjab , Lahore

SUMMARY:

The Early Eocene succession is composed of the Nammal Formation, Sakesar Limestone and Chor Gali Formation and is well exposed in the Salt Range. Detailed Sedimentological and biostratigraphical studies of the Sakesar Limestone were carried out from the Salt Range. The data from ten outcrop sections (Ghumrala, Khajula, Tatal, Badshahpur, Karuli, Sardhi, Khurra, Katwai, Rikhi and Chichali) is used for detailed analysis. The Sakesar Limestone comprises 30 to 35m-thick succession of inter bedded nodular limestone marl and shale. Five types of the lithological variations recorded in the Sakesar Limestone from bottom to top are; limestone inter bedded with very thin shale, limestone inter bedded with marl, nodular limestone, massive bedded nodular limestone and massive bedded cherty limestone. Wackestone-pack-stone

texture dominates the Sakesar Limestone in a fine-grained matrix with abundant grains of larger benthic foraminifera. The microfacies analyses allowed identifying and describing diagnostic microfacies including Bio-clastic Mudstone, Bio-clastic Wackestone, Bio-clastic Packstone and Bio-clastic Grain stone. A total of 9 micro facies has been identified from bottom to top including; Bioclasticwackestone (Sk1), Assilina Nummulitic packstone (Sk2), Nummuliticwackestone (Sk3), Nummulitic Assilina packstone (Sk4), Bioclastic mudstone (Sk5), Nummulitic Alveolina wackestone to packstone (Sk6), Rotaliine (Nummulites and Lockhartia) wackestone to packstone (Sk7), Bioclastic mudstone (Sk8) and Nummulitic-Alveolinapackstone (Sk9). Several species of larger foraminifera have been recorded which

include *Nummulitesmamillatus* (Fichtel and Moll), *Nummulitesatacicus* Leymerie, *Assilinaspinosa* Davies and Pinfold, *Assilinasubspinosa* Davies and Pinfold, *Assilinalaminosa* Gill,

Assilina granulosa (d'Archiac), *Assilina davieside* Cizancourt, *Lockhartiatipperii* (Davies), *Lockhartiaconditi* (Nuttall), *Discocyclinadispana* (Sowerby), *Alveolinaglobula* Hottinger along with orbitolites, miliolids and algae. The diagenetic processes observed are physical and chemical compaction, micritization, neomorphism, dissolution, cementation, replacement, fractures and forming veins, hematitization, and dolomitization and silica diagenesis.

The Sakesar Limestone has been mapped from Mitta Khattak Anticline, Karandi Anticline and Malla Khel Anticline of the Surghar Range, where the Early Eocene Sakesar Limestone is exposed. Random joints and fissures have been observed along the bedding planes making the horizon well porous and permeable. The Sakesar Limestone is known as one of the main naturally fractured reservoir in Potwar Basin. In Potwar Basin the Sakesar reservoir is divided into two parts; the upper and lower. The lower part of the Sakesar Limestone is more fractured and most of the production comes from this part whereas the upper part is less fractured. The subsurface facies are identified on the basis of spontaneous potential and total gamma-ray (API units) from the Fim Kassar 1X, Fim Kassar 1, Chak Naurang 1A, Kal-1, and Missa keswal-01 wells, Potwar Basin. Three facies have been identified from base to top including Limestone inter bedded with shale (Facies 1), Limestone with subordinate shale (Facies 2) and Limestone (Facies 3).

During Eocene a carbonate sequence developed in the Salt Range, lower boundary of which is marked as SB-II at the base of the Nammal Formation overlying the Paleocene Patala Formation. The Nammal Formation presents the retro-gradational facies suggesting the Transgressive System Tracts (TST). The Sakesar Limestone shows a gradational to pro-gradational pattern of facies, which developed in High stand System Tracts (HST). The Chor Gali Formation possesses shallowing-upward trend by forming progradational shift of facies, and represents the Falling Stage System Tracts (FSST). The Early Eocene carbonate sequence is terminated by a regional sub-aerial

unconformity SBI marked between marine carbonate sequence of the Chor Gali Formation and overlying non-marine clastic the Miocene Kamli Formation. Stable carbon and oxygen isotopic signatures of the Sakesar Limestone designate shallow marine depositional environment. On the basis of whole rock analysis, which represents the sum of all geochemical changes, the Early Eocene Sakesar Limestone has been interpreted as warm tropical limestone. Overall the Early Eocene Sakesar Limestone consists of the shallow water neritic carbonate deposits containing larger foraminifers through transgression.

vi. ENGINEERING SCIENCES

Project No:	PSF/Res/C-NUST/Engg (136)
Project Title:	Plasmons Effects in Nano-Structures of Inorganic Polycrystalline Materials (ZnS, CdTe, CdS) by Embedding Different Metallic NanoParticles (Ag, Au,Cu) for Improving Photovoltaic Efficiency in Photovoltaic Industry
Duration:	02-Years
Date of Initiation:	08.09.2016
Date of Completion:	07.09.2018
Total Cost:	Rs. 1,874,556/-
Total Expenditure:	Rs. 1,410,703/-
Principal Investigator:	Prof. Dr. Iftikhar Hussain Gul
Name of Institution:	National University of Science and Technology (NUST), Islamabad

SUMMARY:

Plasmonic study has important role for nanotechnology. In past, dielectric materials have been used to focus light. Dielectric cannot confine light to areas lesser than half of light wave length. On other hand, size of plasmonic structure primarily limits Plasmonic mode. Many unique ways for manipulation of light can be adopted with tailoring of shape and size of metal structure. Current developments in synthesis of metal nano structure have unlocked new accesses for photovoltaic applications. An innovative technique for achieving light trapping in semi conducting thin film photovoltaics is usage of metallic nano-structures that support surface Plasmons: conduction electrons excitations at the interface among dielectric and a metal. By appropriate engineering the structures of metal dielectric, concentrated light and folded into a thin semiconductor layer hence absorption is increased. People have tried to use plasmonic effects to make conventional silicon photovoltaics more efficient. But inorganic

polycrystalline materials like (ZnS, CdTe, CdS etc) are still to be exposed under consideration of plasmonic effects. By embedding different metallic nano particles like Ag, Au, Cu etc, in polycrystalline thin films for plasmonic effect, comparative study can be done for the efficiency of thin film Photovoltaic as well. With alteration of the layer thickness and with variation in size of metallic nano-particles, a wide range of experiments can be performed to compare the results.

Project No:	PSF/Res/P-CUI/Engg (159)
Project Title:	Evaluating the Performance and Power Effectiveness of Asynchronous Processors Customized for many Core Systems
Duration:	02-Years
Date of Initiation:	11.09.2017
Date of Completion:	10.09.2019
Total Cost:	Rs. 998,008/-
Total Expenditure:	Rs. 874,670/-
Principal Investigator:	Dr. Syed Rameez Naqvi Associate Professor
Name of Institution:	COMSATS University Islamabad Wah Campus

SUMMARY:

Considering the increasing use of asynchronous logic in many-core systems, in this work we design and implement asynchronous equivalents of MIPS synchronous processing core. A complete paradigm shift, from synchronous to asynchronous design style, however, would require a substantial justification: In first phase we conduct an extensive comparison between the designed benchmarks in terms of their performance. Since the asynchronous circuits already guarantee robustness against delay variations in contrast to their synchronous counterparts, only slightest of the improvement in comparison metrics would even give them a significant advantage. Positive results will lead to more robust, and energy efficient digital systems particularly suitable for neural computation, and low-level image processing in space applications. In the second phase, we design, simulate and synthesize the first variant of asynchronous microprocessor called “A Speed Independent Microprocessor with Delay Insensitive Pipeline Stages”. Besides designing, we have managed to come up with a novel idea of handling data and control hazards, which unlike the existing works, are

consistent with the approaches that have effectively worked for synchronous equivalents. The developed microprocessor is based on MIPS, which in comparison to an existing work, yielded better performance in terms of execution time. In third phase we design two other variants of asynchronous microprocessor first is single cycle asynchronous microprocessor and second is pipelined asynchronous microprocessor where this time in pipelined variant we also handle hazards with another novel approach but retain the pipelining theme of existent asynchronous microprocessor so we say that this microprocessor is like the existent asynchronous pipelined microprocessor in literature with respect to register organization. After completing design of three microprocessor we compare their performance and other parameters, as this project is initiated for the evaluation of asynchronous microprocessor for many-core system organization.

vii. HEALTH SCIENCES

Project No:	PSF/Res/C-PINSTECH/Med (497)		
Project Title:	Prediction of Gastric Cancer in <i>Helicobacter pylori</i> Infected Gastric Mucosa		
Duration	01-Year		
Date of Initiation:	01.11.2018		
Date of Completion:	31.10.2019		
Total Cost:	Rs.591,600/-		
Total Expenditure:	Rs.589,374/-		
Principal Investigator	Dr.	Faisal	Rasheed
	Senior Scientist		
Name of Institution	PINSTECH, Islamabad		

SUMMARY:

Gastric cancer is the second most common cause of death among all types of cancers in the World. Recently, we have observed frequency of gastric cancer of about 6.5% among symptomatic patients of gastric diseases in our region and we have also reported high frequency (>70%) of *Helicobacter (H.) pylori* infection and worrying virulence in our community that is a major risk factor for this malignancy. Detection of gastric cancer at the late stages results in high mortality rate while early detection is hindered by the lack of precise symptoms prior to spread from the original site. Thus, the early gastric cancer detection and monitoring of tumor dynamics are key tools for the reduction of disease burden and

improvement in the management of gastric cancer. Therefore, this study was aimed to determine the early detection of gastric cancer using blood based biomarker in the presence of *H. pylori* infection.

Project No:	PSF/Res/P-CUI/Med (477)
Project Title:	Label Free, Non Invasive Biomimetic Sensor for Detecting Oral Cancer
Duration	02-Years
Date of Initiation:	22.01.2018
Date of Completion:	21.01.2020
Total Cost:	Rs.1,788,209/-
Total Expenditure:	Rs.1,511,859/-
Principal Investigator	Dr. Usman Latif Assistant Professor
Name of Institution	IRCBM, COMSATS University Islamabad, Lahore Campus

SUMMARY:

The interleukin-8 (IL-8) expresses as a biomarker (as a angiogenic, mitogenic, and motogenic protein factor) in many human cancers such as prostate, breast, Hodgkin's disease and also present in high concentrations in saliva of patients suffering from oropharyngeal squamous cell carcinoma (OSCC). The level of salivary IL-8 is significantly higher in OSCC patients in comparison to healthy individuals and thus it is a potential biomarker for OSCC. Oral fluid is an ideal noninvasive medium to analyze patient health, disease prognosis and treatment results by detecting biomarkers associated with different diseases. To design a selective biomimetic analytical instrument for monitoring IL-8 in saliva at trace levels is not an easy task. However, very specific recognition materials based on imprinting technique can be designed which in combination with quartz crystal microbalance (transducer) leads to a sensor device for recognizing/monitoring particular analyses. In this proposed project, we mimic human IL-8 receptor (containing a total of five potential N-linked glycosylation sites on extracellular region of the amino acid sequence to detect cancer biomarker (IL-8) in saliva. Non-porous imprinted polymer and imprinted porous material also synthesized to investigate the advantages of better inclusion pathways to the active sites. The concentrations of monomer, cross-linkers, porogen and IL-8 were optimized to fabricate a high performance sensor device with better sensitivity, selectivity, reproducibility and stability features. At the end, evaluation of sensor device was carried out by monitoring the response against spiked human saliva sample.

Project No:	PSF/Res/P-CUI/Med (297)
Project Title:	Next Generation Granular Biomedical Ceramics for Rapid Bone Defect Repair
Duration	02-Years
Date of Initiation:	01.08.2016
Date of Completion:	31.01.2019 (Extended)
Total Cost:	Rs.1,783,123/-
Total Expenditure:	Rs.1,709,565/-
Principal Investigator	Dr. Aqif Anwar Chaudhry Associate Professor
Name of Institution	IRCBM, COMSATS University Islamabad Lahore Campus

SUMMARY:

With a population of more than 200 million people, Pakistan has its fair share of challenges. Furthermore, events such as the earthquake of October 2005 highlighted Pakistan's inability to deal with large extensive medical emergencies (most of the injuries were skeletal in nature). Bone repair and regeneration is currently limited to traditional approaches in Pakistan which mostly employ the use of auto-grafts (i.e. bone grafts sourced from the patient's body). This results in increased morbidity and discomfort of the patient. Moreover, the source is limited. Implants in Pakistan are primarily metallic implants which do not represent the new age generation of bioactive materials used for tissue repair in general and bone repair specifically. If available at all, these materials are in the form of expensive imports unaffordable by the common man. Therefore, there are two key requirements of and in Pakistan. Firstly, there is a dire need of advanced bone repair materials based on the sheer size of the complications. The second requirement is presence (& training) of relevant HR (for research, development and utilization) and strong networking between them. The aforementioned areas need to be developed in a sustainable manner. In this project we developed standard and advanced bone regenerating materials (hydroxyapatite based) in grams and kilogram level yields using a semi-pilot facility at IRCBM, CUI Lahore Campus.

These materials were thoroughly investigated using a range of characterization techniques. These materials were also evaluated from a biological stand point by assessing toxicity response to bone forming cells. These materials exhibited a favorable non-toxic response endorsing the choice of raw materials and processes used. These materials were then implanted in rabbits and

after sacrifice the bone regenerative potential of these materials was assessed using radiology and histology. Silicon containing hydroxyapatite showed more bone regenerative ability as compared to phase pure hydroxyapatite and both the aforementioned showed significantly more bone regeneration as compared to control samples where no materials was used. Clinical input formed an integral part of this project – during the course of the research and also for results discussion and acceptance. Summarily, a kilogram level synthesis facility has been validated through this study. Furthermore, bioactive phase-pure hydroxyapatite and silicon substituted hydroxyapatite have been successfully synthesized and shown to be non-toxic and bone regenerating. Strong networks and collaborations have also been an important outcome of this project as this project covers significant scientific distance starting from synthesis to characterization to biological response assessment and eventual tissue regeneration in the animal model. Therefore, this project can form a strong basis of a potential entrepreneurial venture which spins-off university research. On the other hand, it is also a formidable possible attraction for industrial attention and seed capital.

viii. PHYSICS

Project No:	PSF/Res/C-NILOP/Phys (183)
Project Title:	Development of Fluorosensor for <i>in-vivo</i> Characterization of Skin Tumors
Duration	02-Years
Date of Initiation:	01.09.2016
Date of Completion:	31.12.2018 (Extended)
Total Cost:	Rs. 912,957/-
Total Expenditure:	Rs.835,608/-
Principal Investigator	Dr. Muhammad Saleem Deputy Chief Scientist
Name of Institution	National Institute of Lasers and Optronics (NILOP), Islamabad

SUMMARY:

Fluorescence spectroscopy is an excellent optical tool for probing molecular structures. It promises the possibility for in vivo and non-invasive measurements of emission spectra from human skin for early disease detection, investigating the origin of skin diseases and to improve quality of human skin. In addition, it has also been proved as an efficient tool for the early detection of plant diseases and assurance of food quality. In the present project, the

development of a compact fluorosensor was proposed for the measurement of in vivo autofluorescence originating from skin for the characterization of the premalignant and malignant tumors. After developing the fluorosensor, unluckily, we could not find patients at NORI hospital, however, the studies on two skin diseases namely Psoriasis and Leishmaniasis, have been demonstrated its proof of principle i. e. skin fluorescence alters as a result of abnormality. However, in future, the equipment will remain in use to investigate variety of skin diseases including skin cancer. It may also provide an excellent opportunity to assess the efficacy of the skin cancer treatment and would help to assess the level of restoring normal healthy skin after treatment. The system is portable, user friendly, low cost and relatively immune to ambient light background enabling it quite suitable for field measurements. Furthermore, the fluorosensor has also been used for the early detection of citrus canker disease on the grape fruit plant leaves and Bacterial leaf blight (BLB) on the rice plant leaves. It has also been utilized for the quality assurance of turmeric powder, desi ghee and canola oil. On the demand of PSF (through verbal discussion), a dummy device of portable fluorosensor has also been fabricated and being delivered to PSF with this report for their record, display and advertisement. In addition, its operating manual has also been submitted which described its operation, its potential applications and possible potential users for country wide utilization of the equipment.

1.1.2.1.1. Scientific Publications Produced through PSF Supported Projects

One of the main achievements and usefulness of any research is the publication of its results in scientific journals. Based upon the results of 16 completed projects, 34 research papers were published in different national/international journals. Details are at **Annexure-IV**.

1.1.2.1.2. Higher Degrees Earned through PSF Supported Projects

One of the major goals of the Foundation is the development of scientific human resource in the country. This results in strengthening of R&D infrastructure of various scientific organizations. The Foundation has been developing scientific manpower through its research

projects by employing the Research Associates in the PSF supported research projects through registering for higher degrees. Following students working in PSF supported research projects were awarded Ph.D. /M.Phil./ M.Sc. (Hons.) degrees:

S. No.	Project No.	Name of the Researcher	Degree awarded
1.	PSF/Res/B-DAEB/Agr (379)	Dr. Arif Shah Kakar	Ph.D.
2.	PSF/Res/B-BUITMS/Bio (388)	Dr. Mohammad Hussain Khajjak.	Ph.D.
3.	PSF/Res/KPK-MU/Chem (461)	Ms Nazish Shahab	M.Phil.
4.	PSF/Res/S-SU/Chem (465)	Dr. Faraz Ahmed Mustafai	Ph.D.
		Dr. M. Saqaf Jagirani	Ph.D.
5.	PSF/Res/S-PCSIR/Chem (478)	Dr. Sumbul Ahmed	Ph.D.
6.	PSF/Res/P-GCU/Chem (436)	Mr. Mudassir Jabeen	M.Phil.
		Mr.Javed Anwar	M.Phil.
		Mr.Muhammad Tahir Anwar	M.Phil.
		Ms. Mussarat Rafique	M.Phil.
		Ms. Naeema Kousar	M.Phil.
		Mr. Muhammad Rizwan	M.Phil.
		Ms. Shumaila Iram	M.Phil.
		Mr..Asad Abbas	M.Phil.
		Mr. Yasir Arafat	M.Phil.
		Mr. Muhammad Shahzad Bashir	M.Phil.
		Ms. Lala Rukh	M.Phil.
		Ms. Huimaira Iqbal	M.Phil.
7.	PSF/Res/ P-NUST/Comp (38)	Mr. Adeel Ejaz	M.Phil.
8.	PSF/Res/C-NUST/Engg (136)	Mr. Sohaib Akram	M.Phil.
9.	PSF/Res/P-CUI/Engg (159)	Mr. Zaheer Tabassam	M.Phil.
10.	PSF/Res/C-PINSTECH/Med (497)	Mr. Alam Zeb	M.Phil.
		Ms. Ayesha Fatima	M.Phil.
11	PSF/Res/P-CUI/Med (297)	Dr. Muhammad Marghoob Khan	Ph.D.

1.1.3. SCIENCE PROMOTION

a. Institutional Support Programme

One of the functions of the Foundation is to support the emerging R&D Organizations/Universities to strengthen their laboratories. During the report period, no case was entertained due to shortage of funds.

b. Financial Assistance for Holding Science Conferences, Seminars, Symposia and Workshops

Another function of the Foundation is to provide funding for holding conferences/seminars/symposia/workshops etc. In 2020-21, an amount of Rs.1.397 million was released to various institutions for organizing 13 conferences, seminars and workshops on important scientific topics. The detail is listed below:

Sr. No.	Title of Conference/Seminar/Workshop/Symposium	Name of Organizers	Amount Released (Rs.)
1.	International Conference on Artificial Intelligence-ICAI 2021 at NUST, Islamabad on April 5-7, 2021	Dr. Yasar Ayaz, Chairman, National Center of Artificial Intelligence (NCAI), NUST, Islamabad	200,000
2.	3 rd International Conference on Environment and Sustainable Development at Sustainable Development (ICESD-2021) Study Centre, Government College University, Lahore on April 6-8, 2021	Prof. Dr. Faiza Sharif Director, Sustainable Development Study Centre, Government College University, Lahore	160,000
3.	Rare Disease Genetics Day 2021 at Centre for Omic Sciences, Islamia College University, Peshawar on March 01, 2021.	Dr. Muhammad Musharraf Jelani, Associate Professor, Centre for Omic Sciences, Islamia College University, Peshawar.	150,000
4.	Building Momentum for the Management of Vector-Borne diseases in Pakistan at NARC auditorium, Islamabad on February 22, 2021.	Dr. Shah Fahad, President, Pakistan Mosquito Control Association (PMCA), Islamabad	67,000
5.	Ultra-Violet Disinfection for Air and Surfaces at National institute for Lasers and Optronics College, PIEAS Islamabad on March 29, 2021.	Dr. Muhammad Saleem, Deputy Chief Scientist NILOP, Islamabad	20,000
6.	Two days International Physics Conference on Emerging trends in Material Science and technology on 5-6 th April 2021.	Dr. Bushra Parveen, Chairperson, Dept. of Physics, Lahore Garrison University Lahore.	200,000
7.	4 th International Conference on Robotics and Automation in Industry at College of E&ME- National University of Sciences and Technology, Islamabad on Oct, 26-27, 2021.	Dr. Aamer Baqai, Dean NUST College of Electrical and Mechanical Engineering, Rawalpindi.	200,000

8.	2 nd National Symposium on Building Momentum for the Management of Vector-Borne Diseases in Pakistan at University of Karachi, Karachi on April 05, 2021.	Dr. Shah Fahad, President, Pakistan Mosquito Control Association (PMCA), Islamabad.	50,000
9.	7 Emerging Technologies Disrupting our Future and Career Planning (Emerging technologies Awareness Campaign and Career planning) at Government College University Hyderabad, on April 01, 2021.	Zeeshan Ahmed Mughal, Deputy Director MIS Hyderabad.	150,000
10.	7 Emerging Technologies Disrupting our Future and Career Planning (Emerging technologies Awareness Campaign and Career planning) at Sir Syed University of Engineering & Technology, Karachi on March 31, 2021.	Dr. Rabia Noor Enam, Director ORIC, Sir Syed University of Engineering & Technology, Karachi	50,000
11.	7 Emerging Technologies Disrupting our Future and Career Planning (Emerging technologies Awareness Campaign and Career planning) at DHA Suffa University, Karachi on April 01, 2021.	Ms. Eram Abbasi, Director, Center for Entrepreneurship and Innovation Development DHA Suffa University, Karachi.	50,000
12.	Two Day National Symposium on Biotechnology for Sustainable development at Department of Bioinformatics and Biotechnology, Government College University, Faisalabad on May 27-28, 2021.	Dr. Muhammad Aamer Mehmood, Associate Professor, Department of Bioinformatics and Biotechnology Government College University Faisalabad.	50,000
13.	Role of Mathematics in Today's Society Artificial at University of Baltistan Skardu on April 23-24, 2021.	Dr. Munawar Ali Abbas, Assistant Professor, Dept. of Mathematics, University of Baltistan, Skardu.	50,000
Total:			1,397,000/-

c. Financial Support to Scientific Societies for Holding Scientific Conferences and Publication of Scientific Journals

The Foundation provides funds for Scientific Societies for holding their regular conferences, meetings and publication of scientific journals in various disciplines. During the year, no new

societies were funded for regular conferences, and meetings because of shortage of funds. However, during the period, an amount of Rs. 40,000/- was released to 01 journal:

S.No	Name of the Journal	Correspondence Address	Funds Released (Rs)
2.	Farming Outlook	Dr. Muhammad Tahir Saleem, Editor, Farming Outlook Street 39, I-8/2, Islamabad	40,000/-
Total			40,000/-

d. Awards and Fellowships

PSF provides a limited number of research fellowships to the M.Phil. and Ph.D. scholars who do not have any other source of income. During the year, no new request was accepted because of shortage of funds.

e. Financial Support for Scientific Survey

The Foundation also provides funds for scientific surveys to collect data on important scientific issues/problems. During the report period, an amount of Rs.0.2 million was released to an institution for the scientific survey. The detail is listed below:

Sr. No	Title of Survey	Name of Organizer/s	Amount Released (Rs.)
1.	Air sampling and characterization of air pollution particular (PM10 and PM2.5 major concern is 16 priority polycyclic aromatic hydrocarbons) in Faisalabad, Lahore, Sialkot and Rawalpindi.(Survey)	Ms. Maha Zafar Qureshi, Lecturer, Department of Environmental Science, International Islamic University, Islamabad.	200,000/-
Total:			200,000/-

1.2. NATURAL SCIENCES LINKAGE PROGRAMME ENDOWMENT FUND

Natural Sciences Linkage Programme (NSLP) Endowment Fund is an important component of Pakistan Science Foundation (PSF) which is aimed at enhancement of agricultural production through effective research. The outcome of this research will benefit the end user by uplifting

the life standard and income of the farmers. The Fund is being managed by PSF through Board of Governors (BoG) and Fund Management Committee (FMC). The Chairman, PSF is the Chief Executive of the Programme/Fund.

Aims and Objectives:

- To enhance cooperation among scientists from Pakistan and the United States of America, in areas of significant mutual interest and benefit relating to natural sciences as applicable to agriculture.
- To increase the contact and collaboration among scientists and institutions of biological research, development and higher learning institutes between the two nations.
- To provide researchers and institutions with opportunities to exchange information, ideas, skills and techniques.
- To enhance opportunities to collaborate in solving problems of common interest relating to natural sciences and to utilize special research and development facilities or opportunities available.
- To identify the researchable areas in natural sciences especially agricultural sciences with aim to increase farmer's profitability

Research Priority Areas:

Selected priority areas for collaboration may include, but are not limited to; Collection, Evaluation and Exchange of Germplasm, Plant Genomics, Plant Biotechnology, Stress Biology, Bio-Informatics, Application of Information Technology in Agriculture, Identification and Control of Animal/Plant Diseases, Dryland/Sustainable Agricultural Production System; Integrated Pest and Disease Management, Biotechnology, Microbiology, Agribusiness Development, Biophysics, Chemistry, Environment, Energy, Water Resource Management and Climate Change particularly with reference to Agriculture.

Project proposals which highlight main problems of agricultural sector are invited from universities and R&D organizations across the country. Research work is emphasized on the food production & food security issues in Pakistani scenario. Currently 168 projects are being

funded in different Universities and R&D organizations access the country under this programme.

Projects are received from the researchers throughout the year; undergo scrutiny and peer review before presenting to the Technical Committee, which comprises of eminent scientists from different specialized areas of agriculture and natural sciences. The target areas of these projects include germplasm screening of different crops, insect and pest management for the disease free crop production, nutrition management of crops and post-harvest technology. All these research issues are vital component of today's agriculture and are imperative in bringing the value added products in the market. Apart from this, many projects from specialized fields of animal sciences are also being funded. These projects include research in genetic screening of different animal breeds, feed technology and milk quality areas. In future, the fund aims to maintain focus on applied research projects related to Energy, Water resources management, Environment and Climate Change.

1.2.1. ACTIVITIES AND PROGRAMMES

1.2.1.1 Research Funding

Research funding is the principal activity of Natural Sciences Linkage Programme (NSLP). Efforts are being made to establish linkages between end-users and scientists of different R&D organizations and Universities throughout the country. Projects of applied nature are selected for funding and research proposals received undergo the strict process of scrutiny before the funding. The criteria include the competence of the scientific personnel to carry out the research, institutional capabilities i.e availability of the basic equipment and laboratory facilities, scientific merit of the proposed research proposals and likelihood of completion of proposed research work within the stipulated time and given funds. The proposals are reviewed by two Pakistani experts along with US experts. The proposals recommended by experts are placed in the relevant subject Technical Committee for technical evaluation and recommendation. The proposals recommended by the Technical Committee are then submitted to NSLP Fund Management Committee (FMC) for administrative and budgetary approval, before the release of funds.

a) Under Process Projects:

During the report period, 79 concept papers remained under consideration of the NSLP. Out of these concept papers, 57 projects were presented in 03 Technical Committee meetings. Technical Committee recommended 27 new projects for funding at total cost of Rs.113.41 million. List of projects recommended for funding during the report period is given at **Annexure V**.

b) On-Going Projects

During the year 64 research projects ongoing remained and (40) progress reports of these projects (semiannual, 1st and 2nd annual & final reports) were received. The NSLP staff scrutinized the semiannual reports before releasing of next due installment. Whereas, annual and final reports after initial scrutiny by NSLP team were sent for evaluation to the subject experts to assess the interim progress of the projects before release of next due installment. It is worth mentioning that due installment of the on-going projects are released only if the interim progress of the projects at the end of each year is rated as satisfactory by the subject expert. An amount of Rs.5.47 million was released on account of due installments of on-going projects. A list of semiannual, annual and final reports is given in **Annexure VI**.

c) Completed Projects

During the year, 07 projects were completed. The subject experts evaluated the final technical reports of the projects which were subsequently placed before the Technical Committee for adoption. The accounts of these projects were settled and file closed. Details of the projects along with the scientific output are given below.

Project No	PSF/NSLP/C-NARC (595)
Project Title	DNA Based Identification of Adulteration in Meat and its Products
Duration	2-years
Date of initiation	17.07.2017
Date of completion	16.07.2019
Final report received	30-09-2019
Final technical report adopted in the	23.09.2020

Technical Committee meeting held on	
Location of project	Animal Biotechnology, NIGAB, NARC, Islamabad
Principal Investigator	Dr. Muhammad Naeem Riaz Senior Scientific Officer
Total Expenditure	Rs. 2597156
Main objectives	<ul style="list-style-type: none"> • Development of an efficient technology to test and authenticate meat and meat-based products for origin of meat species. • Identification of adulteration incidence in local market meat and meat products

Project No	PSF/NSLP/C-CIIT (663)
Project Title	Exploring Potential of Eco Friendly Allelochemicals and Their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.)
Duration	3-years
Date of initiation	25-12-2016
Date of completion	24-12-2019
Final report received	25-08-2020
Final technical report adopted in the Technical Committee meeting held on	23.09.2020
Location of project	Department of Biosciences, COMSATS IIT, Islamabad
Principal Investigator	Dr. Zahid Ali Assistant Professor
Total Expenditure	Rs.4,188,375/-
Main objectives	<ul style="list-style-type: none"> • Identification of naturally occurring new potential allelochemicals Inhibiting the growth of wheat weeds. • Designing of new functional analog/mimic compound of the allelochemical that may

	<p>significantly retard the growth of weeds in wheat crop.</p> <ul style="list-style-type: none"> • Comparative functional investigation of natural allelochemicals and their analogs. • Formulation and testing of identified allelochemicals and/or their analogs as a bio-herbicide
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Project No	PSF/NSLP/P-FCCU (699)
Project Title	Evaluation of Selected Phytase Transgenic Wheat Lines in Soil under Contained Environment
Duration	2-Years
Date of initiation	08-02-2018
Date of completion	07-02-2020
Final report received	29-03-2020
Final technical report adopted in the Technical Committee meeting held on	19.01.2021
Location of project	Biological Sciences Department, Forman Christian College University, Lahore
Principal Investigator	Dr. Asma Maqbool Associate Professor
Total Expenditure	Rs .3,067,956/-
Main objectives	<ul style="list-style-type: none"> • Evaluate the performance of transgenics in soil under different phosphorous conditions • Determination of available phosphorus in the soil • Evaluation of agronomic characters (plant height, leaf area, spike number, yield) and multiplication of seeds

Project No	PSF/NSLP/GB-KU (449)
Project Title	Assessment of function composition and development of value added products from

	mulberry fruits of Gilgit Baltistan
Duration	3-Years
Date of initiation	19-03-2016
Date of completion	18-09-2019
Final report received	21-09-2020
Final technical report adopted in the Technical Committee meeting held on	19.01.2020
Location of project	Department of Food & Applied Science Chemical Technology, Karakoram International University Northern areas, Gilgit
Principal Investigator	Dr. Sartaj Ali Assistant Professor
Total Expenditure	Rs.2,105,280/-
Main objectives	<ul style="list-style-type: none"> • To establish nutritional and health strengths of mulberry fruit • To develop processed and semi processed food products from mulberry fruit i.e. juice, syrup, jam, squash and pulp for local and national market • To evaluate the shelf life of the products during storage to assess their marketability • To develop animal feed from the processing waste of mulberry fruit by combining with wheat husk • To promote entrepreneurship and improve socio-economic condition of the mountain communities • After successful completion of the project, product development technology will be transferred to potential entrepreneurs in a 5-day workshop. Potential process will be patented and outcomes of the study will be published in the form of papers in reputed journals

Project No	PSF/NSLP/S-KU (678)
Project Title	Production and characterization of broken-rice starch nanoparticles as bioactive encapsulation matrix
Duration	3-Years
Date of initiation	01-03-2017
Date of completion	29-02-2020
Final report received	21-12-2020
Final technical report adopted in the Technical Committee meeting held on	19.01.2020
Location of project	Department of Food Science & Technology, University of Karachi, Karachi
Principal Investigator	Dr. Feroz Alam Assistant Professor
Total Expenditure	Rs.3,210,519/-
Main objectives	<ul style="list-style-type: none"> • Examine the potential of food processing waste as a source of bioactive compounds particularly antioxidants and phenolic compounds. • Extract the bioactive compounds from selected food processing waste using economical techniques. • Utilize the of low-cost broken-rice starch as a matrix for the encapsulation of bioactive compounds. • Build up the new modern nanotechnology to develop the functional food products for local and international market. • Assess techno-economic feasibility of the developed technologies.

Project No	PSF/NSLP/P-AU (168)
Project Title	Engineering Maize with Heat Shock Proteins
Duration	3-Years
Date of initiation	15-05-2013
Date of completion	14-11-2017 (Extended)
Final report received	29-12-2020
Final technical report adopted in the Technical Committee meeting held on	09.03.2021
Location of project	Center of Agricultural Biochemistry and Biotechnology, University of Agriculture, Faisalabad
Principal Investigator	Dr. Iqrar Ahmad Rana Assistant Professor
Total Expenditure	Rs.1,392,700/-
Main objectives	<ul style="list-style-type: none"> • Development of stress resistant (drought and heat) transgenic maize lines which will be used in future breeding programmes/Hybrid production for the development of stress resistant maize hybrids. • To train Manpower as MS and PhD students will be engaged in this project.

Project No	PSF/NSLP/P-BZU (246)
Project Title	Role of Nucleopolyhedrovirus in Management of Cotton Bollworm (<i>Helicoverpa armigera</i> Hubner)
Duration	3-Years
Date of initiation	07-01-2013
Date of completion	06-01-2016 (Extended)
Final report received	02-02-2021

Final technical report was adopted in the Technical Committee meeting held on	09.03.2021
Location of project	Department of Entomology Faculty of Agricultural Sciences & Technology Bahauddin Zakariya University, Multan
Principal Investigator	Dr. Syed Muhammad Zaka Assistant Professor
Total Expenditure	Rs.727,854/-
Main objectives	<ul style="list-style-type: none"> • To determine if NPV can suppress insecticides resistance in <i>H. armigera</i> and investigate the host range of various NPV strains to increase insect pest management of field crop. • Ecology of synergistic interactions between NPVs and insecticides in the <i>H. armigera</i> • To investigate if NPV strains, which synergistic have an impact on the diversity and abundance of the gut flora in healthy larvae. • To determine if multiple passage in a mixed infection in a host could improve virulence of NPV. • To carry out trails to determine whether most virulent NPV (determined at objective 4) could suppress insecticides resistance <i>H. armigera in the field.</i>

1.2.1.2. Scientific Publications and Patents Produced through NSLP Funded Projects

One of the main achievements and usefulness of any research is the publication of its results in scientific journals and register patents. Based upon the results of research projects, 09 research papers were published in peer review journals. The details of which are given at **Annexure VII**.

1.2.1.3. Project Formulation Workshops

A total of 01 Project Formulation Workshop was organized to enhance the capacity of the researchers for writing project proposals. The workshop was organized at the National Institute for Biotechnology & Genetic Engineering (NIBGE), Faisalabad.

The workshop enabled and trained 70 researchers and scientists in preparing fund winning project proposals.

1.2.1.4. Meetings of Fund Management Committee of NSLP

During the year 02 meetings of Fund Management Committee (FMC) were held on 13.04.2021 and 18.06.2021, respectively to review the financial matters of NSLP. The meetings were chaired by the Chairman, PSF/Chief Executive, NSLP and attended by members of the Fund Management Committee. The FMC approved budgets of 16 new projects of worth Rs.113.41 million, recommended by the NSLP Technical Committee. An amount of Rs.51.033 million was released to these new projects on account of 1st installment. List of projects recommended for funding during the report period at given in **Annexure VIII**.

1.2.1.5. Meetings of Technical Committee of NSLP

During the year 2020-21, a total of 04 meetings of the Technical Committee (TC) were held on 24.09.2020, 19.01.2021, 09.03.2021 and 01.06.2021, respectively to technically evaluate the projects to be funded. The meetings were chaired by the Chairman, PSF/Chief Executive, NSLP and attended by the renowned scientists related to agriculture and natural sciences. A total of 57 new projects were presented to the Technical Committees out of which 27 projects were recommended for funding.

1.3 COMPETITIVE RESEARCH PROGRAMME

Project Detail:

i.	Project Cost:	Rs. 1964.500 million
ii.	Duration:	5-Years
iii.	Implementation Agency:	Pakistan Science Foundation
iv.	Sponsoring Agency:	Ministry of Science & Technology
v.	Utilization:	Rs. 109.543 Million

- vi. Research Projects Funded (2020-21): 24 (1st Call + COVID-19 + PAK-China 18th Protocol + Special Intervention)
- vii. Ongoing Research Projects: 14
- viii. Total Research Projects: 38

1.3.1. 1st Call for Proposals

The 1st Call was launched and only one project could be funded as it was halted due to COVID-19 in the country and a special call on COVID-19 was launched in February, 2020. Out of 500 pending research projects 300 research projects were finalized during 2020-21 and 200 are still pending. Of these, 05 new research projects were funded under this call during the year.

This call for proposals was launched in two funding streams viz., Consortium Research Grants and Triple Helix Model. All research fields under PC-I were included in this call viz., Agriculture and Food Security, Earth, Environment and Climate Change, Biotechnology, Biochemistry and Molecular Biology, Water & Soil, Energy, Engineering and Manufacturing, Health Sciences, Livestock, Chemistry and Physics, STEM Education, Space Sciences and Other Emerging Areas. A total of 1162 research proposals were received. Following is the detail of research projects and the list of funded projects:

SUMMARY OF RESEARCH PROJECTS UNDER 1ST CALL FOR PROPOSALS

Sr. #	Detail	Project Proposals
1.	Total Number of Project Proposals Received	1162
2.	Total Number of Project Proposals dropped due to missing documents/duplication/Request of PIs to withdraw projects/Wrong Categories of Funding	205
3.	Total Number of Project Proposals Dropped due to Non submission of revised versions/Wrong Categories of Funding	322
4.	Number of Projects approved by Project Award and Steering Committees	08
5.	Number of Projects Under Process	200

Projects Funded Under 1st Call for Proposals

Sr. No.	Project No. & Title	P.I. Name / Organization	Cost Duration
1.	PSF/CRP/Constrm-91 Development of Biobased MicroRNA Probe for the Early Detection of Cardiovascular Infarction	Dr. Iram Murtaza Associate Professor Department of Biochemistry, Quaid-i-Azam University, Islamabad	10,735,000 2-Years
2.	PSF/CRP/T-Helix-220 Development and Production of Indigenous Diagnostic / Angiographic Catheter in Pakistan	Dr. Murtaza Najabat Ali Associate Professor National University of Sciences and Technology (NUST) Islamabad.	16,743,037 1.5 Years
3.	PSF/CRP/Constrm 733 Determining Contribution of Liver Cirrhosis in Hepatocellular Carcinoma through Tissue-gene Interaction	Dr. Asma Gul Chairperson, Department of Biological Sciences, International Islamic University, Islamabad	7,915,000 3-Years
4.	PSF/CRP/T-Helix-28 Recycling of textile and tyre industrial wastes for the development of indigenous carbon black	Dr. Aamer Abbas Khan Industry Liaison officer, Department of Textile Engineering, University of Engineering and Technology, Lahore (Faisalabad Campus),	4,869,250 3-Years
5.	PSF/CRP/T-Helix-186 Development of Value added Zincated Urea with Slow-Release Nitrogen feature	Dr. Muhammad Bilal K. Niazi, Head, Department of Chemical Engineering, National University of Sciences & Technology (NUST), Islamabad,	6,840,000 3-Years
6.	PSF/CRP/T-Helix- 176 Electrically heated textile articles of clothing produced by printing of resistive inks.	Dr. Muhammad Ali, Assistant Professor, Department of Textile Engineering,, NED University of Engineering & Technology, Karachi.	6,846,330 2-Years
7.	PSF/CRP/TH-47	Dr. Salman Raza Naqvi,	6,745,000

	Development and operation of lab/pilot scale facilities for co-utilization of indigenous low rank, coal, biomass, sewage sludge for cleaner energy production for fertilizer industry	Assistant Professor, School of Chemical & Materials Engineering, National University of Sciences & Technology, Islamabad	3-Years
8.	PSF/CRP/TH-126 Design and Manufacturing of Assistive Devices used in Physical Rehabilitation of Disabled People using Additive Manufacturing Technologies	Prof. Dr. Sahar Noor, Chairman, Department of Industrial Engineering, University of Engineering and Technology, Peshawar	4,053,000 3-Years

1.3.2 Call for Proposals on COVID-19

Keeping in view the emergency situation in the country, a special call to address COVID-19 was launched. Total 446 research projects were received under this call. After thorough scrutiny, 08 research projects were funded. One project is to establish a high-potency treatment therapy being executed at a NIBGE, Faisalabad. Another project is for the development of automatic syringe pumps to be used for COVID-19 patients where personal contact by the paramedic staff can be avoided and the patient can be treated in isolation. Following is the summary of the Call for Proposals and the list of funded projects under COVID-19:

Summary of Research Projects under Special Call for Proposals to Address COVID-19

Sr. #	Detail	Project Proposals
1.	Total Number of Project Proposals Received	446
2.	Total Number of Project Proposals Ineligible due to missing documents/duplication	70
3.	Total Number of Eligible Project Proposals for Funding Consideration	376
4.	Projects recommended for funding by 3rd Meeting of Technical Committee held on 02-Jul-2020 (out of 77)	06 08

5.	Projects recommended for funding by 4th Meeting of Technical Committee held on 08-Jul-2020 (out of 123)	02	
6.	Number of Projects approved by Project Award/Steering Committee (2020-21)	02	

Projects Funded Under Special Call for Proposals on COVID-19

Sr. No.	Project No. & Title	P.I. Name and Address	Duration & Total Cost (Rs.)
1.	PSF/CRP/Covid-19/TH-16 Indigenous Development of Automatic Syringe Pumps for Intravenous Infusions of Covid-19 Patients in ICU	Prof. Dr. Shafaat Ahmad Bazaaz Department of Electrical & Computer Engineering Sir Syed CASE Institute of Technology, Islamabad	3,000,450 1-Year
2.	PSF/CRP/Covid-19/Cons-103 Development of Inhibitors Targeting the Viral as well as Host Factors of Severe Acute Respiratory Syndrome Coronavirus 2(SARS-CoV-2): A way forward to develop a high-potency treatment therapy	Dr. Mazhar Iqbal Deputy Chief Scientist Health Biotechnology Division, NIBGE, Faisalabad.	9,840,000 1-Year

1.3.3 18th Pak-China S&T Protocol

Ministry of Science & Technology, Pakistan signed S&T protocol with China. First time, Ministry of Science & Technology, Pakistan launched joint call under 18th S&T protocol. Total 114 research projects were received. Two meetings of the Technical Committee were held and 22 research projects were shortlisted. After through scrutiny and detailed discussion with China, the Federal Secretary, Ministry of Science & Technology chaired a meeting and finally shortlisted 13 research projects for jointly funded under this call. In compliance to Ministry of Science & Technology's decision, these 13 projects were presented before Project Award Committee. The Steering Committees headed by the Federal Secretary, PSF will give final approval of these projects.

It is pertinent to mention here that the PC-I on “Competitive Research Programme” has categorically mentioned and allocated an amount of Rs. 100.0 million per annum for joint projects with China.

Following is the list of funded research projects under 18th Pak-China S&T Protocol during 2020-21:

Sr. No	Project Title	Cost Duration		Chinese and Pakistani PI/ Organization
		Original	Revised	
1.	Evaluation of Key Technologies for ethanol-fueled SOFCs power system of extended sailing-range UAV PSF/CRP/18thProtocol (01)	37.28 m	9,695,000	3 Years Yihan Ling, China University of Mining and Technology Majid Khan Abdul Wali Khan University Mardan
2.	Targeted photo-immunotherapy for cancer using multifunctional biosynthesized iron oxide nanomaterial's PSF/CRP/18thProtocol (02)	18.02 m	7,710,000	3-Years Haiyuan Zhang Changchun Institute of Applied Chemistry, Chinese Academy of Sciences Abdur Rauf University of Swabi
3.	Structural Control and application of Nano-pesticide through flash Nano-assembly PSF/CRP/18thProtocol (03)	14.2 m	7,143,200 7.2 million	3 Years Yisheng Xu East China University of Science and Technology Naveed Ramzan University of Engineering & Technology, Lahore
4.	Integrated Bio-GMI Sensor and Electronics PSF/CRP/18thProtocol (04)	27.00 m	6,940,000	36 Months Faxiang Qin Zhejiang University Syed Arsalan Jawaed PAF-Karachi Institute of Economics and Technology, Karachi
5.	Development of a novel anti-corrosive and anti-fouling amorphous coating for service in high humidity and hot marine environment	24.00 m	19.6	Dr. Zhang Cheng, Associate Professor, Huazhong University of Science & Technology, Wuhan, China

	PSF/CRP/18thProtocol (05)	million		Dr. Muhammad Yasir, Assistant Professor, Institute of Space Technology, Islamabad
6.	Research & demonstration on saline water plantation and utilization in Thar- Desert of Pakistan PSF/CRP/18thProtocol (06)	Original 24.10 m Revised 5,850,000	3 Years	Wenxuan Mai Xinjiang & Geography, Chinese Academy of Sciences Bilquees Gul Institute of Sustainable Halophyte Utilization, University of Karachi
7.	Mining and Usage of elite genes for heat and salt tolerance from tetrapod cotton species in Pakistan and China PSF/CRP/18thProtocol (07)	Original 32.35 m Revised 6,843,200 Rs. 6,893,2 00/-	3 Years	Wang Baohua Nantong University Muhammad Kashif Riaz Khan Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad
8.	Research and Integration demonstration on water- saving High-efficiency and Eco-friendly for dry land Agriculture PSF/CRP/18thProtocol (08)	Original 23.50 m Rs. 8.24 million	3 Years	Liu Enke Institute of Environment and Sustainable Development in Agriculture, CAAS Ishaq Ahmad Mian The University of Agriculture, Peshawar
9.	Creation and Application of New Drought-tolerant Cotton Germplasm PSF/CRP/18thProtocol (09)	Original 17.20 m Revised 5,190,000	36 Months	Meng Zhignag Biotechnology Research institute of Chinese Academy of Agricultural Science Bushra Rashid Centre of Excellence in Molecular Biology, University of the Punjab.
10.	Study on the formation and conversion processes of water resources and sustainable use in the Indus Basin PSF/CRP/18thProtocol (10)	Original 11.60 m Revised 5,993,200		Yan-Jun Shen Center for Agricultural Resources Research(CARR), IGDB, CAS Prof. Dr. Muhammad Arshad University of Agriculture, Faisalabad

11.	Heat tolerance genes identification and physiological mechanism analysis from Honglian type hybrid rice source and new hybrid rice variety creations PSF/CRP/18thProtocol (11)	Original 11.45 m Revised 4,253,200	3 Years	Dr. Xianting Wu, Associate Professor, Genetics Department, College of Life Sciences, Wuhan University Dr. Muhammad Ashfaq, Associate Professor, Institute of Agricultural Sciences, University of Punjab, Lahore
12.	Application of reduced graphene oxide in combination with zeolites in a novel integrated "In-Situ Electroflocculation/catalytic ozonation/ceramic membrane filtration" as an enhanced treatment for pharmaceuticals wastewater reusing PSF/CRP/18thProtocol (12)	Original 13.44 m Revised 3,740,000	3-Years	Dr. Fei Qi, Professor, College of Environmental Science and Engineering, Beijing Forestry University. Dr. Amir Ikhlq, Associate Professor, University of Engineering and Technology Lahore
13.	Development and protection of Selected Common medicinal plants between Pakistan and China PSF/CRP/18thProtocol (13)	Original 23.00 m Rs. 5.285 millions	02-Years	Chi Song, Associate Professor, Institute of Chinese Materia Medica (ICMM), China Academy of Chinese Medical Sciences Dr. Attia tul Wahab Associate Professor, International Center for Chemical and Biological Sciences, University of Karachi, Karachi.

Brief on Competitive Research Programme

The Competitive Research Programme (CRP) is the PSDP awarded to Pakistan Science Foundation to finance research projects under four streams viz., Individual Research, Consortium Research, Triple Helix Model and International Linkages.

This project was approved by CDWP in its meeting held on December 04, 2017 and the authorization was issued by the Ministry of Planning, Development and Reforms (MoPDR) vide Office Memorandum No. 27(186) PIA-IV/PD/2017 dated March 06, 2018. The administrative approval from Ministry of Science & Technology (MoST) was received vide

F.No. 4(66)/2017-DEA (P&D) dated June 20, 2018 at a total cost of Rs. 1964.500 Million. The account opening has also been completed. An amount of Rs. 200 million was allocated in 2018-19 by Ministry of Planning, Development & Reforms (MoPDR).

This is an important umbrella project first of its kind in Pakistan to fund research projects of mega national issues through consortium of scientists from multiple professions and organizations with specific target of socio-economic gains. Another important objective is to resolve industrial issues to substitute imports and enhance exports through indigenous research and value addition. Moreover, bilateral research projects will be launched in collaboration with international research organizations to take benefit from the research of technically advanced countries.

Project Objectives:

- i. Provision of the Research Grants to address the mega national issues and promote world class research.
- ii. Development of the new processes/ products/ applications/ technologies through native knowledge / skills of the researchers working in the universities and R&D Institutions.
- iii. Multi-disciplinary Research on the mega issues of national importance through provision of Consortium Research Grants.
- iv. Collaborative projects with the established International Partners for Indigenous Technology Development particularly for substitution of imports.
- v. Public-Private collaborations by providing strong platform to R&D institutions to liaise with Industry and Academia for the improvement and commercialization of their end-products so as to enhance the exports.
- vi. Technological transformations in the specified thrust / priority areas to boost the economy that may result in the generation of S&T Human resource as well as financial capital.
- vii. Promotion of demand-driven research by linking public sector capability and private sector marketability.
- viii. Capacity building trainings for the project staff (National) and Project Formulation Workshops for the researchers.

3. Funding Streams:

- i. Individual Research Grants to finance research projects of basic and applied nature
- ii. Consortium Research Grants to finance research to resolve mega national issues through consortium of scientists from multiple professions and organizations with specific target of socio-economic gains
- iii. Triple Helix Model (Research in collaboration with industry) to resolve industrial issues to substitute imports and enhance value addition of indigenous goods especially exportable commodities
- iv. Research Projects with International Organizations through bilateral joint research collaborations to take benefit from the research of other nations to replicate their successful models in Pakistan

4. Priority Areas:

Under the scheme, research projects in the following priority areas having profound effects on the economy will be supported:

- i. Agriculture and Food Security
- ii. Livestock
- iii. Water and Soil
- iv. Engineering, Manufacturing, Metallurgy
- v. Energy
- vi. Health Sciences
- vii. Biotechnology, Biochemistry, Molecular & Synthetic Biology
- viii. Earth Sciences, Environment, and Climate Change
- ix. Chemistry and Physics
- x. Space Sciences
- xi. Information and Communication Technology (ICT)
- xii. Science, Technology, Engineering & Mathematics (STEM) Education
- xiii. Other Emerging Areas in Research

1.4 Science Talent Farming Scheme (STFS) for Young Students Phase-I, Component-I (Revised)

Project Brief

Development project “Science Talent Farming Scheme (STFS) for Young Students, Phase-I, Component-I (Revised)” was conceived by the Pakistan Science Foundation (PSF). The original PC-I was approved by the CDWP in June 2015, however the PC-I was first revised and approved by the CDWP on July 6, 2017 at a revised cost of Rs. 1,285.361 million for a period of 5 years (December 2015 – December 2020). However, the project was again revised at a total cost of Rs.1517.071 million by DDWP of MoST on 14.01.2022 till 30.06.2025 with some changes in scope of the project.

Objectives of the Project:

- i. To support and groom the talented but less privileged science students from government schools, in their studies and groom them to become productive scientists.
- ii. To groom and support the selected students by progressively exposing them to advancements in science and mathematics through inquiry based learning approach.
- iii. To arrange training sessions for students on Inquiry Based Science Education (IBSE).
- iv. Promotion/Popularization of S&T through different platforms including but not limited to social, print and digital media for teenagers, young adults and specifically out of school children.
- v. To establish a database/tracking system of all the beneficiary students of the project.

Implementation Strategy

The project objectives have to be achieved through the following processes and activities:

1. Selection of 500 students, each year, through evaluation by a specialized testing agency e.g. NTS, CTS etc. Scientific aptitude test to be conducted in three phases:
 - i. Specialized written/screening test
 - ii. Paper Based IQ Test
 - iii. Presentation on innovative ideas/Interview

2. Scholarships @ Rs. 15,000/- per month to each successful student for five years. For disable students the Scholarship is @18,000/- per month
3. Tuition fee @Rs. 10,000/- per year for each student
4. Additional interventions and activities will mainly include (but not limited to) the following:
 - Research projects to be developed by each student every year, to be supervised by a university teacher/researcher. Science graduates will also provide guidance to the students
 - Science lectures, Presentations, Film/ Planetarium Shows and Hands on activities through Mobile Science Labs
 - Visits to universities and S&T organizations both at national and international levels
 - Participation in Summer Colleges and National Youth Science Forums

Allocation for the Year 2020-21

- Fund allocation for Year 2020-21: 60.00 million

Sr. No	Item Description / PC-I Head	Expenditure in 2020-21
1	Establishment of National Science School	0
2	Advertisements about STFS and selection of students	0.011
3	Selection / Monetary Benefits for the students	40.247
4	Additional Interventions	0
5	Special Activities of the project	0
6	Salaries / Allowances / Honorarium	5.386
7	Strengthening of Mobile Labs, Addition of Working Models	0
8	Transport	0
9	Office Furniture/Equipment and other facilities for the Project Management Unit	1.870
10	Contingencies including POL and other Misc expenses	0.299
	Total	47.813

1.4.1 Progress 2020-21

1. Selection of STFS 5th batch

For selection of 300 students for STFS 5th batch, the testing agency was hired through open bidding process in accordance with directives from Ministry of Science and Technology. In this regard, the advertisement was floated in the national press in Oct, 2019 for hiring of testing

agency for conducting Science Aptitude, and paper based IQ tests of the applicants. Candidates Testing Services (CTS) was hired (being the lowest bidder) for conducting screening/written test for selection of STFS 5th batch. The testing agency, CTS conducted the Written Science Aptitude and IQ tests on 18.10.2020 and result was announced on 28.10.2020. Later on, interviews were conducted by PMU-STFS. The formula approved by MoST for final selection is described below;

Matric (9th & 10th combined)	Scientific Aptitude Test	IQ Test	Interview/Presentation on Scientific Ideas	Total
30%	40%	20%	10%	100%

Accordingly, a provisional merit list of 300 successful candidates was prepared and placed before a “Scrutiny Committee” for final selection. The “Scrutiny Committee” finalized a list of 298 students in August, 2021 after verification of their educational certificates and other documents viz., SSC certificate, B-form, domicile etc. Whereas documents/Domicile of two students are still awaited.

Details regarding distribution of students are given below;

Total seats: 300

- BISE position holders (10%) seats = 30
- Quota wise distribution of remaining seats (300-30 = 270)

Details of quota wise distribution of seats (270)

No. of students	Merit	Punjab/IsLAMabad	Sindh		KPK	Balochistan	GB/FAT A	AJK	Total
%age	7.5%	50%	19%		11.5%	6%	4%	2%	100%
270	20.25 (21)	135	*51.3 (51)		31.05 (31)	16.2 (16)	10.8 (11)	5.4 (5)	270
			31(R)	20(U)					

1. Monetary Benefits for the students

Selection of 4 batches of STFS (1200 total) was completed. Monetary benefits i.e. scholarships and tuition fee for 2 years to 1st, 2nd, 3rd and 4th batch were also completed.

2. Summer Camps for STFS Students

As per approved PC-I, arrangement of summer camp is an important additional intervention in which visits are arranged to S&T organizations along with interaction with eminent scientists, presentations and Inquiry Based Science Education (IBSE) sessions for STFS students each year.

Travel Agency was hired through tender process for making all necessary arrangements for the first two batches. For the 1st batch of 300 students, these activities were organized in July, 2016. For the 2nd batch, summer camp and other related activities were organized in July, 2017 and for arranging 3rd summer camp and international study visit, tendering process was initiated many times for hiring of travel agency but each time it was cancelled due to some technical reasons.

The advertisement was floated again in local Newspapers on 20.11.19 for pre-qualification of tour operators/firms. M/s Askari travel and tours were awarded work order for arrangement of local study visit. Local study visit was held from 02-07 March, 2020 in Pearl Continental Hotel, Rawalpindi by the tour operators. Students visited NCP, NUST, PIEAS and PMNH. Inquiry based learning sessions by SKOOL21 and Engineering for Kids were held. Motivational lectures by eminent Scientist were also arranged.

The pre-qualification process for arranging summer camp for 4th and 5th batch is in process. Technical qualification was completed and for financial qualification RFP is being prepared.

3. Selection of Universities and Research Supervisors/Mentors for undertaking Research Projects of STFS Students

As per approved PC-I, the STFS students have to undertake research project under the mentorship of universities teachers/professors. The STFS students will use the labs and other facilities of selected universities and S&T/academic institutions nearby their areas. In this regard, 36 mentors were selected for mentorship of students.

Payment of honorarium @ Rs. 100,000 on account of mentorship of STFS students to 20 newly selected/replaced mentors was made.

4. Research Projects of STFS Students

Undertaking research projects by STFS students, under university teachers is an important activity of the project. In this regard, 36 university teachers were approved as mentors from nine universities from all over the Pakistan. Subsequently, students of 1st, 2nd and 3rd batch completed their research projects and submitted their reports in form of posters/reports. More than 115 new research projects of 4th batch were received in Poster/report form. In total more than 260 research projects were received till now. Posters of previous batches have been printed for STFS-PMU record.

5. Payment to Advertisement Agencies

In connection with selection of STFS students, tenders for procurement of different items, hiring of travel agencies, and Request for Proposals (RFPs), a number of advertisements/tenders were floated in the national press through PSF designated advertising agencies. In this regard, the agencies submitted their bills, duly verified from the Press Information Department (PID) for payment.

Accordingly, as per PID quota policy, payments were made to following two agencies; M/s Emmay Zed Publication (Pvt) Ltd, Islamabad and M/s National Communication Services (SMC) Pvt. Ltd.

6. Procurement of Office Furniture and Equipment

Purchased office equipment and Furniture items for Project Management Unit

Outcome / Benefits on Completion

The project outcomes are;

- i. Scholarship to 3000 students in total.
- ii. The project outcomes will develop inquiry and critical thinking in the young generation, who will become future scientist and researchers. This will also provide a way to avert the extremism, which is based on blind dogma and creed.
- iii. Development of a competitive knowledge economy through value addition.
- iv. Improvement of the quality of Science and Technology education particularly in the Natural Sciences and Mathematics

- v. Direct Employment as per revised PC-I: 14

2.0 SCIENCE POPULARIZATION

Popularization of Science, increasing Science awareness and development of Scientific culture in the society are major functions entrusted to Pakistan Science Foundation. Under the action plans of various S&T Policies, the task of popularization of Science at grass roots level in the country has also been assigned to PSF.

Objectives and Functions

Popularization of Science plays a vital role in the socio economic, cultural, and environmental development across the country. In this regard, a number of activities were initiated to develop Science culture in the country. Under the action plan of the National Science Policy 1984 and STI Policy 2012, the Government has emphasized on strengthening and expansion of PSF programs for popularization of science at Grass root level. These programs are organized outside the formal education system particularly for the students to motivate them towards science education. PSF also seeks to collaborate with International Scientific Organizations for the purpose. It also helps to enhance/improve the critical sense of the population, by increasing its involvement in decision-making and contributing to sustainable development. In this regard, Pakistan Science Foundation undertakes a number of programs; a brief of the activities is given below;

2.1.1 30th Annual Intra and Inter Board Science Essay and Poster Competitions

Organizing Science Essay Competition among the high school students through Boards of Intermediate & Secondary Education (BISEs) is a regular activity of Pakistan Science Foundation since 1989. The 30th Intra Board Essay competition on theme “**Discovery of Covid-19 Vaccine**” & Poster competition on theme “**Covid-19 and shift of life style**” were organized wherein students from 05 educational boards participated. Rs. 25000/- was released to each board for organizing said event, the prize money was distributed among the winner students of both essay and poster competition. The prize money was Rs. 15,000/-, Rs. 10,000/-, and Rs. 5000/- for 1st, 2nd, 3rd position respectively.

2.5.2 **Distribution of Popular Science Magazines and Scientific Books**

Donation of **Popular Science Magazines and Scientific Books** is one of the regular and important activities for Science popularization. A total 8000 copies of Quarterly “Urdu Science Magazine” were distributed to 2000 schools during the period.

2.5.3 **World Science Day for Peace and Development (WSDPD 2020):**

PSF in collaboration with Commission on Science and Technology for Sustainable Development in the South (COMSATS), the Organization of Islamic Cooperation Standing Committee on Scientific and Technological Cooperation (COMSTECH), the Economic Cooperation Organization Science Foundation (ECOSF), and the Pakistan Academy of Sciences (PAS), celebrated World Science Day for Peace and Development, at the COMSTECH Secretariat, Islamabad. Since 2001, the World Science Day for Peace and Development is celebrated to highlight the important role of science in society and the need to engage the wider public in debates on emerging and important contemporary issues relevant to science. As this year has been marked by the COVID-19 pandemic, the theme of the 2020 celebration is Science for and with Society. Mr. Fawad Chaudhary, Federal Minister for Science and Technology remarked, that an opportunity exists to resolve our problems for the noble purpose of advancing scientific knowledge and its practical application so that globally all people can live their lives in peace and freedom in a dignified manner. He emphasized the need of free and equal availability of vaccines on a global level. Ms. Patricia McPhillips, Representative and Director UNESCO Islamabad, Dr. M. Iqbal Choudhary, Coordinator General COMSTECH, Prof. Dr. Zabta Khan Shinwari, Professor Emeritus, Quaid e Azam University, Dr. Manzoor Soomro, President ECO Science Foundation, Dr. Aslam Baig, Secretary General Pakistan Academy of Sciences, Dr. Mirza Habib, Pakistan Science Foundation, Ambassador Fauzia Nasreen, COMSATS University, Ms. Kasak Bather, a student from Nawabshah and Mr. Aun Azhar, a student from Sargodha, addressed the importance of science from different aspects of the theme. The speakers talked about the role of science for society, key issues concerning people and nature interactions, the impact of science for and with society from the youth perspective, science communication, and the importance of sharing in-time knowledge and data, and the strengthening international scientific cooperation.

The talks provided relevant information and food for thought for the audience that included scientists, students, teachers, researchers, science communicators who work in science centres and science museums, independent science communicators and science journalists.

2.6 Popular Science Lectures

Pakistan Science Foundation arranges series of lectures where eminent Scientists and educationists express themselves for the benefit of the audience comprising scientists, scholars, students and the general public is one of its mandatory functions. During the current year 03 Popular Science Lectures were organized on different scientific themes.

2.7 Women In Science

United Nation's designated day for women celebrated every year on 8th March, Pakistan Science Foundation with collaboration with UNESCO had plan to jointly celebrated the International Women's day and organize an event on topic "Women in Science". The event was held in PSF Auditorium on March 8, 2021.

2.8 Islamabad Space Observatory

The Ministry of Science and Technology & Pakistan Science Foundation has started initiative to establish an observatory in Shakarparian Hill Park which will enable students, researchers and general public to observe moon and other celestial bodies. The layout plan, 50x47 (261.11 square yards) was proposed for establishment of the space/planetarium/observatory. The foundation stone laid by then Federal Minister Fawad Hussain Chaudhary. The Space Observatory will help the young scientist and general public to know about the astronomy.

2.5 Youth Recognition Programme

Popularization of Science make an effort to image scientific ideas in such a way that everyone can understand the fundamental concept of Science and their role in improving Quality of our life. Pakistan Science Foundation aimed to acknowledge the outstanding service of youth in

Science & innovation at National and international level science competitions to strengthen the science culture in the society. In this regard, PSF organized an event on Youth recognition in which cash prizes were distributed among the eminent young scientists in June 2021

2.5.2 Science Caravans

Pakistan Science Foundation is an organization that has a mandate of promotion and of Science at grass root level under the National Science Policy 1984 and STI Policy 2012 to Pakistan Science Foundation. So, for that purpose Pakistan Science Foundation has established 9 Science Caravan Units in all over the country. The federal Unit is also striving to achieve the above mentioned objective. PSF through its Science Promotion activities like Mobile Science Exhibition has been doing wonderful job. Mobile Science Exhibition has been designed to increase public awareness about science and to motivate the teenage of the country towards study of science. The people living in rural/backward areas of the country are exposed to some of the most fascinating scientific and technical developments of modern world through Science Caravans. Mobile Science Lab consist of lab equipment for the practicals of Physics, Chemistry, Biology, Scientific Models, Scientific documentaries and Star lab/Planetarium Show. Science Caravan Federal unit is conducted one-day Capacity Building / Teacher Training workshops on Inquiry Based Science Education approach during the Science Caravan Exhibitions. IBSE kits consist of low cost material like balloons, plastic bottle, tin cans, vinegar, eggs shield, cloth candle air fresheners papers, ink, thermometer, glycerin, etc. By using the low cost material, students are trying to investigate the reasons behind the natural phenomenon through hands on activities. The detail of Caravans Units is given below:

- Science Caravan Federal Unit
- Science Caravan Unit Peshawar & Karak
- Science Caravan Unit Multan
- Science Caravan Unit Faisalabad
- Science Caravan Unit Tandojam
- Science Caravan Unit Sukkur
- Science Caravan Unit Quetta & Jaffarabad

S. No.	Unit	No of Exhibition	No. Days	No. Schools
1.	Science Caravan Federal	6	14	1900
2.	Science Caravan Peshawar	10	3	1107
3.	Science Caravan Multan	4	2	390
4.	Science Caravan Faisalabad	30	27	5800
5.	Science Caravan Tandojam	5	44	3100
6.	Science Caravan Sukkur	10	16	3950
7.	Science Caravan Quetta	2	1	122
Total		67	107	16369

SCIENCE CARAVAN FEDERAL UNIT

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	Science Caravan Exhibition at Fazaia Inter College, Lahore	11.10.2020 to 14.10.2020	4	1	720
2.	Science Caravan Exhibition on the occasion of Islamabad Science Festival at PNCA, Islamabad	13.02.2021	1	6	450
3.	Science Caravan Exhibition on the occasion of Mother Language Literature Festival of Islamabad Science Festival at PNCA, Islamabad	22.02.2021	1	7	730
Total			6	14	1900

SCIENCE CARAVAN UNIT PESHAWAR & KARAK

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	26 th Intra Board Essay & Poster Competition BISE Malakand	01.10.2020 to 02.10.2020	02	00	10
2.	World Science Day (Nov:10) GHSS-Peshawar city	10 th November, 2020	02	01	700
3.	18 th PSL at GHS-1 City Peshawar	10 th November, 2020	01	01	110
4.	Meeting with MD-TEVETA KP-Peshawar	13.10.2020	01	00	00
5.	STFS 5 th Batch Interview At PFI –Caravan unit Peshawar	14.12.2020 to 15.12.2020	02	00	73
6.	GPI Karak	10.11.2020 to 11/11/2020	02	01	214
Total			10	3	1107

SCIENCE CARAVAN UNIT MULTAN

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	28 th Essay & Poster Competition, Prize Distribution BISE(Sahiwal)	15.10.2020	01	0	20
2.	World Science Day (WSDPD)	10.11.2020	01	2	250
3.	STFS Interviews 5 th Batch	21-22 Dec, 2020	02	0	120
Total			4	2	390

SCIENCE CARAVAN UNIT FAISALABAD

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	G,H.S District Jhang	14-06-2021 to 19-06-2021	06	02	1200
2.	G.H.S District Sargodha	21-06-2021 to 26-06-2021	06	04	1000
3.	G.H .S Mandi Bahauddian	25-10-2021 to 30-10-2021	06	06	1200
4.	G.H.S Faisalabad	08-11-2021 to 13-11-2021	06	04	1200
5.	G.H.S Narowal	22-11-2021 to 27-11-2021	06	11	1200
Total			30	27	5800

SCIENCE CARAVAN UNIT TANDOJAM

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	Speech Competition Program during the Celebration “World Science Day – 2020” at A.M.Shaikh Auditorium Sindh Agriculture University Tando Jam.	12-11-2020	01	0	100
2.	Two days in Thar Science Festival @ Shaheed Benazirabad Bhutto Cultural Complex Mithi, District Tharparkar.	25-03-2021 to 28-03-2021	4	44	3000
Total			5	44	3100

SCIENCE CARAVAN UNIT SUKKUR

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	GBHSS Mirpur Mathelo, District Ghotki	24/03/2021 to 02/04/2021	05	09	2630
2.	GBHSS Radhan, District Dadu	07/04/2021 to 13/04/2021	05	07	1320
Total			10	16	3950

SCIENCE CARAVAN UNIT QUETTA & JAFFARABAD

Sr. #	Exhibition Place	Date	No. of Days	No. of Schools	No. of Students
1.	World Science Day 2020 GGHS CGS Quetta	10-11-2020	01	01	50
2.	Interview STFS	17-12- 2020 to 18-12-2020	01	0	72
Total			2	1	122



Glimpses of Mobile Caravan Federal Unit



Glimpses of Planetarium Federal Unit



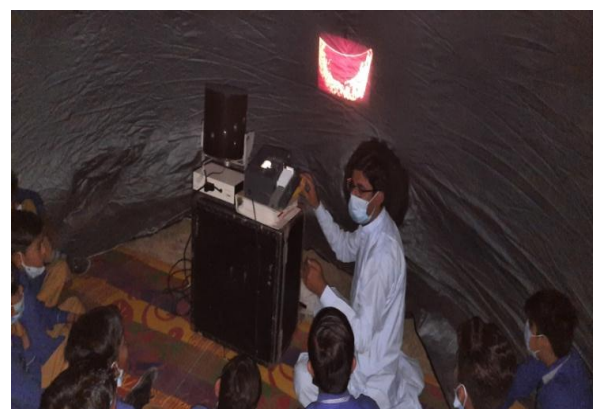
Glimpses of Mobile Caravan Tandojam Unit



Glimpses of Mobile Caravan Tandojam Unit



Glimpses of Mobile Caravan Tandojam Unit



Glimpses of Planetarium Tandojam Unit

3.0 INTERNATIONAL LIAISON WING

PSF has the mandate to liaise with similar international bodies across the globe and is in active collaboration with many similar International bodies. In the prevalent global scenario, the importance of international collaborations has become vital for the technological developments and advancement of knowledge. Therefore, PSF has re-vitalized its international collaborations and embarked upon new linkages to harness potential of technologically advanced nations like China, Turkey, Iran and Sri Lanka. In addition to this PSF, regularly plays role as a facilitator to link various international organizations/ universities with local universities and research

institutions. Delegates from the reputed universities and similar collaborating bodies regularly hold meetings with PSF to discuss the areas of joint collaboration.

Over the years, PSF has established cordial bilateral relations with various international bodies to synergize efforts for achieving technological excellence and socioeconomic well-being of the people at large. Joint research projects are already ongoing with The National Natural Science Foundation of China (NSFC); Scientific and Technological Research Council of Turkey (TÜBİTAK); Ministry of Science, Research and Technology (MSRT), Iran and National Science Foundation, Sri Lanka.

During the year 2020-21, fourth joint call for proposals was launched with NSFC, China, NSFC-China and 3rd joint call with TUBITAK-Turkey. The calls were highly appreciated by the scientific community. International Linkages activities of Pakistan Science Foundation were expanded to the greater extent. More effective linkages were developed with international counter parts to benefit the scientific community of Pakistan. During the report period, 74 projects remained ongoing under 03 calls with NSFC, two with TUBITAK, and two with MSRT. While 06 projects awarded under “PSF-NSF, Sri Lanka first call were also ongoing. A total of 34 technical reports (semi-annual and annual) of ongoing projects were received and an amount of Rs. 28.5 million was released on account of due installment of already ongoing projects and first installment of newly initiated projects with and NSFC-China. Chairman, PSF had various meetings with international counter parts to further expand the PSF activities at international scale.

Progress During the Year

3.1. PSF-NSFC, China Joint Call for Proposals

Pakistan Science Foundation (PSF) and National Natural Science Foundation of China (NNSFC) signed a MoU on 30th of October, 1992 for joint research activities. In order to further strengthen the ties between Pakistan and China, and to take maximum benefit from the experience of Chinese Scientists, 4th call of proposals with NSFC was launched between 22.04.2020 and 03.06.2020, under the following priority areas;

- Fossil Energy conversion and materials,
- Renewable energy, new energy and resource utilization and its scientific basis,

- Safety evaluation and adaptation mechanism of Water-Energy-Food Nexus in CPEC under Climate Change

As a result, a total of 131 projects were received. After the completion of due process and review by subject expert, 12 projects were mutually agreed for funding. The list of projects approved for funding under this call is given.

35 projects awarded under 03 joint calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 08 projects were also received during this period.

3.1.2 PSF-TUBITAK Joint Call for Proposals

PSF launched 3rd joint call between PSF & TUBITAK (21.09.2020 and 17.11.2020) on “Academia Industry Co-operation Call” with the aim of supporting joint research projects in the areas of application-oriented research and development. Thus, this call focuses on emerging areas of technologies. The call aimed to enhance Public-Private Partnership in R&D projects by involving academia, research institutions, industrial companies and research end users with the aim to help both countries to become more energy efficient and sustainable in the following priority areas;

- Energy Storage
- Biomedical equipment and Technologies
- Food processing and Technology

The funding of the project will be met from PSDP project “Competitive Research Grants” under International Scientific and Technological Collaborations with Researchers and Institutions of significantly high stature. In response to this call, 32 joint research were received at both ends. PSF initiated the review and evaluation of these 32 project proposals for funding consideration and 09 projects have been mutually recommended/approved for funding. 15 projects awarded under first and second calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 03 projects were also received during this period.

3.1.3 PSF-MSRT Joint Call for Proposals

A total 18 projects awarded under first and second calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 03 projects were also received during this period.

3.1.4 Call for Joint Proposals with Sri Lanka

A total 06 projects awarded under first and second calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 03 Projects were also received during this period.

3.2. Joint Technical Committees Meetings

3.2.1. PSF-NSFC Joint Technical Committee Meeting

An online Joint Technical meeting with NSFC authorities was held on 16th March, 2021 at PSF. The meeting was chaired by Dr. Shahid Mahmood Baig, Chairman, PSF. In the meeting, there was formal exchange of results of the PSF-NSFC joint call. Besides this, both sides also exchanged gratitude on existing collaboration and modalities to launch joint 5th calls. In addition, Chairman, PSF also put proposal for expansion of PSF–NSFC cooperation to new horizons for Researchers and Scientists to capitalize and learn from each other in science and technology in the form of Joint Scientific Exchange programme which was appreciated by counter part organization and they showed their consent to launch this programme soon.

The received proposals were initially scrutinized by PSF team and afterwards, the same were placed before screening committee. 10 shortlisted projects were evaluated by two relevant subject experts nominated by PSF Competent Authority. After successful completion of review of these projects, their results were shared with international wing of NSFC with full consensus, 12 projects were finalized unanimously for funding.

3.2.2. PSF-TUBITAK Joint Technical Committee Meeting

An online Joint Technical meeting with TUBITAK authorities was held on 22 June, 2021 at PSF. The meeting was chaired by Prof. Hasan Mandal, President, TUBITAK, while from PSF, Dr. Shahid Mahmood Baig, Chairman, PSF chaired the meeting. In the meeting, there was formal exchange of results of the PSF-TUBITAK call. Besides this, two Heads also discussed

expansion of PSF–TUBITAK cooperation to new horizons for Researchers and Scientists to capitalize and learn from each other in science and technology.

The received proposals were initially scrutinized by PSF team and afterwards, the same were placed before two subject experts nominated by PSF Competent Authority for review and recommendations. After successful completion of review of these projects, their results were shared with international wing of TUBITAK. With full consensus, 09 projects were finalized unanimously for funding.

3.2.3. Signing of Letter of Intent (LoI) between Pakistan Science Foundation and Children and Youth Science Center, China Association for Science and Technology (CYSCC)

Pakistan Science Foundation, the apex organization of the country for promotion of science, is all set to enter into long term collaboration with Children & Youth Science Center of CAST, China. The two sides shall sign a Letter of Intent to testify this cooperation. Through the collaboration, CYSC will help PSF in capacity building of science teachers and students for a successful execution of STEM (Science, Technology Engineering and Mathematics) project by PSF throughout Pakistan.

It may be noted that PSF has got approved the STEM project from Ministry of Planning and Development, which includes refurbishment of some higher secondary school’s labs into fablabs, elite training of science teachers and development of STEM teaching modules. PSF has therefore, planned to seek assistance of the top of line science education institutes of China in order to inspire and replicate the STEM education paradigm in Pakistan.

“Children & Youth Science Center of CAST” has principally agreed mainly to provide online teacher training and teaching modules, giving free access to virtual STEM Learning platform, and services of Chinese Experts for training of science teachers in Pakistan. CAST has more than 210 national member societies and branches all over the China having close ties with millions of Chinese scientists, engineers and other professionals and has made significant contributions to the prosperity and development of China and through this planned assistance, Pakistan can learn a lot from China experience in the field of Science and Technology. The cooperation will soon be formalized by mutual signing of an MoU.

In this connection, a Letter of Intent was signed between Pakistan Science Foundation and “Children & Youth Science Centre of CAST” on 20 May, 2021 through Zoom/online at PSF. The event also commemorated 70th anniversary of Sino-Pak diplomatic relationships.

4.0 PLANNING AND DEVELOPMENT

4.1. Activities under Development Budget

4.1.1 On-going Development Projects:

i. Competitive Research Programme:

An amount of Rs. **136.00** million was utilized under the on-going development project titled “Competitive Research Programme”. This is an important umbrella project first of its kind in Pakistan to fund research projects of mega national issues through consortium of scientists from multiple professions and organizations with specific target of socio-economic gains. Another important objective is to resolve industrial issues to substitute imports and enhance exports through indigenous research and value addition. Moreover, bilateral research projects in collaboration with international research organizations to take benefit from the research of technically advanced countries are also the part of this programme. During the financial year, (24) research projects were funded under 1st Call, COVID-19 Call, PAK-China 18th Protocol and Special Intervention.

ii. Science Talent Farming Scheme (STFS) for Young Students Phase-I (Component-I):

An amount of Rs. **47.813** million were utilized under the on-going development project titled “Science Talent Farming Scheme (STFS) for Young Students Phase-I (Component-I)” for the monetary benefits and the additional interventions designed for the students.

iii. Financial Support to Scientific Societies in Pakistan (Phase II)

An amount of Rs. **10.523** million was utilized under the on-going development project titled “Financial Support to Scientific Societies in Pakistan (Phase II)”. Under the scheme, financial assistance was provided to the registered Scientific Societies for undertaking their regular scientific activities.

4.1.2. Activities under Non-Development Budget

Compilation of reports, presentations/comments on various S&T documents and replies to the National Assembly / Senate Questions.

i) Financial Support to Scientific Societies in Pakistan (Phase-II)

The project proposes to strengthen the role of Scientific Societies in Pakistan by providing them financial assistance for:

- i. Holding National and International Conferences, Seminars, Symposia, Workshops and Lectures on important scientific topics.
- ii. Publication of Scientific Journals / Books.
- iii. Development and maintaining the Linkages with Counterpart International Societies in advanced countries.
- iv. Providing travel grants to the members of the Societies who have been invited in the prestigious International forums for giving plenary talks/lead papers or as invited speakers.
- v. Provision of travel grants to the Ph.D. Scholars for presentation of research papers in International Science conferences/symposia and trainings abroad.
- vi. Provision of Young Researcher Awards for outstanding achievements/ papers in a particular year by each society.

The long term objective of the project is to strengthen the scientific/research base and to develop a culture of science in society which would ultimately result in development of Science & Technology in the country.

During the year 2020-21, an amount of Rs. **10.523** million was utilized under the PSDP project mainly for provision of financial assistance to the registered Scientific Societies for undertaking their regular scientific activities. In this regard, Grant-in Aid provided to following (13) registered Scientific Societies.

- i.** Islamic Society of Statistical Sciences
- ii.** Soil Science Society of Pakistan

- iii.** Pakistan Academy of Engineering
- iv.** Pakistan Society of Nematologists
- v.** Pakistan Nuclear Society
- vi.** Society of Economic Geologists and Mineral Technologists (SEGMITE)
- vii.** The Zoological Society of Pakistan
- viii.** Pakistan Thalassaemia Welfare Society
- ix.** Weed Science Society of Pakistan
- x.** Pakistan Botanical Society
- xi.** Pakistan Association for the Advancement of Science
- xii.** Pakistan Physiological Society
- xiii.** Pakistan National Heart Association (PANAHA)

The request received from the societies were considered in the 03 meetings of the Committee constituted in the development project. The meetings were held on **13th January, 9th March & 5th May 2021**. Following activities were undertaken by the societies,

- ✓ Eighteen International / National Science Conferences / Workshops / Seminars organized.
- ✓ Forty issues of ten Scientific Journals were published (**Annex-II**).
- ✓ Linkages Fee paid to 02 International Federations.
- ✓ Cash Awards for the Best Research Paper, Best Paper and Innovation Award was given by 02 societies.
- ✓ 01 book was published.
- ✓ Websites maintenance of 07 societies was financially supported.

✓ 01 new society was registered with the Pakistan Science Foundation.

ii) New Development Project submitted to MoST:

PC-I of following PSDP projects were submitted to MoST for the consideration/approval of DDWP forum and all the projects were approved from the DDWP forum

Project Title	Duration	Amount (Rs in Million)
Grants for the Strengthening of Research in Pakistan	24 months	1975.506
Development of National Digital Archive of Research published in Pakistani Journals	24 months	56.00
National Technology Innovation through Industry-Research Centre and Other Stakeholders Collaboration	60 Months	1959.496
Launching of STEM in Pakistan, Phase-I	60 Months	715.301
Popularization of Science through Mass Media: Strengthening of PSF Science Media Cell	24 months	62.407

v) Views/ Comments on the PC-Is received from MoST:

Views/ Comments on the PC-I titled “Rapid Prototyping and Development of Synthetic-Biology-based diagnostics kits in response to COVID-19” prepared and submitted to MoST.

II. Activities under Non-Development Budget:

Submission of important reports to MoST/ Planning Commission:

- ✓ Minutes of the PSDP + Meeting held on 17th June 2020 in Planning Commission
- ✓ Task for Inclusion in Performance Agreement

- ✓ Preparation of Annual Report on the Observance and Implementation of the Principles of Policy (2018-19) under Article 29 (3) of the Constitution of the Islamic Republic of Pakistan
- ✓ Preparation and circulation of year book 2019-20 in pursuance of rule 25 of the rules of business 1973
- ✓ Meeting-EAD Review held on 18th September 2020
- ✓ Monthly Progress Report on the prescribed proforma from organizations of MoST
- ✓ PSDP projects scheduled for completion during CFY 2020-21
- ✓ Full Year Review of PSDP 2019-20
- ✓ Public Sector Development Programme- PSDP 2021-22
- ✓ First Quarter Review of PSDP 2020-21
- ✓ Mid-Year Review of PSDP 2020-21
- ✓ Preparation of Performance Agreement for F.Y. 2020-21

Replies to the National Assembly/ Senate Questions/ Standing Committees:

- ✓ Meeting of the Senate Standing Committee on Science and Technology held on 18th August 2020 At 11:00 am in Committee Room No.4, Parliament House Islamabad.
- ✓ Minutes of the Meeting of Senate Standing Committee on Science & Technology held on 19th February, 2020 at 11:00 a.m. in Committee Room No. 4 Parliament House Islamabad.

II. PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE (PASTIC)

PASTIC is an ISO 9001: 2000 Certified S&T Information Provider and is the oldest organization in the field of S&T information management and dissemination serving as a gateway for access to and delivery of global S&T information. It caters to the information needs of the researchers in all areas of Science and Technology as well as social sciences. Users of PASTIC services include researchers, academicians, scientists, engineers, entrepreneurs & the industry.

PASTIC National Centre is housed in its own building at Quaid-i-Azam University Campus, Islamabad with comprehensive information resources in different fields of Science and Technology. Its 06 Sub-Centres are working in Karachi, Lahore, Peshawar, Quetta, Faisalabad and Muzaffarabad; all have access to global information resources for dissemination of information to their users. The total sanctioned strength of PASTIC National Centre and its 6 sub-centers including Scientific, Technical and Administrative Staff is 164.

2.1. PASTIC OBJECTIVES

1. Development of a National S&T/R&D Information Repository of indigenous information resources (databases)
2. S&T/R&D information dissemination through contemporary reference information tools
3. Strengthen National Science Reference Library for resource sharing & Inter-library collaborations (consortium) and empowerment of information professionals.
4. Promotion of R&D based industrial development
5. Facilitate printing of S&T/R&D Publications
6. Capacity/skill development of researchers & entrepreneurs
7. Develop collaborations with national and international information networks

2.2 ACTIVITIES AND SERVICES

PASTIC is a national multidisciplinary S&T Information Centre. It procures, processes and preserves national scientific, technological and industrial information for catering to the S&T

information needs of R&D and industrial community through anticipatory and responsive Information Services leading to sustainable socio-economic development in the country.

The Services provided and activities undertaken during the period, July 2020 to June 2021 are described below:

2.3 BIBLIOGRAPHIC INFORMATION & DOCUMENT SUPPLY SERVICE

This service promotes local Research and Development (R&D) among young scientists/researchers/engineers, technologists, faculty members, R&D workers and & industry people. Under this service, copies of Research Articles (Abstracts/Full text) Reports, Conference Papers, Books or Book-chapters, etc., published locally or abroad are provided free of cost and within no time to the clients. Documents and bibliographies are supplied through email service for quick delivery and minimizing delays.

For acquisition of documents from within the country, the Union Catalogue of the S&T libraries of Pakistan compiled by PASTIC, resources of LEJ-HEJ and HEC are mainly used.

PASTIC has access to digital resources such as:

a) LEJ Resources, Karachi (Under MoU)

- Institute of Electrical and Electronics Engineers (IEEE)
- American Chemical Society (ACS)
- Nature Publishing
- JSTOR
- Springerlink

b) HEC Licensed Databases

PASTIC has also access to HEC subscribed databases through VPN which are as under:

- All disciplines of Science Direct
- IEEE

Under the Bibliographic Information & Document Supply Service a total, 35891 S&T documents and 2350 bibliographies in digital form were supplied to 1555 users upon their requests during the period

2.4 ABSTRACTING AND INDEXING SERVICE

Pakistan Science Abstracts (PSA)

PASTIC has been providing abstracting and indexing service by compiling abstracts of research articles published in Pakistani Journals and Conference proceedings under the title of “Pakistan Science Abstracts” in different scientific disciplines, which serves as a secondary information resource to give support to research and development activities in the country. This service is being provided through an online database application with an efficient searching facility.

During the period 2020-21 a total, 8851 abstracts were processed for import into the database.

2.5 PUBLICATIONS

Abstract Books/Conferences Proceedings

PASTIC collaborates with HEI’s and S&T/R&D institutions by publishing Abstract Books/Proceedings of Conferences organized. During current period, Book on “Human conflict with Nature” authored by Mr. Masood Qazalbash was published. Two Abstracts Books for the following conferences were also published.

- Fifth International Conference on Sustainability in Process Industry (SPI 2020) held on December 15-16, 2020 at UET, Peshawar.
- First International Industrial Chemistry Conference” held on Feb 26-28, 2021 at NED University of Engineering & Technology, Karachi.

Technology Roundup

A bimonthly Trade and Technology news bulletin entitled “Technology Roundup” is regularly published and six issues of this news bulletin were made available online on PASTIC website.

2.6 TECHNOLOGY INFORMATION SERVICE (TIS)

This service is focused on dissemination of Technological Information Services to Academia/R&D community, Engineers, Entrepreneurs, SMEs, Industrialists and various Government entities. To promote R&D based industrial development in the country, this service undertakes following activities:

- Develops collaborations with Chambers of Commerce and Industry (CCIs) across Pakistan to promote local industry, small manufacturing enterprises (SMEs), their products/services and challenges/issues by developing different indigenous industrial databases available on PASTIC Website (TIS-Databases) and Technology Roundup online bulletin (<http://www.pastic.gov.pk/technews.aspx>).
- Promotes S&T/R&D organizations/academia and their commercializable technologies/research expertise and R&D projects in different industrial sectors by developing different indigenous S&T/R&D databases available on PASTIC Website (TIS Databases).
- Promotes University-Industry Partnership (UIP) through seminars/workshops across Pakistan for "Building Effective Coordination between R&D & Industry for Enhancing Innovations Competitiveness and Productivity of Indigenous Technologies".
- Enhances Capacity building of scientists on communication skills and creating platforms between scientists and members of the media for promotion of scientific and technological innovation in the society.
- Organizes Technology & IT-Expos across Pakistan for empowering youth and general public on new and faster ways of delivering and accessing information to improve their productivity in ICTs, education, health and other social services, banking, and government services, and create earning opportunities.
- Provides Technology and Innovation Support Services under Technology and Innovation Support Centre (TISC) Desks (in collaboration with HEC-IPO Pakistan & WIPO) at PASTIC National Centre, Islamabad as well as at its 06 sub- for guidance and support of the innovators on **“how to exploit their potential to create, protect,**

and manage their intellectual property (IP) rights” by providing assistance in searching and retrieving technology information through patent database search; creating awareness of TISC program through trainings/seminars/library visitors/online queries etc.

2.7 PASTIC- TISC (Technology and Innovation Support Centre)

1. Patent abstracts/other information provision to number of clients through Offline/Online Patent Query Form at PASTIC web = 20
2. Intellectual Property Rights / Patent seminars under TISC = 2

Expos/Workshops under UIP program:

Nil (Due to Covid-19).

Tasks accomplished by TIS Section

- Compilation and editing of data for S&T/R&D and related organizations of Pakistan (547 plus) was done, and after developing App by PASTIC-IT, the data was uploaded province-wise and can be accessed through the following online URL. <http://pastic.gov.pk/searchstorgs.aspx?par=onlin&cmenu=st>
- Working Plan/Content for the Development of National Scientists Directory (NSD)and R&D Projects Web Application.
- Evaluation was done of PC-I titled “Research Commercialization through Industry-Research Centers Collaboration (Knowledge Economy Task Force)” and relevant input on Technology Innovation portal was provided.
- Draft was prepared for Gap Analysis report on existing scenario of research and development (R&D) funding at National Level, and development of Science & Technology Trust Fund at Pakistan Science Foundation, under the Ministry of Science and Technology.

- A PC-I draft prepared by PM Task Force on Science & Technology titled “Patent support program for Industry, Startups & Research Institutions of Pakistan” (Cost: Rs. 582.020 million) was received by PSF/MoST for review and PASTIC was designated as implementation agency. The revision of PC-I (cost, content, etc.) was completed at TIS Section and sent to PSF.
- Work was furnished on “Development of GIS Map of R&D/S&T Organizations of Pakistan at PASTIC Website”. The test demo was finalized at PASTIC IT Section.
- A report prepared/edited by TIS Section titled “Report on Vaccine Types, Production, Utilization, Regulatory and Funding Status in Pakistan,” was sent to MoST/MoFA/PSF.
- Report was prepared by TIS Section on “Comprehensive Completion of Government’s Achievements”, for sending to PSF/MoST.
- Data of top 91 scientists from Health and Engineering Sciences Disciplines of Pakistan and 78 eminent scientists from Academy of Science was compiled and edited.
- Information was prepared and provided in categories of Electronics / Energy / Artificial Intelligence / Precision Agriculture / Hydroponics / Horticulture / Biomedical Engineering & Chemical manufacturing (hard copy) in prospect of science diplomacy action plan as required for ready reference.
- Data of Pakistani Industries was provided to Joint Scientific Adviser (IL), MoST, HEC and NUST.

2.8 PASTIC NATIONAL SCIENCE REFERENCE LIBRARY SERVICE

The National Science Reference Library (NSRL) serves the information needs of the research scholars and others seeking scientific literature. PASTIC Library is equipped with both Print and Electronic information resources. It has a collection of more than 8000 books; 900 titles of journals (300 journals regular among them) and approximately 5000 miscellaneous documents such as reference material/secondary sources, encyclopedias, government documents, conferences/seminars proceedings, etc. The HEC Digital library is also accessible at PASTIC.

The library also organizes capacity building programmes in the area of Library & Information Management, Library Automation, Digital Library, Soft Skills for Librarians, and Information Literacy, etc.

Main Services of Library

- Reference & Referral Services
- Reader Service
- Journal Listings
- Photocopying & Scanning Services
- Free WIFI access

Users/Researchers

- A total 3847 users/researchers visited PASTIC library for reference purpose, reading, photocopying and internet browsing.

Acquisition Of Library Material

- Total 144 issues of different national and international journals were received.
- About 36 miscellaneous documents and reports were received.

Technical Processing

All this library material was processed and shelved for use. Total 12 issues of the library bulletin “Fresh Arrivals” of PASTIC library were regularly published on monthly basis and distributed among relevant circles, and uploaded on PASTIC website. Total 5235 Books were entered in KOHA. The Library was also renovated during the current financial year for providing a better environment to the library users for study, consultation and internet facility.

Reprographic Service

PASTIC Reprographic Section has facilities for composing, designing, plate making, offset printing, and binding, etc., for Books, Pamphlets, Brochures, Journals, Newsletters, Cards, and Folders etc. These facilities are not only used for printing of PASTIC publications but are also extended to all other S&T and R&D Organizations. The Unit is equipped with:

- Offset Printing Machines
- Printing Down Frame
- Cutting Machine
- Stitching Machine
- Creasing Machine
- Dark Room Camera
- Latest Computers/Printers

During the year 2020-21, about 96 printing jobs were carried out for 13 R&D organizations.

2.9 IT SUPPORT SERVICE

PASTIC has a well-equipped IT section with a dedicated team of IT professionals working hard to enhance the IT infrastructure for strengthening and effective delivery of its services. PASTIC IT section also provides their expertise to PSF and PMNH website updation activities on request.

During the year 2020-21, following activities were undertaken by the IT team of PASTIC:

PSDP PROJECTS (CONCEIVED/SUPERVISED/COORDINATED)

- 1. Science Talent Farming Scheme (STFS) project for 1800 Young student at Pakistan Science Foundation (PSF)**
 - STFS Website application was developed and updated.
 - Contract and server side management of STFS Learning Management System (LMS) was done.
- 2. Modernization of PASTIC National Science Reference Library for Effective Resource Sharing among S&T Libraries in Pakistan**
 - Technical Specification along with Tender document preparation for library ICT Infrastructure development was supervised.
 - Library automation software outsourcing, hosting and testing activity was supervised/coordinated.

- Consortium web portal (CSTRDLP) and PAKCAT application development activity was supervised (Consortium.pastic.gov.pk).
- 3. Networking and Capacity Building of Women Entrepreneurs (SMEs) from SAARC Countries (SDF Project)**
- SAARC Women Entrepreneurs (SMEs) web portal/application development through outsourcing model was technically supervised and launched (saarcweportal.com).
 - Women Entrepreneurs training activities at National (Islamabad, Lahore, Peshawar, Karachi) and International level (Afghanistan, Nepal, Bangladesh) was coordinated.
 - Equipment purchase process (technical specification preparation and tender evaluation process) was supervised.
- 4. Conceived new PSDP project entitled “Development of National Digital Archive of Research Published in Pakistani Journals” (approved on 22nd October 2020)**

WEBSITE DEVELOPMENT AND UPDATION

1. PASTIC (www.pastic.gov.pk) and PSF (www.psf.gov.pk) website development, management and updation activities were supervised.
2. Covid-19 S&T Information Resource Portal (<http://covid.pastic.gov.pk/>) was launched.
3. IFAP (Information For All Programme) National Committee Pakistan web portal in collaboration with UNESCO (<http://ifap.pastic.gov.pk/>) was launched.
4. PSF Science Talent Farming Scheme (STFS) project website along with server management (<http://stfs.psf.gov.pk/>) was supervised.
5. CSTRDLP web portal (Consortium of Science & Technology and Research & Development Libraries of Pakistan) (<http://consortium.pastic.gov.pk/>) development and updation activity for promotion of resource sharing among libraries.
6. SAARC Women Entrepreneurs (SMEs) web portal updation and management activities (www.saarcweportal.com) were supervised.

7. PASTIC website was redesigned.

DATABASE/APPLICATION DEVELOPMENT AND MAINTENANCE

- Pakistan Science Abstract (PSA) Web/Desktop application debugging for automated data extraction and searching was supervised.
- Journal Management System for PASTIC online Journal entitled, “Pakistan Journal of Computer and Information Systems (PJCIS)” was supervised, as Managing Editor.
- Application development, data collection and updation of National Information portal of R&D equipment/services available with scientific organizations were supervised.
- Scientist Directory and R&D Project web portal was redesigned.
- A new web portal of the project National Digital Archive is developed.
[<http://nda.pastic.gov.pk/>]

DATABASES DEVELOPED/UPDATED

- Conferences / Workshops / Seminars / Proceedings of Pakistan
- S&T and R&D Projects (Ongoing/Completed) of Pakistan
- Research Material available in Pakistani libraries (UCAT)
- S&T and R&D organizations/Institutions of Pakistan
- Books available in Pakistani libraries (Union OPAC)
- Commercializable Pakistani Products (Indigenous)
- Scientific Books Published by Pakistani Authors
- Industrial Problems & Solutions of Pakistan
- Scientific Societies/Associations of Pakistan
- Pharmaceutical Companies across Pakistan
- Publications (Climate Change) of Pakistan
- Industrial Linkages (Local & International)

- Publications (Energy related) of Pakistan
- Industry-Academia Linkages of Pakistan
- Universities/Institutes of Pakistan
- Foreign Industries in Pakistan
- S&T libraries of Pakistan
- Pakistani Scientists
- Industries of Pakistan
- Chambers of Commerce of Pakistan
- Industrial Associations of Pakistan
- Offices of Research, Innovation and Commercialization (ORIC) of Pakistani Universities
- Overseas Investors of Industry and Commerce in Pakistan
- University-Industry Linkages
- Industrial issues

TRAININGS/EXPO ACTIVITIES CONDUCTED/COORDINATED

- SAARC women SMES training was conducted on SAARC Web Portal (National: Karachi, Lahore, Islamabad, Peshawar) International (Bangladesh, Nepal, Afghanistan).
- Meeting (webinar) was organized between Chair of Information for all Program (IFAP) and National IFAP Committees around the world (webinar).
- Webinar training was organized between PASTIC and BAST on “International Cooperation of Scientific & Technological Organization” on December 16, 2020.

HEC Capacity Building lessons were attended online by PASTIC officers on following topics

- Introduction to publishing in Academic Journals (August 19,2020)
- Best Practice in Scholarly Publishing (November 19, 2020)
- HEC’s Policy for Recognition of Journals (November 5, 2020,

- Training Session on Peer Review Process (November 26, 2020)
- Training Session on Open Journal System (December 9, 2020)
- Guidelines for Indexing in Scopus (January 21, 2021)

Technical support activities were supervised for arrangement of in-house and online trainings activities organized by PASTIC training section on various topics.

ICT infrastructure development and maintenance activities are strengthened.

2.10 INTERNATIONAL LIAISON

PASTIC has been designated as National Focal Point of UNESCO IFAP National Committee (UNESCO Information for all Programme IFAP), and PASTIC is executing SAARC Development Fund (SDF) funded Project “Networking of Women Entrepreneurs (SMEs) from SAARC Countries”.

NEWSLETTERS AND REPORTS

- PASTIC Monthly Newsletters were compiled, edited and uploaded at PASTIC website.
- Monthly action plans / target reports are prepared and submitted.
- Monthly and Yearly reports of PASTIC were prepared and submitted.
- Monthly Progress Reports of PASTIC is prepared and submitted.

2.11 PASTIC SERVICES AWARENESS SEMINARS/STALLS

In order to publicize PASTIC Services & Activities, PASTIC service awareness seminars and stalls were organized at universities’ various departments regularly. Through this activity, PASTIC services are brought to the doorsteps of the researchers. As a result, a large number of new research scholars and faculty members have come to know about PASTIC information services.

During the year 2020-21, following PASTIC Service Awareness Seminars/stalls were organized:

PASTIC Services Awareness Seminars/Stalls

Title	Date	Venue
PSC FAISALABAD		
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	October 28, 2020	Central Library, University of Agriculture, Faisalabad.
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	October 29, 2020	Central Library, Ayub Agriculture Research Institute (AARI), Faisalabad.
PNC ISLAMABAD		
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	November 11, 2020	University of Sargodha, Sargodha
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	November 18, 2020	Muhammad Nawaz Sharif University of Engineering & Technology (MNS-UET), Multan.
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	November 18, 2020	The Women University, Multan
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars”	November 19, 2020	The Islamia University of Bahawalpur
PSC KARACHI		
PASTIC Services Awareness Seminar	January 18, 2021	PASTIC Sub Centre, Karachi.
PASTIC Services Awareness	February 26-28,	Department of Chemistry, NED

Stall during 1st International Industrial Chemistry Conference (IICC – 2021)	2021	University of Engineering & Technology, Karachi.
PASTIC Services Awareness Seminar	March 08, 2021	PASTIC Sub Centre Karachi.
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC”	March 18, 2021	Sociology Department, University of Sindh, Jamshoro.
Seminar on “Introducing Indigenous Research Resources Developed by PASTIC”	March 18, 2021	Allama I. I. Kazi Central Library, University of Sindh, Jamshoro.
“Introducing Indigenous Research Resources Developed by PASTIC & Recent Development of Librarianship”	March 18, 2021	Academy of Islamic Research and Development AiRD, Hyderabad.
“Introducing Indigenous Research Resources Developed by PASTIC”	March 19, 2021	Government College University Hyderabad.
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC”	March 22, 2021	Civil Engineering Video Conference Hall, NED University of Engineering & Technology, Karachi
Online PASTIC S&T awareness seminar	May 21, 2021	PASTIC Sub-Centre Karachi
PSC PESHAWAR		
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & Research Scholars”	October 26, 2020	National Center of Excellence in Physical Chemistry, University of Peshawar
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & Research Scholars”	October 27, 2020	Abasyn University, Peshawar
Awareness Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for	October 28, 2020	The University of Haripur

Faculty Members & Research Scholars”		
	PSC LAHORE	
Online PASTIC Services Awareness Seminar	January 27, 2021	PASTIC Sub-Centre Lahore / University of Management Technology, Sialkot
PASTIC Services Awareness Seminar	February 27, 2021	Superior College Lahore, City Campus.
	PSC QUETTA	
Awareness Seminar and PASTIC Services Stall	January 27, 2021	Geological Survey of Pakistan, Quetta.
PASTIC Services Awareness Seminar	February 10, 2021	Geological Survey of Pakistan, Quetta.

HUMAN RESOURCE DEVELOPMENT

Another important activity of PASTIC is to impart training to information professionals and researchers through workshops / seminars on topics such as Computer Applications for Library Automation, Information Management, Searching Techniques, Research Tools & Techniques, IPRs, etc. In addition, PASTIC also organizes Awareness Seminars about PASTIC Services. In this regard, following training workshops / seminars were organized.

Trainings/Workshops/Seminars/Symposia/ Meetings Organized

Title	Timings	Venue	Organized by
PSC FAISALABAD			
Workshop titled “Management by Using <i>Mendeley</i> - Reference Management Software”	September 17, 2020	Govt. College University, Faisalabad	PASTIC Sub-Centre, Faisalabad
Workshop on “Management by using <i>Mendeley</i> - Reference Management Software”	October 21, 2020	National Textile University, Faisalabad	PASTIC Sub-Centre, Faisalabad
Workshop on “Management by Using <i>Mendeley</i> - Reference	October 22, 2020	Khwaja Fareed University of Engineering &	PASTIC Sub-Centre, Faisalabad

Management Software”		Information Technology	
Online Seminar on “Make your research life easier with Mendeley”	November 6, 2020	Muhammad Nawaz Sharif University of Agriculture Multan.	PASTIC Sub-Centre, Faisalabad & PNC
Online Training Workshop on “Management by using Mendeley – Research Management Software”.	December 18, 2020	Islamia University of Bahawalpur	PASTIC Sub-Centre, Faisalabad
Online Training Workshop on “Management by using Mendeley – Research Management Software”	December 23, 2020.	Women University, Multan	PASTIC Sub-Centre, Faisalabad
Workshop on “Keywords Planning and Searching Techniques: Step toward effective literature review”	January 26, 2021.	Govt. College Women University, Faisalabad	PASTIC Sub-Centre, Faisalabad
Workshop on “Management by using <i>Mendeley</i> - Reference Management Software”	January 28, 2021	Cholistan University of Veterinary and Animal Sciences, Bahawalpur.	PASTIC Sub-Centre, Faisalabad
Online Training Workshop on “Literature Searching (Where and How)”	April 28, 2021	Ghazi University, Dera Ghazi Khan	PASTIC Sub-Centre, Faisalabad & PNC
Online Training Workshop on “Mendeley Reference Management Software”	June 03, 2021	Ayub Agriculture Research Institute, Faisalabad	PASTIC Sub-Centre, Faisalabad
PNC ISLAMABAD			
International Workshop titled “Use of Artificial Intelligence against COVID-19”	July 23, 2020	PASTIC National Centre, Islamabad.	Jointly organized by PASTIC, PSF and BTBU, China.
Online Workshop on “Management by using Mendeley - Reference Management Software”	July 7, 2020	PASTIC National Centre Islamabad. Govt. College Women University, Faisalabad	PASTIC National Centre, Islamabad.
Online Workshop on	July 14, 2020	PASTIC National	PASTIC National

“Role of IPR and Elevation of Organizations”		Centre Islamabad.	Centre in collaboration with ORIC University of Agriculture, Faisalabad
Online Workshop on “Management by using Mendeley - Reference Management Software”	July 21, 2020	PASTIC National Centre, Islamabad.	PASTIC National Centre in collaboration with Ghazi University, D.G. Khan
The 2nd International online Workshop titled “Use of New Technology in Locust Control”	August 20, 2020	PASTIC National Centre Islamabad.	Jointly organized by PASTIC, PSF and BTBU China.
The 3rd International online Workshop titled "Science and Technology Information Management and Science and Technology Report Publication”	August 27, 2020	PASTIC National Centre, Islamabad.	Jointly organized by PASTIC, PSF and BTBU, China.
PASTIC National Centre officers/official (10) participated in HEC organized online workshop titled: “Introduction to Publishing in Academic Journals”	August 19, 2020	PASTIC National Centre, Islamabad.	PNC
Training workshop on “PASTIC Koha Cloud”	September 10-11, 2020.	Karakoram International University, Gilgit	PNC
Seminar on CSTRDLP	September 11, 2020.	Karakoram International University, Gilgit	PNC
Awareness Seminars for Consortium of S&T and R&D Libraries of Pakistan (CSTRDLP)	February 8-9, 2021	Minhaj University. Lahore and College for Women University, University of the Punjab	PNC
Three weeks short term training course for	February 15 to March 5, 2021	PNC	PNC

Library & Information Science (LIS) Professionals			
MS Excel and Word training	February 23, 2021	PNC	PNC
SAARC WE Portal Demonstration / training for Afghanistan Women Chamber of Commerce and Industry (AWCCI)	April 12, 2021	PNC	PNC
Launching ceremony/seminar of the project “National Digital Archive of Research Published in Pakistani Journals”	June 24, 2021	Islamabad Hotel	PNC
PSC KARACHI			
Online workshop titled “Make your Research Life Easier with Mendeley”	August 25, 2020	PASTIC Sub Centre, Karachi	PASTIC Sub Centre, Karachi
Workshop titled “Writing a Scientific Research Paper”	September 15, 2020.	PASTIC Sub Centre, Karachi	PASTIC Sub Centre, Karachi
Online workshop on “Innovation in Pharmacotherapy & Disease Management”	December 16, 2020.	Jinnah Sindh Medical University, Karachi	PASTIC Sub Centre Karachi in collaboration with Jinnah Sindh Medical University, Karachi
Online workshop on “Make your Research Life Easier with Mendeley”	January 20, 2021	PASTIC Sub Centre, Karachi	PASTIC Sub Centre, Karachi
Webinar on “Reference Styles to Write a Research Papers”	January 28, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “Make Your Research Life Easier with Mendeley”	February 3, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online Seminar on "Understanding the role	February 10, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi

of Intellectual Property Rights and Patent information in research and innovation”			
Online Training Workshop on “Essential Statistics SPSS”	February 18, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “Literature Review Writing”	March 10, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “Importance of Bio safety in the health care sector”	March 30, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “SLiMS with new features”	April 8, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “Research Ethics”	April 13, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online training workshop on “Mendeley: Reference Data Management for Research”	May 26, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi & PNC
Online Training Workshop on “Synopsis Writing”	June 2, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online Training Workshop on “Mendeley Reference Management”	June 09, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
Online Training Workshop on “How to Select a Research Topic”	June 16, 2021	PASTIC Sub-Centre, Karachi	PASTIC Sub-Centre, Karachi
PSC LAHORE			
Training workshop on “Literature Searching Techniques and Free Online Resources”	February 27, 2021	Superior College (City Campus), Lahore	PASTIC Sub-Centre, Lahore
Awareness Seminars for Consortium of S&T and R&D Libraries of Pakistan (CSTRDLP)	February 8-9, 2021	Minhaj University, Lahore	PASTIC Sub-Centre, Lahore
Awareness Seminars for Consortium of S&T and R&D Libraries of Pakistan (CSTRDLP)	February 8-9, 2021	Lahore College for Women University	PASTIC Sub-Centre, Lahore
Awareness Seminars for	February 8-9,	University of the Punjab	PASTIC Sub-Centre,

Consortium of S&T and R&D Libraries of Pakistan (CSTRDLP)	2021		Lahore
PSC MUZAFFARABAD			
Seminar on “Consortium of S&T and R&D Libraries of Pakistan (CTRDLDP)”	October 16, 2020	Central Library, University of Azad Jammu & Kashmir	PASTIC Sub-Center Muzaffarabad in collaboration with Central Library, University of Azad Jammu & Kashmir
PSC PESHAWAR			
Online Workshop title “Make your Research Life Easier with MENELEY”.	September 9, 2020	Sarhad University Peshawar	PASTIC Sub-Centre Peshawar
Online training workshop on “Make Your Research Life Easier with Mendeley”	March 17, 2021	Centre of OMIC Sciences, Islamia College University Peshawar.	PASTIC Sub-Centre Peshawar
Seminar on “Review of Literature and Referencing”	June 15, 2021	Pakistan Forest Institute (PFI) Peshawar	PASTIC Sub-Centre Peshawar
PSC-QUETTA			
NIL			

2.12 EXHIBITIONS ORGANIZED

Nil (Due to Covid-19)

2.13 MEETINGS/WORKSHOPS/TRAININGS/SEMINARS/ SYMPOSIA ATTENDED BY PASTIC OFFICERS

A. Meetings / Workshops / Trainings / Seminars/ Conferences attended by Director General PASTIC, Prof. Dr. Muhammad Akram Shaikh

- Presented the project Proposal titled "Pakistan Research Information Portal" at PSDP Concept Clearance Meeting on September 28, 2020 at MoST Committee Room.
- Attended Roundtable Discussion on “Pakistan-China Science & Technology Cooperation “on Friday November 6, 2020 at National Library of Pakistan, Islamabad.

The activity was jointly organized by Regional Rapport and National Library of Pakistan.

- Participated in the Online Webinar on International Cooperation of Scientific and Technological Organization on December 16, 2020. The webinar was organized by Beijing Association for Science and Technology (BAST), China.
- Participated virtually in the inaugural ceremony of the online International Conference on "Biological Research and Applied Science" (IBRAS 2021), held on January 20-21, 2021 at Jinnah University for Women, Karachi.
- Meeting with Chairman, Punjab Higher Education Commission on March 12, 2021 to brief him about PASTIC services and possible collaborating activities.
- Meeting with Vice Chancellor University of the Punjab on March 12, 2021 to brief him about PASTIC services and possible collaborating activities.
- Attended the online opening ceremony of the Training Center on Scientific, Technological and Economic Cooperation under Belt and Road Initiative (BRI), on September 25, 2020, jointly launched by Beijing Technology and Business University (BTBU) and Economic Cooperation Organization Science Foundation (ECOSF).
- Participated in a corner meeting with Chief Librarian, Principal and Faculty Members of Quaid-e-Azam Academy for Education, Multan on November 17, 2020.
- Meeting with Vice Chancellor, University of Karachi on March 22, 2021 to brief him about PASTIC services and possible collaboration in areas of common interest.
- Meeting with Incharge Librarian, regarding PASTIC Consortium of S&T and R&D Librarians of Pakistan, at Allama I. I. Kazi Central Library, University of Sindh, Jamshoro.
- Meeting with Registrar, and Librarian, Government College University Hyderabad, regarding PASTIC Consortium of S&T and R&D Librarians of Pakistan (CSTRLP), on March 19, 2021 at Government College University Hyderabad.
- Attended meeting on Pakistan Science Diplomacy Action Plan held on December 15, 2020 organized by MoST (IL).

- Participated in the first meeting of Sub-committee on Science, Technology & Research constituted by Secretary, Ministry of Science & Technology, held on November 16, 2020 at PASTIC National Centre, Islamabad.
- Participated in the 2nd meeting of Sub-committee on Science, Technology & Research constituted by Secretary, Ministry of Science & Technology held on December 8, 2020 at Committee Room, PASTIC National Centre, QAU Campus, Islamabad.
- Organized online meeting held on March 9, 2021 between PASTIC and HEC for discussing the modalities for signing MoU between both organizations.
- Participated in Meeting held on April 14, 2021 at PSF and provided PASTIC relevant information on Technology Innovation Portal (TIP)) to Director (P&D), PSF for including into the PC-I titled “Research Commercialization through Industry-Research Centers Collaboration (Knowledge Economy Task Force)”.
- Participated in “Online International Workshop on Open Innovation: Increasing the Competitive Advantage of a Nation”, which was conducted from May 27-28, 2021 through an online platform, using Zoom Video Conferencing. This online Workshop was organized by the International Science, Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO (ISTIC).
- Participated in Coordination Meeting on International Cooperation and Partnerships in Vaccine Production at Ministry of Foreign Affairs (MoFA) held on June 8, 2021.
- Attended sub-meeting of 52nd BOG meeting, at NCE in Geology, University of Peshawar on August 18, 2020 on behalf of Chairman PSF.
- Participated in Poster Exhibition/Competition and Rare Disease Day, organized by the Centre for Omic Sciences on March 1, 2021 at Islamia College University Peshawar.
- Participated at World Environmental Day, celebrated by Directorate of Science & Technology (DOST) KP on June 8, 2021 and delivered detail presentation on “Agro-Ecological Biodiversity in Khyber Pakhtunkhwa and its Contribution to the Sustainable Food Security”.

- Attended meeting of the Monitoring & Evaluation Committee under the project of the Directorate of Science & Technology, titled, “Promotion & Development of Science & Technology in KP”, on June 9, 2021 at Aprus Technologies (Pvt) Limited, Industrial Estate Peshawar, for monitoring & Evaluation of the Commercialization Project titled “AI Based Robust Control Instant Response Technologies”, on behalf of Director Research Support PSF Islamabad.
- Participated in Seminar on “Food Security” on September 17, 2020, organized by Directorate of Science & Technology KPK.

B. Meetings / Seminars attended by Ms. Afsheen Tariq, Assistant Scientific Information Officer, PASTIC Sub Centre, Karachi

- Participated in the “National Symposium on Integrated Solid Waste Management” on February 3-4, 2021, at Karachi Chamber of Commerce and Industry (KCCI).
- Attended 1st International Industrial Chemistry Conference at Department of Chemistry, NED University of Engineering & Technology on February 26, 2021.
- Organized Webinar on “Entrepreneurship in the Space Industry” on June 01, 2021 at PASTIC Sub Centre Karachi, in collaboration with Business Incubation Centre, Institute of Space Technology, Islamabad.
- Attended Training workshop titled “Present Era of Ecofriendly Nematode Management Strategies” jointly organized by the National Nematological Research Centre, University of Karachi, Pakistan Society of Nematologists, and supported by the Pakistan Science Foundation held on June 17-18, 2021 at National Nematological Research Centre, University of Karachi.

2.14 DEVELOPMENT PROJECT

Development Project entitled, “Modernization of PASTIC National Science Reference Library for effective Resource Sharing among S&T Libraries in Pakistan” was executed. Main objectives of the project are:

- Development of Information Communication Technologies (ICT's) infrastructure for PASTIC National Science Reference Library.
- Development of Consortium of library & information scientists (librarians) of R&D organizations (CRDLP).
- Capacity building of library information scientists (librarians) for Library Automation, Digital Library & Library Management, etc.
- Revamping and strengthening of PNSR library.
- Organize awareness seminars for research scholars to promote / utilize the developed information resources.

The NSR Library has completed the above mentioned project in this financial year, the details of activities, achievements by this project is as under:

- 150 Libraries were provided customized National Library software along with online hosting infrastructure and maintenance services (free of cost)
- Union Catalogue (PakCat) application was developed having 150 libraries book collection data in order to facilitate research scholars <http://www.pakcat.pastic.gov.pk/>
- Digital Repository of indigenous scholarly literature application was developed for MoST Publication specially for PSF, PASTIC, and PMNH providing full text research material to research scholars <http://repository.pastic.gov.pk/jspui/>
- Consortium of S&T and R&D Libraries of Pakistan was developed for enhancing upgrading the library services in Pakistan for better facilitation of the Pakistani scientific research scholars <http://consortium.pastic.gov.pk/>
- 200 Library & Information Scientists / Librarians were trained with latest tools during 06 training workshops organized in different cities of Punjab, KPK, Sindh, Baluchistan, and GilgitBaltistan Provinces of Pakistan
- Fibre-Optic Internet connectivity was provided to PASTIC National Science Reference Library to facilitate research scholars for online content searching

- RFID Security system along with tags was acquired and installed in Library
- Overhead scanner was acquired and installed in Library
- Library furniture was purchased and installed to modernize sitting arrangement PASTIC National Science Reference Library for research scholars
- Latest scientific books was purchased for PASTIC National Science Reference Library to facilitate research scholars

2.15 MISCELLANEOUS ACTIVITIES

- Document of Collaborative Partnership (DoCP) was signed by the Worthy Vice Chancellor of IUB, Engr. Prof. Dr. Athar Mahboob (Tamgha-e-Imtiaz) and the worthy Director General PASTIC, Prof. Dr. Muhammad Akram Sheikh at PASTIC National Centre, Islamabad on November 19, 2020.
- Interviews of PSF Project “Science Talent Farming Scheme (STFS)” 5th Batch were conducted at PASTIC National Centre Islamabad (December 09- 10, 2020) along with PASTIC Sub-Centers Faisalabad (December 21-22, 2020), Lahore (December 15-16, 2020), Peshawar (December 14- 15, 2020) and Karachi on (December 28-29, 2020).
- Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Dr. Shaista Sohail, Executive Director, HEC, signed the MoU on May 19, 2021 in an online ceremony held at PSF for eliminating duplication of efforts by developing cooperation and collaboration through outreach, policy engagement initiatives, and effective information sharing.
- PASTIC and PITC joined hands to extend the mutual cooperation towards strengthening of the national information resources, and to promote research, innovation and indigenous product development, for socio economic development of the country. Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Engr. Dr. Nasir Mehmood Khan, Secretary/ Registrar PEC, signed the MoU in a ceremony held at PSF on May 27, 2021.
- The launching ceremony of PASTIC's PSDP funded project titled “National Digital Archive of Research Published in Pakistani Journals” was held on June 24, 2021 at

Islamabad Hotel, Islamabad. The main objective was to introduce the project and scope of work to the stakeholders i.e., Publishers of Scientific Journals published in Rawalpindi, Islamabad and allied areas.

- 1st International Industrial Chemistry Conference (IICC – 2021) 26-28th February, 2021 was organized by Chemistry Department of the NED University of Engineering & Technology at Karachi. PASTIC National Centre Islamabad sponsored the conference, and published and printed the Abstract book.
- PASTIC Sub-Centre Quetta celebrated Kashmir Day on February 5, 2021 at Smart Goals Grammar School, Quetta.

2.16 PASTIC Membership

- Total 336 new members joined PASTIC and were added to PASTIC Services Membership Database.

III. PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Pakistan Museum of Natural History (PMNH), the only natural history museum of Pakistan was established in 1979 under Pakistan Science Foundation, Ministry of Science & Technology, Government of Pakistan. Pakistan Museum of Natural History (PMNH) has four principal divisions namely Earth Sciences Division, Botanical Sciences Division, Zoological Sciences and Public Services Division. First three scientific divisions are engaged in the collection, identification and research activities pertaining to plants, animals, fossils and mineral resources of Pakistan, while the fourth one is responsible for mass education and popularization of natural history through various displays, exhibits and dioramas. Researchers of PMNH carried out extensive field works from the Coast of Arabian Sea to the Alpine regions, roamed through barren areas for the collection of flora & fauna, rocks, fossils and minerals not only for research work but also for the purpose of education because education is also one of the main objectives of PMNH. For this purpose, PMNH regularly organized trainings, workshops, seminars, symposia and other educational interactive activities related to natural history, environment and biodiversity of Pakistan. International days are also observed at museum.

PMNH has developed many national and international liaisons with the other research institutes in the country and from abroad. Due to these collective efforts of scientific and technical staff of PMNH and collaborations with research institutions, PMNH has 1.5 million natural history specimens in its repositories. Research outcome of these field works and National and International projects are published in the form research papers in reputed national and international journals. PMNH is not only conducting research on the natural resources of Pakistan which exists in the form of Flora & Fauna, Rocks, Fossils and Minerals but also educating the students of Pakistan along with the common people with the help of informative, interactive, educative 3-dimensional dioramas and exhibits. Students of schools, colleges and universities from all over the Pakistan visit PMNH as a part of their educational tours. Scientific and Technical staff of PMNH also facilitate the students and researchers from the other universities and institutes by providing help in the research in the form of information, technical assistance, specimens as a loan and guidance in their research work. During 2020-2021, PMNH performed the following activities:

3.1 BOTANICAL SCIENCES DIVISION

3.1.1 Field Work:

- Conducted field studies for the collection of Natural History specimens from various locations of Wakhan Corridor, Chapuran, Baba Gali, Misghar, Shamshal Passu, Rundo, Askoli, Poyun, Chitral Gigit, Deosai, Narun, Kaghan, Siran, Muzaffarabad in Northern areas of Pakistan and Azad Jammu Kashmir, Gilgit Baltistan and adjoining areas (including Naltar, Hunza, Hopper, Yaseen valley etc.), Tanda Dam, Kohat, Sheikh Badin Hills National and adjoining areas, Gwader, Balochistan and Sindh adjoining areas, Ex-FATA agencies of KPK, District Chitral, Swat and Kohistan, Skardu, Shaigar, Khaplu, Khurmang, Nagar valley and adjacent areas.
- Carried out identification, preservation, cataloguing and digitization of existing specimens of plants, animals, rocks, fossils and minerals. Total 71,697 Natural History specimens were preserved in PMNH repositories.
- BSD scientists visited Lal Suhanra National Park Bahawalpur, Pae Forest Sakrand Shaheed Benazirabad, Miani Forest Matiyari/Hyderabad, Umerkot, Mithi, Islamkot Sindh for the collection of the Mycology and other lower plants for herbarium.
- BSD scientists conducted one-day field visit to Ayubia National Park and Margalla Hills for the plant collection in November 2020
- BSD scientists visited Banyan Tree site of Midh Ranjha, Kot Momin, Sargodha along with DG PMNH in November 2020. The purpose of visit was to conserve this heritage in November 2020.
- BSD officials conducted a one-day field visit to Midh Ranjha Kot Momin Sargodha regarding age determination of Banyan tree along with experts of Pakistan Forest Institute, Peshawar and district administration of Sargodha in December 2020.
- BSD officers conducted a 06 days' official research tour to Muzaffarabad for the collection of the mycology samples from 26-03-2021 to 31-03-2021.

- BSD scientist conducted a field visit to Gilgit and adjoining areas (including Naltar, Hunza, Hopper, Yaseen valley etc.) in the month of June 2021, for the collection of the higher plants flora for the higher plants herbarium. Collected 322 higher plant specimens from the above mentioned area.

3.1.2 Laboratory Work:

- **Collection of Natural History Specimens = 2217**
June-2020 to July-2021
- **Cataloguing of Natural History Specimens = 5231**
June 2020 to July-2021
- **Digitization of Natural History Specimens = 3597**
June-2020 to July-2021:
- **Curation of Natural History Specimens = 5231**
June-2020 to July-2021:
- **Preserved Natural History Specimens = 2217**
June-2020 to July-2021:

3.1.3 Publications:

a) Research Articles

- Amtul W. Wajeeha, M. Javaid Asad, Raja Tahir Mahmood, Tayyaba Zainab, Sidrah Nazir, Jehangir Khan, Muhammad B. Shah, Maqsood Ahmed, Syed L. Shah, **Muhammad Ismail**, Nasib Zaman, Dawood Ahmed, M. Imran Khan, and Muhammad Rizwan (2020) Production, Purification, and Characterization of Alkaline Protease from *Apergillus flavus* and its Compatibility with Commercial Detergents, [bioresources.com](https://www.bioresources.com) (USA).
- Ali A., **Haleefa Z.**, Mustafa H., Sakhawat K., Shah S. S. H. 2021. bio-filtration technique ameliorates the harmful effects of polluted water and improved growth and germination of *Spinacia oleracea* L. International Research Journal of Modernization in Engineering Technology and Science. Volume:03/Issue:04/April-2021 Impact Factor- 5.354.

- Amtul W. Wajeeha, M. JavaidAsad, Raja Tahir Mahmood, Tayyaba Zainab, Sidrah Nazir, Jehangir Khan, Muhammad B. Khan, Maqsood Ahmed, Syed L. Shah, **Muhammad Ismail Bhatti**, Nasib Zaman, Dawood Ahmed, M. Imran Khan and Muhammad Rizwan (2021). Production, Purification, and Characterization of Alkaline Protease from *Aspergillus flavus* and its Compatibility with Commercial Detergents. Bioresources.com
- Khan A. S., Ahmad M., **Gilani S. A. A.**, Zafar M., Butt M. A., Lubna, Birjees M., Akhter W., Waheed A and Kaleem M. 2021. Taxonomic implications of macro and micromorphological characters in the genus Brachytecium (Brachytheciaceae, Bryopsida) from the Western Himalayas: A combined light and scanning electron microscopic analysis. 2021 Jul 1. doi: 10.1002/jemt.23859
- Sanitary and Phytosanitary Measures (SPS) and Pest Risk Analysis for Mangoes through Hot Water Treatment for export consignments in Pakistan (**Submitted**).
- Hammal Khan, Muhammad Bilal, Shoaib Nawaz, Abdullah, SanauallahAbbasi, **Amir Hussain**, Shabir Hussain, Imran Ullah, Muhammad Arshad Rafiq, Wasim Ahmad (2021) Novel variants in the LRP4 underlying Cennai-Lenz Syndactyly syndrome, J of Human Genetics.
- **Narejo G A.** 2021. Effect of Hydro and KNO₃ priming on seed germination of cotton (*Gossypium hirsutum* L.) under gnotobiotic conditions *Status: Paper has sent to reviewers Year 2021

b) Popular Articles

- **Amir Hussain**, H. U. Khan, Muhammad Ismail Bhatti, Zil-e-Haleefa, Ghulam Abbas. Bananas and its Interesting Facts. Technology Times (E-magazine). Dec. 12, 2021
- **Ghulam Abbas Narejo**, H. U. Khan, S. Aneel A. Gilani, Zil-e-Haleefa, Amir Hussain. Algae: A Perfect Source of Medicine. Technology Times (E-magazine). Nov. 26, 2021

- **Zil-e-Haleefa**, H. U. Khan, S. Aneel A. Gilani, Amir Hussain. How do Humans Contribute towards Loss of Biodiversity Technology Times (E-magazine) Dec. 04, 2021.
- **Amir Hussain**, H. U. Khan, Muhammad Ismail Bhatti, Zil-e-Haleefa, Ghulam Abbas. Bananas and its Interesting Facts. Technology Times (E-magazine). Dec. 12, 2021.
- **Zil-e-Haleefa**, H. U. Khan, SaadiaMunir, Shahnaz Zakia, Ghulam Abbas. The Night Blooming Jessamine: A Gift of Nature or a Curse. Technology Times (E-magazine). Dec. 13, 2021.
- **Saadia Munir**, H. U. Khan. *Morchellaesculenta* (Ghuchi) Incredible Health Benefits. Technology Times (E-magazine). Dec. 18, **2021**.
- **Ghulam Abbas Narejo**, H. U. Khan, S. Aneel A. Gilani, Zil-e-Haleefa, Amir Hussain. Third Generation Biofuel: A Sustainable Source of Energy. Technology Times (E-magazine). Dec. 31, 2021.

3.1.4 Seminars/Trainings/Workshops/Organized:

- BSD scientist conducted training on mushroom cultivation, tissue culture and handling with laboratory equipment's with the students and teacher's groups (20 participants) of Agriculture Training Institute Sakrand, Sindh.
- BSD scientist conducted training program with the students and faculty members of Department of Plant Pathology, Agriculture College of Islamia University IUB, Bahawalpur regarding fungal tissue culture, spawn production and mushroom cultivation technology.
- BSD scientist conducted training program with the scientists and staff of Southern Agriculture Research Institute/PARC University of Karachi, Karachi on tissue culture, mushroom spawn production.

- BSD conducted a mushroom cultivation and mushroom tissue culture training for two members of the Agri Education of Pakistan, Faisalabad in November 2020.
- BSD organized a training for the mushroom cultivation and mushroom tissue culture in PMNH for the two members of the Agri Education of Pakistan, Faisalabad in December 2020.
- BSD conducted a training conducted with 03 participants regarding spawn production, tissue culture and mushroom cultivation in January 2021.
- BSD scientist conducted a 05 days training in collaboration with Shaheed Zulfiqar Ali Bhutto Agricultural College, Dokri Larkana on mushroom cultivation. 30 students of college trained. Vice Chancellor of SAU Tandojam attended closing session of the training in March 2021.

3.1.5 Seminars/Trainings/Workshops/Attended:

- BSD scientist delivered a talk / lecture on the **“Silk Route Flora Diversity and its utilization by local communities”** in an online / zoom meeting organized by IvCOM, under the umbrella of ICOM Pakistan on 17-06-2021 as invited speaker.
- BSD scientist presented a lecture as invited speaker in the International Webinar (online symposium) entitled **“International Symposium on Current Trends and Future Perspectives in Medicinal Plants Research.”** Arranged / conducted by women University Rawalpindi in February 2021.
- BSD officials attended a training regarding olive production technologies organized and held in NARC Islamabad in January 2021.
- BSD scientist Attended the Webinar Seminar of ICOM entitled **“Reopening Science and Technology Museums: New Behaviors New Challenges”** With experiences from museums in China, Italy and Canada on July 9th 2020 as participant.
- BSD scientist participated online Pak China Science workshop on Use of New Technology for Locust control organized by PASTIC/PSF held on 20-08-2020.

- BSD officer participated in a webinar on Impact of COVID-19 in the ECO region and what does it hold for the future of the ECO Member Countries, held on Monday, August 10, 2020.
- BSD officer attended the online National consultation webinar on assessment of the status of implementation of the Pakistan National Biodiversity Strategy and Action Plan (NBSAP) in relation to Invasive Alien Species (IAS), in collaboration of Ministry of Climate Change and CABI after nomination from MoST as invited expert from PMNH on 27-08-2020.
- BSD officer attended a two days' webinar International Conference on Smart Plant Protection, organized by Mian Muhammad Nawaz Sharif Agriculture University Multan in January 2021.
- BSD scientist delivered a lecture with the community of Abbal-Moriwal villages regarding onsite preservation of 609 years old Banyan tree at Midh Ranjha.
- BSD scientist attended two days' online certificate course entitled "Basic Plant Tissue Culture Techniques" jointly organized by COMSTECH (the Ministerial Standing Committee on Scientific and Technological Cooperation of the Organization of Islamic Cooperation), ICCBS and PABIC, Karachi held on February 16-17, 2021.
- BSD scientist delivered a lecture to the school children of class 9 & 10 at the Govt. School at Naltar Pain on the issue of the conservation of floral diversity and forests of Pakistan during my field visit to Naltar area in June-2021.
- BSD scientist participation in International Conference of Smart Plantation "An Ultimate Solution to Climate Change" (ICSP 2020) on "An Ultimate Solution to Climate Change" at Department of Botany College for Women University, Lahore w.e.f 2nd to 4th March, 2020.
- BSD scientist presented a lecture as invited speaker on "response of plant communities to soil characteristics on riverine, estuarine and coastline regions of Pakistan" in seminar "Advances in plant, soil and microbes interactions" held at Dept. of Botany, PMAS-UAAR, Rawalpindi.

- BSD scientist attended a training programme on Mushroom cultivation and tissue culture techniques with 32 students and farmers of Central Parachinar Kurram Agency KPK in collaboration with IOM, PARC and PMNH held from 16 to 22 October, 2020 in Saddah and PMNH Islamabad.
- BSD scientist attended 05 days' webinar training programme on Mushroom Technology as resource person with the more than 60 participants across the country in December 2020.
- BSD scientist attended one-day workshop with title "Artificial Intelligence & Machine Learning in Life Sciences" organized by COMSTECH Islamabad on 24-03-2021.
- BSD scientist attended online "International Hybrid Webinar on Academic collaborations, science diplomacy and OIC: challenges and opportunities" held on March 22, 2021

3.1.6 National/International Collaboration /Liaison Developed

- Mutual research project with the Natural History Museum London, Department of Botany for the collaborative research work in Pakistan and UK, in progress.
- Submitted as **HEC-NRPU Project** entitled "Ethnobotany and Molecular Characterization of the selected Mangrove Species in Pakistan" as Co-PI with collaboration of Department of Plant Sciences, Quaid-I-Azam University, Islamabad.

3.1.7 Services Rendered to Other Organizations

- Conducted M. Phil viva of M. Phil student Ms. Maria Ameen at the Department of Plant Sciences, Quaid-i-Azam University, Islamabad.
- Identification of plant species of *Pilea umbrosa* (family Urticaceae) collected from Dunga gali (KPK) of one of the Ph. D student from Department of Plant Sciences Quaid-i-Azam University, Islamabad.
- Identification of 15 plant species of family Asteraceae and Acanthaceae for the M. Phil. students from Department of Botany, Quaid-i-Azam University, Islamabad.

- Identification of 60 higher plants samples of the B.Sc. students from Punjab College, Rawalpindi.
- Curation and arrangement of 110 Berberis species from Azad Kashmir area from the Ph.D. student from the University of Azad Kashmir, Muzaffarabad.
- A group of 45 students led by Dr. Zafar (Assistant Professor) from the Department of Plant Sciences Quaid-i-Azam University, Islamabad visited the Botanical Sciences Division.
- A group of 40 students of BS. Biology from COMSATS University Islamabad led by Dr. Kamran visited PMNH Display galleries along with the visit to the Zoological Sciences Division.
- Guided A levels and O levels students from different schools and colleges for the training and education about the herbarium techniques and plant collection in 2017 and 2018.
- Conducted 03-month internship Programme Biosciences student about herbarium techniques, research planning and report writing.
- Conducted 05 days' internship Programme to O Levels students about plant collection techniques.
- Guided the group of delegates from the three days' International conference on Proteomics conducted at Department of Plant Sciences Quaid-i-Azam University Islamabad, including two delegates from China and one delegate from Brazil at the PMNH display galleries. The delegates were facilitated by the officials of WWF. Pakistan including the officer Mr. Amjad from WWF Khanewal office.
- Guided one M.Phil. Student from Hazara University and one Ph.D. student from Quaid-i-Azam University for the facilitation in their research work.
- Guided 2 groups of students (comprising 35 students) of the department of forestry and wildlife from University of Haripur at the higher and lower plants herbarium.

- Delivered a lecture at the higher plants herbarium to the students of the department of forestry and wildlife from University of Haripur on the flora of Pakistan and the herbarium techniques.
- Guided two Ph.D. students from University of Agriculture Rawlakot AJK and PMAS Arid University Rawalpindi for the identification and research guidance towards the completion of their Ph.D. research.
- Discussion with the faculty of University of Haripur for their official visit of the students to visit the herbaria at BSD.

3.1.8 Education Programs

Formal Education to:

300 B. Sc students,

200 M.Sc. students,

150 M. Phill students and

58 Ph. D students.

Students from QAU, NUST, University of Peshawar, University of AJK, Fatima Jinnah Womens Unievrstiy Rawalpindi (FJWU), PMAS Arid Agriculture University Rawalpindi and Islamic International University Islamabad etc.

3.2 EARTH SCIENCES DIVISION

3.2.1 Field Works:

- Mr. Aamir Yaseen and Mr. Khalil ur Rehman ESD Scientist carried out 14 days' geological field work in Coastal line of Karachi. The expedition covered different areas starting from Sukkur going through Lasbela, Hingol valley along coastal line, Karachi coastline and adjacent areas. The purpose of the field work was the reconnaissance, study of geological formations, measurement of geological sections exposed in the study area and for collection of rocks, invertebrate fossils especially foraminifers and sea shells specimens for scientific and reference collection of ESD repository. Field work was also carried out at different locations of sonhri, aqua and sona pass along coastal line near Mubarak village and its adjoining areas to study the lithological and paleontological studies of the Gaj formation. The Gaj Formation measured at different

locations and closely sampled to undertake detailed stratigraphical and micropaleontological studies to determine the age and environmental model of the formation. During field work, the study resulted in collection of 5535 well preserved large and small foraminifer specimens of different species belonging to the genera Nummulites, Assilina, Lepidocyclina, Marginata, *L. blanfordi* etc, specimens of Gastropods: *Turbinella affinis*, *Pyrazus* and Echinoids. Moreover, Coquina sedimentary rocks specimens were also collected, that is composed either wholly or almost entirely transported and mechanically sorted fragments of shells of mollusks, brachiopods and other invertebrates

- The team of Earth Sciences Division researchers and staff members comprising of Mr. Hammad Ur Rahim and Mr. Muhammad Imran Research Associates accomplished field work in the Trans Indus Ranges, KPK. The objective of this study was to investigate Jurassic rocks. This study reveals that Datta Formation is a good source for mining of silica sand. 500 rock samples were collected from different lithological horizon of Mesozoic rocks during this field trip. Researchers of ESD also conducted a detailed study on structural behavior of this area and inferred that this region has undergone complex tectonic processes, resulted in thrusting, folding and involvement of strike slip movements.

3.2.2 Laboratory Work

- Collection of Natural History Specimens. 6835
- Cataloguing of Natural History Specimens. 1300
- Digitization of Natural History Specimens. 410
- Digitization of 175 vertebrate & invertebrate fossils for the proper preservation of scientific materials/specimens in ESD reference collection.
- Study of 90 thin sections for micropaleontological fossils research.

3.2.3 Research Publications

Published:

1. Mumtaz Muhammad Shah, Saifullah Afridi, Emad U. Khan, Hamad ur Rahim and Muhammad R. Mustafa (2021) Impact of igneous intrusion on the reservoir properties of Devonian Khyber limestone, Peshawar Basin, NW, Pakistan. In *Geofluids*, Wiley Journal (IF: 2.176). DOI: <https://doi.org/10.1155/2021/8816465>
2. Hamad ur Rahim, Mumtaz Muhammad Shah, Mercè Corbella, Dídac Navarro-Ciurana (2020) “Diagenetic evolution and associated dolomitization events in the middle Jurassic Samana Suk Formation, Hill Ranges, Sub Himalayan Basin, NW, Pakistan” in *Carbonates and Evaporites*, Springer Journal (IF=1.300). DOI: <https://doi.org/10.1007/s13146-020-00634-0>
3. Mumtaz M. Shah, Hamad U. Rahim, Aosaif Hassan, and Muhammad R. Mustafa, Imran Ahmad (2020) “Facies control on selective dolomitization and its impact on the reservoir heterogeneities in the Samana Suk Formation (Middle Jurassic), Southern Hazara Basin (NW Himalayas) Pakistan: An outcrop analogue” in *Geosciences Journal*(IF=1.650) DOI: <https://doi.org/10.1007/s12303-019-0026-7>.

Accepted:

1. Muhammad Jamil, Nadeem Ahmad Shiekh, Muhammad Umar, Ilyas Khan, Muhammad Usman, Hamad ur Rahim “Impact of pandemic Covid-19 on geoscientific activities with regression analysis for oil demand: socioeconomic repercussions of biohazard” in *Computers, Materials & Continua*. (Accepted: IF= 3.772).
2. Tehseen Zafar, Abiola Oyebamiji, Muhammad Riaz, Hamad-Ur-Rahim, Danish Khan, Syed Irfan Ali Zaidi “New constraints on sedimentology, geochemistry and stable isotopic composition of the Paleocene Lockhart Limestone, eastern Salt Range, Pakistan: insights into diagenetic, depositional and palaeoenvironmental Settings” *Carbonates and Evaporites*.

Submitted:

1. *Tragoportax* and *Miotragocerus* from Nagri Formation type locality, Siwalik Group, Pakistan (early Late Miocene): Taxonomic problems and hypotheses regarding their resolution. Submitted to *Annales de Paleontologie Elsevier Journal*.
2. Provenance, Tectonic framework and Paleoclimatic conditions of Early Jurassic Datta Formation, Western Salt Range, Upper Indus Basin of Pakistan: Petrographic view.

3.2.4 Education Programme

- Supervision of 02 Ph.D. scholars of Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad.
- Supervision and training to students from Bahria University Islamabad regarding depositional environment of marine fossils.
- Thin sections prepared to study the microfossils studies for university students.
- Internship and Supervision of 25 BS Geology students from University of Haripur, Haripur.
- Internship of 06 students from Quaid-e-Azam University, Islamabad on Stratigraphy and Paleontology.
- Educational services provided to students and public related to earth sciences.

3.2.5 Display Activities**i. “Gems and Minerals of Pakistan” diorama developed**

As per mandate of PMNH to provide informal education to the common men particularly to the young students and to create awareness among the people about the natural potential wealth of Pakistan, new diorama “Gems and Minerals of Pakistan” established. In this diorama, precious metals and gemstones like iron, copper, chromite, bauxite, emerald, topaz, ruby, amazonite, quartz, tourmaline and others ores and minerals have been displayed in their raw and crystal form. Through this diorama people may have an idea about the existence of gems and minerals in natural environment and their potential value to our economy.

ii. Display of Koh-I-Noor (Replica) at PMNH

This historical world largest diamond “Koh-I-Noor” is the symbol of loyalty, grace and affection. By keeping in view of its historical entity, PMNH officials acquired replica of Koh-I-Noor and now displayed in the newly constructed “Gems and Minerals of Pakistan” Diorama. This unique piece of natural art is the centre of attraction for the visitors.

3.3 ZOOLOGICAL SCIENCES DIVISION

3.3.1 Field Work

- ZSD team proceeded for Baseline studies to explore Herpeto & Zooplankton fauna of Tanda Dam Kohat from 11th-17th July 2020 in connection with WWF-Pakistan
- ZSD team proceeded for collection of Insect/invertebrate fauna of Wakhan Corridor, Chapuron /Baba Gali, Misghar, Shamshal Passu, Rundo Askoli and Poyun areas from 05th-28th August 2020
- Conducted 06 days’ fieldwork for the collection beetles from Margalla Hills National Park w.e.f 24th-29thSeptember 2020 under PSF-NSFC 3rd call funded project “Cooperative development of an innovative auto-ID platform for the beetles from China and Pakistan”
- ZSD researcher conducted 26 days (31.08.2020 to 25.09.2020) fieldwork for collection of amphibians and reptiles from Chitral, Gilgit, Deosai, Naran, Kaghan, Siran and Murree areas. This study resulted in collection of 4 snakes, 20 frogs, and 150 lizard’s specimens.
- ZSD researcher conducted 18 days’ fieldwork to Gwader, Balochistan and Sindh adjoining areas for the collection of fishes, amphibians and reptiles from 1st-18thOctober 2020. This fieldwork resulted in collection of 460 marine fishes, 60 lizards and one snake.
- Conducted 04 days’ fieldwork regarding “Baseline studies on Zooplankton fauna with respect to upraising of Tanda Dam, Kohat” in connection with WWF-Pakistan

from 11th-14th February 2021. This field work resulted in collection of 20191 zooplankton specimens.

- Carried out 08 days' field work for the collection of insects and small mammal's fauna of Sheikh Badin Hills National and adjoin areas from 01st-08th April 2021. It resulted in collection of 117 butterflies, 550 (beetles, wasps and scorpions) and two rodent specimens.
- Carried out 19 days' field sampling of coleopteran beetles from Muzaffarabad, Azad Jammu and Kashmir and adjoining areas w.e.f. 23.05.2021 to 10.06.2021 from the funding of PSF-NSFC approved project.
- Carried out 11 days fieldwork to Quetta and adjoining areas for collection of amphibians and reptiles w.e.f. 05.04.2021 to 15.04.2021. Several genera of lizards and snakes were collected that are in need of molecular phylogenetic analysis, so as to draw a new generic allocation, like *Platyceps*, *Laudakia*, and *Cyrtopodion*. Tissue samples were collected of each specimen.

3.3.2 Laboratory Work

1. Collection of Natural History specimens: 3000
2. Cataloguing of Natural History specimens: 2178
3. Digitization of Natural History specimens: Nil
4. Curated and identified 5044 zoological specimens
5. Stuffed 10 animals
6. Study skins prepared 47 animals
7. Trophies prepared 12 animals
8. Refilled and leveled ethanol in 9115 glass jars of fish, amphibians, reptiles and invertebrates wet collection
9. Rearranged and replaced naphthalene bolls in 110 insect drawers
10. A total of 25 specimens of very rare and endemic species of geckos as well Varanus were collected from Mansehra and adjoining areas
11. Laboratory examination of specimens of genera *Trapelus*, *Platyceps*, and *Mediodactylus* for taking detailed data

12. Identified and catalogued 50 mammals' specimens collected/Donations from different areas/Institutions of Pakistan.
13. Received 36 specimens of large and meso-mammals from Maragzar Zoo Islamabad, and Forest, Wildlife and Fisheries deptt, Punjab, Wildlife Deptt. KPK and Bahawalpur Zoo.
14. Received as donationone stuffed Black Bear specimen from Bioresource Research Centre on 08th July 2020.

3.3.3 National Research Project

- Carabidae of Northern Pakistan (continued).

3.3.4 Collaborative Research Project

a. National Project

- Submitted Research Project to Pakistan Science Foundation, titled: “Birds / Wildlife Aircraft Strike Hazards & Preventions”.
- Submitted a proposal for Smithsonian collaborative project “Conservation biology, diet content and genetics of summer flounder (*Paralichthys dentatus* of Chesapeake Bay, USA and its related flounders (Pleuronectiformes: Paralichthidae) in Pakistan” on 2nd November 2020.

Programme Initiated and Completed

- Progress on stuffing of Indian Elephant specimen. Display of Asian Elephant was completed.
- Maintenance and repairing of Blue Whale skeleton at PMNH boundary wall was completed.
- Six specimens of Asiatic Black Bear, Puma, Lioness, Common Leopard & Mouflon Sheep stuffed and shifted to Ungulate Carnivore Diorama

b. International Projects

- A bilateral research project proposal selected for funding under PSF-NSFC programme. The project title is “Cooperative development of an innovative auto-ID

platform for the beetles from China and Pakistan” under this project beetle images prepared and a Research Associate recruited for Project.

- Two fieldworks (6 days’ fieldwork in Margalla Hills National Park w.e.f 24.09.2020 & 29.09.2020 days field work in Muzaffarabad, Azad Jammu and Kashmir and adjoining areas w.e.f. 23.05.2021 to 10.06.2021) was conducted.
- Zoom meeting with Chinese collaborator regarding project activities was held.

3.3.5 Publications

1. Jablonski, D. & Masroor, R. 2020. *Dendrelaphis tristis* (Common Bronzeback Tree Snake). Pakistan: Khyber Pakhtunkhwa. *Herpetological Review*, 51 (2): 273–274.
2. Jablonski, D., Basit, A., Farooqi, J. & Masroor, R. 2020. *Afghanodon mustersi* (Afghanistan Stream Salamander). Predation. *Herpetological Review*, 51 (1): 287.
3. Jablonski, D., Khan, M.A. & Masroor, R. 2020. The genus *Microhyla* (Anura: Microhylidae) in Pakistan: species status and origins. *Zootaxa*, 4845 (2): 293–296.
4. Jablonski, D., Bursey, C.R., Masroor, R. & Goldberg, S.R. 2020. *Bufoetes baturae* (Batura toad) and *Bufoetes latastii* (Ladakh toad). Endoparasites. *Herpetological Review*, 51 (3): 560–561.
5. Jablonski, D. & Masroor, R. 2020. *Macrovipera lebetinus* in Pakistan. *Herpetological Bulletin*, 153: 44–45.
6. Muazzam, A.K., Jablonski, D., Nadeem, M.S., Masroor, R., Kehlmaier, C., Spitzweg, C. & Fritz, U. 2020. Molecular phylogeny of *Eremias* spp. from Pakistan contributes to a better understanding of the diversity of racerunners. *Journal of Zoological Systematics and Evolutionary Research*, 2020, 59: 466–483. <https://dx.doi.org/10.1111/jzs.12426>.
7. Jablonski, D., van Bommel, S. & Masroor, R. 2021. Notes on the herpetofauna of Kunduz Province, northeastern Afghanistan, with the first record of *Varanus griseus caspius* (Eichwald, 1831). *Herpetology Notes*, 14: 63–66.
8. Jablonski, D. & Masroor, R. 2021. First record of *Eremias kakari* Masroor et al., 2020 (Squamata: Lacertidae) for Afghanistan. *Bonn Zoological Bulletin*, 70 (1): 63–65.

9. Jablonski, D., Bursey C. R., Basit A., Farooqi J., Masroor R. & Goldberg S. R. 2021. A contribution to the nematode fauna of two agamid lizards from Afghanistan. *Helminthologia*, 58 (1): 115–118.
10. Chapple, D. G., Roll, U., Böhm, M., Aguilar, R., Amey, A. P., Austin, C. C., Baling, M., Barley, A. J., Bates, M. F., Bauer, A. M., Blackburn, D. G., Bowles, P., Brown, R. M., Chandramouli, S.R., Chirio, L., Cogger, H., Colli, G. R., Conradie, W., Couper, P. J., Cowan, M. A., Craig, M. D., Das, I., Datta-Roy, A., Dickman, C. R., Ellis, R. J., Fenner, A. L., Ford, S., Ganesh, S.R., Gardner, M. G., Geissler, P., Gillespie, G. R., Glaw, F., Greenlees, M. J., Griffith, O. W., Grismer, L. L., Haines, M. L., Harris, D. J., Hedges, S. B., Hitchmough, R. A., Hoskin, C. J., Hutchinson, M. N., Ineich, I., Janssen, J., Johnston, G. R., Karin, B. R., Keogh, J. S., Kraus, F., LeBreton, M., Lymberakis, P., Masroor, R., McDonald, P. J., Mecke, S., Melville, J., Melzer, S., Michael, D. R., Miralles, A., Mitchell, N. J., Nelson, N. J., Nguyen, T. Q., Nogueira, C. de C., Ota, H., Pafilis, P., Pauwels, O.S.G., Perera, A., Pincheira-Donoso, D., Reed, R. N., Ribeiro-Júnior, M. A., Riley, J. L., Rocha, S., Rutherford, P. L., Sadlier, R. A., Shacham, B., Shea, G. M., Shine, R., Slavenko, A., Stow, A., Sumner, J., Tallowin, O. J. S., Teale, R., Torres-Carvajal, O., Trape, J-F., Uetz, P., Ukuwela, K. D. B., Valentine, L., Dyke, J. U. V., Winkel, D. v., Vasconcelos, R., Vences, M., Wagner, P., Wapstra, E., While, G. M., Whiting, M. J., Whittington, C. M., Wilson, S., Ziegler, T., Tingley, R. & Meiri, S. 2021 Conservation status of the world's skinks (Scincidae): taxonomic and geographic patterns in extinction risk. *Biological conservation*, 257. <https://doi.org/10.1016/j.biocon.2021.109101>.
11. Masroor, R., Idrees, M., Khisroon, M., Jamal, Q. & Jablonski D. 2021. Out of the blue: The first record of the genus *Heremites* Gray, 1845 (Squamata: Scincidae) for Pakistan. *ZooKeys*, 1039: 123–138. <https://dx.doi.org/10.3897/zookeys.1039.64146>.
12. Jablonski, D., Masroor, R. & Hofmann, S. 2021. Revisited molecular phylogeny of the genus *Sphaerotheca* (Anura: Dicroglossidae): the biogeographic status of northernmost populations and further taxonomic changes. *Diversity*, 13(5): 216. <https://doi.org/10.3390/d13050216>.
13. Jablonski, D., Basit, A., Farooqi, J., Masroor R. & Böhme, W. 2021. Biodiversity research in a changing Afghanistan. *Science* 372 (6549): 1402. <https://dx.doi.org/10.1126/science.abj8118>.
14. Hofmann, S., Jablonski, D., Litvinchuk, S., Masroor, R. & Schmidt, J. 2021. Relict groups of spiny frogs indicate Late Paleogene-Early Neogene trans-

- Tibet dispersal of thermophile faunal elements. *PeerJ*, 9: e11793. <http://doi.org/10.7717/peerj.11793>.
15. Hofmann, S., Masroor, R. & Jablonski D. 2021. Morphological and molecular data on tadpoles of the westernmost Himalayan spiny frog *Allopaa hazarensis* (Dubois and Khan, 1979). *ZooKeys*, 1049: 67–77.
 16. Ali, A., Siddiqui, P. J. A., Ahmad, N., Amir, S. A., Masroor, R., Shafique, S. & Burhan, Z. 2021. Ecology of fish communities in coral habitats along the coast of Pakistan: potential threats and conservation strategies. *Pakistan Journal of Zoology*, 53(4): 1341–1351. <https://dx.doi.org/10.17582/journal.pjz/20180602100601>.
 17. Jablonski, D., Wynn, A., Masroor, R., Papenfuss, T., Litvinchuk, S. & Mazepa, G. 2021. The genus *Pelophylax* (Amphibia: Ranidae) in Pakistan: museum collections and possible distribution. *Herpetozoa*, 34: 141–147. <https://dx.doi.org/10.3897/herpetozoa.34.e64955>.
 18. Jablonski, D., Basit, A., Farooqi, J. & Masroor, R. 2021. Distribution and morphological characters of *Laudakia nuristanica* (Anderson & Leviton, 1969) from Afghanistan. *Zoology in the Middle East*, 67 (3): 240–246. <https://doi.org/10.1080/09397140.2021.1918197>.
 19. Ullah, Mishkat., Naeem, Muhammad., Mehmood, Khalid. and Garner, Beulah. 2021. Addition to the knowledge of Tribe Chlaeniini Brullé (Carabidae: Coleoptera) from Pakistan. *Zootaxa* (submitted for review)
 20. Craniomandibular variation of sympatric leopard (*Panthera pardus*) Subspecies from Pakistan, paper submitted to Journal of Mammalian Biology.

3.3.6 Technical Reports Submitted

1. Dr. Razaqat Masroor. 2021. Baseline Studies on Amphibians & Reptiles of Tanda Dam Distrcit Kohat Khyber Pakhtunkhwa (A preliminary baseline report). Submitted to WWF-Pakistan.
2. Dr. Mishkat Ullah. 2021. Baseline Studies on Zooplanktons of Tanda Dam Distrcit Kohat Khyber Pakhtunkhwa (A preliminary baseline report). Submitted to WWF-Pakistan.

3.3.7 Seminars/Symposia/ Training/Workshop Organized/Attended

- Lecture on extinct birds' species in Indian sub-continent, delivered to students from NUST, Islamabad.
- One-day training entitled "Pinning and preservation of different groups of Beetles (Coleoptera)" were provided to four students of M.Sc. (Hons) Agriculture Entomology, The Agriculture University Peshawar at Insect repository, ZSD, PMNH.
- Attended online training course on Mariculture Technologies for Asia-Pacific Region hosted by "Belt and Road" w.e.f. 21-25 September 2020, Qingdao-China.
- Attended one-day national policy seminar on "Ecotourism for rural Economy" on 19th November 2020 at Akhter Hameed Khan National Centre for Rural Development (NCHRD, Islamabad).

Internships

- Facilitated 6 internship students from Islamabad Wildlife Management Board (IWMB) regarding "Impact of Forest fire on Biodiversity of Margalla Hills National Park, Islamabad" from 26th August- 2nd September 2020.

3.3.8 National/international collaboration /Liaison Developed:

- Identified 203 insects/ invertebrate specimens for IWMB forest fire impact study
- Taxonomic studies of Mullet and Sparid fishes are in progress in collaboration with Karachi University and University of France (MAREC).
- Conducted PMNH display guided tour of 25 member's delegation from government and academic sector from all over country headed by Akhter Hameed Khan National Centre for Rural Development on 18th February 2021.
- Attended meeting at PAF Base Nur Khan Rawalpindi to address wildlife air craft air strike hazards and made plan for assessment survey on 16th March 2021.

- Attended meeting with Dr. Fakhar-i-Abbas at Bioresource Research Centre, Islamabad, and discussed in future collaborations between PMNH and. On 8th July, 2020.

3.3.9 Services Rendered to Other Organization

- Supervised M.Sc. (Hons) Agri. Entomology student, The Agriculture University Peshawar regarding identification of 12 Carabid species from Bajawar KPK area.
- Participated as resource person in one-day training workshop “Capacity Building of Wildlife Officers in Wildlife surveys to standardize survey and census” conducted by Ten Billion Tree Tsunami Programme/ Green Pakistan on 26th February 2021, Faletti’s Hotel, Lahore.
- Being Committee member successfully executed MoST float on 23rd March 2021 National Day parade.
- Six stuffed specimens of mammals, birds, and reptiles shifted to Science Centre Faisalabad
- Comments on International news agency about effect of climate change on Indus Blind Dolphin in Pakistan

3.4 PUBLIC SERVICE DIVISION

3.4.1 Design & Display Activities

- Prepared 02 new exhibits and foregrounds of stuffed "Rhino and Elephant".
- Displayed a new "Dinosaurs model" at open area.
- Designed, prepared and installed directional Map Board for display galleries.
- Designed and developed small diorama "National Symbols of Pakistan".
- Designed 05 design proposals, Scale Drawings Technical Specifications for S&T float for 23rd March Pakistan Day Parade 2021.
- Designed PMNH Brochuer.
- Designed different proposals Effects and Mitigations of “Climate Change Diorama”and developed it.

- Designed two sign board with complete information of Banyan Tree.
- Designed 05 proposals for vehicles parking of PMNH.
- Designed 04 poll banners of 2.6 ft. x 18 ft.
- Prepared information keys and title of "Forest Diorama".
- Prepared and installed Information key of Salt Range Diorama.
- Renovation of Eco gallery exhibits and it write up replaced.
- Painted butterfly exhibit, Barrier chain, VOG Stairs patty and Iron grill etc.
- Boundary wall poll flag were got printed and installed to attract public.
- Upgraded souvenir shop of PMNH and painted surveillance room and painted server room.

3.4.2 Important Visits to PMNH

- Chairman, PSF visited PMNH display galleries after resume the charge as a Chairman, PSF.
- Due to Covid-19 foreign delegates and student's groups are not visited PMNH display galleries.
- Federal Minister of S&T Senator Shibli Faraz visited display galleries.
- Director UNESCO visited display galleries.

3.4.3 Educational Services

- PMNH display galleries remained open in two shifts to facilitate the visitors, National and International delegates, student groups of schools, colleges and universities. Provided them guided tours during their visit to the display galleries. A sizeable number of people, from all the regions of Pakistan visited displays galleries of PMNH. During the report period (2020-2021) two months PMNH display galleries were closed due to prevention measures against Pandemic Covid-19. 1,09,311 people visited museum galleries including 33118 students, 49348 general public, 75 foreigners, and 26770 children below 5 years of age.

3.4.4 Number of Visitors to Display Galleries

- **Providing Informal Education through PMNH displays:**

Public Services Division (PSD) was assigned the following responsibilities under the statutory functions of PMNH:

Key Performance Indicators:

- Design and Development of PMNH Display Galleries depicting environment/habitat of fossils, mineral, rocks, gem stones, plants and animals for imparting education to students and general public on natural history of Pakistan through informal means.
- Preparation and designing of PMNH scientific publications such as books, brochures, posters, monographs and research articles and Public educational aspects of PMNH.
- To pass on scientific information and research out come to general public through fascinating exhibits and displays.
- Arranging student groups visits to PMNH to acquaint them with natural resources of Pakistan and educate them on their conservational aspects.
- Arranging lectures and film shows for the visiting students and general public to educate them on natural resources.
- To provide design and execution services to PSF, MoST and other organization.
- Maintenance and running of IT based exhibits, web management and face book page of PMNH.

I.T:

- Prepared conceptual document for PMNH Automation.
- Prepared and submitted proposal of Solar system of PMNH with 150 KVA load submitted.
- Prepared proposal on telephone exchange to provide intercom facility to officers of PMNH and submitted for approval.
- Provided online facility to the public "Book Your Time Slot" on Whatsapp for Educational Institutions/Families/Groups visit for specific time & duration as preventive measures for COVID-19.

- Submitted proposal of Elevator/ Lift in PMNH building with cost estimate.
- Worked on concept clearance project "Automation of PMNH".
- Complaints at "Mohtasib Portal" reviewed on daily bases.
- Shared News and information regarding PMNH through Social Media (face book).

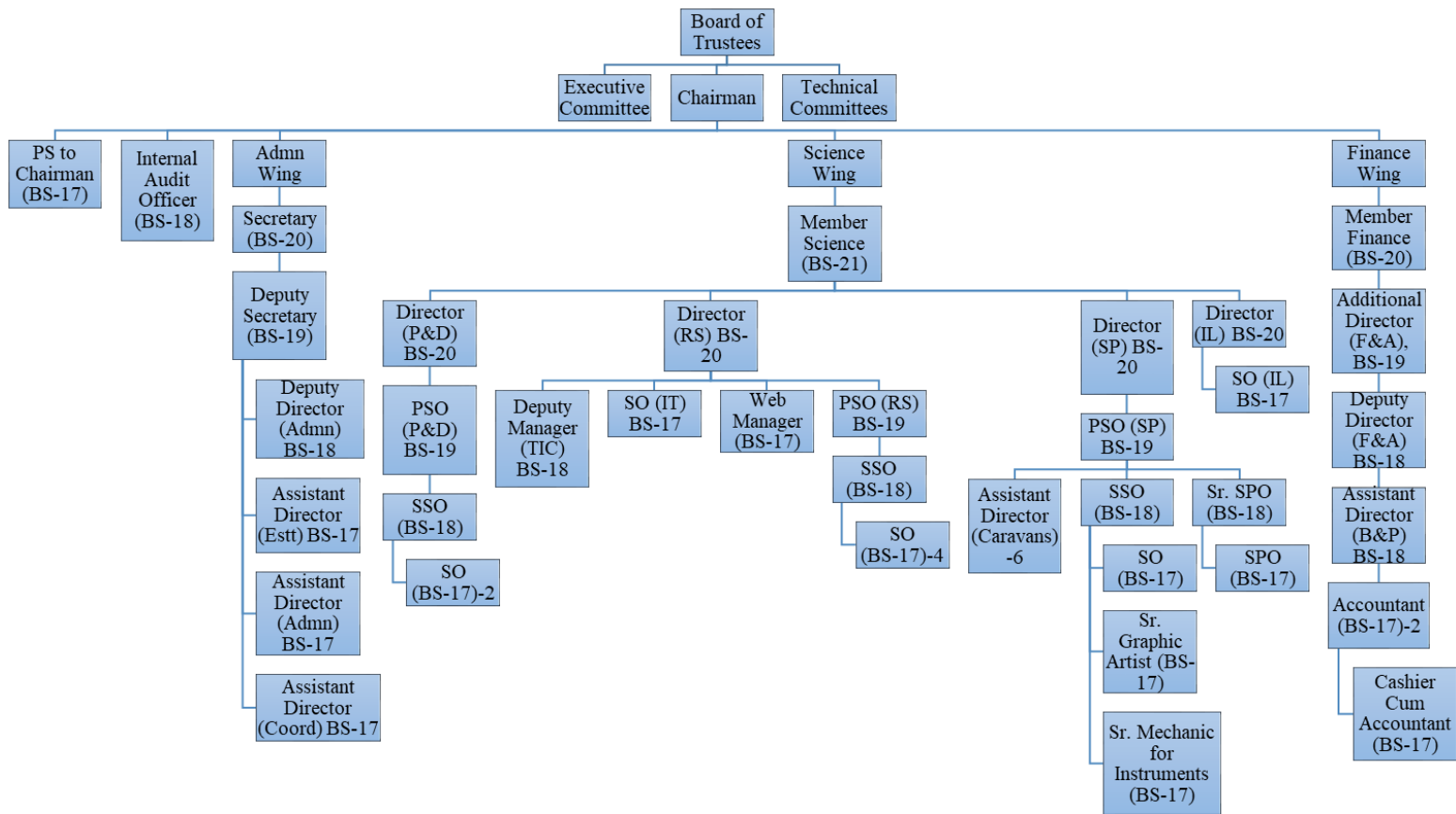
Miscellaneous:

- Meeting with SUPRARCO Representative for observatory in Museum.
- Replies prepared and sent to MoST regarding Senators observations during visit to PMNH.
- MoU between MoST and MOFEPT for establishment of "Observatory" in PMNH checked and returned to MoST.
- Attended meeting of Senate Standing Committee on S&T.
- Attended 02 meetings of Funds Investment in PSF.
- Attended DAC meeting in MoST for museum related audit paras.
- Replies prepared and sent to MoST regarding Senators observations during visit to PMNH
- Visited University of Punjab, Lahore to held meeting with Head of Department of Paleontology and visited Abu Bakar Display.
- Visited Jhelum Campus of University of Punjab to see site for Display Centre to be establish.
- Meeting with D.S, National Heritage Islamabad for joint collaboration.
- Visited Department of Archeology, Lahore and held meeting with D.G.
- Visited Midh Ranjha and held meeting with local community for preservation of Banyan Tree.
- Meeting with V.C Shah Abdul Latif University, Sindh for Joint activities.
- Carried out Interviews of Students of PSF, STF project for 2-days in PASTIC, Islamabad.

- Carried out Interviews of Students of PSF, STF project for 2-days at Carvan office, Peshawar.
- Visited Zoo in Peshawar and held meeting with Director for collaboration.
- Meeting and Interview to Asia TV on preparation of documentary of PMNH.
- Meeting and Interview to HUM TV on preparation of documentary of PMNH.
- Meeting with Mr. Naeem Sheikh, Owner of Best Western Hotel for construction of PMNH remaining blocks on PPP basis.
- Online meeting with Director, British Council for collaboration with London Science Museum.
- Meeting with Representative of Associate Press of Pakistan.
- Online meeting with Media Representatives for PMNH documentary.
- Discussion with Advisor to PM on Tourism for PMNH support.
- Meeting with Dr. Fahad from Pakistan Mosquito Control Association on Mazri Plants Project.
- Interview to Saama TV about Museum.
- Meeting with chief editor, Daily Labor News TV, Islamabad for documentary of Museum.
- Live interview in “Pakistan Lounge” program on K21 TV channel.
- Online participation with British Council for presentation by Mr. Brad Irwin on “Museums in 21st century” from London Museum of Natural History.
- Meeting with V.C and team from Kohsar University.

4. ORGANIZATION AND ADMINISTRATION

Organogram of Pakistan Science Foundation



4.1 PAKISTAN SCIENCE FOUNDATION

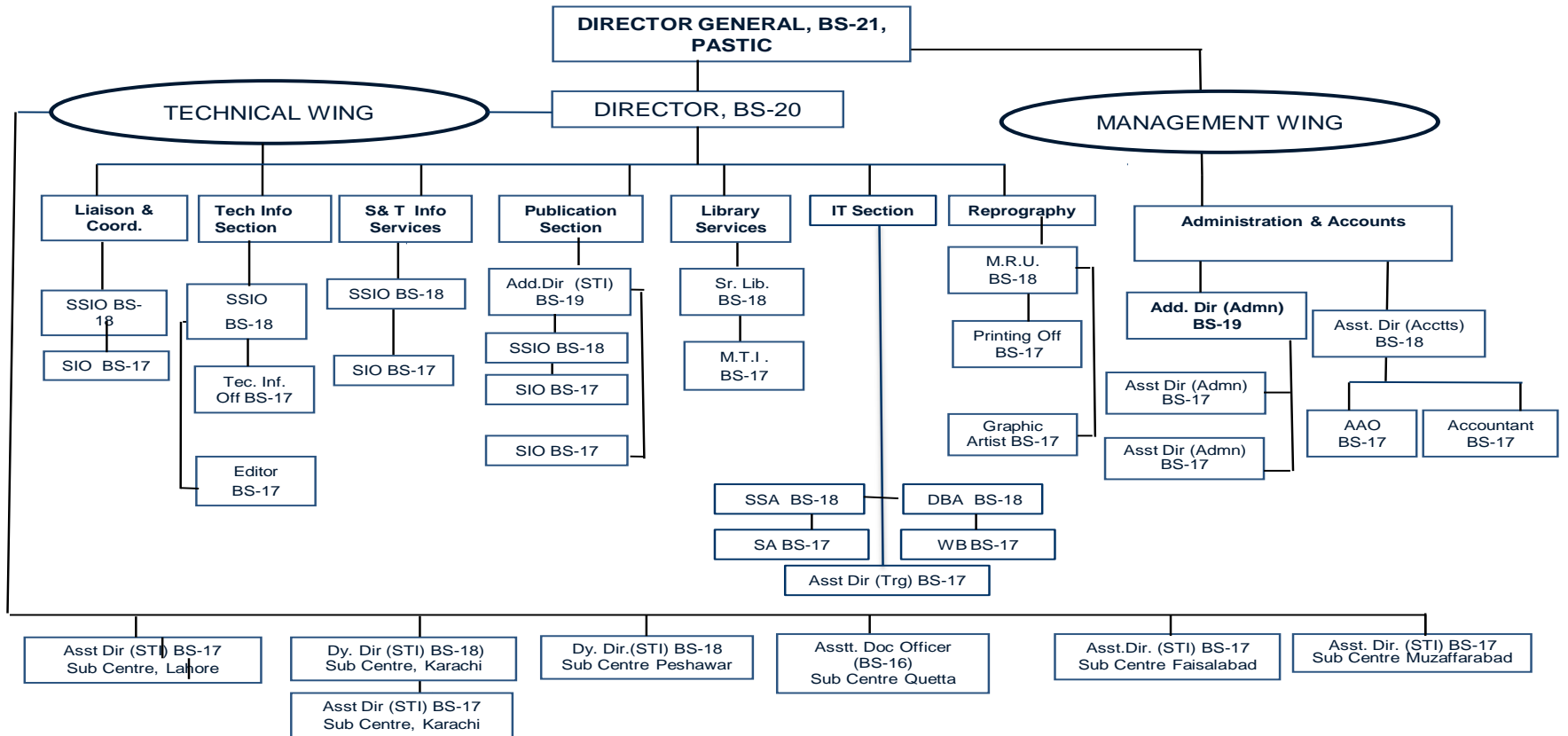
PSF SANCTIONED STRENGTH 2020-21

Sr. No	Name of Post	BPS	Total	Filled	Vacant
1	Chairman	22	1	1	-
2	Member Science	21	1	-	1
3	Member Finance	20	1	1	-
4	Secretary	20	1	1	-
5	Director (P&D)	20	1	1	-
6	Director (SP)	20	1	1	-
7	Director (RS)	20	1	1	-
8	Director (IL)	20	1	1	-
9	Additional Director (F&A)	19	1	1	-
10	Principal Scientific Officer	19	6	3	3
11	Deputy Secretary	19	1	-	1
12	Additional Manager	19	1	-	1
13	Sr. Scientific Officer	18	3	2	1
14	Deputy Manager (TIC)	18	1	1	-
15	Dy. Director (F&A)	18	1	-	1
16	Dy. Director (Legal)	18	1	-	1
17	Internal Audit Officer	18	1	1	-
18	Asstt. Director (B&P)	18	1	1	-
19	Scientific Officer	17	9	9	-
20	Scientific Officer (IT)	17	1	1	-
21	Web Manager	17	1	-	1
22	Sr. Graphic Artist	17	1	1	-
23	Asstt. Director (Coord)	17	1	-	1
24	Asstt. Director (Estt)	17	1	-	1
25	Asstt. Director (Admn)	17	1	-	1
26	Asstt. Director (Caravan)	17	6	5	1
27	Accountant	17	2	1	1
28	Cashier-cum-Accountant	17	1	1	-
29	Sr. Mechanic for Instruments	17	1	1	-
30	Science Promotion Officer	17	1	-	1
31	PS to Chairman	17	1	-	1
	Sub Total (BS-17 to BS-22)	-	52	35	17

32	Audit & Accounts Assistant	16	2	1	1
33	Superintendent	16	1	1	-
34	Graphic Artist	16	1	-	1
35	Asstt. Private Secretary	16	9	8	1
36	PA to Chairman	16	1	-	1
37	Asstt. Scientific Officer	16	7	6	1
38	Assistant	16	4	4	-
39	Science Assistant	16	9	9	-
40	Planetarium Assistant	16	7	7	-
41	Photographer	16	1	1	-
42	Driver-Cum-Mechanic	16	6	6	-
43	Technical Assistant (IT)	15	1	-	1
44	Science Assistant	15	12	4	8
45	Assistant	15	2	2	-
46	Storekeeper	14	1	-	1
47	Stenotypist	14	3	-	3
48	Planetarium Assistant	11	2	2	-
49	Driver-Cum-Mechanic	11	3	1	2
50	Calligrapher	11	1	-	1
51	UDC	11	4	4	-
52	Driver	11	3	3	-
53	Carpenter	12	1	1	-
54	LDC/Typist	9	11	9	2
55	Electrician	7	1	-	1
56	Driver	7	4	4	-
57	DMO	6	1	1	-
58	Driver	6	4	4	-
59	Driver	5	3	3	-
60	Mali	5	1	1	-
61	Driver	4	5	2	3
62	Mali	4	1	1	-
63	Naib Qasid	4	8	8	-
64	Security Guard	4	2	2	-
65	Caravan Attendant	4	2	2	-
66	Sanitary Worker	4	2	2	-
67	Naib Qasid	3	1	1	-
68	Security Guard	3	4	4	-
69	Caravan Attendant	3	4	4	-

70	Naib Qasid	2	1	1	-
71	Security Guard	2	3	3	-
72	Caravan Attendant	2	1	1	-
73	Sanitary Worker	2	1	1	-
74	Mali	1	1	1	-
75	Naib Qasid	1	9	7	2
76	Security Guard	1	7	3	4
77	Caravan Attendant	1	2	2	-
78	Sanitary Worker	1	1	1	-
	Sub-Total (BS-01 to BS-16)	-	161	128	33
	G. Total	-	213	163	50

ORGANIZATIONAL STRUCTURE OF PASTIC



4.2 . Pakistan Scientific and Technological Information Centre, Islamabad
Detail Sanctioned Strength of BS-16 and above F.Y. 2020-2021

Sr.#	BS	Designation	Number of Posts
1	21	Director General	1
2	20	Director	1
3	19	Additional Director (Admin)	1
4	19	Additional Director (STI)	1
5	18	Deputy Director (STI)	2
6	18	Senior System Analyst	1
7	18	Senior Librarian	1
8	18	Manager Reprographic Unit	1
9	18	Database Administrator	1
10	18	Senior Scientific Information Officer	4
11	18	Assistant Director (Accounts)	1
12	17	Manager Technology Information	1
13	17	Assistant Director (Training)	1
14	17	Scientific Information Officer	4
15	17	Assistant Director (STI)	4
16	17	System Analyst	1
17	17	Web Manager	1
18	17	Printing Officer	1
19	17	Graphic Designer	1

20	17	Assistant Director (Admn)	2
21	17	Technology Information Officer (Marketing)	1
22	17	Editor	1
23	17	Assistant Accounts Officer	1
24	17	Accountant	1
25	16	Superintendent (Admin)	2
26	16	Assistant Scientific Information Officer	4
27	16	Assistant Documentation Officer	1
28	16	Assistant Programmer	2
29	16	Assistant Web Manager	1
30	16	Assistant Manager Reprographic Unit	1
31	16	Assistant Printing Officer	3
32	16	PA to D.G	1
33	16	Assistant Accounts	1
Sub Total			51
Pakistan Scientific and Technological Information Centre, Islamabad			
Detail Sanctioned Strength of BS-15 and below for 2020-2021			
Sr.#	BS	Designation	Number of Posts
			Total
1	15	Assistant (Admn)	7
2	15	Data Control Assistant	7

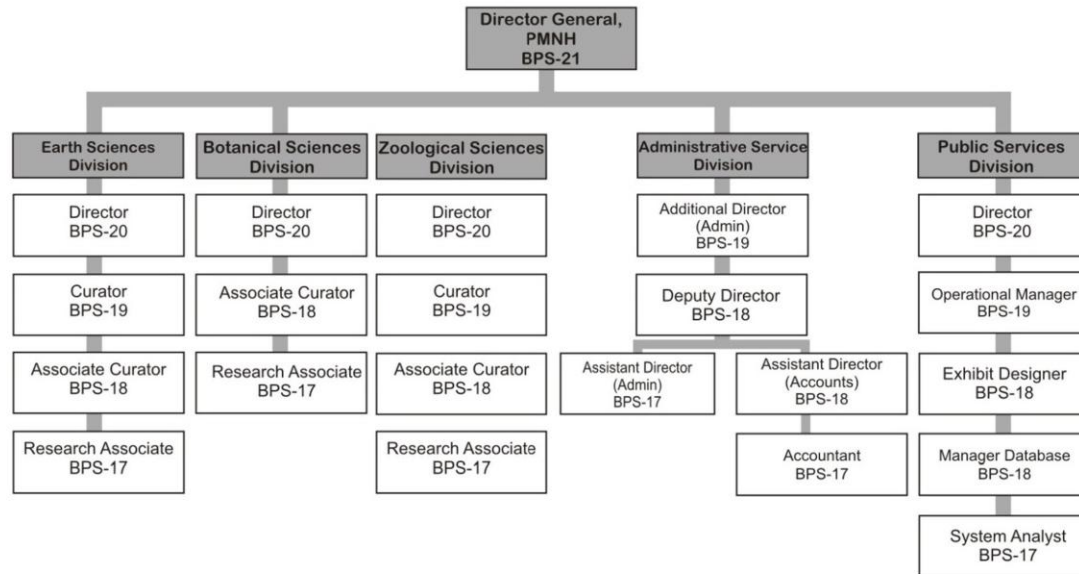
3	14	Marketing/Field Assistant	1
4	14	Graphic Assistant	1
5	14	Layout Artist	1
6	14	Mechanical Supervisor	1
7	14	Senior Offset Printer	2
8	14	Stenotypist	4
9	14	Data Entry Operator	4
10	12	Library Assistant	1
11	11	Technician	1
12	11	Photo Assistant	1
13	11	Offset Printer	1
14	11	Technical Assistant	1
15	11	Upper Division Clerk	10
16	9	Lower Division Clerk	11
17	9	Carpenter	1
18	7	Electrician	1
19	7	Assistant Offset Printer	1
20	5	Bindery Assistant	2
21	5	Offset Machine Assistant	2
22	4	Drivers	8
23	4	Dispatch Rider	1
24	4	Duplicating Machine Operator	1
25	3	Head Mali	1

26	2	Record Sorter	1
27	2	Photo Attendant	2
28	2	Qasid	1
29	2	Patent Attendant	2
30	2	Library Attendant	2
31	1	Sanitary Workers	3
32	1	Bindery Helper	3
33	1	Mali	2
34	1	Security Guard	8
35	1	Naib Qasid	17
Sub Total			113
GRAND TOTAL			164

PAKISTAN MUSEUM OF NATURAL HISTORY

ORGANIZATIONAL CHART

2020-2021



**4.3. PAKISTAN MUSEUM OF NATURAL HISTORY
ISLAMABAD**

GRADE WISE ACTUAL SANCTIONED STRENGTH

GRADE WISE ACTUAL SANCTIONED STRENGTH

Sr. No.	BPS	Designation	No. of Posts
1.	21	Director General	1
2.	20	Director	4
3.	19	Curator	2
4.	19	Operational Manager	1
5.	19	Additional Director (Admin)	1
6.	18	Associate Curator	10
7.	18	Exhibit Designer	1
8.	18	Deputy Director (Admin)	1
9.	18	Assistant Director (Accounts)	1
10.	18	Manager Data Base	1
11.	17	Assistant Director (Admin)	1
12.	17	Accountant	2
13.	17	Research Associate	18
14.	17	System Analyst	1
	Sub Total		45
15.	16	Assistant Librarian	1
16.	16	PA to D.G	1

17.	16	Sr. Modeler	1
18.	16	Computer Operator	1
19.	16	Assistant Research Associate	2
20.	16	Casting Staff	1
21.	16	Teacher Guide	1
22.	16	Associate Artist	2
23.	16	Taxidermist	2
24.	16	Fossil Technician	1
25.	16	Assistant Private Secretary	3
26.	16	Accounts Assistant	1
27.	16	Superintendent	1
28.	15	Children Education Programmer	1
29.	15	Office Assistant	1
30.	15	Purchase Assistant	1
31.	15	Data Control Assistant	1
32.	14	Sr. Skeleton Preparator	1
33.	14	Sr. Drying & Fumigating Assistant	1
34.	14	Repository Assistant	2
35.	14	Sr. Collection Incharge	2
36.	14	Photographer	1
37.	14	Store Keeper	1
38.	12	Calligrapher	1

39.	12	Sr. Incharge Embalming	1
40.	12	Drying & Fumigating Assistant	1
41.	12	Collection Incharge	2
42.	12	Skelton Preparator	1
43.	11	U.D.C	2
44.	9	Carpenter	1
45.	9	Museum Guide	2
46.	9	L.D.C	2
47.	7	Electrician	1
48.	7	Painter	1
49.	7	Tracer	1
50.	7	L.M.O	1
51.	5	Field Assistant	12
52.	4	Dispatch Rider	1
53.	4	D.M.O	1
54.	4	Driver	5
55.	1	Security Guard	14
56.	1	Naib Qasid	7
57.	1	Sanitary Worker	5
58.	1	Gardener	1
59.	1	Helper	5
Total Staff (BS-1 to 16)			98

	Total Officers & Staff (BS-1 to 21)	143
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GRADE WISE ACTUAL SANCTIONED STRENGTH

Sr. No.	BPS	Designation	Number of Posts		
			No. of Posts	Filled	Vacant
1.	21	Director General	1	-	1
2.	20	Director	4	1	3
3.	19	Curator	2	1	1
4.	19	Operational Manager	1	1	-
5.	19	Additional Director (Admin)	1	-	1
6.	18	Associate Curator	10	8	2
7.	18	Exhibit Designer	1	1	-
8.	18	Deputy Director (Admin)	1	1	-
9.	18	Assistant Director (Accounts)	1	1	-
10.	18	Manager Data Base	1	1	-
11.	17	Assistant Director (Admin)	1	1	-

12.	17	Accountant	2	1	1
13.	17	Research Associate	18	17	1
14.	17	System Analyst	1	1	-
Sub Total			45	35	10
15.	16	Assistant Librarian	1	1	-
16.	16	PA to D.G	1	-	1
17.	16	Sr. Modeler	1	1	-
18.	16	Superintendent	1	1	-
19.	16	Assistant Research Associate	2	1	1
20.	16	Casting Staff	1	1	-
21.	16	Teacher Guide	1	1	-
22.	16	Associate Artist	2	1	1
23.	16	Taxidermist	2	-	2
24.	16	Fossil Technician	1	1	-
25.	16	Assistant Private Secretary	3	3	-
26.	16	Accounts Assistant	1	1	-

27.	16	Computer Operator	1	1	-
28.	15	Children Education Programmer	1	1	-
29.	15	Office Assistant	1	1	-
30.	15	Purchase Assistant	1	1	-
31.	15	Data Control Assistant	1	1	-
32.	14	Sr. Skeleton Preparator	1	1	-
33.	14	Sr. Drying & Fumigating Assistant	1	1	-
34.	14	Repository Assistant	2	-	2
35.	14	Sr. Collection Incharge	2	2	-
36.	14	Photographer	1	1	-
37.	14	Store Keeper	1	1	-
38.	12	Calligrapher	1	1	-
39.	12	Sr. Incharge Embalming	1	1	-
40.	12	Drying & Fumigating Assistant	1	1	-

41.	12	Collection Incharge	2	2	-
42.	12	Skelton Preparator	1	1	-
43.	11	U.D.C	2	2	-
44.	9	Carpenter	1	1	-
45.	9	Museum Guide	2	1	1
46.	9	L.D.C	2	2	-
47.	7	Electrician	1	1	-
48.	7	Painter	1	-	1
49.	7	Tracer	1	1	-
50.	7	L.M.O	1	1	-
51.	5	Field Assistant	12	12	-
52.	4	Dispatch Rider	1	1	-
53.	4	D.M.O	1	1	-
54.	4	Driver	5	4	1
55.	1	Security Guard	14	14	-

56.	1	Naib Qasid	7	6	1
57.	1	Sanitary Worker	5	5	-
58.	1	Gardener	1	1	-
59.	1	Helper	5	5	-
	Total Staff (BS-1 to 16)		98	87	11
	Total Officers (BS-17 to 21)		45	35	10
	Total Officers & Staff (BS-1 to 21)		143	122	21

IV. PHOTO GALLERY & PRESS CLIPPING

IV.I PSF PHOTO GALLERY



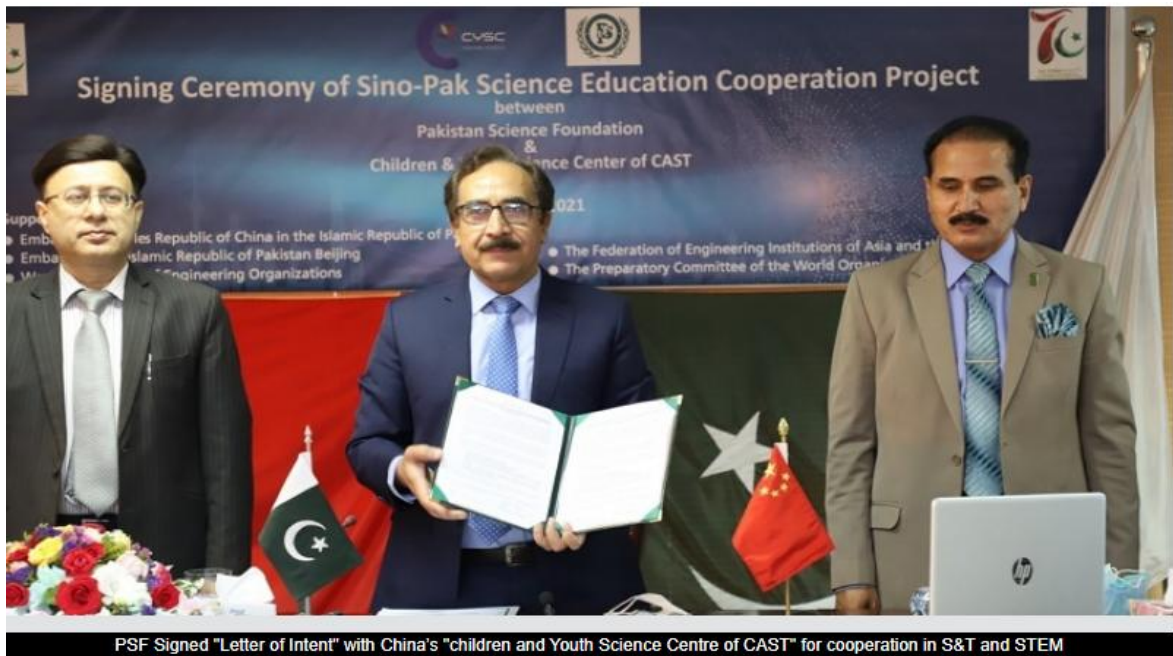
PSF-TUBITAK online Joint Technical Committee Meeting to finalize the projects under 3rd Joint Call on Academia-Industry Cooperation



PSF TUBITAK Online Joint Technical Committee Meeting Co-chaired by Prof. Dr. Shahid Mahmood Baig, Chairman, PSF and Prof. Dr. Hasan Mandal, President, Scientific Technological Research Council of Turkey (TÜBİTAK)



Prof. Dr. Shahid Mahmood Baig, Chairman, PSF addressing during the online Signing Ceremony of Letter of Intent with CYSCC at PSF Auditorium



PSF Signed "Letter of Intent" with China's "children and Youth Science Centre of CAST" for cooperation in S&T and STEM

PSF signed "Letter of Intent" with Children and Youth Science Centre of CAST for Cooperation in S&T and STEM



STFS students visiting labs at the institute of SECS, NUST, Islamabad



STFS students visiting the institute of Robotics and Artificial Intelligence, SMME NUST, Islamabad



STFS students visiting the Crop Sciences Institute (CSI) at NARC, Islamabad



STEM activities (Designing of Robots and coding) conducted by RobotMea



Students Assembling their Robots during STEM Activities Conducted by RobotMea



Research project by STFS Students

Glimpses of World Science Day November 10, 2020





Glimpses of International Women Day Celebration



Glimpses of Foundation Stone Ceremony of Islamabad Space Observatory at Shakarparian





Glimpses of Youth Recognition Program at PSF, Islamabad



IV.II PASTIC PHOTO GALLERY



Prof. Chen Wei (Zhejiang University) delivering his lecture on Data Visualization and its Application in fighting against COVID-19 pandemic, during the first Workshop of this series titled “Use of Artificial Intelligence against COVID-19” on July 23, 2020 on Zoom Meeting platform.



Prof. Zhang Zike (Hangzhou Normal University) delivering his Lecture on Use of AI against COVID-19 pandemic, during the first Workshop of this series titled “Use of Artificial Intelligence against COVID-19” on July 23, 2020 on Zoom Meeting platform.



Director Research Support PSF and Prof. Dr. Muhammad Akram Shaikh, DG PASTIC, participating during the 3rd Pak China Science Workshop in August 2020.



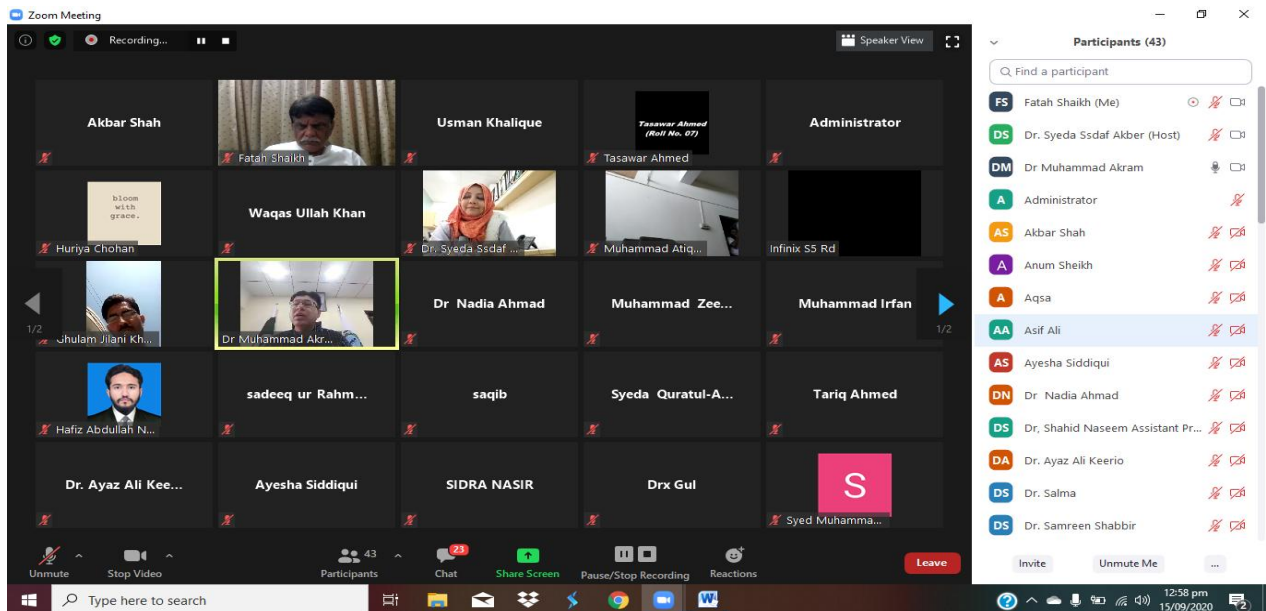
Yang Daiqing (Institute of Scientific and Technical Information of China (ISTIC) delivering his lecture on Scientific and Technological Information Management and Analysis during the third Pak China Science Workshop



View of Pak-China Workshop on "Use of New Technology in Locust Control" on August 20, 2020.



Director General PASTIC, Prof. Dr. Muhammad Akram Shaikh, distributing Certificates among Participants of the Workshop, during a Training Workshop PASTIC KOHA Cloud on September 10-11, 2020 at Karakoram International University, Gilgit.



Dr. Muhammad Akram Shaikh, Director General PASTIC, Islamabad gave Closing Remarks during Online Workshop "Writing a Scientific Research Paper" on September 15, 2020 at PASTIC Sub Centre, Karachi



Director General PASTIC, participated and submitted the Proposal "Pakistan Research Information Portal" in the PSDP Concept Clearance Meeting, being presided over by Honorable Federal Minister for Science and Technology, Chaudhry Fawad Hussain on September 28, 2020 at MoST Committee Room.



Ms. Ghazala Ali Khan, Deputy Director PASTIC Sub-centre Peshawar, addressing participants in Seminar on “Food Security” on September 17, 2020, organized by Directorate of Science & Technology KPK.



Syed HabibAkhter Jaffrey, Principal Librarian, delivering presentation to the participants during Seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Member & PhD Scholars” on October 24, 2020 at NU-FAST (National University of Computer and Emerging Sciences) Islamabad.



Mr. Muhammad Hasnain, Deputy Director PASTIC Faisalabad, delivering introductory remarks about the workshopon “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars” on October 28, 2020 at Central Library University of Agriculture, Faisalabad.



PASTIC Team headed by DG PASTIC, attending the online IFAP Regional Committee Meeting for Asia and the Pacific Region on November 5, 2020.



Syed Habib Akhtar Jafery, Project Director PASTIC Islamabad, delivering presentation during the seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars” on November 17, 2020 at Muhammad Nawaz Sharif University of Agriculture Multan.



Mr. Muhammad Hasnain, Deputy Director PASTIC Faisalabad, delivering welcome address at the seminar on “Introducing Indigenous Research Resources Developed by PASTIC for Faculty Members & PhD Scholars” on November 17, 2020 at Muhammad Nawaz Sharif University of Agriculture Multan.



Online participation of PSF/PASTIC team in the Launching Ceremony of “CPEC Science Communication Network” Beijing, China on December 3, 2020 during the 5th Academic Forum on China-Pakistan Scientific, Technological and Economic Cooperation under Belt and Road Initiative jointly by the Beijing Technology and Business University (BTBU), Beijing Science and Technology Association (BAST).



PASTIC team participating BAST China Online Webinar on International Cooperation of Scientific and Technological Organization on December 16, 2020 at PASTIC National Centre, Islamabad.



Chairman PSF and PASTIC Senior Management Team during the Formal session at PASTIC Committee Room on January 26, 2021



DG PASTIC presenting PASTIC Crest to the Chairman PSF on January 26, 2020 upon his visit at PASTIC National Centre Islamabad.



Prof. Dr. Muhammad Ali Shah, Vice Chancellor, Quaid-i-Azam University Islamabad, addressing the participants of the training course on "Three Weeks Short Term Training Course" for LIS Professionals" from February 15, 2021 to March 05, 2021 at PASTIC National Centre, Islamabad



Prof. Dr. Shahid Mahmood Baig, Chairman Pakistan Science Foundation, addressing the participants of the training course on "Three Weeks Short Term Training Course" for LIS Professionals" from February 15, 2021 to March 05, 2021 at PASTIC National Centre, Islamabad.



Ms. Tooba Ahmad, COMSATS University, Lahore, delivering her presentation during “Three Weeks Short Term Training Course” for LIS Professionals” from February 15, 2021 to March 05, 2021 at PASTIC National Centre, Islamabad.



Dr. Salman Bin Naeem, Islamia University of Bahawalpur, delivering his presentation on “Personality development for LIS professionals” during “Three Weeks Short Term Training Course for LIS Professionals” from February 15, 2021 to March 05, 2021 at PASTIC National Centre, Islamabad.



Dr. Maryum Ibrar Shinwari, Senior Scientific Information Officer PASTIC, delivering her presentation on MS Word and Excel during "Three Weeks Short Term Training Course" for LIS Professionals" from February 15, 2021 to March 05, 2021 at PASTIC National Centre, Islamabad



Chief Guest, Chairman Pakistan Science Foundation, Dr. Shahid Mahmood Baig, delivering his speech at the Closing Ceremony of the Short term Training Course at PASTIC National Centre, Islamabad from February 15-March 5, 2021.

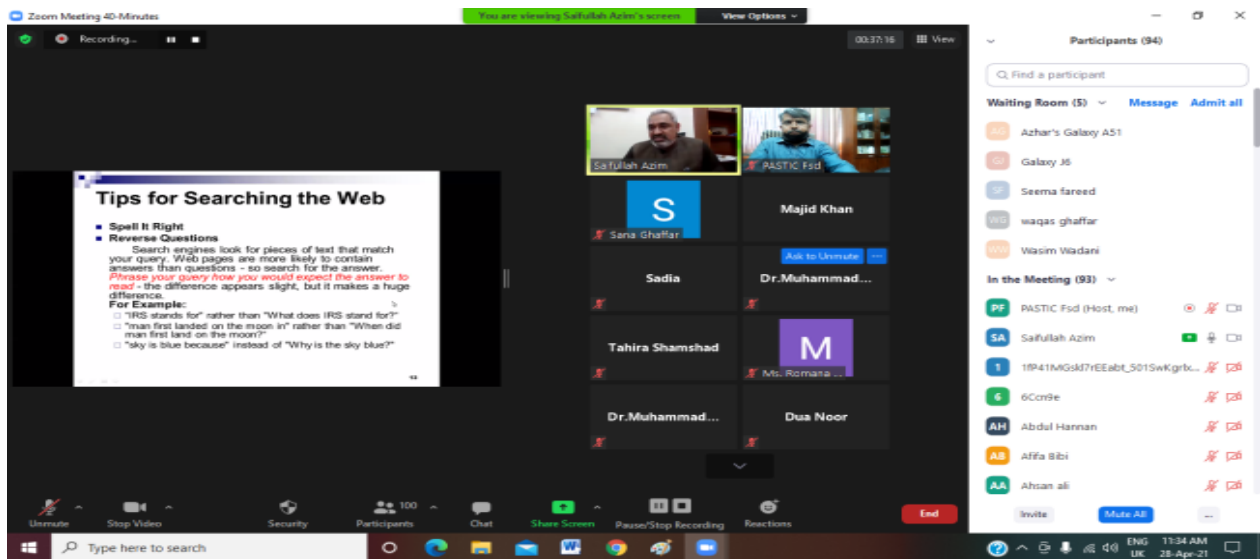


DG PASTIC presenting Souvenir to Vice Chancellor University of the Punjab, Lahore on March 12, 2021 for uplifting the Consortium of S&T and R&D Libraries of Pakistan (CSTRDLP).



اسلامیہ کالج پشاور میں "مختصر معمولی بیسیا یوں" کے عالمی دن کے مناسبت کے موقع پر آرگنٹائزرز کا وی سی اور مہمان خصوصی کے ہمراہ گروپ فوٹو

Online Workshop on "Make your Research Life Easier with Mendeley Reference Management Tool" at Centre of OMIC Sciences, Islamia College University Peshawar on March 17, 2021.



Mr. Saif Ullah Azeem, Principal System Analyst, PASTIC National Center Islamabad, as a Resource Person delivered a detailed presentation on “Online Research Literature Searching (Where & How)” at Ghazi University D.G. Khan on April 28, 2021.



Dr. Samiyah Tasleem, Resource Person, gave presentation during online training workshop on “Research Ethics” on April 13, 2021 at PASTIC Sub Centre Karachi.



Ms. Afsheen Tariq, Asst. Sci. Information Officer, PASTIC Sub Centre, Karachi, receiving souvenir from Chief Guest, Mr. Hanif Lakhani, Vice President FPCCI, during 1st International Industrial Chemistry Conference at NED University of Engineering & Technology, Karachi



Researchers visited PASTIC Service Stall during 1st International Industrial Chemistry Conference (IIC – 2021) 26-28th February, 2021 at NED University of Engineering & Technology, Karachi.



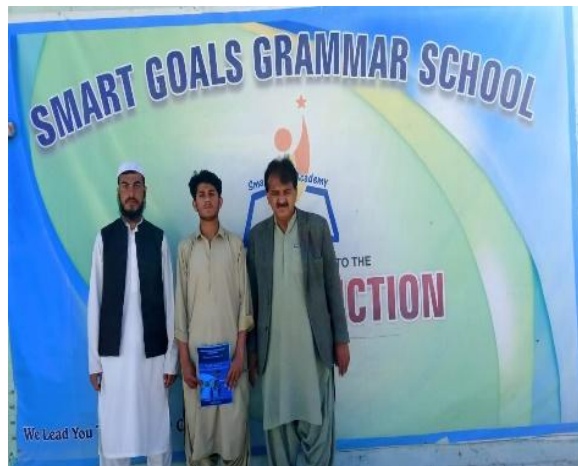
Prof. Dr. M. Akram Shaikh, Director General PASTIC, Prof. Dr. Shahid Mahmood Baig, Chairman PSF and Engr. Dr. Nasir Mehmood Khan, Secretary/ Registrar PEC, during MoU signing ceremony of PASTIC and PEC, along with senior officials of PSF, PASTIC, PMNH and PEC on May 27, 2021 at PSF, Islamabad



Prof. Dr. M. Akram Shaikh, Director General PASTIC, Prof. Dr. Shahid Mahmood Baig, Chairman PSF and Engr. Dr. Nasir Mehmood Khan, Secretary/ Registrar PEC, during MoU signing ceremony of PASTIC and PEC, along with senior officials of PSF, PASTIC, PMNH and PEC on May 27, 2021 at Islamabad.



Mr. Abdul Khaliq Sial, Incharge, PASTIC Sub-Centre Quetta, briefing the students about PASTIC Services at the Geological Survey of Pakistan, on January 28, 2021



PASTIC Sub-Centre Quetta, celebrated "Kashmir Day" at Smart Goals Grammar School, Sariab Road Quetta, on February 5, 2021


PRESS CLIPPING

11:42 47%

Geological Survey of Pakistan scientific and technology Information Agency organized by workshop

THULL (REPORT BY NIAZ BANGLANI) Geological Survey of Pakistan scientific and technology Information Agency of Balochistan Province organized by workshop. Abdul Khaliq Sial, Regional In-Charge, Plastic Sub-Center, said that the Pakistan Science Foundation, an agency of the Ministry of Science, has been operating across the country since 1957.

The institute is useful for masters to PhDs in which the Research Library provides research papers, bibliographic abstract references and other expo and international training.



in charge of Pastak and the team. Kamran Sahib of Geological Survey of Pakistan praised the efforts of the team of Pastak and the team.

3:38 AM

Daily The NEWS LARK ABC CERTIFIED / MEMBER APNS
An Independent Voice

Karachi, Jamadi-ul-Sani 18, 1442 Hijri- Monday, February 01, 2021. - 4 Pages
http://www.thenews-lark.com - Facebook: The News Lark - No. 117

کوئٹہ



پاکستان سائنس ٹیکنیکل اینڈ مینجمنٹ لوجسٹکس انفارمیشن
صوبہ بلوچستان کی ادارے کی جانب سے ایک ورکشاپ منعقد جیالوجیکل
سروس آف پاکستان سرریاب روڈ منعقد جونی
ریجنل انچارج پاکستان سب سینٹر عبدالحق سیال

Daily "KARSAZ" Sargodha
پاکستان سائنس ٹیکنیکل اینڈ مینجمنٹ لوجسٹکس انفارمیشن

8:39 AM

باقاعدہ تصدیق شدہ اشاعت ABC CERTIFIED راولپنڈی اسلام آباد اور کراچی سے یک وقت شائع ہونے والا قومی اخبار

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روزنامہ اذکار

چیف ایڈیٹر
محمد الماس عباسی

جلد 16 بدھ 17 فروری 2021ء 4 رجب المرجب 1442ھ 4 بجان 2078 ب صفحات 12 قیمت 20 روپے شمارہ 44



لاہوری سے وابستہ افراد کے لیے خصوصی تربیتی ورکشاپ کی افتتاحی تقریب میں سائنس کا اعلیٰ ترین ادارہ اسلام آباد اور کراچی کے ساتھ ساتھ کراچی کے گروپ فوٹو

پاکستان میں لاہوری سے وابستہ افراد کیلئے قومی تربیتی ورکشاپ کا انعقاد

آزاد کشمیر، گلگت بلتستان، بلوچستان، اسلام آباد، خیبر پختونخوا، پنجاب، سندھ سے تعلق رکھنے والے شامل

اسلام آباد (تمثیلہ خصوصی) پاکستان سائنس فاؤنڈیشن کا ایک ماتحت ادارہ سے
سائنس اور ٹیکنالوجی انڈرٹیکننگ (پاکستان) سائنس بھارتیہ اور دیگر تنظیموں (باقی صفحہ 7 پیج نمبر 4)

☆☆☆ جڑواں شہروں سے شائع ہونے والا پہلا مکمل مقامی اخبار ☆☆☆

روزنامہ **طواہج** راولپنڈی/اسلام آباد

ایڈیٹر زاہد فاروق ملک

بروز 17 فروری 2021 04 رجب المرجب 06 پھگن 2076 ب منات 8 قیمت 15 روپے

45

پاسنگ میں لائبریری سے وابستہ افراد کیلئے خصوصی قومی تربیتی ورکشاپ

سے طے کیے 25 شعبہ لائبریریز میں شامل ہیں۔ پاسنگ 1967 میں اپنے آغاز سے ہی لائبریریوں سے وابستہ افراد کی چتر ورانہ ملازمتوں کو اہم کر کے لئے کوشاں ہے۔ اس سلسلے میں طواہج لائبریری اکیڈمی ماسٹریکس کے فریڈک پروگراموں کا انعقاد کی کہتا رہتا ہے۔ اس سلسلے میں لائبریری (NSRL) پاسنگ کا انتہائی اہم جز ہے۔ اس سلسلے میں لائبریری (این ایس آر ایل) پاکستان کے ایس ایچ ڈی آر ایچ ڈی لائبریریوں کا ایک شعبہ ہے۔

ڈاکٹر علی شاہ کی مہمان خصوصی شرکت قومی سطح پر انعقاد میں ایک رسائی کیلئے پاسنگ کی کوششوں میں اسلام آباد (نور پور) پاسنگ (پاکستان سائنس اور ٹیکنالوجی اکیڈمی) پاکستان سائنس ٹیکنالوجی کا ایک اہم ادارہ ہے جس نے لائبریریوں کی تعلیم کے لئے 15 فروری تا 15 مارچ 2021 خصوصی قومی خطاب اور سندھ (بانی مشورہ 6 مئی 45)



ڈاکٹر علی شاہ پاسنگ میں لائبریری سے وابستہ افراد کیلئے قومی تربیتی ورکشاپ سے خطاب کر رہے ہیں

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25 May 2021

HEC, PASTIC sign MoU for enhanced cooperation

STAFF REPORTER

A Memorandum of Understanding was signed between the Higher Education Commission (HEC) and Pakistan Scientific and Technological Information Centre (PASTIC) via a virtual signing ceremony at HEC Secretariat and PASTIC National Centre.

Prof. Dr. Muhammad Akram Sheikh, Director General PASTIC and Dr. Shaista Sohail, Executive Director HEC, signed the MoU.

Prof. Dr. Shahid Mehmood Baig, Chairman Pakistan Science Foundation (PSF), also graced the ceremony by his virtual presence. The ceremony was also attended by senior officials of both the organizations.

PASTIC is engaged in serving researchers and professionals,

with an objective to develop information repositories and disseminating them to scientists and researchers of Pakistan.



Source: <https://epaper.pakobserver.net/?s=2021-05-25#lg=1&slide=11>

21 May2021

“

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Dr. ShaistaSohail, Executive Director, HECsigned the MoU in an online ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and HEC attended this ceremony.

PASTIC And HEC Signed MoU

📅 May 20, 2021 👤 Kaleem Naqvi 📁 PASTIC



Daily Spokesman

21, May 2021

PASTIC, HEC sign MoU to promote research culture

Staff Reporter

ISLAMABAD: Pakistan Scientific and Technological Information Centre, (PASTIC), Islamabad and Higher Education Commission (HEC) is supporting and promoting research culture through their various activities and services for the benefit



of research community in Pakistan. Finally both organizations signed a memorandum of understanding for eliminating duplication of efforts by developing cooperation and collaboration through outreach, policy engagement initiatives, and effective information sharing at PSF, Islamabad on May 19, 2021.

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Dr. Shaista Sohail, Executive Director, HEC signed the MoU in an online ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and HEC attended this ceremony.

Chairman, Pakistan Science Foundation, Prof Dr. Shahid Mahmood Baig appreciated this initiative of mutual cooperation for the interest of the nation. While addressing Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh said that both the organization will share their resources and information to eliminate duplication of effort for the benefit of scientific community. Dr. Zain-ul-Abdin, Director General (R&I Wing) Higher Education Commission ensured the cooperation for complementing each other efforts in our areas of expertise.

ایڈیٹر: مظفر احمد بھٹی

روزنامہ پورٹریٹ

راولپنڈی
اسلام آباد

ڈیپٹی ایڈیٹر افتخار جانی

شمارہ نمبر 63

جلد نمبر 6 بدھ 14 شوال 26 مئی 2021ء 13 جیٹھ، صفحات 4 قیمت 10 روپے

ستان کے سائنسی اور تکنیکی معلوماتی مرکز، (پانسک)، اسلام آباد اور ہائر ایجوکیشن کمیشن (ایچ ای سی) پاکستان میں اپنی مختلف سرگرمیوں اور خدمات کے ذریعے ریسرچ کلچر کو فروغ دینے کے لیے کوشاں ہیں۔ محمد اکرم شیخ

سی کے اعلیٰ عہدیداران بھی شریک ہوئے۔ ڈائریکٹر جنرل پانسک، پروفیسر ڈاکٹر محمد اکرم شیخ نے تقریب سے خطاب کرتے ہوئے کہا کہ دونوں ادارے سائنسی فروغ کے لئے اپنے وسائل اور معلومات کو موثر انداز میں بروئے کار لائیں گے۔ ڈاکٹر زین العابدین، ڈائریکٹر جنرل (آرابیڈ آئی ونگ) ہائر ایجوکیشن کمیشن نے باہمی تعاون کا یقین دلایا۔ ایچ ای سی کی ایگزیکٹو ڈائریکٹر ڈاکٹر شائستہ سمیل نے کہا کہ اپنے قومی وسائل کو موثر انداز میں استعمال کرنے کے لئے اس طرح کے بین الاداراتی تعاون کا فروغ بہت ضروری ہے۔ چیئرمین، پاکستان سائنس فاؤنڈیشن، پروفیسر ڈاکٹر شاہ محمود بیگ نے قومی مفاد کے لئے باہمی تعاون کے اس اقدام کو بھجوا دیا۔

اسلام آباد (سٹاف رپورٹر) ستان کے سائنسی اور تکنیکی معلوماتی مرکز، (پانسک)، اسلام آباد اور ہائر ایجوکیشن کمیشن (ایچ ای سی) پاکستان میں اپنی مختلف سرگرمیوں اور خدمات کے ذریعے ریسرچ کلچر کو فروغ دینے کے لیے کوشاں ہیں۔ آخر کار دونوں اداروں نے 19 مئی 2021 کو پی ایس ایف، اسلام آباد میں مفاہمت کی یادداشت پر دستخط کر دیے۔ ڈائریکٹر جنرل پانسک پروفیسر ڈاکٹر محمد اکرم شیخ اور ایچ ای سی کی ایگزیکٹو ڈائریکٹر ڈاکٹر شائستہ سمیل نے پی ایس ایف میں منعقدہ ایک آن لائن تقریب میں مفاہمت کی یادداشت پر دستخط کیے۔ اس تقریب میں پانسک، پاکستان میوزیم آف نیچرل ہسٹری، پاکستان سائنس فاؤنڈیشن اور ایچ ای



پاسنگ کے پراجیکٹ کی باضابطہ افتتاحی تقریب کے شرکاء کا گروپ فوٹو

پاسنگ میں پاکستانی تحقیق کے قومی ڈیجیٹل آرکائیو کا قیام

پراجیکٹ کا مقصد سائنسی تحقیقی جرائم کے پبلشرز کی میٹ ورکنگ، تحقیقی مواد کا تحفظ

اسلام آباد (خبرنگار خصوصی) پاکستان میں پاکستانی تحقیق کے قومی ڈیجیٹل آرکائیو کا قیام۔ پاکستانی جریدوں میں شائع ہونے والی تحقیق کے قومی ڈیجیٹل آرکائیو کا قیام کے عنوان سے پاکستان کے پراجیکٹ کی باضابطہ افتتاحی تقریب کا انعقاد تقریب کا بنیادی مقصد سائنسی جرائم کے پبلشرز کو اس پروجیکٹ کی تعینات سے متعارف کرانا تھا۔ اس پروجیکٹ کے ذریعے، پاکستان کا مقصد سائنسی تحقیقی جرائم کے پبلشرز کی میٹ ورکنگ اور قومی تحقیقی مواد کا تحفظ ہے۔ پاکستان سائنسی تحقیقی جرائم کے پبلشرز کو مفت سہولیات فراہم کرے گا جن میں ویب ہوسٹنگ، ڈیٹا ایپورٹ سروسز، ڈیجیٹائزیشن اور پبلشرز ایڈیٹرز کی پیشہ ورانہ تربیت شامل ہے۔ تقریب میں پاکستان سائنس فاؤنڈیشن پروفیسر ڈاکٹر شاہد محمود بیگ (ستارہ امتیاز) اس تقریب کے مہمان خصوصی تھے جبکہ چیئر مین ای سی او۔ ایس ایف، پروفیسر ڈاکٹر منور حسین سومرو اور چیئر مین، پریسٹن انسٹی ٹیوٹ آف نیو سائنس اینڈ ٹیکنالوجی، اسلام آباد، پروفیسر ڈاکٹر امین ایم ریٹ (ستارہ امتیاز) تقریب کے اعزازی مہمانان گرامی تھے۔ اس تقریب میں سائنسی جرائم کے پبلشرز اور سائنسی تحقیق سے وابستہ افراد نے شرکت کی۔ ڈائریکٹر جنرل پاسنگ پروفیسر ڈاکٹر محمد اکرم خان نے اس سے کا ایک مختصر تعارف پیش کیا۔



ہنرمند افراد کی ترقی میں کردار ادا کر سکتے ہیں، ڈاکٹر شاہد

اسلام آباد (سٹی رپورٹر) پاکستان سائنٹفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر (پاسک) کے زیر اہتمام لائبریری سے وابستہ افراد کے لئے تربیتی ورکشاپ اختتام پذیر ہو گئی۔ تقریب کے شرکا سے خطاب کرتے ہوئے چیئرمین پاکستان سائنس فاؤنڈیشن پروفیسر ڈاکٹر شاہد محمود بیگ نے کہا کہ تربیت یافتہ اور ہنرمند افراد ہی بہتر طور پر ملکی ترقی میں اپنا کردار ادا کر سکتے ہیں۔

PASTIC organises training course for library professionals

Participants come from across country, workshop will end on March 5

ISLAMABAD

The Pakistan Scientific and Technological Information Centre (PASTIC), a subsidiary of the Pakistan Science Foundation (PSF) under the umbrella of the Ministry of Science and Technology, started on Monday a specialised training course for Library Professionals titled 'Short Term and Attachment Training Courses for (LIS) Professionals' at the PASTIC National Centre, Islamabad.

The course would run until March 5, said an official. The participants of the workshop include 25 selected library professionals belonging to AJK, Balochistan, GB, K-P, Punjab and Sindh.

Quaid-e-Azam University Vice-Chancellor Prof Muhammad Ali Shah was the chief guest and Pakistan Science Foundation Chairman Professor Shahid Mahmood Baig was the guest of honour at the inaugural session.

In his address PASTIC DG, Prof Muhammad Akram Shaikh welcomed the guests to PASTIC and highlighted the role of PASTIC S&T information services since its

inception to support and promote science and technology in the country.

He elaborated that PASTIC regularly organises training workshops for researchers, scientist and technologist on various ICT based research, tools/techniques at its national centre as well as all the six sub-centres at Karachi, Lahore, Faisalabad, Peshawar, Quetta and Muzaffarabad.

QAU VC Muhammad Ali Shah in his remarks acknowledged the significant role played by PASTIC to support research and development in the country and highlighted the need to strengthen PASTIC various databases and provision of online information services to fulfil the current needs of the scientific community.

The PSF chairman appreciated the PASTIC role in the restructuring and revamping of national libraries for S&T development in the country.

He advised the workshop participants to get the full benefit of this opportunity and become the future leaders and play their role as experts when going back to their province.

He also offered them financial assistance from PSF if they want to organize similar activities in their region. DNA

Daily Spokesman

June 26, 2021

Promotion of Research

Digital archive of Pakistani journals to be established at PASTIC

 Staff Reporter

ISLAMABAD: Pakistan Scientific and Technological Information Centre (PASTIC) is a premier organization in the country established for the Dissemination of Scientific & Technological Information for catering to the information needs of scientists, researchers, academicians, industrialists, entrepreneurs, planners, policy makers, etc.

The official launching ceremony of PASTIC's PSDP funded project titled "National Digital Archive of research published in Pakistani journals" was held in Islamabad. The main objective was to introduce the project and scope of work to the stakeholders i.e., Publishers of Scientific Journals published in Rawalpindi, Islamabad and allied areas.

Through this project, PASTIC is aimed to develop Networking of Journals Publishers Community, Preservation of National Research Content



ISLAMABAD: Chairman Pakistan Science Foundation, Prof. Dr. Shahid Mahmood Baig (SI) presenting shield to project director Saifullah Azim on the launching ceremony of PASTIC'S project on National digital archive of scientific journals of Pakistan.

in Full-Text Format, Standardization of Scientific Journals Repository and development of Visualization Model to Review Research Trends. PASTIC

will support Journal publishers by providing free Journal Hosting, Data import and Backup Services, Financial Assistance for Digitization and Capac-

ity Building of Publishers / editors / Scientific Community.

Chairman Pakistan Science, Prof. Dr. Shahid Mahmood Baig (SI), was the Chief guest while Chairman ECO-SF, Prof. Dr. Manzoor Hussain Soomro and Chairman, Preston Institute of Nano Science & Technology (PINSAT), Islamabad, Pakistan. Prof. Dr N. M. Butt were the guest of the honour at the ceremony. The ceremony was attended by the Scientific Journal editors and representatives of scientific community.

Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh gave brief introduction of PASTIC services. Project Manager, Saifullah Azim gave brief introduction about the project. He said that the project is aimed to provide a single electronic-platform to Scientific Journals published in Pakistan for preservation and dissemination of research published in indigenous Journals of Pakistan.

Daily Spokesman

28-05-2021

PASTIC and PITC signed MoU



Islamabad :Pakistan Innovation & Testing Centre (PITC) has been established under PEC to prepare standards for PSQCA and conducting tests/trials, performance validation of EM devices and engineering goods to develop local manufacturing industry. While PASTIC a subsidiary of Pakistan Science Foundation (PSF) is committed to serve the nation's ever-growing information needs through development of a National S&T Hub/Data Centre thereby acting as clearing house for all S&T information produced in Pakistan.

PASTIC and PITC joined hands to extend the mutual cooperation toward strengthening of the national information resources and to promote research, innovation and indigenous product development for socio economic development of country. Both organizations signed a memorandum of understanding for potential collaboration by facilitating in areas of combined growth for their beneficiaries at PSF, Islamabad on May 27, 2021.

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Engr. Dr. Nasir Mehmood Khan, Secretary/ Registrar PEC signed the MoU in a ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and PEC attended this ceremony.

Chairman, Pakistan Science Foundation, Prof Dr. Shahid Mahmood Baig appreciated this initiative of joint collaboration for socio economic development of country. While addressing Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh said that both the organization will share their expertise for serving the innovators, researchers, industrialists, academia (faculty and students). Engr. Dr. Nasir Mehmood Khan hoped that this mutual collaboration will extend the serving potential of both the organizations.

07, March 2021

ملک کے تمام صوبوں سندھ، پنجاب، بلوچستان، خیبر پختونخوا، گلگت بلتستان، آزاد کشمیر کے شہر شہر گلی گلی میں پڑھنے والے دیکھیں وہما

اس وطن کی سب سے بڑی بات، تو ایک ہے
مختلف ہے زبان، بات، تو ایک ہے۔

پاک ہاٹ زبیر پوری سن آئی

روزنامہ پاک ہاٹ اردو

اسلام آباد

6 سہ ماہی Website: www.pakhaftzaban.tv | E-mail: pakhaftzaban@gmail.com

جلد: 1، شمارہ: 22، تاریخ: 2021ء، 1442ھ

جدید سائنسی ٹیکنالوجی کی بغیر ملک ترقی کر نہیں سکتا۔ ڈاکٹر محمد اکرم



جیکب آباد: (پاک اردو نیوز) ڈاکٹر محمد اکرم ایجوکیشنل سائنس اور ٹیکنالوجی کے ماہر ہیں اور ان کے پاس امریکا، پاکستان اور دیگر ممالک میں لاکھوں طلبہ اور محققین کی رہنمائی ہے۔ ان کے پاس امریکا، پاکستان اور دیگر ممالک میں لاکھوں طلبہ اور محققین کی رہنمائی ہے۔ ان کے پاس امریکا، پاکستان اور دیگر ممالک میں لاکھوں طلبہ اور محققین کی رہنمائی ہے۔

ایجوکیشنل سائنس اور ٹیکنالوجی کے ماہر ہیں اور ان کے پاس امریکا، پاکستان اور دیگر ممالک میں لاکھوں طلبہ اور محققین کی رہنمائی ہے۔ ان کے پاس امریکا، پاکستان اور دیگر ممالک میں لاکھوں طلبہ اور محققین کی رہنمائی ہے۔

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07 MARCH 2021



صحافی جدید ٹیکنالوجی سے بھی واقفیت حاصل کریں: اکرم شیخ

کتابوں اور مقالات تک رسائی کیلئے پانسک رہنمائی اور مدد مہیا کرنے کو تیار ہے
اسلام آباد (سٹی رپورٹر) ڈائریکٹر جنرل پاکستان سائنٹفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر (پانسک) ڈاکٹر اکرم
شیخ نے کہا صحافی معاشرے کو اطلاع اور آگاہی فراہم کر رہے ہوتے ہیں اس لئے ان کے لئے ضروری ہے کہ وہ
معلومات تک رسائی حاصل کرتے رہیں اور جدید ٹیکنالوجی سے بھی واقفیت حاصل کریں، ان کی معلومات مصدقہ ہونی
چاہئیں جس کے لئے صحافیوں کو مدد اور حوالوں کی ضرورت پڑتی ہے، یہ مدد اور حوالے لائبریریاں فراہم کرتی ہیں اور
لائبریریوں میں متعلقہ مسائل کے اوپر لکھی گئی کتابوں اور مقالات تک رسائی کے لئے پانسک صحافیوں کو ہر ممکن
رہنمائی اور مدد مہیا کرنے کو تیار ہے۔ ان خیالات کا اظہار انہوں نے صحافیوں کے لئے منعقدہ میڈیا لٹریسی ورکشاپ
کے دوران کیا۔

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Daily Spokesman

Islamabad - Karachi - Lahore



Friday, March 5, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



DG PASTIC presenting souvenir to Minister Counselor Indonesia at Media Literacy Workshop held in Islamabad

Islamabad – “Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics.” These views came from the trainers and participants of a workshop on “Media Literacy” held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quaid i Azam University Campus in collaboration with “Pakistan in the World” Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy B. Dharmawan was Chief Guest. He distributed certificates among the participants.



Media Literacy Workshop held at PASTIC for Journalists of Print Media



ISLAMABAD, March 04 (SABAH): "Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics." These views came from the trainers and participants of a workshop on "Media Literacy" held here for journalists of print media.

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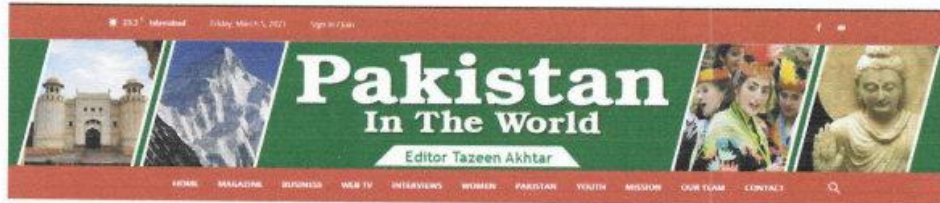


March 4, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



Islamabad - "Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics." These views came from the trainers and participants of a workshop on "Media Literacy" held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quid e Azam University Campus in collaboration with "Pakistan in the World" Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy Mr B. Dharmawan was Chief Guest. He distributed certificates among the participants. DG PASTIC Dr Mohammad Akram Sheikh, Director Syed Habib Akhtar Jaffri, Saif Ullah, Editor Tazeen Akhtar and Chairperson CDC Meera'n Malik were also present. Syed Habib Akhtar Jaffri and Saif Ullah delivered lectures on the subject in which they highlighted the value of information and emphasized on the need of evaluating the information as it is correct or not. They elaborated that the information should be gathered from reliable sources and counter checked with different sources before it is published or aired. DG PASTIC, Dr Mohammad Akram Sheikh briefed the participants about the center and its contribution in supporting the knowledge seekers and research scholars of the country. He noted that journalists are always welcome to the center for any help and guidance regarding producing meaningful stories in the vast interest of the country and the society. Minister counselor Mr B. Dharmawan distributed the certificates among the participants. He appreciated the organizers for spreading awareness and equipping the journalists community with the latest techniques and ethics of journalism. PASTIC and Pakistan in the World will organize more workshops on the same subject for journalists of electronic media, editors and women journalists as well.



March 3, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



Islamabad; 03 March 2021 – “Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics.” These views came from the trainers and participants of a workshop on “Media Literacy” held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quaid e Azam University Campus in collaboration with “Pakistan in the World” Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy Mr B. Dharmawan was Chief Guest. He distributed certificates among the participants. DG PASTIC Dr Mohammad Akram Sheikh, Director Syed Habib Akhtar Jaffri, Saif Ullah, Editor Tazeen Akhtar and Chairperson CDC Meera’n Malik were also present.

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"
20 November 2020

@
Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

روزنامہ "خبریں" روزنامہ "اوصاف"



یہ تصویر منظر پر پاکستان سائنس اور ٹیکنالوجی مرکز اور اسلامیا یونیورسٹی کے درمیان ہونے والے شمولی معاہدے کی سربراہی میں منعقد کی گئی۔ اس موقع پر پاکستان سائنس اور ٹیکنالوجی مرکز کے سربراہ اور اسلامیا یونیورسٹی کے نائب چانسلر نے معاہدے پر دستخط کیے۔



اسلامیہ یونیورسٹی آف باہاولپور اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان شمولی معاہدہ طے کیا گیا ہے۔ اس معاہدے کے تحت دونوں اداروں کے درمیان علمی اور تحقیقی تعاون کی راہ ہموار ہوگی۔ اس معاہدے کی سربراہی پاکستان سائنس اور ٹیکنالوجی مرکز کے سربراہ اور اسلامیا یونیورسٹی کے نائب چانسلر نے کی۔

46 شمولی معاہدہ

اسلامیہ یونیورسٹی آف باہاولپور اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان شمولی معاہدہ طے کیا گیا ہے۔ اس معاہدے کے تحت دونوں اداروں کے درمیان علمی اور تحقیقی تعاون کی راہ ہموار ہوگی۔ اس معاہدے کی سربراہی پاکستان سائنس اور ٹیکنالوجی مرکز کے سربراہ اور اسلامیا یونیورسٹی کے نائب چانسلر نے کی۔

روزنامہ "پاکستان"



اسلامیہ یونیورسٹی اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان شمولی معاہدہ

اسلامیہ یونیورسٹی آف باہاولپور اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان شمولی معاہدہ طے کیا گیا ہے۔ اس معاہدے کے تحت دونوں اداروں کے درمیان علمی اور تحقیقی تعاون کی راہ ہموار ہوگی۔ اس معاہدے کی سربراہی پاکستان سائنس اور ٹیکنالوجی مرکز کے سربراہ اور اسلامیا یونیورسٹی کے نائب چانسلر نے کی۔



اسلامیہ یونیورسٹی اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان ہونے والے شمولی معاہدے کی سربراہی میں منعقد کی گئی۔

اسلامیہ یونیورسٹی آف باہاولپور اور پاکستان سائنس اور ٹیکنالوجی مرکز کے درمیان شمولی معاہدہ طے کیا گیا ہے۔ اس معاہدے کے تحت دونوں اداروں کے درمیان علمی اور تحقیقی تعاون کی راہ ہموار ہوگی۔ اس معاہدے کی سربراہی پاکستان سائنس اور ٹیکنالوجی مرکز کے سربراہ اور اسلامیا یونیورسٹی کے نائب چانسلر نے کی۔

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"
20 November 2020



Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

کائنات



اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

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سیارت



اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

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مذمتہ تعبیر



آئی پی ٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان

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"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological Information centre"

20 November 2020

@

Pakistan Scientific & Technological Information Centre

IUB & PASTIC agree to promote education, teaching and research in the field of Information Sciences

B A H A W A L P U R , November 19: The Islamia University Bahawalpur and Pakistan Scientific and Technological Information Center Islamabad have agreed to promote education, teaching and research in the field of Information Sciences. In this regard an MoU signing ceremony was held at PASTIC headquarters in Islamabad today. Engr. Prof. Dr. Athar Mahboob Vice Chancellor Islamia University of Bahawalpur and Prof. Dr. Muhammad Akram Shaikh Director General PASTIC signed MoU on behalf of their respective organizations. The main areas of mutual cooperation between the Islamia University of Bahawalpur and the Pakistan Scientific and Technological Information Center PASTIC are to foster cooperation and collaboration for the promotion of National S&T/R&D entrepreneurs by holding joint seminars, Workshops, and other related activities in the areas of the common interest. Both organizations will explore the options for mutual offering/seeking wide-ranging services /resources and the supply of S&T Bibliographic/ Full-text Documents, the publication of Pakistan Journal of Computer and Information System (PJCIS), Pakistan Science Abstracts (PSA), Patent Information Service, indigenous S&T databases, Union Catalogues and Directories, and resource sharing through National Science Reference library.- PR

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"

20 November 2020

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Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

Daily
The Climax



Vice Chancellor Engr. Prof. Dr. Athar Mahboob and Director General PASTIC Dr. Muhammad Akram Shaikh exchange MoU documents.

IUB and Pakistan Scientific and Technological Information Center Islamabad agreed to promote education, teaching and research in the field of Information Sciences

BAHAWALPUR (PR): formation Sciences. In The Islamia University this regard an MoU sign-Bahawalpur and Paki- ing ceremony was held stan Scientific and Tech- at PASTIC headquarters nological Information in Islamabad today. Center Islamabad have Engr. Prof. Dr. Athar agreed to promote edu- Mahboob Vice cation, teaching and re- search in the field of In-

Continued on page 3

IUB and Pakistan Scientific ...

Continued from page 1 S&T/R&D entrepreneurs by holding joint seminars, Workshops, and resource sharing through the National Science Reference library. Both the institutions will support each other to improve the capacities of institutions as well as access and outreach to different stakeholders, communities and audiences for spreading the common cause.

The main areas of mutual cooperation between the Islamia University of Bahawalpur and the Pakistan Scientific and Technological Information Center PASTIC are to foster cooperation and collaboration for the promotion of National S&T/R&D entrepreneurs by holding joint seminars, Workshops, and resource sharing through the National Science Reference library. Both the institutions will support each other to improve the capacities of institutions as well as access and outreach to different stakeholders, communities and audiences for spreading the common cause.

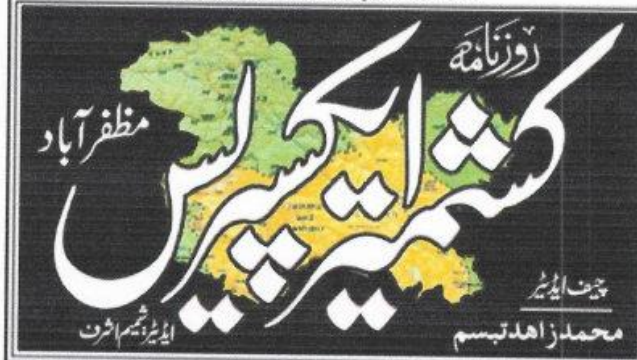
Prof. Dr. Rubina Bhatti on this occasion thanked the leadership of IUN and PASTIC for signing MoU promoting education and research

Awareness Seminar "Introducing indigenous Research Resources Developed by PASTIC for Faculty Members and Research Scholars"

20 October 2020

@

AJ&K University, Kashmir



19 ستمبر 2020ء تا 20 اکتوبر 2020ء، جلد 1442، نمبر 4، صفحات 8-15، قیمت 15 روپے

جامعہ میسرینٹر ال ایچ اے اور پراسٹیک نیشنل سینٹر کے زیر اہتمت سیمینار

آزاد جموں و کشمیر یونیورسٹی کی سینٹرل لائبریری کا مطالعاتی مواد اہم معلومات پر مبنی ہے، طلبہ لٹریچر سے مستفید ہونگے

ڈاکٹر اکرم شیخ ڈائریکٹر جنرل پبلک، پروفیسر ڈاکٹر صدیق اعوان، چیف لائبریرین ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 مظفر آباد (پورہ پوسٹ) آزاد جموں و کشمیر یونیورسٹی کے پروفیسر ڈاکٹر افتخار احمد لائبریرین سید پاکستان سائنسلیٹک انٹرنیشنل سینٹر اسلام آباد کا
 یونیورسٹی کی سینٹرل لائبریری اور پاکستان سائنسلیٹک فرسٹ کالج، پرنسپل لائبریرین پبلک صیحب اختر تعارف اس ادارے کے قیام کے اعراض و مقاصد
 انٹرنیشنل سینٹر اسلام آباد کے زیر اہتمام ملک کی انٹرنیٹ سمیت بی ایچ ای ایم اے کے کارڈ کے حوالے سے شراکاء و مطابقت دیں۔ انہوں نے
 جماعت کا جو بھی کتب خانہ گزرتا ہے اسے ایک لائبریری بنانے کا مقصد ہے۔ لائبریری کے لائبریرین بتاؤ کہ پبلک نے ملک کی 132 جماعت اور
 سینٹر کا افتتاح کیا۔ سینٹریل پروفیسر ڈاکٹر اکرم نے بھی شرکت کی۔ گورنر ڈاکٹر کی ایس او جی کی دیگر تاریخی کتب خانوں کا جو بھی کتب خانہ گزرتا ہے اسے ایک لائبریری بنانے کا مقصد ہے۔ لائبریری کے لائبریرین پبلک صیحب اختر انٹرنیٹ نے
 شیخ ڈاکٹر جنرل پبلک، ڈائریکٹر جنرل پبلک، ڈاکٹر افتخار احمد لائبریرین سید پاکستان سائنسلیٹک انٹرنیشنل سینٹر اسلام آباد کا
 تعارف اس ادارے کے قیام کے اعراض و مقاصد انٹرنیشنل سینٹر اسلام آباد کے زیر اہتمام ملک کی انٹرنیٹ سمیت بی ایچ ای ایم اے کے کارڈ کے حوالے سے شراکاء و مطابقت دیں۔ انہوں نے
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 شیخ ڈاکٹر جنرل پبلک، ڈائریکٹر جنرل پبلک، ڈاکٹر افتخار احمد لائبریرین سید پاکستان سائنسلیٹک انٹرنیشنل سینٹر اسلام آباد کا
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پروفیسر ڈاکٹر اکرم شیخ، پروفیسر ڈاکٹر صدیق اعوان، ڈاکٹر افتخار احمد لائبریرین سید پاکستان سائنسلیٹک انٹرنیشنل سینٹر اسلام آباد کے زیر اہتمام سیمینار سے خطاب کر رہے ہیں

SEPTEMBER, 2020 GILGIT BALTISTAN



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روزنامہ پناہ گلگت بلتستان (3) 11 ستمبر 2020ء

قرآرم یونیورسٹی میں لائبریری آٹومیشن پر روزہ ورکشاپ کا آغاز

دو روزہ ورکشاپ میں قرآرم یونیورسٹی کے مختلف لائبریریوں کے اسٹاف سمیت گلگت کے مختلف اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز شریک

دو روزہ ورکشاپ میں موجودہ کارکنوں کی تربیت فراہم کرینگے۔ یاد رہے کہ دو روزہ ورکشاپ کا انعقاد قرآرم یونیورسٹی لائبریری نے سہولت کے اشتراک سے کیا

روزنامہ "کے ٹو" گلگت بلتستان (2) جمعہ المبارک 11 ستمبر 2020ء

کے آئی یو میں لائبریری آٹومیشن ورکشاپ کا آغاز

ورکشاپ میں یونیورسٹی کے سٹاف سمیت مختلف اداروں کے لائبریری کوآرڈینیٹرز شریک ہیں

روزنامہ بادشال 11 ستمبر 2020ء

کے آئی یو میں لائبریری آٹومیشن پر دو روزہ ورکشاپ کا آغاز

دو روزہ ورکشاپ میں مختلف تعلیمی اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز کی شرکت

روزنامہ "بیدار" گلگت بلتستان (4) جمعہ المبارک 11 ستمبر 2020ء

قرآرم یونیورسٹی میں لائبریری آٹومیشن پر دو روزہ ورکشاپ کا آغاز

یونیورسٹی سمیت گلگت کے مختلف اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز کی شرکت

Same news covered / appeared in following newspapers as well

1. www.dailyk2.com	4. www.dailywaadi.com	7. www.dailysada-e-gilgit.com	10. www.dailymountainpass.com.pk
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3. www.dailybaadeshimal.com	6. www.dailybaidar.com.pk	9. www.dailyrehbar.com.pk	12. www.weeklyzaan.com



انسدادی دل سے متعلق چین و پاکستان کی مشترکہ ورکشاپ

اسلام آباد (یوزر اینجینیئر) پاکستان میں صحرانی نڈیوں نے پاکستان کی زرعی پیداوار اور شعور اک کی تحفظ کو بری طرح متاثر کیا ہے۔ اس سلسلے میں 20 اگست 2020 کو بیجنگ ٹیکنالوجی اور برزنس یونیورسٹی (بی ٹی بی یو)، پاکستان سائنس فاؤنڈیشن اور پاکستان سائنس ٹیکنالوجی اینڈ ٹیکنالوجی انفارمیشن سنٹر (پاسٹک) نے مشترکہ طور پر جدید ٹیکنالوجی کے ذریعے نڈی دل کے انسداد کے عنوان کے تحت ایک آن لائن ورکشاپ کا انعقاد کیا۔ اس ورکشاپ کے معاونین میں چائنا ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی، پاکستان وزارت سائنس اینڈ ٹیکنالوجی، اسلامی جمہوریہ پاکستان میں عوامی جمہوریہ چین کے سفارتخانے اور اسلامی جمہوریہ پاکستان کے سفارتخانے بیجنگ نے کی تھی، اور چائنا سائنس فارن ٹریڈیشنل سائنس اینڈ ٹیکنالوجی ایگزیکیوٹو (CISE)، بیجنگ ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی (BAST)، چائنا ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی (CAST) کا خصوصی تعاون میسر تھا۔ اس ورکشاپ میں 100 سے زیادہ پاکستانی سائنس اینڈ ٹیکنالوجی کے ماہرین اور ریسرچرز نے شرکت کی۔ پروفیسر ژینگ وینہوگ، بی ٹی بی یو کے نائب صدر، پروفیسر محمد اکرم شیخ، پاسٹک کے ڈائریکٹر جنرل، پروفیسر محمد اشرف، یونیورسٹی آف زراعت فیصل آباد کے وائس چانسلر، اور گوانگ وین ٹیکنالوجی، عوامی جمہوریہ چین کے سفارت خانے کے زرعی کوشش خصوصی مدد تھے، اس ورکشاپ کا مقصد پاکستانی ماہرین اور کارکنوں کو نڈی دل کے انسداد سے جدید ٹیکنالوجی کے استعمال میں مہارت دینا تھا، پروفیسر محمد اکرم شیخ نے ریما رکنس دیتے ہوئے کہا کہ انہیں یقین ہے کہ اس ورکشاپ کے ذریعے نڈیوں کے کنٹرول میں یقینی طور پر متعلقہ تکنیکی مدد ملے گی۔

ایرا پیس انفارمیشن ریسرچ انسٹیٹیوٹ سے تعلق رکھنے والے ڈاکٹر ہوانگ وینجیانگ نے، ریویو سٹینڈنگ ٹیکنالوجی کا استعمال کرتے ہوئے نڈیوں کی آفات کی نگرانی اور جائزہ لینے میں اپنی ٹیم کے طریق کار اور کارناموں کا تفصیل سے تعارف کیا، پلانٹ پروٹیکشن انسٹیٹیوٹ آف پی آر ڈی، روڈنٹ اور ٹراس لینڈ پلانٹ پروٹیکشن کے ریسرچ آفس سے تعلق رکھنے والے ڈاکٹر ہونگ کوئنگ نے پاکستانی صحرا کے نڈیوں کی اہم خصوصیات اور کوئنگ ڈیٹام کے طریقوں کو متعارف کرایا۔



DAILY K2 11, SEPTEMBER, 2020 GILGIT BALTISTAN



گفتگو کے آئی یو میں لاہیر پری آؤٹیشن کے اجلاس سے منظر و کتاب میں شراکت داریند حاصل کر رہے ہیں

کے آئی یو میں لاہیر پری آؤٹیشن ورکشاپ کا آغاز

ورکشاپ میں بے نظری کے خلاف سب سے پہلے گفتگو اور اس کے لاہیر پری آؤٹیشن اور شراکت داریند حاصل کر رہے ہیں۔ ورکشاپ کا آغاز لاہیر پری آؤٹیشن اور شراکت داریند حاصل کر رہے ہیں۔ ورکشاپ کا آغاز لاہیر پری آؤٹیشن اور شراکت داریند حاصل کر رہے ہیں۔

2020 میں لاہیر پری آؤٹیشن ورکشاپ کا آغاز

16 ستمبر

گلوبل کے مہمان خصوصی ڈاکٹر عظیم علی نے ماہر پروفیسر ڈاکٹر طاہرہ طاہرہ سے ملاقات کی۔ ملاقات میں ڈاکٹر عظیم علی نے ماہر پروفیسر ڈاکٹر طاہرہ طاہرہ سے ملاقات کی۔ ملاقات میں ڈاکٹر عظیم علی نے ماہر پروفیسر ڈاکٹر طاہرہ طاہرہ سے ملاقات کی۔



24 August 2020



ڈائریکٹر مارکیٹنگ، سینیٹ الا اعظم، ڈاکٹر مریم ابرار، ڈاکٹر عامر، ہاتھویر آن لائن ورکشاپ میں شرکت ہیں


Press Clipping

11:42 47%

Geological Survey of Pakistan scientific and technology Information Agency organized by workshop

THULL (REPORT BY NIAZ BANGLANI) Geological Survey of Pakistan scientific and technology Information Agency of Balochistan Province organized by workshop. Abdul Khaliq Sial, Regional In-Charge, Plastic Sub-Center, said that the Pakistan Science Foundation, an agency of the Ministry of Science, has been operating across the country since 1957.

The institute is useful for masters to PhDs in which the Research Library provides research papers, bibliographic abstract references and other expo and international training.



in charge of Pastak and the team. Kamran Sahib of Geological Survey of Pakistan praised the efforts of the team of Pastak and the team.

3:38 AM

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An Independent Voice

Karachi, Jamadi-ul-Sani 18, 1442 Hijri- Monday, February 01, 2021. - 4 Pages
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کوئٹہ



پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن
صوبہ بلوچستان کی ادارے کی جانب سے ایک ورکشاپ منعقد جیولوجیکل
سروس آف پاکستان سرریاب روڈ منعقد جونی
ریجنل انچارج پاکستان سب سینٹر عبدالحق سیال

Daily "KARSAZ" Sargodha
پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن

8:39 AM

باقاعدہ تصدیق شدہ اشاعت ABC CERTIFIED راولپنڈی اسلام آباد اور کراچی سے یک وقت شائع ہونے والا قومی اخبار

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راولپنڈی
اسلام آباد

چیف ایڈیٹر
محمد الماس عباسی

جلد 16 بدھ 17 فروری 2021ء 4 رجب المرجب 1442ھ 4 بجائے 2078 ب صفحات 12 قیمت 20 روپے شمارہ 44



لاہوری سے وابستہ افراد کے لیے خصوصی تربیتی ورکشاپ کی افتتاحی تقریب میں سائنس کا نامی بزرگ، علامہ محمد رفیع، اسلام آباد اور علامہ علی شاہ کیساتھ شرکاء کا گروپ فوٹو

پاکستان میں لاہوری سے وابستہ افراد کیلئے قومی تربیتی ورکشاپ کا انعقاد

آزاد کشمیر، گلگت بلتستان، بلوچستان، اسلام آباد، خیبر پختونخوا، پنجاب، سندھ سے تعلق رکھنے والے شامل

اسلام آباد (نامیہ خصوصی) پاکستان سائنس فاؤنڈیشن کا ایک ماتحت ادارہ ہے
سائنس اور ٹیکنالوجی انٹاریشن سنٹر (پاکستان) جسٹس بھرپور پبلسٹی (ہفتی وار) (جلد 7) (نمبر 4)

☆☆☆ جڑواں شہروں سے شائع ہونے والا پہلا مکمل مقامی اخبار ☆☆☆

روزنامہ طواہج میروایج

ایڈیٹر
زاہد فاروق ملک

برسہ 17 فروری 2021 04 رجب المرجب 06 پھگن 2076 ب منات 8 قیمت 15 روپے

45

پاسنگ میں لائبریری سے وابستہ افراد کیلئے خصوصی قومی تربیتی ورکشاپ

ڈاکٹر علی شاہ کی مہمان خصوصی شرکت قومی سطح پر انعقاد شدہ ایک رسائی کیلئے پاسنگ کی کوششوں میں اسلام آباد (نیشنل لائبریری) پاسنگ (پاکستان سائنس اور ٹیکنالوجی انٹرنیشنل سائنس ٹیکنالوجی کونسل) کا ایک اجلاس ادارہ جس نے لائبریری پریکٹس کے لئے 15 فروری تا 17 مارچ 2021 خصوصی قومی خطاب اور سلسلہ (بانی مشورہ 6 مارچ 45)

سے طے کیے جانے والے 25 سبب شہ لائبریری میں شامل ہیں۔ پاسنگ 1967ء میں اپنے آغاز سے ہی لائبریریوں سے وابستہ افراد کی پیشہ ورانہ صلاحیتوں کو اجاگر کرنے کے لئے کوشاں ہے۔ اس سلسلے میں طواہج میروایج لائبریری انٹرنیشنل سائنس ٹیکنالوجی کونسل کا انعقاد کی کہتا رہتا ہے۔ اس سائنس لائبریری لائبریری (NSRL) پاسنگ کا اجلاس اہم تر ہے۔ اس سائنس لائبریری لائبریری (این ایس آر ایل) پاکستان کے ایس ایچ ڈی آر ایچ ڈی لائبریری کا ایک سبب ہے۔



ڈاکٹر علی شاہ کی مہمان خصوصی شرکت قومی سطح پر انعقاد شدہ ایک رسائی کیلئے پاسنگ کی کوششوں میں اسلام آباد (نیشنل لائبریری) پاسنگ (پاکستان سائنس اور ٹیکنالوجی انٹرنیشنل سائنس ٹیکنالوجی کونسل) کا ایک اجلاس ادارہ جس نے لائبریری پریکٹس کے لئے 15 فروری تا 17 مارچ 2021 خصوصی قومی خطاب اور سلسلہ (بانی مشورہ 6 مارچ 45)

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25 May 2021

HEC, PASTIC sign MoU for enhanced cooperation

STAFF REPORTER

A Memorandum of Understanding was signed between the Higher Education Commission (HEC) and Pakistan Scientific and Technological Information Centre (PASTIC) via a virtual signing ceremony at HEC Secretariat and PASTIC National Centre.

Prof. Dr. Muhammad Akram Sheikh, Director General PASTIC and Dr. Shaista Sohail, Executive Director HEC, signed the MoU.

Prof. Dr. Shahid Mehmood Baig, Chairman Pakistan Science Foundation (PSF), also graced the ceremony by his virtual presence. The ceremony was also attended by senior officials of both the organizations.

PASTIC is engaged in serving researchers and professionals,

with an objective to develop information repositories and disseminating them to scientists and researchers of Pakistan.



Source: <https://epaper.pakobserver.net/?s=2021-05-25#lg=1&slide=11>

21 May2021

“

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Dr. ShaistaSohail, Executive Director, HEC signed the MoU in an online ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and HEC attended this ceremony.

PASTIC And HEC Signed MoU

📅 May 20, 2021 👤 Kaleem Naqvi 🏷️ PASTIC



Pakistan Scientific and Technological Information Centre, (PASTIC), Islamabad and Higher Education Commission (HEC) is supporting and promoting research culture through their various activities and services for the benefit of research community in Pakistan.

Finally both organizations signed a memorandum of understanding for eliminating duplication of efforts by developing cooperation and collaboration through outreach, policy engagement initiatives, and effective information sharing at PSF, Islamabad on May 19, 2021.

Prof. Dr. Muhammad AkramShaikh, Director General PASTIC and Dr. ShaistaSohail, Executive Director, HEC signed the MoU in an online ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and HEC attended this ceremony. Chairman, Pakistan Science Foundation, Prof Dr. ShahidMahmoodBaig appreciated this initiative of mutual cooperation for the interest of the nation. While addressing Director General, PASTIC Prof. Dr. Muhammad AkramShaikhsaid that both the organization will share their resources and information to eliminate duplication of effort for the benefit of scientific community.


Dr. Zain-ul-Abdin, Director General (R&I Wing)Higher Education Commission ensured the cooperation for complementing each other efforts in our areas of expertise.

Dr. ShaistaSohail, Executive Director, HEC said that it is very important to utilize our national resources in effective and intelligent way through such type of inter organizational cooperation. She hoped that this mutual collaboration will bring fruitful results in near future.

Daily Spokesman

21, May 2021

PASTIC, HEC sign MoU to promote research culture

 Staff Reporter

ISLAMABAD: Pakistan Scientific and Technological Information Centre, (PASTIC), Islamabad and Higher Education Commission (HEC) is supporting and promoting research culture through their various activities and services for the benefit



of research community in Pakistan. Finally both organizations signed a memorandum of understanding for eliminating duplication of efforts by developing cooperation and collaboration through outreach, policy engagement initiatives, and effective information sharing at PSF, Islamabad on May 19, 2021.

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Dr. Shaista Sohail, Executive Director, HEC signed the MoU in an online ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and HEC attended this ceremony.

Chairman, Pakistan Science Foundation, Prof Dr. Shahid Mahmood Baig appreciated this initiative of mutual cooperation for the interest of the nation. While addressing Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh said that both the organization will share their resources and information to eliminate duplication of effort for the benefit of scientific community. Dr. Zain-ul-Abdin, Director General (R&I Wing) Higher Education Commission ensured the cooperation for complementing each other efforts in our areas of expertise.

ایڈیٹر: مظفر احمد بھٹی

راولپنڈی
اسلام آباد

ڈیپٹی ایڈیٹر افتخار جانی

شمارہ نمبر 63

جلد نمبر 6 بدھ 14 شوال 26 مئی 2021ء 13 جھبھ، صفحات 4 قیمت 10 روپے

جلد نمبر 6

ستان کے سائنسی اور تکنیکی معلوماتی مرکز، (پائیک)، اسلام آباد اور ہائر ایجوکیشن کمیشن (ایچ ای سی) پاکستان میں اپنی مختلف سرگرمیوں اور خدمات کے ذریعے ریسرچ کلچر کو فروغ دینے کے لیے کوشاں ہیں۔ محمد اکرم شیخ

اسلام آباد (سٹاف رپورٹر) ستان کے سائنسی اور تکنیکی معلوماتی مرکز، (پائیک)، اسلام آباد اور ہائر ایجوکیشن کمیشن (ایچ ای سی) پاکستان میں اپنی مختلف سرگرمیوں اور خدمات کے ذریعے ریسرچ کلچر کو فروغ دینے کے لیے کوشاں ہیں۔ آخر کار دونوں اداروں نے 19 مئی 2021 کو پی ایس ایف، اسلام آباد میں مفاہمت کی یادداشت پر دستخط کر دیے۔ ڈائریکٹر جنرل پائیک پروفیسر ڈاکٹر محمد اکرم شیخ اور ایچ ای سی کی ایگزیکٹو ڈائریکٹر ڈاکٹر شائستہ سمیل نے پی ایس ایف میں منعقدہ ایک آن لائن تقریب میں مفاہمت کی یادداشت پر دستخط کیے۔ اس تقریب میں پائیک، پاکستان میوزیم آف نیچرل ہسٹری، پاکستان سائنس فاؤنڈیشن اور ایچ ای

سی کے اعلیٰ عہدیداران بھی شریک ہوئے۔ ڈائریکٹر جنرل پائیک، پروفیسر ڈاکٹر محمد اکرم شیخ نے تقریب سے خطاب کرتے ہوئے کہا کہ دونوں ادارے سائنسی فروغ کے لئے اپنے وسائل اور معلومات کو موثر انداز میں بروئے کار لائیں گے۔ ڈاکٹر زین العابدین، ڈائریکٹر جنرل (آرابیڈ آئی وگ) ہائر ایجوکیشن کمیشن نے باہمی تعاون کا یقین دلایا۔ ایچ ای سی کی ایگزیکٹو ڈائریکٹر ڈاکٹر شائستہ سمیل نے کہا کہ اپنے قومی وسائل کو موثر انداز میں استعمال کرنے کے لئے اس طرح کے بین الاقوامی تعاون کا فروغ بہت ضروری ہے۔ چیئرمین، پاکستان سائنس فاؤنڈیشن، پروفیسر ڈاکٹر شاہ محمود بیگ نے قومی مفاہمت کے لئے باہمی تعاون کے اس اقدام کو بھروسہ کیا۔



پاسک کے پراجیکٹ کی باضابطہ افتتاحی تقریب کے شرکاء کا گروپ فوٹو

پاسک میں پاکستانی تحقیق کے قومی ڈیجیٹل آرکائیو کا قیام

پراجیکٹ کا مقصد سائنسی تحقیقی جرائم کے پبلشرز کی میٹ ورکنگ، تحقیقی مواد کا تحفظ

اسلام آباد (خبرنگار خصوصی) پاسک میں پاکستانی محققین کے قومی ڈیجیٹل آرکائیو کا قیام۔ پاکستانی جریدوں میں شائع ہونے والی تحقیق کے قومی ڈیجیٹل آرکائیو کا قیام کے عنوان سے پاسک کے پراجیکٹ کی باضابطہ افتتاحی تقریب کا انعقاد تقریب کا بنیادی مقصد سائنسی جرائم کے پبلشرز کو اس پراجیکٹ کی تنصیحات سے متعارف کرانا تھا۔ اس پراجیکٹ کے ذریعے، پاسک کا مقصد سائنسی تحقیقی جرائم کے پبلشرز کی میٹ ورکنگ اور قومی تحقیقی مواد کا تحفظ ہے۔ پاسک سائنسی تحقیقی جرائم کے پبلشرز کو مفت سہولیات فراہم کرے گا جن میں ویب ہوسٹنگ، ڈیٹا ایبوریٹ سروسز، ڈیجیٹل آرکائیو اور پبلشرز ایپلیٹرز کی پیشہ ورانہ تربیت شامل ہے۔ تقریب میں پاکستان سائنس فاؤنڈیشن پروفیسر ڈاکٹر شاہد محمود بیک (ستارہ امتیاز) اس تقریب کے مہمان خصوصی تھے جبکہ چیئر مین ای سی او۔ ایٹس ایف، پروفیسر ڈاکٹر منور حسین سومرو اور چیئر مین، پریسٹن انسٹی ٹیوٹ آف نیو سائنس اینڈ ٹیکنالوجی، اسلام آباد، پروفیسر ڈاکٹر امین ایم ریٹ (ستارہ امتیاز) تقریب کے اعزازی مہمانان گرامی تھے۔ اس تقریب میں سائنسی جرائم کے پبلشرز اور سائنسی محققین سے وابستہ افراد نے شرکت کی۔ ڈائریکٹر جنرل پاسک پروفیسر ڈاکٹر محمد اکرم خان نے اس سے کا ایک مختصر تعارف پیش کیا۔



ہنرمند افراد کی ترقی میں کردار ادا کر سکتے ہیں، ڈاکٹر شاہد

اسلام آباد (سٹی رپورٹر) پاکستان سائنٹفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر (پاسک) کے زیر اہتمام لائبریری سے وابستہ افراد کے لئے تربیتی ورکشاپ اختتام پذیر ہو گئی۔ تقریب کے شرکا سے خطاب کرتے ہوئے چیئرمین پاکستان سائنس فاؤنڈیشن پروفیسر ڈاکٹر شاہد محمود بیگ نے کہا کہ تربیت یافتہ اور ہنرمند افراد ہی بہتر طور پر ملکی ترقی میں اپنا کردار ادا کر سکتے ہیں۔

PASTIC organises training course for library professionals

Participants come from across country, workshop will end on March 5

ISLAMABAD

The Pakistan Scientific and Technological Information Centre (PASTIC), a subsidiary of the Pakistan Science Foundation (PSF) under the umbrella of the Ministry of Science and Technology, started on Monday a specialised training course for Library Professionals titled 'Short Term and Attachment Training Courses for (LIS) Professionals' at the PASTIC National Centre, Islamabad.

The course would run until March 5, said an official. The participants of the workshop include 25 selected library professionals belonging to AJK, Balochistan, GB, K-P, Punjab and Sindh.

Quaid-e-Azam University Vice-Chancellor Prof Muhammad Ali Shah was the chief guest and Pakistan Science Foundation Chairman Professor Shahid Mahmood Baig was the guest of honour at the inaugural session.

In his address PASTIC DG, Prof Muhammad Akram Shaikh welcomed the guests to PASTIC and highlighted the role of PASTIC S&T information services since its

inception to support and promote science and technology in the country.

He elaborated that PASTIC regularly organises training workshops for researchers, scientist and technologist on various ICT based research, tools/techniques at its national centre as well as all the six sub-centres at Karachi, Lahore, Faisalabad, Peshawar, Quetta and Muzaffarabad.

QAU VC Muhammad Ali Shah in his remarks acknowledged the significant role played by PASTIC to support research and development in the country and highlighted the need to strengthen PASTIC various databases and provision of online information services to fulfil the current needs of the scientific community.

The PSF chairman appreciated the PASTIC role in the restructuring and revamping of national libraries for S&T development in the country.

He advised the workshop participants to get the full benefit of this opportunity and become the future leaders and play their role as experts when going back to their province.

He also offered them financial assistance from PSF if they want to organize similar activities in their region. DNA

Daily Spokesman

June 26, 2021

IS Promotion of Research

Digital archive of Pakistani journals to be established at PASTIC

Staff Reporter

ISLAMABAD: Pakistan Scientific and Technological Information Centre (PASTIC) is a premier organization in the country established for the Dissemination of Scientific & Technological Information for catering to the information needs of scientists, researchers, academicians, industrialists, entrepreneurs, planners, policy makers, etc.

The official launching ceremony of PASTIC's PSDP funded project titled "National Digital Archive of research published in Pakistani journals" was held in Islamabad. The main objective was to introduce the project and scope of work to the stakeholders i.e., Publishers of Scientific Journals published in Rawalpindi, Islamabad and allied areas.

Through this project, PASTIC is aimed to develop Networking of Journals Publishers Community, Preservation of National Research Content



ISLAMABAD: Chairman Pakistan Science Foundation, Prof. Dr. Shahid Mahmood Baig (SI) presenting shield to project director Saifullah Azim on the launching ceremony of PASTIC'S project on National digital archive of scientific journals of Pakistan.

in Full-Text Format, Standardization of Scientific Journals Repository and development of Visualization Model to Review Research Trends. PASTIC

will support Journal publishers by providing free Journal Hosting, Data import and Backup Services, Financial Assistance for Digitization and Capac-

ity Building of Publishers / editors / Scientific Community.

Chairman Pakistan Science, Prof. Dr. Shahid Mahmood Baig (SI), was the Chief guest while Chairman ECO-SF, Prof. Dr. Manzoor Hussain Soomro and Chairman, Preston Institute of Nano Science & Technology (PINSAT), Islamabad, Pakistan. Prof. Dr N. M. Butt were the guest of the honour at the ceremony. The ceremony was attended by the Scientific Journal editors and representatives of scientific community.

Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh gave brief introduction of PASTIC services. Project Manager, Saifullah Azim gave brief introduction about the project. He said that the project is aimed to provide a single electronic-platform to Scientific Journals published in Pakistan for preservation and dissemination of research published in indigenous Journals of Pakistan.

Daily Spokesman

28-05-2021

PASTIC and PITC signed MoU



Islamabad :Pakistan Innovation & Testing Centre (PITC) has been established under PEC to prepare standards for PSQCA and conducting tests/trials, performance validation of EM devices and engineering goods to develop local manufacturing industry. While PASTIC a subsidiary of Pakistan Science Foundation (PSF) is committed to serve the nation's ever-growing information needs through development of a National S&T Hub/Data Centre thereby acting as clearing house for all S&T information produced in Pakistan.

PASTIC and PITC joined hands to extend the mutual cooperation toward strengthening of the national information resources and to promote research, innovation and indigenous product development for socio economic development of country. Both organizations signed a memorandum of understanding for potential collaboration by facilitating in areas of combined growth for their beneficiaries at PSF, Islamabad on May 27, 2021.

Prof. Dr. Muhammad Akram Shaikh, Director General PASTIC and Engr. Dr. Nasir Mehmood Khan, Secretary/ Registrar PEC signed the MoU in a ceremony held at PSF. Senior officials of PASTIC, PSF, PMNH and PEC attended this ceremony.

Chairman, Pakistan Science Foundation, Prof Dr. Shahid Mahmood Baig appreciated this initiative of joint collaboration for socio economic development of country. While addressing Director General, PASTIC Prof. Dr. Muhammad Akram Shaikh said that both the organization will share their expertise for serving the innovators, researchers, industrialists, academia (faculty and students). Engr. Dr. Nasir Mehmood Khan hoped that this mutual collaboration will extend the serving potential of both the organizations.



29

سے اجلاس منعقد ہوئے

بروزوں میں شائع
آزاد خیاب کا قیام کے
آئی کی ایشیا پیسیف علاقائی
اسلام آباد میں
ایڈیٹوریل کمیٹی
کی ایک اجلاس سے
کے دورے، پاکستان
کے مشرقی علاقوں
کی ایک اجلاس سے
کے دورے، پاکستان
کے مشرقی علاقوں

پاکستان اور بی بی سی کے مشترکہ تعاون سے تربیتی کورس کا انعقاد کیا جا رہا ہے

کوویڈ 19 کیخلاف مصنوعی ذہانت، تربیتی ورکشاپ کا انعقاد

پاکستان اور بی بی سی کے مشترکہ تعاون، پروفیسر چن وائی اور سیک ڈائریکٹوری معاون

پروفیسر چن وائی اور سیک ڈائریکٹوری معاون
معاونت میں منعقد ہوئے۔ اس تربیتی کورس کا انعقاد
پاکستان میں پاکستانی سٹارٹ اپ کے ماہرین اور
جنیوں نے سال کے شروع میں، پاکستانی سٹارٹ اپ
دن تک دوپہن میں پاکستانی سٹارٹ اپ کے
ایچ ایچ ایک ورکنگ گروپ کے ساتھ کام کیا۔ یہ بھی
تربیتی کورس ہے۔ پاکستان کے ایچ ایچ ایک ورکنگ
گروپ نے مشرقی مصنوعی ذہانت کے لئے شکر پور
اور کہا کہ پاکستان سٹارٹ اپ اور چینی تعاون کو
گہرا کر کے یہ ماہرین اور سٹارٹ اپ سے ملنے اور
پہلے ہی کہا کہ اس
سے بہتر اور زیادہ
فرہم کر کے ان کے
تعمیر کو چینی ماہرین
کا تعاون (ایچ ایچ ایک) پروفیسر ڈاکٹر شہزاد
یک نے چینی کی خدمات کے لئے پاکستان
کر رہے ہیں۔

اسلام آباد (پروفیسر چن وائی اور سیک ڈائریکٹوری معاون)
ایڈیٹوریل کمیٹی اور بی بی سی (بی بی سی) کے
مشترکہ تعاون سے کوویڈ 19 کے خلاف مصنوعی
ذہانت کے استعمال سے متعلق آن لائن تربیتی
ورکشاپ کا انعقاد کیا گیا ہے۔ تربیتی ورکشاپ چین اور
پاکستان کے مابین عمومی فلاح و بہبود کی تربیت کے
سطح کی پہلی سیر ہے۔ تربیت میں 100 سے زیادہ
پاکستانی سٹارٹ اپ ایڈیٹوریل کمیٹی کے ماہرین نے حصہ لیا۔
انٹرنیٹ کی خدمات اسکول آف انٹرنیشنل
انسٹریٹجی ایڈیٹوریل کمیٹی کے بین الاقوامی پرنسپل
کے شعبہ کے ڈین ڈی بی کے پروفیسر چن وائی اور

ایڈیٹوریل کمیٹی اور بی بی سی (بی بی سی) کے
مشترکہ تعاون سے کوویڈ 19 کے خلاف مصنوعی
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کے شعبہ کے ڈین ڈی بی کے پروفیسر چن وائی اور

07 MARCH 2021



صحافی جدید ٹیکنالوجی سے بھی واقفیت حاصل کریں: اکرم شیخ

کتابوں اور مقالات تک رسائی کیلئے پانسک رہنمائی اور مدد مہیا کرنے کو تیار ہے
اسلام آباد (سٹی رپورٹر) ڈائریکٹر جنرل پاکستان سائنٹفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر (پانسک) ڈاکٹر اکرم
شیخ نے کہا صحافی معاشرے کو اطلاع اور آگاہی فراہم کر رہے ہوتے ہیں اس لئے ان کے لئے ضروری ہے کہ وہ
معلومات تک رسائی حاصل کرتے رہیں اور جدید ٹیکنالوجی سے بھی واقفیت حاصل کریں، ان کی معلومات مصدقہ ہونی
چاہئیں جس کے لئے صحافیوں کو مدد اور حوالوں کی ضرورت پڑتی ہے، یہ مدد اور حوالے لائبریریاں فراہم کرتی ہیں اور
لائبریریوں میں متعلقہ مسائل کے اوپر لکھی گئی کتابوں اور مقالات تک رسائی کے لئے پانسک صحافیوں کو ہر ممکن
رہنمائی اور مدد مہیا کرنے کو تیار ہے۔ ان خیالات کا اظہار انہوں نے صحافیوں کے لئے منعقدہ میڈیا لٹریسی ورکشاپ
کے دوران کیا۔

www.express.com.pk



07 March 2021

Daily METRO WATCH Rawalpindi Islamabad Member AFMS ABC Certified www.metrowatch.com.pk

اس وقت تک پاکستان میں کوئی ایسا اخبار نہیں ہے جس کا مقصد صرف صحافت کی ترقی اور پروفیشنل صحافیوں کی شناخت ہے۔

پندرہ روزہ **میٹرو واچ** لاہور

P3 اس وقت تک پاکستان میں کوئی ایسا اخبار نہیں ہے جس کا مقصد صرف صحافت کی ترقی اور پروفیشنل صحافیوں کی شناخت ہے۔

P7 اس وقت تک پاکستان میں کوئی ایسا اخبار نہیں ہے جس کا مقصد صرف صحافت کی ترقی اور پروفیشنل صحافیوں کی شناخت ہے۔

138 10 E-mail: dailymetrowatch@gmail.com



اسٹاک ایکسچینج اور انٹرنیٹ کے ایکٹو ممبران کی طرف سے ایف ایم ایس کا سرٹیفکیٹ حاصل کیا گیا ہے۔

پاسٹک میں پرنٹ میڈیا کے صحافیوں کیلئے ورکشاپ کا انعقاد

ہم دوسروں کو خبر دیتے ہیں اس لئے پہلے ہمارا اپنا باخبر ہونا ضروری ہے۔ **ٹریننگ ان پرنٹ میڈیا** کی ورکشاپ

اسٹاک ایکسچینج اور انٹرنیٹ کے ایکٹو ممبران کی طرف سے ایف ایم ایس کا سرٹیفکیٹ حاصل کیا گیا ہے۔

29 مارچ 2021 کو لاہور میں منعقد ہوئی ورکشاپ کی افتتاحی تقریب

29

اس وقت تک پاکستان میں کوئی ایسا اخبار نہیں ہے جس کا مقصد صرف صحافت کی ترقی اور پروفیشنل صحافیوں کی شناخت ہے۔

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29 مارچ 2021 کو لاہور میں منعقد ہوئی ورکشاپ کی افتتاحی تقریب

Daily Spokesman

Islamabad - Karachi - Lahore



Friday, March 5, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



DG PASTIC presenting souvenir to Minister Counselor Indonesia at Media Literacy Workshop held in Islamabad

Islamabad – “Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics.” These views came from the trainers and participants of a workshop on “Media Literacy” held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quaid i Azam University Campus in collaboration with “Pakistan in the World” Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy B. Dharmawan was Chief Guest. He distributed certificates among the participants.



Media Literacy Workshop held at PASTIC for Journalists of Print Media



ISLAMABAD, March 04 (SABAH): "Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics." These views came from the trainers and participants of a workshop on "Media Literacy" held here for journalists of print media.

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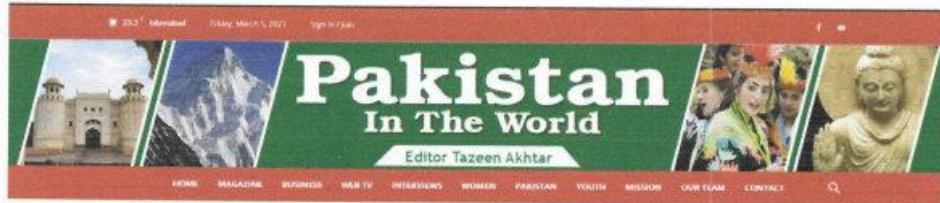


March 4, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



Islamabad - "Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics." These views came from the trainers and participants of a workshop on "Media Literacy" held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quid e Azam University Campus in collaboration with "Pakistan in the World" Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy Mr B. Dharmawan was Chief Guest. He distributed certificates among the participants. DG PASTIC Dr Mohammad Akram Sheikh, Director Syed Habib Akhtar Jaffri, Saif Ullah, Editor Tazeen Akhtar and Chairperson CDC Meera'n Malik were also present. Syed Habib Akhtar Jaffri and Saif Ullah delivered lectures on the subject in which they highlighted the value of information and emphasized on the need of evaluating the information as it is correct or not. They elaborated that the information should be gathered from reliable sources and counter checked with different sources before it is published or aired. DG PASTIC, Dr Mohammad Akram Sheikh briefed the participants about the center and its contribution in supporting the knowledge seekers and research scholars of the country. He noted that journalists are always welcome to the center for any help and guidance regarding producing meaningful stories in the vast interest of the country and the society. Minister counselor Mr B. Dharmawan distributed the certificates among the participants. He appreciated the organizers for spreading awareness and equipping the journalists community with the latest techniques and ethics of journalism. PASTIC and Pakistan in the World will organize more workshops on the same subject for journalists of electronic media, editors and women journalists as well.



March 3, 2021

Media Literacy Workshop at PASTIC for Journalists of Print Media



Islamabad; 03 March 2021 – “Journalists educate and inform the society about what is happening around and in the world and spread awareness among different segments on the backgrounders and future impacts of issues and policies. Therefore it is very central and important for them to keep them refreshed with the latest information and how information can be collected from different sources including the libraries and journals already published on the required topics.” These views came from the trainers and participants of a workshop on “Media Literacy” held here for journalists of print media. The workshop was organized at Pakistan Scientific and Technological Information Center (PASTIC) Quaid e Azam University Campus in collaboration with “Pakistan in the World” Media Group and Community Development Council (CDC). Minister Counselor of Indonesia Embassy Mr B. Dharmawan was Chief Guest. He distributed certificates among the participants. DG PASTIC Dr Mohammad Akram Sheikh, Director Syed Habib Akhtar Jaffri, Saif Ullah, Editor Tazeen Akhtar and Chairperson CDC Meera’n Malik were also present.

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"
20 November 2020

@

Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

روزنامہ
"نوائے وقت"

روزنامہ
"جنگ"

جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق

دہلی، 20 نومبر (پریس ریلی) جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق کیا گیا۔ اس موقع پر جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے سربراہان نے ایک مشترکہ اعلامیہ جاری کیا۔



جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق کی تقریب کی تصویر

پتہ: 99 ...

جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق

دہلی، 20 نومبر (پریس ریلی) جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق کیا گیا۔ اس موقع پر جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے سربراہان نے ایک مشترکہ اعلامیہ جاری کیا۔



جامعہ اسلامیہ اور سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے باہمی تعاون پر اتفاق کی تقریب کی تصویر

پتہ: 99 ...

پتہ: 99

روزنامہ
"اتحاد رائے"

جامعہ اسلامیہ اور پاکستان سائنس سنٹر کے باہمی تعاون پر اتفاق

دہلی، 20 نومبر (پریس ریلی) جامعہ اسلامیہ اور پاکستان سائنس سنٹر کے باہمی تعاون پر اتفاق کیا گیا۔ اس موقع پر جامعہ اسلامیہ اور پاکستان سائنس سنٹر کے سربراہان نے ایک مشترکہ اعلامیہ جاری کیا۔

پتہ: 10 ...

آئی بی اور پاکستان سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان اتفاق

دہلی، 20 نومبر (پریس ریلی) آئی بی اور پاکستان سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان اتفاق کیا گیا۔ اس موقع پر آئی بی اور پاکستان سائنس اینڈ ٹیکنالوجی انفارمیشن سنٹر کے سربراہان نے ایک مشترکہ اعلامیہ جاری کیا۔

پتہ: 10 ...



پتہ: 10 ...

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"
20 November 2020

@
Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

روزنامہ "خبریں" روزنامہ "اوصاف"



46 انجمن

انجمن کے اجلاس میں اوصاف کے مدیران نے انجمن کے اراکین سے انجمن کے کاموں اور اوصاف کے کاموں کے بارے میں گفتگو کی۔ انجمن کے اراکین نے اوصاف کے کاموں کو سراہا اور انجمن کے کاموں کو آگے بڑھانے کی بات کی۔ انجمن کے اجلاس میں اوصاف کے مدیران نے انجمن کے اراکین سے انجمن کے کاموں اور اوصاف کے کاموں کے بارے میں گفتگو کی۔ انجمن کے اراکین نے اوصاف کے کاموں کو سراہا اور انجمن کے کاموں کو آگے بڑھانے کی بات کی۔

انجمن کے اجلاس میں اوصاف کے مدیران نے انجمن کے اراکین سے انجمن کے کاموں اور اوصاف کے کاموں کے بارے میں گفتگو کی۔ انجمن کے اراکین نے اوصاف کے کاموں کو سراہا اور انجمن کے کاموں کو آگے بڑھانے کی بات کی۔

انجمن کے اجلاس میں اوصاف کے مدیران نے انجمن کے اراکین سے انجمن کے کاموں اور اوصاف کے کاموں کے بارے میں گفتگو کی۔ انجمن کے اراکین نے اوصاف کے کاموں کو سراہا اور انجمن کے کاموں کو آگے بڑھانے کی بات کی۔

روزنامہ "پاکستان"



اسلامیہ یونیورسٹی اور پاکستان سائنس اور ٹیکنالوجی میں معاہدہ

اسلامیہ یونیورسٹی اور پاکستان سائنس اور ٹیکنالوجی میں معاہدہ
 اسلام آباد، پاکستان، 20 نومبر 2020ء
 اسلام آباد، پاکستان، 20 نومبر 2020ء
 اسلام آباد، پاکستان، 20 نومبر 2020ء
 اسلام آباد، پاکستان، 20 نومبر 2020ء

انجمن کے اجلاس میں اوصاف کے مدیران نے انجمن کے اراکین سے انجمن کے کاموں اور اوصاف کے کاموں کے بارے میں گفتگو کی۔ انجمن کے اراکین نے اوصاف کے کاموں کو سراہا اور انجمن کے کاموں کو آگے بڑھانے کی بات کی۔

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"
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کائنات



اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

10
 اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

سیارت



اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

12
 اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

تعبیر



اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

24
 اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

اسلامیہ یونیورسٹی اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے درمیان تعاونی معاہدے کی سرکاری تقریب کی تصویریں

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological Information centre"

20 November 2020

@

Pakistan Scientific & Technological Information Centre

IUB & PASTIC agree to promote education, teaching and research in the field of Information Sciences

B A H A W A L P U R , November 19: The Islamia University Bahawalpur and Pakistan Scientific and Technological Information Center Islamabad have agreed to promote education, teaching and research in the field of Information Sciences. In this regard an MoU signing ceremony was held at PASTIC headquarters in Islamabad today. Engr. Prof. Dr. Athar Mahboob Vice Chancellor Islamia University of Bahawalpur and Prof. Dr. Muhammad Akram Shaikh Director General PASTIC signed MoU on behalf of their respective organizations. The main areas of mutual cooperation between the Islamia University of Bahawalpur and the Pakistan Scientific and Technological Information Center PASTIC are to foster cooperation and collaboration for the promotion of National S&T/R&D entrepreneurs by holding joint seminars, Workshops, and other related activities in the areas of the common interest. Both organizations will explore the options for mutual offering/seeking wide-ranging services /resources and the supply of S&T Bibliographic/ Full-text Documents, the publication of Pakistan Journal of Computer and Information System (PJCIS), Pakistan Science Abstracts (PSA), Patent Information Service, indigenous S&T databases, Union Catalogues and Directories, and resource sharing through National Science Reference library.- PR

"Signing ceremony of collaborative Partnership between the Islamia University of Bahawalpur and Pakistan Scientific & Technological information centre"

20 November 2020

@

Pakistan Scientific & Technological Information Centre

Date: 20 NOV 2020

Daily
The Climax



Vice Chancellor Engr. Prof. Dr. Athar Mahboob and Director General PASTIC Dr. Muhammad Akram Shaikh exchange MoU documents.

IUB and Pakistan Scientific and Technological Information Center Islamabad agreed to promote education, teaching and research in the field of Information Sciences

BAHAWALPUR (PR): formation Sciences. In The Islamia University this regard an MoU sign-Bahawalpur and Paki- ing ceremony was held stan Scientific and Tech- at PASTIC headquarters nological Information in Islamabad today. Center Islamabad have Engr. Prof. Dr. Athar agreed to promote edu- Mahboob Vice cation, teaching and re- search in the field of In-

Continued on page 3

IUB and Pakistan Scientific ...

Continued from page 1 S&T/R&D entrepreneurs by holding joint seminars, Workshops, and resource sharing through the National Science Reference library. Both the institutions will support each other to improve the capacities of institutions as well as access and outreach to different stakeholders, communities and audiences for spreading the common cause.

The main areas of mutual cooperation between the Islamia University of Bahawalpur and the Pakistan Scientific and Technological Information Center PASTIC are to foster cooperation and collaboration for the promotion of National S&T/R&D entrepreneurs by holding joint seminars, Workshops, and resource sharing through the National Science Reference library. Both the institutions will support each other to improve the capacities of institutions as well as access and outreach to different stakeholders, communities and audiences for spreading the common cause.

Prof. Dr. Rubina Bhatti on this occasion thanked the leadership of IUN and PASTIC for signing MoU promoting education and research

Awareness Seminar "Introducing indigenous Research Resources Developed by PASTIC for Faculty Members and Research Scholars"

20 October 2020

@

AJ&K University, Kashmir



19 ستمبر 2020ء کو شائع ہوا۔ 8 صفحات پر محیط، 15 روپے

جامعہ میسرینس اور پلاسٹک انیشیاتیو سنٹر کے زیر اہتم سیمینار

آزاد جموں و کشمیر یونیورسٹی کی سینٹرل لائبریری کا مطالعاتی مواد اہم معلومات پر مبنی ہے، طلبہ لٹریچر سے مستفید ہونگے

ڈاکٹر اکرم شیخ ڈائریکٹر جنرل پبلک، پروفیسر ڈاکٹر صدیق اعوان، چیف لائبریری ڈاکٹر افتخار احمد سمیت دیگر کی شرکت

منظر آباد (پورٹ آف آڈر جموں و کشمیر) یونیورسٹی کے ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 یونیورسٹی کی سینٹرل لائبریری اور پاکستان سائنس سوسائٹی کے ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 انٹرنیشنل سنٹر اسلام آباد کے ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 جامعہ میسرینس کے ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 سینٹرل لائبریری کی ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت
 ڈائریکٹر جنرل ڈاکٹر افتخار احمد سمیت دیگر کی شرکت



پروفیسر ڈاکٹر اکرم شیخ، پروفیسر ڈاکٹر صدیق اعوان، ڈاکٹر افتخار احمد، ڈاکٹر جموں و کشمیر میں مشفقہ سیمینار سے خطاب کر رہے ہیں

SEPTEMBER, 2020 GILGIT BALTISTAN



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روزنامہ پناہ گلگت بلتستان (3) 11 ستمبر 2020ء

قرآرم یونیورسٹی میں لائبریری آٹومیشن پر روزہ ورکشاپ کا آغاز

دو روزہ ورکشاپ میں قرآرم یونیورسٹی کے مختلف لائبریریوں کے اسٹاف سمیت گلگت کے مختلف اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز شریک

دو روزہ ورکشاپ میں موجودہ کارکنوں کی تربیت فراہم کرینگے۔ یاد رہے کہ دو روزہ ورکشاپ کا انعقاد قرآرم یونیورسٹی لائبریری نے سہولت کے اشتراک سے کیا

روزنامہ "کے ٹو" گلگت بلتستان (2) جمعہ المبارک 11 ستمبر 2020ء

کے آئی یو میں لائبریری آٹومیشن ورکشاپ کا آغاز

ورکشاپ میں یونیورسٹی کے سٹاف سمیت مختلف اداروں کے لائبریری کوآرڈینیٹرز شریک ہیں

روزنامہ بادشال 11 ستمبر 2020ء

کے آئی یو میں لائبریری آٹومیشن پر دو روزہ ورکشاپ کا آغاز

دو روزہ ورکشاپ میں مختلف تعلیمی اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز کی شرکت

روزنامہ "بیدار" گلگت بلتستان (4) جمعہ المبارک 11 ستمبر 2020ء

قرآرم یونیورسٹی میں لائبریری آٹومیشن پر دو روزہ ورکشاپ کا آغاز

یونیورسٹی سمیت گلگت کے مختلف اداروں اور کالجوں کے لائبریری کوآرڈینیٹرز کی شرکت

Same news covered / appeared in following newspapers as well

1. www.dailyk2.com	4. www.dailywaadi.com	7. www.dailysada-e-gilgit.com	10. www.dailymountainpass.com.pk
2. www.dailysalamgb.com	5. www.mahasib.com.pk	8. www.dailynaqqara.com	11. www.dailyhamalyatoday.com
3. www.dailybaadeshimal.com	6. www.dailybaidar.com.pk	9. www.dailyrehbar.com.pk	12. www.weeklyzaan.com



انسدادی دل سے متعلق چین و پاکستان کی مشترکہ ورکشاپ

اسلام آباد (یو این آئی) پاکستان میں صحرانی نڈیوں نے پاکستان کی زرعی پیداوار اور شعور اک کی تحفظ کو بری طرح متاثر کیا ہے۔ اس سلسلے میں 20 اگست 2020 کو بیجنگ ٹیکنالوجی اور برنس یونیورسٹی (بی ٹی بی یو)، پاکستان سائنس فاؤنڈیشن اور پاکستان سائنس ٹیکنالوجی اینڈ ٹیکنالوجی انفارمیشن سنٹر (پاسٹک) نے مشترکہ طور پر جدید ٹیکنالوجی کے ذریعے نڈی دل کے انسداد کے عنوان کے تحت ایک آن لائن ورکشاپ کا انعقاد کیا۔ اس ورکشاپ کے معاونین میں چائنا ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی، پاکستان وزارت سائنس اینڈ ٹیکنالوجی، اسلامی جمہوریہ پاکستان میں عوامی جمہوریہ چین کے سفارتخانے اور اسلامی جمہوریہ پاکستان کے سفارتخانے بیجنگ نے کی تھی، اور چائنا سائنس فاؤنڈیشن سائنس اینڈ ٹیکنالوجی اینڈ ٹیکنالوجی (CISE)، بیجنگ ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی (BAST)، چائنا ایسوسی ایشن برائے سائنس اینڈ ٹیکنالوجی (CAST) کا خصوصی تعاون میسر ہوا۔ اس ورکشاپ میں 100 سے زیادہ پاکستانی سائنس اینڈ ٹیکنالوجی کے ماہرین اور ریسرچرز نے شرکت کی۔ پروفیسر ژینگ ہونگ، بی ٹی بی یو کے نائب صدر، پروفیسر محمد اکرم شیخ، پاسٹک کے ڈائریکٹر جنرل، پروفیسر محمد اشرف، یونیورسٹی آف زراعت فیصل آباد کے وائس چانسلر، اور گوانگ ہین ٹیکنالوجی جمہوریہ چین کے سفارت خانے کے زرعی کوشش خصوصی مدد تھے، اس ورکشاپ کا مقصد پاکستانی ماہرین اور کارکنوں کو نڈی دل کے انسداد سے جدید ٹیکنالوجی کے استعمال میں مہارت دینا تھا، پروفیسر محمد اکرم شیخ نے ریمارکس دیتے ہوئے کہا کہ انہیں یقین ہے کہ اس ورکشاپ کے ذریعے نڈیوں کے کنٹرول میں یقینی طور پر متعلقہ تکنیکی مدد ملے گی۔

ایرا پیس انفارمیشن ریسرچ انسٹیٹیوٹ سے تعلق رکھنے والے ڈاکٹر ہوانگ ہونگ نے ریویو سینیٹرک ٹیکنالوجی کا استعمال کرتے ہوئے نڈیوں کی آفات کی نگرانی اور جائزہ لینے میں اپنی ٹیم کے طریق کار اور کارناموں کا تفصیل سے تعارف کیا، پلانٹ پریوینشن انسٹیٹیوٹ آف چین، روڈنٹ اور ٹراس لینڈ پلانٹ پریوینشن کے ریسرچ آفس سے تعلق رکھنے والے ڈاکٹر ہوانگ نے پاکستانی صحرا کے نڈیوں کی اہم خصوصیات اور کنٹرول اقدامات کے طریقوں کو متعارف کرایا۔



DAILY K2 11, SEPTEMBER, 2020 GILGIT BALTIKISTAN



گیلگت-بالتستان کے آئی یو میں لائبریری آؤٹیشن ورکشاپ کا آغاز

کے آئی یو میں لائبریری آؤٹیشن ورکشاپ کا آغاز
گوشاپ میں بریلنگ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
گوشاپ میں آؤٹیشن ورکشاپ کے آغاز اور لائبریری کے آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کیا گیا ہے۔ لائبریری آؤٹیشن ورکشاپ میں لائبریری کے آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
تعمیراتی کاموں کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
گوشاپ میں لائبریری آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی

16 ستمبر
گوشاپ میں لائبریری آؤٹیشن ورکشاپ کے آغاز اور لائبریری کے آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کیا گیا ہے۔ لائبریری آؤٹیشن ورکشاپ میں لائبریری کے آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
تعمیراتی کاموں کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
گوشاپ میں لائبریری آؤٹیشن ورکشاپ کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی
کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی کے اجلاس سے خطاب کرتے ہوئے اس کے لائبریری کمانڈر ٹریڈی



24 August 2020



ڈاکٹر اکرم شیخ، سینیٹ الاہظم، ڈاکٹر مریم ابرار، ڈاکٹر صائمہ ہاشمی، آئی این اے کے ورکشاپ میں شریک ہیں

IV. PMNH PHOTO GALLERY



Federal Minister for Science and Technology Senator Shibli Faraz is being briefed by PMNH Scientist for Display during his visit of PMNH



Federal Minister for Science and Technology Senator Shibli Faraz during Ribbon Cutting Ceremony of New Gems and Minerals Diorama at PMNH



Federal Minister for Science and Technology Chaudhry Fawad Hussain during Ribbon Cutting Ceremony of New Mammals Diorama at PMNH



Group Photo of Participants of Mushroom Training Workshop in PMNH



Director General, PMNH Dr. S. Lal Shah alongwith BSD Scientist visiting Mushroom Cultivation Facility in PMNH



Director General, PMNH Dr. S. Lal Shah and Director, ZSD Dr. Khalid Mahmood meeting with Director, Abubakar Display Center at the University of Punjab, Lahore

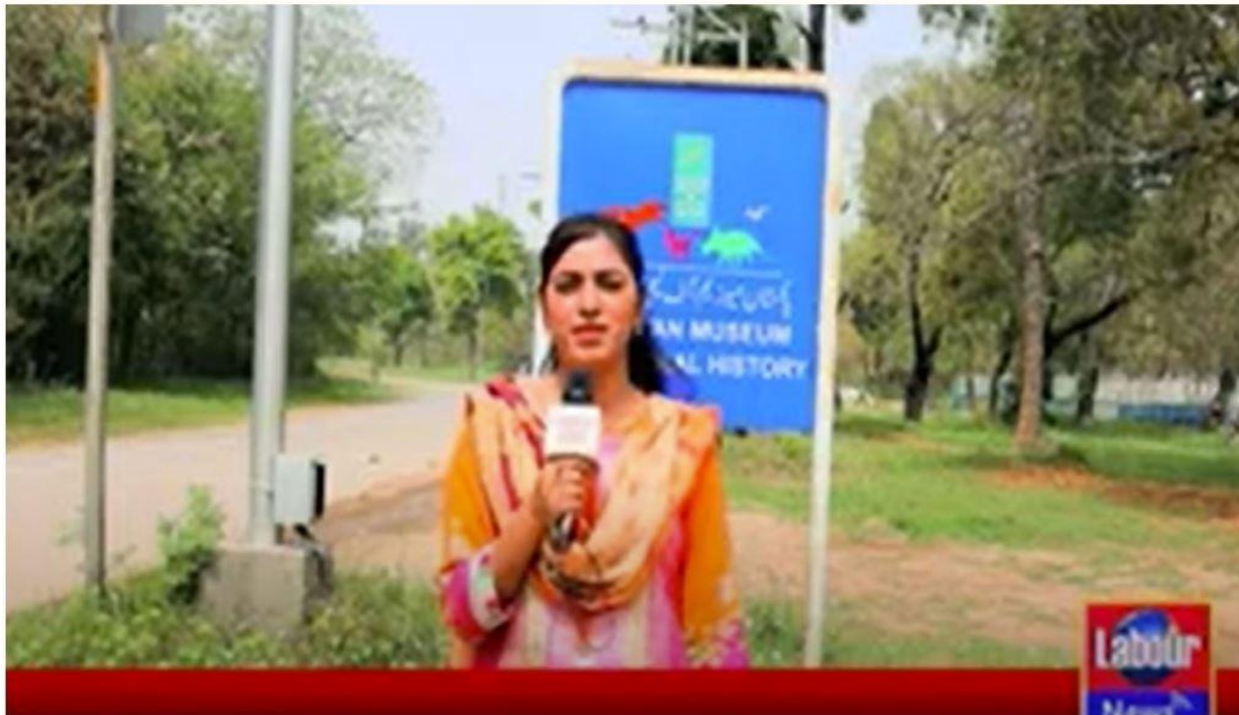


Director General, PMNH Dr. S. Lal Shah and Director, ZSD Dr. Khalid Mahmood with Director, Abubakar Display Center visiting Museum in the University of Punjab, Lahore



Group photo of School Children during their Visit of PMNH

Documentary News of Pakistan Museum of Natural History, Islamabad by Labour News Part 1



Director General, PMNH Dr. S. Lal Shah during Interview about Pakistan Museum of Natural History to Aaj TV News



Federal Minister for Science and Technology Senator Shibli Faraz is being briefed about PMNH during his visit of Pakistan Museum of Natural History



Chairman, PSF Dr. Shahid Mahmood Biag Chairing Meeting with Senior Officers in PMNH Committee Room



Chairman, PSF Dr. Shahid Mahmood Biag with Senior Officers of PMNH during Review Meeting



Federal Minister for Science and Technology Senator Shibli Faraz is being briefed by PMNH Scientist for Display during his visit of PMNH



PMNH Scientist Briefing the University Students during their Visit of Display Galleries of Museum



Visitors during their Visit of Display Galleries of Museum



PMNH Scientists with University Students during their Visit of Display Galleries of Museum

V.FINANCIAL STATEMENTS

Pakistan Science Foundation (Summery)

SUMMARIZED BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2020-21 & BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2021-22 CURRENT EXPENDITURE (NON-DEVELOPMENT) UPTO 31.3.2022 UNDER BUDGET IB-3368 PAKISTAN SCIENCE FOUNDATION (PSF)

		Budget Position & Actual Expenditure <u>2020-21</u>					Revised Budget & Actual Expenditure <u>2021-22</u>				
Object Code.	Heads/Classification	Budget Allocation <u>2020-21</u>	Revised Budget Allocation After Re-appropriation <u>2020-21</u>	% of Allocation	Actual Expenditure <u>2020-21</u>	% of Expenditure	Budget Allocation <u>2021-22</u>	Revised Budget Allocation After Re-appropriation <u>2021-22</u>	% of Allocation	Actual Expenditure <u>2021-22</u> (31.3.2022)	% of Expenditure
1	2	3	4	5	6	7	8	9	10	11	12
	TOTAL BUDGET ALLOCATION	287.768 (M)	268.133 (M)		268.086 (M)		310.000 (M)	321.000 (M)		242.619 (M)	
A01	EMPLOYEE RELATED EXPENSES (A + B)	134,510,000	123,733,197	46.1 %	123,733,197	100.0 %	146,151,000	163,253,000	50.9 %	124,235,574	76.1 %
A011-1	A). Pay (a + b)	81,874,000	73,030,833	27.2 %	73,030,833	100.0 %	75,984,000	88,984,000	27.7 %	60,974,595	68.5 %
A01101	a). Pay of Officers	49,874,000	46,669,395	17.4%	46,669,395	100.0 %	50,404,000	60,404,000	18.8 %	43,854,700	72.6 %
A01151	b). Pay of other Staff	32,000,000	26,361,438	9.83%	26,361,438	100.0 %	25,580,000	28,580,000	8.90 %	17,119,895	59.9 %
A012	B). Allowances (c + d)	52,636,000	50,702,364	18.9 %	50,702,364	18.9 %	70,167,000	74,269,000	23.1 %	63,260,979	85.2 %

A012-1	c. Regular Allowances	40,136,000	36,436,364	13.6%	36,436,364	100.0%	55,767,000	61,219,000	19.1%	54,235,272	88.6%
A012-2	d. Other Allowances	12,500,000	14,266,000	5.32%	14,266,000	100.0%	14,400,000	13,050,000	4.07%	9,025,707	69.2%
A02	PROJECT PRE-INVESTMENT ANALYSIS (STATUTORY FUNCTIONS) (a + b)	55,000,000	60,801,000	22.7%	60,799,420	100.0%	90,000,000	85,000,000	26.5%	62,248,747	73.2%
A02201	a). Grant for Research & Institution Support	46,850,000	53,673,952	20.0%	53,673,952	100.0%	79,650,000	74,650,000	23.3%	54,901,845	73.5%
A02201	b). Science Promotion Activities	4,400,000	6,889,486	2.57%	6,887,906	100.0%	6,600,000	6,600,000	2.06%	5,696,765	86.3%
	c). Planning & Development Section	3,750,000	237,562	0.09%	237,562	100.0%	3,750,000	3,750,000	1.17%	1,650,137	44.0%
A03	OPERATING EXPENSES	35,375,000	33,605,000	12.5%	33,562,000	99.9%	35,999,000	41,347,000	12.9%	34,554,563	83.6%
A04	EMPLOYEES RETIREMENT BENEFITS	45,000,000	45,000,000	16.8%	45,000,000	100.0%	25,000,000	25,000,000	7.79%	19,084,929	76.3%
A05	GRANTS SUBSIDIZE & LOAN ADVANCES/OTHERS	10,000,000	-	0.00%	-	0.00%	7,000,000	-	0.00%	-	0.00%

A06	TRANSFERS	1,200,000	1,200,000	0.45 %	1,200,000	100.00 %	1,200,000	1,550,000	0.48 %	441,466	28.5%
A09	EXPENDITURE ON ACQUIRING OF PHYSICAL ASSETS	5,048,000	2,459,000	0.92 %	2,456,075	99.99 %	2,950,000	2,950,000	0.92 %	600,846	20.4%
A13	REPAIR & MAINTENANCE	1,635,000	1,335,000	0.50 %	1,335,000	100.00 %	1,700,000	1,900,000	0.59 %	1,452,736	76.5%
-	Grand Total :-	287,768,000	268,133,197	100%	268,085,692	100.00 %	310,000,000	321,000,000	100.00 %	242,618,861	75.6%

FINANCIAL STATEMENT

V.I PAKISTAN SCIENCE FOUNDATION

SUMMARIZED BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2020-21 & BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2021-22 CURRENT EXPENDITURE (NON-DEVELOPMENT) UPTO 31.3.2022 UNDER BUDGET IB-3368 PAKISTAN SCIENCE FOUNDATION (PSF).

Object Code.	Heads/Classification	Budget Position & Actual Expenditure <u>2020-21</u>					Revised Budget & Actual Expenditure <u>2021-22</u>				
		Budget Allocation <u>2020-21</u>	Revised Budget Allocation After Re-appropriation <u>2020-21</u>	% of Allocation	Actual Expenditure <u>2020-21</u>	% of Expenditure	Budget Allocation <u>2021-22</u>	Revised Budget Allocation After Re-appropriation <u>2021-22</u>	% of Allocation	Actual Expenditure <u>2021-22 (31.3.2022)</u>	% of Expenditure
1	2	3	4	5	6	7	8	9	10	11	12
	TOTAL BUDGET ALLOCATION	287.768 (M)	268.133 (M)		268.086 (M)		310.000 (M)	321.000 (M)		242.619 (M)	
A01	EMPLOYEE RELATED EXPENSES (A + B)	134,510,000	123,733,197	46.1%	123,733,197	100.0%	146,151,000	163,253,000	50.9%	124,235,574	76.1%

A011-1	A). Pay (a + b)	81,874,000	73,030,833	27.2%	73,030,833	100.0%	75,984,000	88,984,000	27.7%	60,974,595	68.5%
A01101	a). Pay of Officers	49,874,000	46,669,395	17.4%	46,669,395	100.0%	50,404,000	60,404,000	18.8%	43,854,700	72.6%
A01151	b). Pay of other Staff	32,000,000	26,361,438	9.83%	26,361,438	100.0%	25,580,000	28,580,000	8.90%	17,119,895	59.9%
A012	B). Allowances (c + d)	52,636,000	50,702,364	18.9%	50,702,364	18.9%	70,167,000	74,269,000	23.1%	63,260,979	85.2%
A012-1	c). Regular Allowances	40,136,000	36,436,364	13.6%	36,436,364	100.0%	55,767,000	61,219,000	19.1%	54,235,272	88.6%
A012-2	d). Other Allowances	12,500,000	14,266,000	5.32%	14,266,000	100.0%	14,400,000	13,050,000	4.07%	9,025,707	69.2%
A02	PROJECT PRE-INVESTMENT ANALYSIS (STATUTORY FUNCTIONS) (a + b)	55,000,000	60,801,000	22.7%	60,799,420	100.0%	90,000,000	85,000,000	26.5%	62,248,747	73.2%
A02201	a). Grant for Research & Institution Support	46,850,000	53,673,952	20.0%	53,673,952	100.0%	79,650,000	74,650,000	23.3%	54,901,845	73.5%
A02201	b). Science Promotion Activities	4,400,000	6,889,486	2.57%	6,887,906	100.0%	6,600,000	6,600,000	2.06%	5,696,765	86.3%
	c). Planning & Development Section	3,750,000	237,562	0.09%	237,562	100.0%	3,750,000	3,750,000	1.17%	1,650,137	44.0%
A03	OPERATING EXPENSES	35,375,000	33,605,000	12.5%	33,562,000	99.9%	35,999,000	41,347,000	12.9%	34,554,563	83.6%

A04	EMPLOYEES RETIREMENT BENEFITS	45,000, 000	45,000, 000	16. 8%	45,000, 000	100. 0%	25,000,0 00	25,000,0 00	7.7 9%	19,084,9 29	76. 3%
A05	GRANTS SUBSIDIZE & LOAN ADVANCES/OTHERS	10,000, 000	-	0.0 0%	-	0.00 %	7,000,00 0	-	0.0 0%	-	0.0 0%
A06	TRANSFERS	1,200,0 00	1,200,0 00	0.4 5%	1,200,0 00	100. 0%	1,200,00 0	1,550,00 0	0.4 8%	441,466	28. 5%
A09	EXPENDITURE ON ACQUIRING OF PHYSICAL ASSETS	5,048,0 00	2,459,0 00	0.9 2%	2,456,0 75	99.9 %	2,950,00 0	2,950,00 0	0.9 2%	600,846	20. 4%
A13	REPAIR & MAINTENANCE	1,635,0 00	1,335,0 00	0.5 0%	1,335,0 00	100. 0%	1,700,00 0	1,900,00 0	0.5 9%	1,452,73 6	76. 5%
-	Grand Total :-	287,768 ,000	268,133 ,197	100 %	268,085 ,692	100. 0%	310,000, 000	321,000, 000	100 %	242,618, 861	75. 6%

→ Re-appropriated of **Rs.15.027 million** during F.Y 2020-21 under different Budgetary Head of accounts, within "A01-Employees Related Expenses, A02-Research & Survey, A03-Operating Expense, A04-Employees Retirement Benefits and A-09 Expenditure on Accruing of Physical Assets (**Re-appropriations Letters of PSF & order of MoST is enclosed**).

→ During the year 2020-21 funds of **Rs.13.067 million & Rs.6.568 million** have been Surrender under Budgetary head "A01-Employees Related Expenses, A05- Grants Subsidizw & loan Advances/Others & A-09 Expenditure on Accruing of Physical Assets (**Orders and Letters enclosed**).

STATEMENT SHOWING HEAD WISE BUDGET/ REVISED ALLOCATION, ACTUAL EXPENDITURE 2020-21 & BUDGET GRANT/BUDGET ESTIMATES 2021-22 AS PER NIS PROPOSED FOR CURRENT EXPENDITURE (NON-DEVELOPMENT) UNDER BUDGET IB-3368 PAKISTAN SCIENCE FOUNDATION (PSF).

Object Code.	Heads/Classification	Budget Allocation As Per NIS <u>2020-21</u>	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered <u>2020-21</u>	Actual Expenditure <u>2020-21</u>	Budget Grant As Per NIS <u>2021-22</u>	Revised Budget Allocation 2021-22	Progressive Expenditure upto 31.3.2022
1	2	3	4	5	6		
A01	<u>EMPLOYEE RELATED EXPENSES (A + B)</u>	134,510,000	123,733,197	123,733,197	146,151,000	163,253,000	124,235,574
A011-1	A). Pay (a + b)	81,874,000	73,030,833	73,030,833	75,984,000	88,984,000	60,974,595
A0110 1	a). Pay of Officer	49,874,000	46,669,395	46,669,395	50,404,000	60,404,000	43,854,700
A0110 1	Basic Pay of Officer	49,724,000	46,575,795	46,575,795	50,300,000	60,300,000	43,766,302
A0110 3	Special Pay	100,000	64,800	64,800	72,000	72,000	35,827
A0110 5	Qualification Pay	50,000	28,800	28,800	32,000	32,000	52,571
A011-2	b). Pay of other Staff	32,000,000	26,361,438	26,361,438	25,580,000	28,580,000	17,119,895
A0115 1	Basic Pay of Staff	32,000,000	26,361,438	26,361,438	25,580,000	28,580,000	17,119,895
A0115 3	Special Pay	-	-	-	-	-	-

A012	B). ALLOWANCES (c + d)	52,636,000	50,702,364	50,702,364	70,167,000		74,269,000	63,260,979
A012-1	c). Regular Allowances	40,136,000	36,436,364	36,436,364	55,767,000		61,219,000	54,235,272
A0120 1	Senior Post Allowance	100,000	39,464	39,464	43,000		43,000	149,837
A0120 2	House Rent Allowance	1,606,000	2,106,000	2,106,000	2,350,000		2,350,000	3,754,780
A0120 3	Conveyance Allowance	6,400,000	5,708,816	5,708,816	6,232,000		6,232,000	4,686,585
A0121 6	Qualification Allowance	1,080,000	896,117	896,117	986,000		986,000	1,013,554
A0121 7	Medical Allowance	3,900,000	3,409,515	3,409,515	3,760,000		3,760,000	3,064,698
A0122 2	Hardship Allowance	300,000	300,000	300,000	386,000		386,000	186,992
A0122 4	Entertainment Allowance	90,000	42,943	42,943	50,000		50,000	100,988
A0122 6	Computer Allowance	18,000	18,000	18,000	20,000		20,000	13,500
A0122 8	Orderly Allowance	504,000	442,000	442,000	486,000		486,000	1,792,937
A0123 6	Deputation Allowance	-	-	-	144,000		144,000	90,968
A0120 D	Integrated Allowance	238,000	193,800	193,800	218,000		218,000	220,392
A0121J	Transport Monetization	-	590,000	590,000	1,152,000		1,152,000	1,363,209
A0121 Q	Audit & Accounts Allowance	-	-	-	-		-	
A0122 M	Adhoc Relief Allowance-2016	5,500,000	4,217,333	4,217,333	5,000,000		5,000,000	4,285,926
A0122 Y	Adhoc Relief Allowance-2017	7,400,000	6,802,739	6,802,739	7,000,000		7,000,000	5,981,446

A0123 G	Adhoc Relief Allowance 10% 2018	7,400,000	6,362,520	6,362,520	7,000,000	7,000,000	5,764,778
A0123 P	Adhoc Relief 10% (2019)	5,600,000	5,186,117	5,186,117	5,600,000	5,600,000	4,233,488
A0124 1	Utilities	-	121,000	121,000	240,000	240,000	181,700
A0124 C	Disparity Reduction Allowance 25% 2021	-	-	-	15,100,000	15,100,000	12,329,260
A0124 F	Adhoc Relief Allowance 10% 2021	-	-	-		5,452,000	5,020,234
A012-2	d). Other Allowances	12,500,000	14,266,000	14,266,000	14,400,000	13,050,000	9,025,707
A0127 1	Over Time Allowance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	589,080
A0127 3	Honorarium	5,000,000	6,766,000	6,766,000	6,400,000	6,050,000	4,431,045
A0127 4	Medical charges	6,500,000	6,500,000	6,500,000	7,000,000	6,000,000	4,005,582
A0127 8	Leave Salary	-	-	-	-	-	
A02	<u>PROJECT PRE-INVESTMENT ANALYSIS</u>	55,000,000	60,801,000	60,799,420	90,000,000	85,000,000	62,248,747
A022	Research, Surveys and Exploratory operations	55,000,000	60,801,000	60,799,420	90,000,000	85,000,000	62,248,747
A0220 1	a) Grant for Research & Institution Support	43,000,000	51,684,377	51,684,377	76,000,000	68,000,000	
i)	Biotech				-		
ii)	Math & Computer Sciences.				-		

iii)	Physical Sciences.			438,000				10,147,107
iv)	Chemical Sciences.			5,327,384				10,257,540
v)	Biological Sciences.			1,163,090				4,390,150
vi)	Earth Sciences.			4,651,835				187,000
vii)	Environmental Sciences.			470,484				1,467,703
viii)	Engineering Sciences			23,173,641				11,955,056
ix)	Agricultural Sciences			6,803,248				-
x)	Medical Sciences.			8,268,936				12,586,440
xi)	Institutional Support.			-				-
xii)	Evaluation Fee			1,025,700				376,000
xiii)	Board/Committee Meetings.			362,059				634,382
(xiv)	Utilization of Results Research & Pilot Plant Study							

xv)	Information, documentation Publication & Library Material, Subscription to International Organization & UNESCO Coupons	150,000	80,000	80,000	150,000	150,000	
xvi)	Scientists Pool/Senior Scientist Emertues			-	-	-	
xvii)	Scientific Societies & Professional Bodies			-	-	-	
xviii)	Science Conferences Seminar, Workshop & Symposia	2,200,000	1,446,765	1,446,765	2,000,000	5,000,000	2,860,467
xix)	Awards Prizes & Fellowships.			-	-	-	
xx	Special Scientific Servey & Collection of Statistics		182,810	182,810		-	40,000
xxi	International Liasion	1,200,000	100,000	100,000	1,200,000	1,200,000	
xxii	Inovations & Inventions	300,000	180,000	180,000	300,000	300,000	
	Sub-Total (a)	46,850,000	53,673,952	53,673,952	79,650,000	74,650,000	54,901,845
A0220 1	b) Science Promotion Activities						
i)	Science Popularization Activities	2,000,000	3,646,948	3,646,948	3,000,000	3,000,000	1,836,538
ii)	Science Centre,Herberia Planetaria	400,000	562,167	562,167	600,000	600,000	193,229

iii)	Science Fair	-	-	-	-	-	-
iv)	Science Caravan.	2,000,000	2,680,371	2,678,791	3,000,000	3,000,000	3,666,998
	Sub-Total (b)	4,400,000	6,889,486	6,887,906	6,600,000	6,600,000	5,696,765
	c) Planning & Development Section						
i)	Exchange of Visits of Scientists & Technologists	3,750,000	237,562	237,562	3,750,000	3,750,000	1,650,137
	Sub-Total (c)	3,750,000	237,562	237,562	3,750,000	3,750,000	1,650,137
A03	<u>OPERATING EXPENSES</u>	35,375,000	33,605,000	33,562,000	35,999,000	41,347,000	34,554,563
A032	Communication	2,141,000	1,541,000	1,541,000	2,095,000	2,231,000	1,572,522
A03201	Postage & Telegraph	84,000	134,000	134,000	95,000	231,000	70,997
A03202	Telephone & Trunk Call	2,057,000	1,407,000	1,407,000	2,000,000	2,000,000	1,501,525
A033	Utilities Charges	2,243,000	2,313,000	2,313,000	2,330,000	3,430,000	2,092,136
A03301	Gas Charges	280,000	280,000	280,000	280,000	480,000	384,390
A03302	Water Charges	93,000	163,000	163,000	100,000	100,000	-
A03303	Electricity Charges	1,870,000	1,870,000	1,870,000	1,950,000	2,850,000	1,707,746

A034	Occupancy Cost	26,273,000	26,273,000	26,273,000	26,799,000	31,011,000	27,579,090
A0340 2	Rent of office Building PSF Land	-	-	-	-	-	
A0340 3	Rent for Residential Building	26,180,000	26,180,000	26,180,000	26,700,000	30,912,000	27,504,840
A0340 7	Rates & Taxes	93,000	93,000	93,000	99,000	99,000	74,250
A038	Travel & Transportation	3,318,000	2,118,000	2,118,000	3,340,000	3,340,000	2,371,377
A0380 5	Traveling Allowance	841,000	341,000	341,000	800,000	800,000	463,921
A0380 7	Petrol, Oil & Lubricant Charges	2,337,000	1,637,000	1,637,000	2,400,000	2,400,000	1,799,995
A0380 8	Conveyance Charges	140,000	140,000	140,000	140,000	140,000	107,461
A039	General	1,400,000	1,360,000	1,317,000	1,435,000	1,335,000	939,438
A0390 1	Office Stationery	467,000	467,000	467,000	470,000	470,000	352,145
A0390 2	Printing Publication	93,000	93,000	93,000	95,000	95,000	50,930
A0390 5	Newspapers	93,000	53,000	53,000	95,000	95,000	64,918
A0390 6	Uniform & Liveries	93,000	93,000	93,000	100,000	100,000	69,884
A0390 7	Advertisement Charges & Publicity	187,000	187,000	187,000	200,000	200,000	130,557

A03917	Law charges	93,000	93,000	50,000	100,000		-	-
A03970	Others/Misc. Expenses	374,000	374,000	374,000	375,000		375,000	271,004
A04	<u>EMPLOYEES RETIREMENT BENEFITS</u>	45,000,000	45,000,000	45,000,000	25,000,000		25,000,000	19,084,929
A04104	Pension Contribution	45,000,000	43,000,000	43,000,000	23,000,000		23,000,000	17,589,691
A04106	Reimbursement of Medical charges Pensioners	-	2,000,000	2,000,000	2,000,000		2,000,000	1,495,238
A05	<u>GRANTS, SUBSIDIES & WRITE-OFF LOANS/ ADVANCES/OTHERS.</u>	10,000,000	-	-	7,000,000		-	-
A052	Grants Domestics	10,000,000	-	-	7,000,000		-	-
A05216	Financial Assistance to Families of Civil Servants who expire during service/ After retirement	10,000,000	-	-	7,000,000		-	-
A06	<u>TRANSFERS</u>	1,200,000	1,200,000	1,200,000	1,200,000		1,550,000	441,466
A063	Entertainment & Gifts	-	-	-	-		-	-
A06301	Entertainment & Gifts	-	-	-	-			
A064	Other Transfer Payments	1,200,000	1,200,000	1,200,000	1,200,000		1,550,000	441,466
A06470	Others (CPF Contribution & SWF)	1,200,000	1,200,000	1,200,000	1,200,000		1,550,000	441,466

A09	<u>EXPENDITURE ON ACQUIRING OF PHYSICAL ASSETS</u>	5,048,000	2,459,000	2,456,075	2,950,000		2,950,000	600,846
A091	<u>Land and Building</u>	-	1,899,000	1,899,000	-		-	-
A0910 1	<u>Land and Building</u>		1,899,000	1,899,000	-		-	-
A092	Computer Equipment	-	150,000	147,075	500,000		500,000	322,200
A0920 1	Hardware	-	150,000	147,075	-			
A0920 2	Software	-	-	-	-		-	
A0920 3	I.T Equipment	-	-	-	500,000		500,000	322,200
A095	Transportation.	4,488,000	-	-	2,000,000		2,000,000	-
A0950 1	Transport	4,488,000	-	-	2,000,000		2,000,000	-

A096	Plant & Machinery	280,000	280,000	280,000	250,000	250,000	179,776
A0960 1	Plant & Machinery	280,000	280,000	280,000	250,000	250,000	179,776
A097	Furniture & Fixture.	280,000	130,000	130,000	200,000	200,000	98,870
A0970 1	Furniture & Fixture.	280,000	130,000	130,000	200,000	200,000	98,870
A13	<u>REPAIR</u> & <u>MAINTENANCE</u>	1,635,000	1,335,000	1,335,000	1,700,000	1,900,000	1,452,736
A130	Transport	795,000	495,000	495,000	810,000	810,000	608,485
A1300 1	Transport	795,000	495,000	495,000	810,000	810,000	608,485
A131	Machinery & Equipment	280,000	280,000	280,000	290,000	290,000	215,173
A1310 1	Machinery & Equipment	280,000	280,000	280,000	290,000	290,000	215,173

A132	Furniture & Fixture.	93,000	93,000	93,000	100,000	100,000	55,100
A1320 1	Furniture & Fixture	93,000	93,000	93,000	100,000	100,000	55,100
A133	Building & Structure.	467,000	467,000	467,000	500,000	700,000	573,978
A1330 1	Office Building	467,000	467,000	467,000	500,000	700,000	573,978
A1337 0	Other Repair	-	-	-	-	-	-
-	GRAND TOTAL :-	287,768,000	268,133,197	268,085,692	310,000,000	321,000,000	242,618,861

V.II PASTIC FINANACIAL STATEMENT

<i>Code No.</i>	<i>Head of Account</i>	<i>Budget Allocation 2020-21</i>	<i>Expenditure during June, 2021</i>	<i>Progressive Exp up to 30th June, 2021</i>
A01	Employees Related Expenditure	103,348,000	8,962,436	103,307,578
A011	Pay	61,213,000	5,922,615	61,413,513
A011-1	Pay of Officers	34,715,000	3,356,035	34,863,565
A01101	Basic Pay of Officers	34,715,000	3,356,035	34,863,565
A011-2	Pay of Other Staff	26,498,000	2,566,580	26,549,948
A01151	Basic Pay of Other Staff	26,498,000	2,566,580	26,549,948
A012	Allowances	42,135,000	3,039,821	41,894,065
A012-1	Regular Allowances	29,214,000	2,369,360	29,169,887
A01201	Senior Post Allowance	16,000	1,350	16,200
A01202	House Rent Allowance	649,000	53,711	648,511
A01203	Conveyance Allowance	4,944,000	421,304	5,000,145
A01216	Qualification Allowance	540,000	45,000	540,000
A01217	Medical Allowance (Frozen)	3,044,000	244,308	3,025,826
A01224	Entertainment Allowance.	26,000	2,200	26,400
A01226	Computer Allowance	504,000	15,000	433,001
A01228	Orderly Allowance	168,000	14,000	168,000
A0120D	Integrated Allowance	130,000	10,670	129,540
A0122M	Ad hoc Relief Allow. 10% (2016)(Frozen)	4,008,000	321,125	4,006,104
A0122Y	Ad hoc Allowance, (2017)	5,517,000	449,672	5,514,031
A0123G	Ad hoc Relief Allowance, (2018)	5,517,000	449,672	5,514,031
A0123P	Ad hoc Relief Allowance, (2019)	4,151,000	341,348	4,148,098

A012-2	Other Allowances (Excluding T.A)	12,921,000	670,461	12,724,178
A01271	Overtime Allowance	421,000	65,760	421,000
A01273	Honorarium	4,500,000	-	4,500,000
A01274	Medical Charges	8,000,000	604,701	7,803,178
	S.Total Pay & Allowances	103,348,000	8,962,436	103,307,578
A02	Project Pre-investment Analysis	6,000,000	4,356,092	6,016,585
A022	Statutory/PASTIC FUNCTIONS	6,000,000	4,356,092	6,016,585
A02201	Information Technology Support Services	5,300,000	3,785,238	5,050,821
A02201	Technology Information Service	140,000	-	140,000
A02201	Training Workshops/Seminars	36,250	28,704	64,954
A02201	PASTIC Publications	523,750	542,150	760,810
A02201	International Liaison		-	
A03	Operating Expenses	32,060,000	953,608	32,004,166
A032	Cummunication	951,000	108,667	953,915
A03201	Postage Stamps	93,000	36,500	92,769
A03202	Telephone and Trunk Calls	858,000	72,167	861,146
A033	Utilities Charges	2,126,000	297,669	2,130,500
A03301	Gas Charges	14,000	7,369	13,349
A03302	Water Charges	150,000	-	149,706
A03303	Electricity Charges	1,962,000	290,300	1,967,445
A034	Occupancy Cost	25,944,000	-	25,944,000
A03402	Rent for Office Building	102,000	-	85,956
A03403	Rent for Residential Building	25,842,000	-	25,858,044
A038	Travel & Transporation	1,761,000	131,899	1,761,015
A03805	Travelling Allowances	560,000	28,575	560,015
A03807	P.O.L	1,201,000	103,324	1,201,000
A039	General	1,278,000	415,373	1,214,736

A03901	Stationery	500,000	121,598	492,303
A03905	Newspaper, Periodicals & Books/Unforeseen	47,000	21,600	40,970
A03906	Uniform & Protection Cloth	70,000	2,500	70,000
A03907	Advertisement & Publicity	287,000	221,270	287,000
A03970	Others/Audit Charges/Misc. Expenses (Freight, bank, Conveyance, Fertilizers etc.)	374,000	48,405	324,463
A04	Employees' Retirement Benefits	40,000,000	280,044	39,843,600
A041	Pension	40,000,000	280,044	39,843,600
A04101	Pension-Civil	40,000,000	280,044	39,843,600
A05	Grants Subsidies and Write off Loans/Advances/Others	-	-	-
A052	Grants Domestic	-	-	-
A05216	Financial Assistance to the families of civil servants who expire during Service/After retirement.		-	
A06	Transfers	1,000,000	-	1,000,000
A063	Entertainment and Gift	-	-	-
A06301	Entertainment and Gift		-	
A064	Other Transfer Payment	1,000,000	-	1,000,000
A06470	Others (CPF & SWF)	1,000,000	-	1,000,000
A09	Expenditure on acquiring of Physical Assets	991,000	700,662	1,142,977
A095	Transport	-	-	-
A09501	Transport		-	
A096	Plant & Machinery	711,000	541,400	903,715
A09601	Plant & Machinery	711,000	541,400	903,715
A097	Furniture & Fixtures	280,000	159,262	239,262
A09701	Furniture & Fixtures	280,000	159,262	239,262
A013	Repair & Maintenance	2,898,000	1,028,787	2,982,094
A130	Transport	561,000	145,209	564,763

<i>A13001</i>	<i>Transport</i>	<i>561,000</i>	<i>145,209</i>	<i>564,763</i>
<i>A131</i>	<i>Machinery & Equipment</i>	<i>374,000</i>	<i>77,378</i>	<i>401,039</i>
<i>A13101</i>	<i>Machinery & Equipment</i>	<i>374,000</i>	<i>77,378</i>	<i>401,039</i>
<i>A132</i>	<i>Furniture & Fixture</i>	<i>93,000</i>	<i>8,500</i>	<i>101,930</i>
<i>A13201</i>	<i>Furniture & Fixture</i>	<i>93,000</i>	<i>8,500</i>	<i>101,930</i>
<i>A133</i>	<i>Building & Structure</i>	<i>1,870,000</i>	<i>797,700</i>	<i>1,914,362</i>
<i>A13301</i>	<i>Office Building</i>	<i>1,870,000</i>	<i>797,700</i>	<i>1,914,362</i>
<i>Total</i>		<i>186,297,000</i>	<i>16,281,629</i>	<i>186,297,000</i>

V.III

PAKISTAN MUSEUM OF NATURAL HISTORY

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Expenditure Report (Non-Development) for the Period From 01.07.2020 to 30.06.2021

Item Code	Commitment item (Object classification)	Revised Budget Allocation 2020-21	Expenditure During the Month June, 2020	Progressive Expenditure as on 30.06.2021
A01	Employees Related Fund.	84,190,000	9,521,849	84,155,106
A011	Pay	50,500,000	5,084,350	50,477,513
A011-1	Pay of Officers	33,900,000	3,603,855	33,877,513
A01101	Basic Pay of Officer	33,900,000	3,603,855	33,877,513
A01103	Special Pay	-	-	-

A01151	Basic Pay of Staff	16,600,000	1,480,495	16,600,000
A012	Allowances	33,690,000	4,437,499	33,677,593
A012-1	Regular Allowances.	24,490,000	2,073,427	24,477,593
A01201	Senior Post Allowance	25,000	11,250	25,000
A01202	House Rent Allowance	780,000	77,301	780,000
A01203	Conveyance Allowance	3,907,000	342,576	3,905,867
A01207	Washing Allowance	11,000	7,045	7,095
A01216	Qualification Allowance	1,350,000	89,505	1,350,000
A01217	Medical Allowance	2,354,000	195,495	2,352,540
A01224	Entertainment Allowance	20,000	1,600	19,200
A01226	Computer Allowance	54,000	4,500	54,000

A01228	Orderly Allowance	168,000	14,000	168,000
A0120D	Intergrated/Dress/Washing Allowance	106,000	8,700	106,000
A0122M	Adhoc Relief Allowance (2016) 10%	3,367,000	352,919	3,364,598
A0122Y	Adhoc Relied Allowance (2017) 10%	4,500,000	343,248	4,500,000
A0123G	Adhoc Relied Allowance (2018) 10%	4,500,000	343,247	4,499,999
A0123P	Adhoc Relied Allowance (2019) 10%	3,348,000	282,041	3,345,294
A012-2	Other Regular Allowances (Excluding T.A)	9,200,000	2,364,072	9,200,000
A01271	Overtime Allowance	200,000	68,230	200,000
A01273	Honorarium	3,500,000	-	3,500,000
A01274	Medical Charges	5,500,000	2,295,842	5,500,000
A02	Project Preinvestment Analysis	10,990,000	4,053,847	10,990,000

A022	Research & Survey (Statutory Function)	10,990,000	4,053,847	10,990,000
A03	Operating Expenses	28,043,000	3,615,574	28,042,258
A032	Communications	1,055,000	113,831	1,055,000
A03201	Postage & Telegraph	33,000	-	33,000
A03202	Telephone & Trunck Calls	1,022,000	113,831	1,022,000
A03205	Courier and Pilot Service	-	-	-
A033	Utilities Charges	2,840,000	548,952	2,840,000
A03303	Electricity	2,840,000	548,952	2,840,000
A034	Occupancy Costs	21,129,000	1,949,470	21,129,000
A03402	Rent of Office Building	47,000	9,400	47,000
A03403	Rent of Residential Building	21,082,000	1,940,070	21,082,000
A038	Travel & Transpotation	1,615,000	344,076	1,614,342
A03805	Travelling allowance	174,000	54,754	173,342
A03807	P.O.L	1,376,000	281,047	1,376,000

A03808	Conveyance Charges	65,000	8,275	65,000
A039	General	1,404,000	659,245	1,403,916
A03901	Stationary	467,000	81,471	467,000
A03902	Printing & Publication	140,000	63,650	140,000
A03905	Newspaper/Periodicals/Books	90,000	45,600	90,000
A03906	Uniform and protection cloth	40,000	32,475	40,000
A03907	Advertisement and publicity	374,000	324,613	374,000
A03917	Law Charges	-		
A03919	Payment to Other Services Rendered	19,000	-	19,000
A03970	Others	274,000	111,436	273,916
A04	Employee Retirement Benefits	32,000,000	-	32,000,000
A041	Pension	32,000,000	-	32,000,000
A04104	Other Pension (Pension Fund/Contribution)	32,000,000	-	32,000,000

A05	Grants, Subsidies and Writeoffs of Loans/Advances/Other	-	-	-
A052	Grants Domestic	-	-	-
A05216	Financial Assistance to the families of Civil Servants who expire during Service/After Retirement	-	-	-
A06	Transfer	954,000	555,158	954,000
A063	Entertainment & Gifts	-	-	-
A06301	Entertainment and Gifts	-	-	-
A064	Other Transfer Payment	954,000	555,158	954,000
A06470	Other (GLI & CPF Contribution)/SWF	954,000	555,158	954,000
A09	Expenditure on Acquiring of Physical Assets	654,000	447,782	654,000
A092	Copmputer Equipment	-	-	-
A09201	Hardware	-	-	-
A09203	I.T. Equipment	-	-	-

A095	Transport	-	-	-
A09501	Transport	-	-	-
A096	Plant & Machinery	374,000	212,242	374,000
A09601	Plant & Machinery	374,000	212,242	374,000
A097	Furniture/Fixture	280,000	235,540	280,000
A09701	Furniture & Fixture	280,000	235,540	280,000
A13	Repair & Maintenance	2,830,000	1,290,685	2,829,984
A130	Transport	922,000	310,828	922,000
A13001	Transport	922,000	310,828	922,000
A131	Machinery & Equipments	280,000	92,733	280,000
A13101	Machinery & Equipments	280,000	92,733	280,000
A132	Furniture/Fixture	87,000	83,300	87,000
A13201	Furniture & Fixture	87,000	83,300	87,000
A133	Building & Structure	1,215,000	569,559	1,215,000

A13301	Office Building	1,215,000	569,559	1,215,000
A137	Computer Equipment	186,000	100,265	185,984
A13701	Hardware	93,000	75,918	93,000
A13703	I.T. Equipment	93,000	24,347	92,984
A138	General	140,000	134,000	140,000
A13801	Maintenace of Gardens	140,000	134,000	140,000

ANNEXURES

PAKISTAN SCIENCE FOUNDATION ACT 1973

National Assembly of Pakistan Islamabad, the 2nd February 1973

The following Acts of the National Assembly received the assent of the President on the 31st January 1973 and hereby published for general information.

Act No. III of 1973

An Act to provide for the establishment of the Pakistan Science Foundation.

Whereas it is expedient to provide for the establishment of the Pakistan Science Foundation and for matters ancillary there to,

It is hereby enacted as follows: -

1. **Short title, extent and commencement.** (1) This Act may be called the Pakistan Science Foundation Act, 1973.
 - 2) It extends to the whole of Pakistan
 - 3) It shall come into force at once.
2. **Definitions.** In this Act, unless there is anything repugnant in the subject or context.
 - a) “Board” means the Board of Trustees of the Foundation;
 - b) “Chairman”: means the Chairman of the Foundation; and
 - c) “Foundation” means the Pakistan Science Foundation established under this Act.
3. **Establishment of the Foundation.** (1) As soon as may be after the commencement of this Act, the Federal Government may, by notification in the official Gazette, establish a Pakistan Science Foundation to promote and finance scientific activities having a bearing on the socio-economic needs of the country.

(2) The Foundation shall be a body corporate by the name of the Pakistan Science Foundation, having perpetual succession and a common seal, with power, subject to the provision of this Act, to acquire, hold and dispose of property, both movable and immovable, and shall be the said name sue and be sued.

(3) The Head Office of the Foundation shall be at Islamabad.

4. Functions of the Foundation: (1) The Foundation shall function as a financing agency for

- i) The establishment of comprehensive scientific and technological information and dissemination centers;
- ii) The promotion of basic and fundamental research in the universities and other institutions on scientific problems relevant to the socio-economic development of the country;
- iii) The utilization of the results of scientific and technological research including pilot plant studies to prove the technical and economic feasibility of processes found to be promising on a laboratory scale;
- iv) The establishment of science centers, clubs, museums, herbaria and planetaria,
- v) The promotion of scientific societies, associations and academies engaged in spreading the cause of scientific knowledge in general or in the pursuit of a specific scientific discipline or technology in particular;
- vi) The organization of periodical science conferences, symposia and seminars;
- vii) The exchange of visits of scientists and technologists with other countries;
- viii) The grant of awards, prizes and fellowships to individuals engaged in developing processes, products and inventions of consequence to the economy of the country; and
- ix) Special scientific surveys not undertaken by any other organization and collection of scientific statistics related to the scientific effort of the country.

(2) The Foundation shall also:

- i) Review the progress of scientific research sponsored by it and evaluate the results of such research;
- ii) Maintain a National Register of highly qualified and talented scientists of Pakistan including engineers and doctors, in or outside the country and to assist them, in collaboration with the concerned agencies in finding appropriate employment; and
- iii) Establish liaison with similar bodies in other countries.

- (3) In the performance of its functions, the Foundation shall be guided on questions of policy by the instructions, if any, given to it by the Federal Government which shall be the sole judge as to whether a question is a question of policy.

5. Board of Trustees. (1) The general direction, conduct and management of the affairs of the Foundation, including administration of its funds, shall vest in a Board of Trustees consisting of the following members namely;

Whole-time members

- i) the Chairman;
 - ii) one eminent scientist;
 - iii) the Director of Finance;
- to be appointed by the President;

Part-time members

- iv) the Chairman of the National Science Council;
- v) four scientists to be nominated by the National Science Council; and
- vi) eleven eminent scientists to be nominated by the President

(2) The remuneration and other terms and conditions of service of the Chairman and the two other whole-time members of the Board shall be such as may be determined by the President.

6. Chairman of the Board (1) The Chairman of the Board shall be the Chairman of the Foundation and shall be appointed from amongst the eminent scientists of the country having experience of research and scientific administration.

(2) The Chairman shall, subject to sub-section (3), hold office for a term not exceeding three years and shall be eligible for re-appointment.

(3) The President may at any time terminate the appointment of the Chairman without notice and without assigning any reason.

7. Term of Members of the Board. (1) The members of the Board, other than the ex-officio member, shall subject to sub-section (3), hold office for a term not exceeding three years and shall be eligible for re-appointment or re-nomination, as the case may be.

(2) A member, other than an ex-officio member, may at any time resign his office by writing under his hand addressed to the President but shall continue to perform his functions until his resignation has been accepted.

(3) The President may at any time terminate the appointment or, as the case may be, nomination of any member of the Board without notice and without assigning any reason.

8. Meetings of the Board. (1) The meeting of the Board shall be held at least twice a year and shall be presided over by the Chairman or, in his absence, by its whole-time scientist member.

(2) All decisions at a meeting of the Board shall be taken by a majority of the votes of the members present and voting.

9. Quorum at the Meeting of the Board. To constitute a quorum at a meeting of the Board not less than nine members shall be present.

10. Executive Committee. There shall be an Executive Committee consisting of the Chairman and the two whole-time members of the Board.

11. Delegation of Powers. The Board may, from time to time, delegate the Chairman or the Executive Committee such of its power and functions as it may consider necessary.

12. Adhoc Committees. The Foundation may set up adhoc committees consisting of university professors and other leading scientists and experts to scrutinize applications for financial assistance for carrying out scientific research submitted to the Foundation by the universities or other institutions or by individual scientific workers or groups of scientific workers and to review and evaluate the results of research sponsored by the Foundation.

13. Funds. The funds of the Foundation shall consist of:

- a) Grants made by the Federal Government and the Provincial Governments;
- b) Donation and endowments; and
- c) Income from other sources

(As amended vide Ordinance No XIII of 1979, Published in the Gazette of Pakistan Extra, Feb 24, 1979) Part I,

14. **Budget.** The Foundation shall cause to be prepared and approve a statement of its receipt and expenditure for each financial year.

15. **Accounts and Audit.** (1) The funds of the Foundation shall be kept in a personal ledger account of the Foundation with the State Bank of Pakistan or with any Branch of the National Bank of Pakistan acting as an agent of the State Bank.

(2) The accounts of the Foundation shall be maintained in such form and manner as the Auditor-General of Pakistan may determine in consultation with the Federal Government.

(3) The accounts of the Foundation shall be audited by one or more auditors who are chartered accountants within the meaning of the Chartered Accountants Ordinance, 1961 (X of 1961) and are appointed by the Foundation in consultation with the Auditor-General of Pakistan.

16. **Appointment of Officers and Servants.** (1) The Foundation may appoint such officers and servants and engage such consultants or experts, as it may consider necessary for the efficient performance of its functions, on such terms and conditions as it may deem fit.

(2) In fixing the terms and conditions of service of its officers and servants, the Foundation shall, as nearly as may be, conform to the scales of pay, allowances and conditions of service applicable to the corresponding class of employees of the Federal Government.

17. **Annual Reports.** (1) The annual report of the Foundation, which shall among other things, clearly bring out the benefits accruing to the nation as a result of the activities sponsored by the Foundation, shall be prepared by the Chairman and submitted through the Board to the Federal Government along with the audited accounts of the Foundation.

(2) The annual report along with the audited accounts of the Foundation shall be laid before the National Assembly.

18. **Regulations.** The Foundation may make regulations for the efficient conduct of its affairs.

19. **Repeal.** The Pakistan Science Foundation Ordinance, 1972 (LII of 1972), is hereby repealed.

ANNEXURE-II**List of Projects Approved by Executive Committee during 2020-21**

S. #	Project Title & No.	P.I. Name, Designation & Address	Total Cost in Pak. Rs.
1.	PSF/Res/S-MUET/Engg (187) Computational Investigations on Novel 2D Monatomic Hexagonal Boron Nitride (h-BN) and Transition Metal Nitride (TMN) Materials for Hydrogen Storage Applications	Dr. Muhammad Rafique Naich Assistant Professor Department of Electronic Engineering Mahran University of Engineering & Technology, Khairpur Campus	845,988/-
2.	PSF/Res/KPK-NUST/Engg (188) Design, Development and Wind Tunnel Testing of a Low Aspect Ratio Wing to Study Wing Rock Phenomenon at Low Reynolds Number for Micro Aerial Vehicle Applications	Dr. Syed Irtiza Ali Shah Head of Aerospace Engineering, CAE National University of Sciences and Technology PAF Academy, Risalpur	1,868,181/-
3.	PSF/Res/P-LCWU/Phys (214) To Investigate the Various Instabilities as Energy Source in Quantum and Classical Plasmas	Dr. Rozina Chaudhary Associate Professor Department of Physics Lahore College for Women University, Lahore	1,005,720/-

ANNEXURE-III

Detail of Monitoring and Evaluation of On-Going Projects During 2020-21

A. Non Development Budget

a. Semi Annual Technical Reports

S #	Project No.	Project title	Report
1.	PSF/Res/KPK-PU/Bio (661)	Molecular Characterization of <i>Clostridium perfringens</i> and development of Toxide Vaccine	3 rd semi-annual
2.	PSF/Res/C-RIU/Chem (583)	Design, Synthesis and Pharmacological Screening of Novel 2-mercapto Benzimidazole Derivatives as Potential anti-Ulcer Agents	1 st semi-annual
3.	PSF/Res/S-ICCBS/Chem (596)	Structural and Function Study of Metabolites of Fluorinated Drugs Produced by Fungal Transformation of Fluorinated Steroids	2 nd Semi annual
4.	PSF/Res/KPK-PU/Earth (96)	Shale Gas Potential of the Kohat Sub-basin, Indus Basin, Pakistan	2 nd Semi Annual
5.	PSF/Res/C-IBGE/Med (509)	Exploring Predictive Biomarker for Aplastic Anemia: An Appropriate Tool for Diagnosis and Treatment	1 st Semi annual
6.	PSF/Res/P-AMC/Med (519)	Genomic Landscape of Myelodysplastic Syndrome Patients in Pakistan	1 st Semi annual
7.	PSF/Res/S-AKU/Med (506)	Development of Mouse Model of Heart Fibrosis after Myocardial Infarction to Study the Molecular Contributions of Wnt-signaling Proteins and Galectin-3	1 st Semi annual
8.	PSF/Res//P-GCU/Med (485)	Bioassay Guided Screening and Purification of Medicinal Plant against Hepatitis C Virus	1 st Semi annual
9.	PSF/Res/KPK-IBMS/Med (493)	The Role of Circulating Tumor DNA in Monitoring Treatment Response in Patients with Breast Cancer	2 nd Semi annual

b. First Annual Technical Reports

S.#	Project No.	Project title
1.	PSF/Res/C-RIU/Chem (583)	Design, Synthesis and Pharmacological Screening of Novel 2-mercapto Benzimidazole Derivatives as Potential anti-Ulcer Agents
2.	PSF/Res/P-MNS-UET/Chem (587)	Titanium Dioxide Based Self-Cleaning Textiles: Comparative study of Degradation of Different Dyes using Visible-light active Self-Cleaning Cotton, Wool and Polyester"
3.	PSF/Res/KPK-PU/Earth (96)	Shale Gas Potential of the Kohat Sub-basin, Indus Basin, Pakistan
4.	PSF/Res/S-AKU/Med (506)	Development of Mouse Model of Heart Fibrosis after Myocardial Infarction to Study the Molecular Contributions of Wnt-signaling Proteins and Galectin-3
5.	PSF/Res/P-GCU/Med (485)	Bioassay Guided Screening and Purification of Medicinal Plant against Hepatitis C Virus
6.	PSF/Res/KPK-AWKU/Med (459)	Development of Coumarin Based Compounds for U2OS Bone Cancerous Cell Treatment
7.	PSF/Res/P-CUI/Med (477)	Label Free, non-Invasive Biomimetic Sensor for Detecting Oral Cancer
8.	PSF/Res/P-AMC/Med (519)	Genomic Landscape of Myelodysplastic Syndrome Patients in Pakistan

c. Second Annual Technical Reports

S.#	Project No.	Project title
1.	PSF/Res/C-NESCOM/Agr (497)	Wild Olive (<i>Olea cuspedata</i>) utilization as Root Stock for Oil Plants through Different Top working Techniques
2.	PSF/Res/KPK-PU/Bio (661)	Molecular Characterization of <i>Clostridium perfringens</i> and development of Toxide Vaccine
3.	PSF/Res/KPK-IBMS/Med (493)	The Role of Circulating Tumor DNA in Monitoring Treatment Response in Patients with Breast Cancer

d. Final Technical Reports

S.#	Project No.	Project Title
1.	PSF/Res/B-ARI/Agr (492)	Screening of Indeterminate Tomatoes hybrids/varieties under the High Tunnels in

		Balochistan
2.	PSF/Res/S-ICCBS/Chem (596)	Structural and Function Study of Metabolites of Fluorinated Drugs Produced by Fungal Transformation of Fluorinated Steroids
3.	PSF/Res/B-BUIITEMS/Comp (61)	Extended Classroom Learning via Online Social Networking: Male-Female Learning Comparative Impact
4.	PSF/Res/P-UET.TX/Engg (152)	Design and Implementation of real time Cooperative MIMO Communication Platform for Next Generation Wireless Communications
5.	PSF/Res/KPK-GIKI/Engg (170)	Development of Natural Fiber (wool/cane fiber) Reinforced Polymer Matrix Composites
6.	PSF/Res/S-MUET/Engg (155)	Dyeing of Synthetic Polyester Fabric with Natural Dye using Radcure Techniques
7.	PSF/Res/S-AKU/Med (479)	Understanding the Association of SIRT1 Genetic Variants with Microenvironment of the Oocyte in Infertile Female
8.	PSF/Res/P-CUI/Med (477)	Label Free, non-Invasive Biomimetic Sensor for Detecting Oral Cancer
9.	PSF/Res/C-NUST/Med (453)	EMG Powered Active Ankle Lower Limb Prosthetic Foot
10.	PSF/Res/S-ICCBS/Med (431)	A Data Base Development of the Unique Metabolic Pathways of the Infectious Pathogens
11.	PSF/Res/C-PIMS/Med (450)	Identification of Molecular Determinants of Hereditary Deafness
12.	PSF/Res/P-FCC/Phys (202)	Quasilinear Theory of Electromagnetic Instabilities with Non-Maxwellian Distribution Functions
13.	PSF/Res/P-IUB/Phys (189)	Synthesis and Characterization of Nanoferrites for Thermoelectric Power Generation
14.	PSF/Res/P-GCUF/Phys (203)	Fabrication of Metal Semiconductor Diodes by Home Developed Thermal Evaporation System

e. Technical Reports Adopted by Technical Committee

Sr. No.	Project No.	Project Title	Reports
1.	PSF/Res/P-AU/Agr (467)	Bio Management of Alligator Weed through its Utilization as compost and organic mulch	First Annual Technical Report

2.	PSF/Res/P-AU/Agr (467)	Bio Management of Alligator Weed through its Utilization as Compost and Organic Mulch	Final Technical Report
3.	PSF/Res/B-ARI/Agr (492)	Screening of Indeterminate Tomatoes hybrids/varieties under the High Tunnels in Balochistan	First Annual Technical Report
4.	PSF/Res/C-NESCOM/Agr (497)	Wild Olive (<i>Olea cuspedata</i>) utilization as Root Stock for Oil Plants through Different Top working Techniques	First Annual Technical Report
5.	PSF/Res/B- DAEB/Agr (379)	Population Dynamics and Life Table of Dubas Bug (<i>Ommatissus lybicus</i>) on Date Palm In District Punjgur, Balochistan	Final Technical Report
6.	PSF/Res/KPK-PU/Bio (661)	Molecular Characterization of <i>Clostridium perfringens</i> and development of Toxide Vaccine	First Annual Technical Report
7.	PSF/Res/KPK-PU/Bio (661)	Molecular Characterization of <i>Clostridium perfringens</i> and development of Toxide Vaccine	Second Annual Technical Report
8.	PSF/Res/P-UVAS/Bio (544)	The Development and Evaluation of Thermostable Vaccine against Peste des Petits Ruminants	Final Technical Report
9.	PSF/Res/B-BUITMS/Bio (388)	Studies on the Regeneration of Juniper (<i>Juniperus excels Bieb</i>) in Balochistan	Final Technical Report
10.	PSF/Res/C-PMNH/Bio (268)	Studies on Algae of Major Rivers of Punjab with Special Emphasis on its Consumption by Economically Important Fishes	Final Technical Report
11.	PSF/Res/S-ICCBS/Chem (596)	Structural and Function Study of Metabolites of Fluorinated Drugs Produced by Fungal Transformation of Fluorinated Steroids	First Annual Technical Report
12.	PSF/Res/KPK-MU/Chem (461)	The Efficient and Facile Synthesis of Asymmetric Aldol Adducts Catalyzed by Bi-functional Diamine-Organocatalysts	Final Technical Report
13.	PSF/Res/S-SU/Chem (465)	Metal Ion Imprinted Polymers (MIIPs): Novel Material for Pre-	Final Technical

		Concentration and Separation of Total Arsenic in Aqueous Systems	Report
14.	PSF/Res/S-PCSIR/Chem (478)	Synthesis of Heterocyclic Organic Compounds for Drug Development	Final Technical Report
15.	PSF/Res/P-CUI/Chem (570)	Development of Mechanically Reinforced Silica Based Bioactive Glass (SiO ₂ CaO-P ₂ O ₅) Polymer Composites for Potential Application in Osteochondral Defect Site	Final Technical Report
16.	PSF/Res/P-NUST/Comp (38)	Indigenous Development of Multi-Biometric Authentication System	Final Technical Report
17.	PSF/Res/KPK-PU/Earth (96)	Shale Gas Potential of the Kohat Sub-basin, Indus Basin, Pakistan	First Annual Technical Report
18.	PSF/Res/P-PU/Earth (82)	Sedimentological Studies of the Lower Eocene Sakesar Limestone Salt Range, Pakistan	Final Technical Report
19.	PSF/Res/P-CUI/Engg (124)	Synthesis of Chemically Modified Polymeric Membranes for Biogas Purification and Natural Gas Sweetening	First Annual Technical Report
20.	PSF/Res/S-MUET/Engg (155)	Dyeing of Synthetic Polyester Fabric with Natural Dye using Radcure Techniques	First Annual Technical Report
21.	PSF/Res/P-CUI/Engg (159)	Evaluating the performance and Power Effectiveness of Asynchronous Processors Customized for many Core Systems	First Annual Technical Report
22.	PSF/Res/P-CUI/Engg (159)	Evaluating the performance and Power Effectiveness of Asynchronous Processors Customized for many Core Systems	Final Technical Report
23.	PSF/Res/C-NUST/Engg (164)	iDOC: A Portable, Cost Effective Diagnostic Screening Device for Early Dengue Fever Detection	First Annual Technical Report
24.	PSF/Res/C-NUST/Engg (136)	Plasmons Effects in Nano-Structures of Inorganic	Final Technical

		Polycrystalline Materials (ZnS, CdTe, CdS) by Embedding Different Metallic NanoParticles (Ag, Au,Cu) for Improving Photovoltaic Efficiency in Photovoltaic Industry	Report
25.	PSF/Res/KPK-AWKU/Med (459)	Development of Coumarin Based Compounds for U2OS Bone Cancerous Cell Treatment	First Annual Technical Report
26.	PSF/Res/P-UHS/Med (478)	Comparison of Salivary Aqu Levels in Patients with Type-II <i>Diabetes mellitus</i> and Healthy Individuals	First Annual Technical Report
27.	PSF/Res/S-AKU/Med (488)	Analysis of Population-Specific Epitope and Drug-resistance Mutations in HIV-1 in Pakistan	First Annual Technical Report
28.	PSF/Res/P-UHS/Med (492)	Biochemical and Molecular Analysis of Oculocutaneous Albinism in Families from Pakistan	First Annual Technical Report
29.	PSF/Res/P-NUST/Med (453)	EMG Powered Active Ankle Lower Limb Prosthetic Foot	First Annual Technical Report
30.	PSF/Res/S-AKU/Med (479)	Understanding the Association of SIRT1 Genetic Variants with Microenvironment of the Oocyte in Infertile Female	Second Annual Technical Report
31.	PSF/Res/S-AKU/Med (479)	Understanding the Association of SIRT1 Genetic Variants with Microenvironment of the Oocyte in Infertile Female	Final Technical Report
32.	PSF/Res/P-CUI/Med (477)	Label Free, non-Invasive Biomimetic Sensor for Detecting Oral Cancer	First Annual Technical Report
33.	PSF/Res/P-CUI/Med (477)	Label Free, non-Invasive Biomimetic Sensor for Detecting Oral Cancer	Final Technical Report
34.	PSF/Res/S-ICCBS/Med (431)	A Data Base Development of the Unique Metabolic Pathways of the Infectious Pathogens	Second Annual Technical Report
35.	PSF/Res/S-ICCBS/Med (431)	A Data Base Development of the	Final

		Unique Metabolic Pathways of the Infectious Pathogens	Technical Report
36.	PSF/Res/C-NORI/Med (497)	Prediction of Gastric Cancer in <i>Helicobacter pylori</i> Infected Gastric Mucosa	Final Technical Report
37.	PSF/Res/C-CUI/Med (297)	Next Generation Granular Biomedical Ceramics for Rapid Bone Defect Repair	Final Technical Report
38.	PSF/Res/KPK-IBMS/Med (487)	Status of Iron balance and Thalassaemia trait in District Peshawar, Khyber Pakhtunkhwa	Final Technical Report
39.	PSF/ Res/C-NILOP/ Phys (183)	Development of Fluorosensor for <i>In vivo</i> Tissue Characterization	Final Technical Report

ANNEXURE-IV

Scientific Publications Produced Through PSF Completed Projects
During 2020-21

S. No.	Project No.	Publication
1.	PSF/Res/B- DAEB/Agr (379)	<ul style="list-style-type: none">• Shah, Arif; Ata-ul-Mohsin; Naeem, Muhammad; Nasir, Muhammad Farooq; Irfan-ul-Haq, Muhammad; Hafeez, Zahid. Dubas Bug, <i>Ommatissus lybicus</i> (Tropiduchidae: Homoptera) - A New Record from Panjgur, Balochistan, Pakistan” Pakistan Journal of Zoology; 2012, Vol. 44 Issue 6, p1765-1769.• Shah, Arif; Ata-ul-Mohsin; Naeem, Muhammad; Nasir, Muhammad Farooq (2012); Irfan-ul-Haq, Muhammad; Hafeez, Zahid Biology of Dubas Bug, <i>Ommatissus lybicus</i> (Homoptera: Tropiduchidae), a Pest on Date Palm During Spring and Summer Seasons in Panjgur, Pakistan. Pakistan Journal of Zoology; 2012, Vol. 44 Issue 6, p1603• Shah, Arif, et al. "Eggs Distribution Behaviour of Dubas Bug (<i>Ommatissus lybicus</i>: Homoptera: Tropiduchidae) in Relation to Seasons and Some Physico-Morphic Characters of Date Palm Leaves". Journal of Insect Behavior 26.3 (2013): 371-386.• Arif Shah, Muhammad Qasim Kakar, Atta Ullah, Abdul Razaq, Nikos E. Papanikolaou, Toheed Iqbal and Habib Ullah (2016). Functional Response of <i>Coccinella septempunctata</i> L. (Coleoptera: Coccinellidae) on <i>Ommatissus lybicus</i> (Homoptera: Tropiduchidae). Pure and Applied Biology. Vol. 5(4): 671-681.• Arif Shah, Ata -ul- Mohsin, Muhammad Ather Rafi, Ahmed Zia, Muhammad Qasim Kakar, Muhammad Yousaf Ghilzai, Sumera

		<p>Aslam, Amad Ud Din (2016). A Preliminary Study of Yellow Sticky Traps for Monitoring of Dubas Bug, <i>Ommatissus lybicus</i> (Hemiptera: Tropiduchidae) in Date Palm. Pakistan Journal of Entomology. 31 (2): 133-142.</p>
2.	PSF/Res/B-BUITMS/Bio (388)	<ul style="list-style-type: none"> • Muhammad Hussain Khajjak, Muhammad Saeed, Muhammad Naeem Shahwani, Shahjahan Shabbir Ahmed, Ghazala Shaheen, Asma Yousafzai, Nazeer Ahmed Durrani. 2017. Seed and cone biometry of <i>Juniperus excelsa</i> from three Provenances in Balochistan. International Journal of Biosciences. Vol. 10(1): 345-355. <i>ISI indexed</i>. • Muhammad Hussain Khajjak, Raza A.M., Shawani M.N., Fayyaz A., Shaheen G and Saeed M.2012. Comparative analysis of essential oil contents of <i>Juniperus excelsa</i> (M. Beib.) found in Balochistan, Pakistan. African Journal of Biotechnology Vol. 11(32), 8154-8159
3.	PSF/Res/S-SU/Chem (465)	<ul style="list-style-type: none"> • Aamna Balouch, et.al, Arsenic Remediation by Synthetic and Natural Adsorbents, Pak. J. Anal. Environ. Chem. Vol. 18, No. 1 (2017) 18 – 36. • Aamna Balouch, et.al, Microwave-assisted synthesis of imprinted polymer for selective removal of arsenic from drinking water by applying Taguchi statistical method. European Polymer Journal 109 (2018) 133–142. • Aamna Balouch, et.al, Synthesis, adsorption and analytical applicability of Niimprinted polymer for selective adsorption of Ni²⁺ ions from the aqueous environment, Polymer Testing 77 (2019) 105871. • Aamna Balouch, et.al, Remediation Techniques applied for aqueous system contaminated by toxic Chromium and Nickel ion”, Geology, Ecology, and landscapes, 2017

		<p>Vol. 1, no. 2, 143–153.</p> <ul style="list-style-type: none"> • Aamna Balouch, et.al, Novel chromium imprinted polymer: synthesis, characterization and analytical applicability for the selective remediation of Cr(VI) from an aqueous system. International Journal of Environmental Analytical Chemistry https://doi.org/10.1080/03067319.2019.1599876 • Aamna Balouch, et.al, Remediation of Nickel ion from wastewater by applying various techniques: a review, Acta Chemica Malaysia (ACMY). DOI: 10.2478/acmy-2019-0001. • Aamna Balouch, et.al, Synthesis of ultrasonic-assisted lead ion imprinted polymer as a selective sorbent for the removal of Pb²⁺ in a real water sample, Micro chemical Journal 146 (2019) 1160–1168.
4.	PSF/Res/S-PCSIR/Chem (478)	<ul style="list-style-type: none"> • Antibacterial and antifungal activities of 5-arylidene-N, N-dimethylbarbiturates derivatives, Khalid M. Khan, M. Khan, A. Ahmad, A. Irshad, L. B. S. Kardono, F. Rahim, S. M. Haider, Sumbul Ahmed and Shahnaz Parveen, <i>Journal of The Chemical Society of Pakistan</i>, 36 (6), 1153-1157, 2014. • Dithiin diisoimides: Synthesis and their Antimicrobial Studies, Sumbul Ahmed, Shahnaz Perveen, Khalid Mohammed Khan, Farzana Naz, Rahat Azher Ali, Munazza Ajaz, Samreen Shah, Pakistan Journal of Pharmaceutical Sciences, Accepted, July 2019.
5.	PSF/Res/P-CUI/Chem (570)	<ul style="list-style-type: none"> • Kanwal Ilyas, Saba Zahid, Madeeha Batool, Aqif Anwar Chaudhry, Arshad Jamal, Farasat Iqbal, Mian Hasnain Nawaz, Oliver Goerke, Aleksander Gurlo, Asma Tufail Shah, Ihtesham ur Rehman (2019), "In-vitro investigation of graphene oxide reinforced bioactive glass ceramics composites", Journal of Non-Crystalline Solids, pp: 122-130, Vol: 505
6.	PSF/Res/P-GCU/Chem (436)	<ul style="list-style-type: none"> • Homobimetallic Complexes of Ligand Having O- and S-Donor Sites with Same and Different

		<p>Di- and Trialkyl/aryl tin(IV) Moiety: Their Synthesis, Spectral Characterization and Biological Activities. M. Jabeen, S. Ali, Saira Shahzadi, M. Shahid, Q.M. Khan, S.K. Sharma and K. Qanungo, J. Iran. Chem. Soc., 9, 307-320 (2012). Impact Factor = 1.467</p> <ul style="list-style-type: none"> • Synthesis, Characterization, Semi-empirical Study and Biological Activities of Organotin(IV) Complexes with Cyclohexyl carbamodithioic Acid As Biological Active Ligand. S. Jabbar, I. Shahzadi, R. Rehman, H. Iqbal, Qurat-ul-Ain, A. Jamil, R. Kaosar, S. Ali, Saira Shahzadi, M.A. Chaudhary, Q.M. Khan, M. Shahid, S.K. Sharma and K. Qanungo, J. Coord. Chem., 65(4), 572-590 (2012). Impact Factor = 1.801. • Synthesis, Characterization, Homo-Lumo Study and Antimicrobial Activity of Organotin(IV) Complexes of 4-Piperidine Carboxamide and Its Schiff Base. M. Rizwan, S. Ali, Saira Shahzadi, S.K. Sharma, K. Qanungo, M. Shahid, S. Mahmood, (Accepted) (2013) Impact Factor= 1.801 • Synthesis, Characterization and Biological Activities of Homo- and Heterobimetallic Complexes of Sn(IV) and Pd(II) with 2-Mercapto-5-methyl benzimidazole. M. Rafiq, S. Ali, Saira Shahzadi, M. Shahid, S.K. Sharma, K. Qanungo, J. Iran. Chem. Soc., (2013) DOI 10.1007/s13738-013-0287-4. Impact Factor = 1.467 • Synthesis, Characterization, Semi-empirical Study and Biological Activities of Homobimetallic Complexes of Tranexamic Acid with Organotin(IV). J. Anwer, S. Ali, Saira Shahzadi, M. Shahid, S.K. Sharma, K. Qanungo, J. Coord. Chem., 66(7), 1142-1152 (2013). Impact Factor = 1.801 • Polymeric Three Dimensional Crystal
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		<p>Structure of a Tributyltin(IV) Derivative with Acetylene Dicarboxylic Acid. S. Hussain, S. Ali, Saira Shahzadi, C. Rizzoli, Phosphorus, Sulphur and Silicon and Related Elements, 188(6), 812-818 (2013). Impact Factor = 0.601</p> <ul style="list-style-type: none"> • Homobimetallic Complexes Containing Sn(IV) with Acetylene Dicarboxylic Acid: Their Synthesis, Structural Interpretation by Spectroscopic, Semi-empirical and DFT Techniques. S. Hussain, Saira Shahzadi, M.A. Chaudhary, S.K. Sharma, K. Qanungo, and I.H. Bukhari, J. Coord. Chem., 65(2), 278-285 (2012). Impact Factor = 0.601
7.	PSF/Res/C-NUST/Engg (136)	<ul style="list-style-type: none"> • Physical properties of Cu nano particles embedded CdS thin film for photovoltaic applications Sohaib Akram, Iftikhar Hussain Gul, Asghari Maqsood, Journal of Thin Solid Films, Impact Factor: 1.939
8.	PSF/Res/P-CUI/Engg (159)	<ul style="list-style-type: none"> • Naqvi, Syed Rameez, Anjum Zahid, Lina Sawalha, Syed Saud Naqvi, Tallha Akram, Sajjad Ali Haider, Kumar Yelamarthi, and Maksim Jenihhin. "An optimization framework for dynamic pipeline management in computing systems." Computers & Electrical Engineering 78 (2019): 242-258. • Naqvi, Syed Rameez, Ali Roman, Tallha Akram, Majed M. Alhaisoni, Muhammad Naem, Sajjad Ali Haider, Omer Chughtai, and Muhammad Awais. "An Optimization Framework for Codes Classification and Performance Evaluation of RISC Microprocessors." Symmetry 11, no. 7 (2019): 938. • Z. Tabassam, S. R. Naqvi, T. Akram, M. Alhussein, K. Aurangzeb and S. A. Haider, "Towards Designing Asynchronous Microprocessors: From Specification to Tape-Out," in IEEE Access, vol. 7, pp. 33978-34003, 2019. • Akram, Tallha, Syed Rameez Naqvi, Sajjad Ali Haider, and Muhammad Kamran. "Towards real-time crops surveillance for disease classification: exploiting parallelism in

		computer vision." Computers & Electrical Engineering 59 (2017): 15-26
9.	PSF/Res/C-PINSTECH/Med (497)	<ul style="list-style-type: none"> • Shahid Aziz, Tayyab Saeed Akhter, Shafqat Iqbal, Muhammad Umar, Rabaab Zahra, Tanvir Ahmad, Faisal Rasheed. Prevalence, Risk Factors for <i>Helicobacter pylori</i> Infection and their Association with Gastrointestinal Tract Diseases • Shahid Aziz, Aiza Saadia, Shafqat Iqbal, Tayyab Saeed Akhter, Muhammad Umar, Hamamatul Bushra Khaar, Syed Irtiza Hussain Shah Gardezi, Tanvir Ahmad, Rabaab Zahra, Faisal Rasheed. Prediction of Blood Based Biomarker ‘MicroRNA 21’ in Pakistani Gastric Cancer Patients • Ali, M., Aziz, S., Ahmad, I., Saadia, A., Zahra, R., May, F. E. & Rasheed, F. (2021). Gastric metastasis before diagnosis of primary invasive lobular breast carcinoma: a rare case presentation from Pakistan. Women & health, 61(9), 867-871. • Aziz, S., Zahra, R., Berg, A. M., Ackermann, D., Rasheed, F., & König, S. (2021). Albumin aggregation and the re-solubilization of dried serum proteins Mercator Journal of Biomolecular Analysis • Aziz, Shahid, Simone König, Haseeb Noor, Muhammad Nadeem, Rabaab Zahra, and Faisal Rasheed. "Isolated dextrogastrica with eventration of right hemidiaphragm and hiatal hernia in an adult male." BMC gastroenterology 22, no. 1 (2022): 1-6

Research Projects Recommended by the PSF-NSLP Technical Committee

During 2020-21

Sr. #.	Project No. and Title	Name, Designation & Address of PI
1.	Phytochemical Investigation of Seabuckthorn (<i>Hyphophea rhmodies L.</i>) and Development of Value Added Products NSLP/GB-KIU (756)	Dr. Shamsheer Ali Lecturer, Department of Chemistry, Karakoram International University, Gilgit.
2.	Development of Bacteriophage Therapy against Multi Drug Resistant Avian Pathogenic <i>E coli</i> causing Colibacillosis in Poultry NSLP/P-GCUF (769)	Dr. Bilal Aslam Assistant Professor, Department of Microbiology, Government College University Faisalabad
3.	Immunostimulation with Sub-Unit Outer Membrane Protein Coated Nanoparticles in the Control of Colibacillosis in Poultry NSLP/P-UAF (819)	Dr. Faqir Muhammad Associate Professor, Institute of Pharmacy Physiology and Pharmacology, University of Agriculture, Faisalabad
4.	Way forward to the Commercial Farming of grey francolin (<i>Francolinus pondicerianus</i>) NSLP/C-CUVAS (825)	Dr. Zahid Farooq Assistant Professor Department of Zoology. Cholistan University of Veterinary and Animal Sciences, Bahawalpur
5.	Smart Neck Collar for Livestock NSLP/KP-ICP(828)	Dr. Muhammad Sajjad Associate Professor Digital Image Processing Lab, Academic Block, Islamia College, Peshawar.
6.	Establishment of Vermiculture and Vermi-Composting Production Units and Technology Transfer to the Farmers NSLP/P-BARI(843)	Muhammad Arsalan Assistant Agri. Chemist, Barani Agricultural Research Institute, Talagang Road Chakwal.
7.	Weed Control in Vegetable Farms via Microwave Irradiation NSLP/S-SIBA(862)	Dr. Muhammad Yameen Sandhu Assistant Professor, Electrical Engineering Department, Sukkur IBA University, Sukkur.

8.	Search of Novel Immunogenic Proteins to Develop Vaccines and Prototype Diagnostic Kits Against Haemonchosis NSLP/C-QU (866)	Dr. Kiran Afshan Assistant Professor Department of Animal Sciences Quaid-e-Azam University, Islamabad
9.	<i>Citrullus Colocynthis</i> as a Potential Growth Promoter in Poultry NSLP/P-CUVAS (874)	Dr. Muhammad Qumar Assistant Professor, Department of Animal Nutrition, Cholistan University of Veterinary & Animal Sciences, Bahawalpur
10.	Genetic and Antigenic Characterization of FMD Viruses for Development of Improved and Potent Vaccines NSLP/C-NARC (778)	Dr. Umer Farooq Senior Scientific Officer, Animal Health Program, Animal Sciences Institute, National Agricultural Research Centre, Islamabad
11.	Effect of Antioxidant Resveratrol Supplementation to Semen Extender on post-thawed Sperm Quality and Fertility in mixed Beetal Goats NSLP/P-NIAB (785)	Dr. Tarique Hussain Senior Scientist, Animal Sciences Division, Nuclear Institute for Agriculture and Biology, Faisalabad.
12.	Biofortification of Fodders with Selenium to Improve Milk Yield and Quality in Dairy Cattle NSLP/P-UAM (838)	Dr. Fahim Nawaz Assistant Professor, Department of Agronomy, MNS University of Agriculture, Multan.
13.	Development of multi strains Probiotic for the production of safe, antibiotic free and high quality Poultry meat NSLP/KP-UAP (865)	Dr. Sher Bahadar Khan Assistant Professor, Dept of Poultry Science, The University of Agriculture, Peshawar.
14.	Facile synthesis of Iron oxide nanoparticles as nutraceuticals for application in Livestock and Poultry Industry NSLP/P-UVAS (780)	Dr. Khalid Abdul Majeed Assistant Professor, University of Veterinary & Animal Sciences, Lahore
15.	Establishing Phenological and Genetic Responses to Seasonal Shifts in Guava (<i>Psidium guajava L.</i>) Germplasm NSLP/P-UAF (822)	Dr. Muhammad Usman Assistant Professor, Plant Tissue Culture Cell, Institute of Horticultural Sciences, University of Agriculture, Faisalabad
16.	Control of Pale-Soft-Exudate meat and improvement of eating quality through changes in myofibrillar proteins by nanoparticles supplementation NSLP/P-IU (837)	Dr. Muhammad Ammar Khan Department of Food Science & Technology, University College of Agriculture & Environmental Sciences, The Islamia University of Bahawalpur.

17.	Development and Characterization of Biodegradable Food Packaging Films from Indigenous Agricultural Residues NSLP/P-UAF(845)	Dr. Abid Aslam Maan Assistant Professor, National Institute of Food Science and Technology, University of Agriculture Faisalabad.
18.	Development of effective diagnostics and vaccine for the control of <i>Mycoplasma bovis</i> (local strain) infections in cattle and buffaloes NSLP/KP-UAP(887)	Dr. Farhan Anwar Khan Assistant Professor, Department of Animal Health, The University of Agriculture, Peshawar
19.	Green active packaging of poultry, livestock meat, fruits and shrimps having nanoencapsulated natural preservatives to boost national economy NSLP/P-GCUL(804)	Prof. Dr. Ikram-ul-Haq Professor Emeritus/S. I School of Industrial Biotechnology, Government College University, Lahore
20.	Exploring Potential of Saline Fish Farming at the Foothills of Salt Range Using Saline Groundwater NSLP/C-PCRWR (901)	Dr. Naveed Iqbal Deputy Director, PCRWR, Islamabad
21.	Enrichment of <i>Omega</i> (Ω) Fatty Acids in Edible Oils using Ultrasound Technology PSF/NSLP/P-GCUF (750)	Dr. Muhammad Kamran Khan Assistant Professor, Institute of Home and Food Sciences, GC University, Faisalabad
22.	Development and production of bio pesticides for the control of tick infestation in cattle in Pakistan PSF/NSLP/P-UVAS(798)	Dr. Muhammad Oneeb Assistant Professor, Department of Parasitology, University of Veterinary & Animal Sciences, Lahore
23.	Treatment of Acute Mycotoxicosis in Poultry and Animals Through Development of Indigenous Mycotoxins Inactivating Liquid Product PSF/NSLP/P-UAF(857)	Dr. Muhammad Kashif Saleemi Assistant Professor, Department of Pathology, Faculty of Veterinary Science, University of Agriculture, Faisalabad
24.	Traceable beef production: An innovative production system to develop consumer trust on food safety through traceability PSF/NSLP/P-CUVAS(861)	Dr. Muhammad Fiaz Associate Professor, Department of Livestock Management, Faculty of Animal Production and Technology, Cholistan University of Veterinary and Animal Science, Bahawalpur
25.	Feed-grade Nano-additives to Control the Salmonellosis and Campylobacteriosis: One Health Concept PSF/NSLP/C-CUI(880)	Dr. Muhammad Imran Assistant Professor, Department of Biosciences, COMSATS University Islamabad, Islamabad
26.	Production of Microalgal Biomass, as	Dr. M. Ishtiaq Ali

	Potential Biofertilizer, using Wastewater leading to Removal of Pollutants and Pathogenic load. PSF/NSLP/C-QAU (895)	Associate Professor/ TTS, Department of Microbiology, Quaid-i-Azam University Islamabad
27.	Development, Formulation and Patenting of Mycorrhizal Fungi Based Biofertilizer PSF/NSLP/KP-UoH (907)	Dr. Ali Raza Gurmani Associate Professor, Department of Soil & Climate Science, University of Haripur, Haripur

ANNEXURE VI

List of Progress Reports of PSF Projects Received During 2020-21

A. Semiannual Reports

Sr. No.	Project No.	Project Title	Reports
1.	PSF/NSLP/P-GCUF (710)	A Comparative Assessment of Allopathic Drugs and Selected Medicinal Plants Potential against Infertility using Animals Model	1 st
2.	PSF/NSLP/P-UVAS (701)	Isolation, Molecular Characterization of Pathogenic Bacteria and Development of Fish Vaccine for Culturable Fish Species of Pakistan	1 st
3.	PSF/NSLP/S-KU (692)	Preparation of Industrially Important Instant Starches (Cold Water Swell-able) and its Application in Food Products	1 st
4.	PSF/NSLP/KP-UAP (709)	Optimization of Environmental and Nutritional Standards for Mass Production of Mealworm Meal Under Tropical Environment of Pakistan	1 st
5.	PSF/NSLP/C-QU (706)	Functional Analysis of Rice NAC Transcriptional Factor in Transgenic Wheat against Various Stresses	1 st
6.	PSF/NSLP/C-CIIT (743)	Phage Based Biocontrol of Bacterial Wilt Disease in Tomato and Chillies for Sustainable Production	1 st
7.	PSF/NSLP/C-QAU (720)	Pilot Scale Production of High Quality DNA Extraction Kits for Plant & Blood Samples	1 st
8.	PSF/NSLP/KP-AWKUM (646)	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i>	2 nd
9.	PSF/NSLP/P-UAAR (695)	Molecular Cloning and Heterologous Expression of Endopolygalacturonas gene in <i>E. coli</i> as a Promising	2 nd

		Application for Food Industry	
10	PSF/NSLP/C-IIU (683)	Development of Edible Vaccine Against Mastitis in Livestock by Transgenic Forage Grass	2 nd
11	PSF/NSLP/S-KU (678)	Production and Characterization of broken-rice Starch nanoparticles as Bioactive encapsulation matrix	2 nd
12	PSF/NSLP/KP-AU (647)	Development of simple photo-bioreactor for Quality Algal Biomass and Oil Production	2 nd
13	PSF/NSLP/C-NARC (595)	DNA Based Identification of Adulteration in Meat and its Products	3 rd
14	PSF/NSLP/C-CIIT (663)	Exploring Potential of Eco Friendly Allelochemicals and Their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.)	3 rd
15	PSF/NSLP/P-FCCU(699)	Evaluation of Selected Phytase Transgenic Wheat Lines in Soil under Contained Environment	3 rd
16	PSF/NSLP/GB-KU (449)	Assessment of function composition and development of value added products from mulberry fruits of Gilgit Baltistan	3 rd

B: First Annual Technical Reports

Sr. No.	Project No.	Project Title
1.	PSF/NSLP/KP-CIIT(666)	Improvement of Carotenoid Contents and Herbicide Tolerance in Transgenic Potato for Commercial Cultivation
2.	PSF/NSLP/S-KU (678)	Production and characterization of broken-rice starch nanoparticles as bioactive encapsulation matrix
3.	PSF/NSLP/P-GCUF (710)	A Comparative Assessment of Allopathic Drugs and Selected Medicinal Plants Potential against Infertility using Animals Model
4.	PSF/NSLP/P-UVAS (701)	Isolation, Molecular Characterization of Pathogenic Bacteria and Development of Fish Vaccine for Culturable Fish Species of Pakistan

5.	PSF/NSLP/S-KU (692)	Preparation of Industrially Important Instant Starches (Cold Water Swell-able) and its Application in Food Products
6.	PSF/NSLP/P-UAF (670)	Spectrochemical Studies of Pollutants in Soil, Water and Vegetation Using Laser Induced Breakdown Spectroscopy
7.	PSF/NSLP/KP-UAP (709)	Optimization of Environmental and Nutritional Standards for Mass Production of Mealworm Meal Under Tropical Environment of Pakistan
8.	PSF/NSLP/C-QU (706)	Functional Analysis of Rice NAC Transcriptional Factor in Transgenic Wheat against Various Stresses
9.	PSF/NSLP/C-CIIT (743)	Phage Based Biocontrol of Bacterial Wilt Disease in Tomato and Chillies for Sustainable Production
10.	PSF/NSLP/C-QAU (720)	Pilot Scale Production of High Quality DNA Extraction Kits for Plant & Blood Samples

C: Second Annual Technical Progress Reports

Sr. No.	Project No.	Project Title
1.	PSF/NSLP/KP-AWKUM (646)	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i>
2.	PSF/NSLP/P-UAAR (695)	Molecular Cloning and Heterologous Expression of Endopolygalacturonas gene in <i>E. coli</i> as a Promising Application for Food Industry
3.	PSF/NSLP/C-IIU (683)	Development of Edible Vaccine Against Mastitis in Livestock by Transgenic Forage Grass
4.	PSF/NSLP/S-KU (678)	Production and characterization of broken-rice starch nanoparticles as bioactive encapsulation matrix
5.	PSF/NSLP/P-UAF (670)	Spectrochemical Studies of Pollutants in Soil, Water and Vegetation Using Laser Induced Breakdown Spectroscopy
6.	PSF/NSLP/KP-AU (647)	Development of simple photo-bioreactor for quality algal biomass and oil Production

D: Final Technical Reports

Sr. No.	Project No.	Project Title
1.	PSF/NSLP/C-NARC (595)	DNA Based Identification of Adulteration in Meat and its Products
2.	PSF/NSLP/C-CIIT (663)	Exploring Potential of Eco Friendly Allelochemicals and Their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.)
3.	PSF/NSLP/P-FCCU (699)	Evaluation of Selected Phytase Transgenic Wheat Lines in Soil under Contained Environment
4.	PSF/NSLP/S-KU (678)	Production and characterization of broken-rice starch nanoparticles as bioactive encapsulation matrix
5.	PSF/NSLP/GB-KU (449)	Assessment of Function Composition and Development of Value added Products from Mulberry Fruits of Gilgit Baltistan
6.	PSF/NSLP/P- AU (168)	Engineering Maize with Heat Shock Proteins
7.	PSF/NSLP/P-BZU (246)	Role of Nucleopolyhedrovirus in Management of Cotton Bollworm (<i>Helicoverpa armigera</i> Hubner)

ANNEXURE-VII

List of Research Publications Produced from NSLP Funded Projects During 2020-21

Sr.#	Project Title and No.	Publications
1.	Engineering Maize with Heat Shock Proteins PSF/NSLP/P- AU (168)	Tehreem Jabbar, Sundus Zafar, Usman Raza Baig, Tayba and Iqar Ahmad Rana. 2021. Optimizing in-vitro Regeneration and transformation protocols in Tropical maize genotypes using mature and immature embryos as explant.
2.	Engineering Maize with Heat Shock Proteins PSF/NSLP/P- AU (168)	Usman Baber, Ayesha Javed, Menahil Taj, Sidra Charagh and Iqar Ahmad Rana. 2021. Optimizing Inplanta transformation in maize using gus and sHSP genes.
3.	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i> PSF/NSLP/KP-AWKUM (646)	Seasonal Dynamics, Record of Ticks Infesting Humans, Wild and Domestic Animals and Molecular Phylogeny of <i>Rhipicephalus microplus</i> in Khyber Pakhtunkhwa Pakistan
4.	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i> PSF/NSLP/KP-AWKUM (646)	29-kDa: A Potential Candidate for Anti-Tick Vaccine Antigen Source as Immunogenic and Stage Reactive Targeting Hard- Bodied <i>Hyalomma</i> Ticks (Ixodidae)
5.	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i> PSF/NSLP/KP-AWKUM (646)	In vitro antidiabetic, anti-inflammatory and antioxidant potential of the ethanol extract of <i>Uromastix hardwickii</i> skin.
6.	Exploring Potential of Eco Friendly Allelochemicals and their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.) PSF/NSLP/C-CIIT (663)	Efficacy assessment of allelopaths to suppress weeds growth – An eco-friendly approach for sustainable development. Sobia Anwar ¹ , Saadia Naseem ¹ , Saira Karimi ¹ , Muhammad Rafique Asi ² and Zahid Ali ^{1*}

7.	Exploring Potential of Eco Friendly Allelochemicals and Their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.) PSF/NSLP/C-CIIT (663)	The Response of Culturally Important Plants to Experimental Warming and Grazing in Pakistan Himalayas Saira Karimi ^{1,4} , Muhammad Ali Nawaz ² , Saadia Naseem ¹ , Ahmed Akrem ³ , Olivier Dangles ⁴ , Zahid Ali ^{1*}
8.	Exploring Potential of Eco Friendly Allelochemicals and Their Analogs to Manage Weed Infestation in Wheat (<i>Triticum aestivum</i> L.) PSF/NSLP/C-CIIT (663)	Nature by Nature: Eco-friendly Approach for Weed Management - Way Forward Review: in progress for submission in Frontiers in Plant Science Sobia Anwar, Saadia Naseem, Zahid Ali*
9.	Preparation of Industrially Important Instant Starches (Cold Water Swell-able) and its Application in Food Products PSF/NSLP/S-KU (692)	Nusrat Zehra, Tahira Mohsin Ali & Abid Hasnain (2020). Comparative study on citric acid modified instant starches (alcoholic alkalinetreated) isolated from white sorghum and corn grains. International Journal of Biological Macromolecules. https://doi.org/10.1016/j.ijbiomac.2019.10.143 . JCR Impact factor= 4.784

ANNEXURE-VIII

List of Approved Projects Under PSF-NSFC China Joint Initiative (4th Call)

Sr. #	Project Title	Name, Designation, Department and Organisation of Pakistani PI	Chinese PI Name and Address	Cost (in Rs.) and Duration
1.	Development of Flexible Electrode Materials with High Conductivity and Catalytic Activity for Room Temperature Sodium-Sulfur Batteries	Dr. Zeeshan Ali Assistant Professor, School of Chemical and Materials Engineering (SCME), National University of Sciences and Technology, Islamabad,	Prof. Dr. Yan Yu, Department of Materials Science and Engineering, University of Science and Technology of China, Hefei, Anhui, P.R. China.	15,772,000/ - 3 Years
2.	Towards Efficient and Large-scale Quantum Dots Solar Cells	Prof. Dr. Muhammad Hassan Sayyad Faculty of Engineering Sciences, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, District Swabi	Prof. Dr. Wanli Ma. FUNSOM, Dushu-Lake Campus, Soochow University, Suzhou Industrial Park Suzhou, Jiangsu, China	3,453,000/- 3 Years
3.	Design of Graphene and 2D Materials Based Flexible SERS Sensor and Realization of Self Cleaning Function	Dr. Arshad Saleem Bhatti Dept. of Physics, COMSATS University Islamabad	Prof. Dr. Minqiang Electronic Materials Research Laboratory Xi'an Jiatong University, West Xianning, China	6,550,000/- 3 Years
4.	From Microscale to Macroscale – Pathway for Multiscale Simulations of Coal Gasifiers	Dr. Atta Ullah Associate professor Department of Chemical Engineering PIEAS, Islamabad	Dr. Fei Li Associate Professor Institute of Process Engineering Chinese Academy Of Sciences, Beijing China	6,300,000/- 3 Years
5.	Organic-Inorganic Hybrid Microporous Polymeric Nanocomposites for The Capture and Conversion of CO ₂ – Applications in Environment and Energy Technologies	Prof. Dr. Irshad Hussain SBA School of Science & Engineering, Lahore University of Management Sciences (LUMS), Lahore	Prof. Bien Tan Huazhong University of Science and Technology, China	15,300,000/ - 3 Years

6.	Metal-Organic Framework-based Materials for Photocatalytic and Electrocatalytic Production of Hydrogen Fuels	Dr. Amir Waseem Professor Department of Chemistry Quaid-e-Azam University, Islamabad	Dr. Hai-Long Jiang Department of Chemistry, University of Science and Technology of China, Hefei China	1,830,765/- 3 Years
7.	Highly Luminescent Down-Shifting Metal Halide Nanocrystal/ Borosilicate Composite Glass for Improving Utilization Efficiency of Solar Energy	Prof. Shahid Ali University of Peshawar, Peshawar	Prof. Hongbin Yao University of Science and Technology of China	12,892,000/ - 3 Years
8.	Safety Evaluation and Adaptation Mechanism of Water-Energy-Food Nexus in CPEC under Climate Change	Dr. Rasool Bux Mahar Mehran University of Engineering and Technology, Jamshoro	Yaning chen Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences South Neijing, China	9,200,000/- 3 Years
9.	Genetic Adaptability and Water-fertilizer Intelligent Regulation Mechanism of Climate Smart Varieties.	Prof. Dr. Asif Ali Institute of Plant Breeding and Genetics Muhammad Nawaz Shareef University of Agriculture Multan	Prof. Dr. Zhang Rui Zhongguancun South St., Haidian District, Beijing, China	13,600,000/ - 3 Years
10.	Solar-Light-Driven Simultaneous Hydrogen Generation and Water Purification by Synergetic Adsorption and Photocatalysis	Dr. Faryal Idrees University of the Punjab, Quaid-e-Azam, Campus, Pakistan	Prof. Dr. JijunZou: Tianjin University, Tianjin China	7,810,150/- 3 Years
11.	Co-Utilization of Methanol and Sugarcane Hydrolysates for Production of Fatty Acids Derivatives	Dr. Aamer Ali Shah, Associate Professor & Chairperson Department of Microbiology Faculty of Biological Sciences Quaid-i-Azam University,	Prof. yongjin zhou Institute of Chemical Physics, CAS, Zhong Dalian, China	8,065,280/- 3 Years

		Islamabad		
12.	Selective Conversion of N, N-Dimethyl formamide (DMF) as Battery Solvent Using Stable and Efficient Hybrid Nanocatalysts	Prof. Dr. Mazhar Mehmood National Centre for Nanotechnology (NCN), Department of Metallurgy and Materials Engineering (DMME), PIEAS, Islamabad	Prof. Dr. Zhen-Yu Institute of Engineering Thermophysics, Chinese Academy of Sciences Tian Beisihuanxi Rd., Beijing, China	11,600,000/ - 3 Years

List of Approved Projects Under PSF-TUBITAK Joint Initiative (3rd Call)

Sr.	Project Title	Name, Designation, Department and Organisation of Pakistani PI	Name, Designation, Department and Organisation of Turkish PI
1.	PVDF (vinylidene fluoride) based polymers in Healthcare Devices for Wearable Sensor Application	Dr. Ghulam Hassnain Jaffari Assistant Professor Department of Physics Quaid-i-Azam University, Islamabad	Dr. Musa Mutlu Can Istanbul University, Istanbul
2.	An Investigation of Environmentally Friendly Na-Ion Electrode Materials and their Battery Performance	Dr. Muhammad Arshad National Centre for Physics, Quaid-i-Azam University, Islamabad.	Serdar ALTIN Turkey Inonu University
3.	Innovative Biodegradable Zinc Based Materials and Implants for Pediatric Orthopedic Applications	Dr. Farasat Iqbal IRCBM, COMSATS University	Dr. Hakan YILMAZER Yildiz Technical University
4.	Translating Smart Design V-Patch for Vesicovaginal Fistula Repair: Bench-top to Clinical Application	Dr. Muhammed Yar Pakistan Interdisciplinary Research Center in Biomedical Materials, COMSATS University Islamabad (Lahore Campus)	Dr. Naside Mangir and Dr. Mesut Altan (Faculty of Medicine, Department of Urology) Prof. Kezban Ulubayram Dr. Merve Gültekinoglu (Faculty of Pharmacy)
5.	2D Material Based Flexible Li-Ion Batteries for Robust and Wearable Electronics	Dr. Shumaila Karamat COMSATS University Islamabad	Prof. Dr. Ahmet Oral Middle East Technical University, Ankara
6.	Better Bones Regeneration – Development of Osteogenic Bioceramics Reinforced Tri-layer Electrospun Fibers	Dr. Hamad Khalid COMSATS University Lahore Campus	Prof. Dr. Mustafa Özgür Öteyaka University (ESOGU) HE(University)

7.	Energy Storage Through Carbon Dioxide Conversion to Methanol	Prof. Dr. Muhammad Rashid Usman Institute of Chemical Engineering & Technology University of the Punjab, Laore	Tahsin Bahar TUBITAK Marmara Research Center- Energy Institute
8.	Energy Storing, Lighter and Stronger Textiles based on $\text{Li}_{1.2}\text{Mn}_{0.54}\text{Ni}_{0.13}\text{Co}_{0.13}\text{O}_2/\text{C}/\text{Ag}$ Coated Yarn (cathode) and rGO/Unzipped MWCNTs Yarn (anode)	Dr. Hamid Latif Associate Professor Pakistan Forman Christian College (FCC) (A Chartered University), Lahore	Assistant Prof. Semih Afyon Gebze Technical University
9.	Artificial Intelligence Based Portable Microscopic Urine Sediment Analysis System	Dr. Muhammad Hanif Associate Professor Ghulam Ishaq Khan Institute of Engineering Sciences and Technology Topi, Swabi	Prof. Dr. Hamdi Melih Saraoğlu Cezeri Teknoloji Sanayi Ticaret Limited Şirketi

ANNEXURE-X**Scientific Conferences/ Seminars/ Symposia/ Workshops Funded****Financial Support to Scientific Societies in Pakistan (Phase-II)**

Sr. No	Topic	Nature of the Event
1.	18 th International Conference on Statistical Sciences	Conference
2.	Post –Conference Workshop “Python for Data Science”	Workshop
3.	National Workshop of Nematology-2021	Workshop
4.	Nanotechnology for Economic Prosperity and Security of Pakistan	Symposium
5.	Management of Waste	Symposium
6.	National Productivity	Symposium
7.	Quantum Computing	Symposium
8.	Engineering Education online	Lecture
9.	Centers for Advanced Application Oriented R&D	Lecture
10.	Climate Resilient Structure of Karachi	Lecture
11.	Big data	Workshop
12.	Engineering Contract Management	Workshop
13.	Soil management under Changing Climate	Seminar
14.	Soil Organic Carbon Management for Ecosystem Services	Seminar
15.	National Weed Science Conference “Research priorities in Phyto-Ecology and Weed Management”	Conference
16.	Applications of Nuclear Techniques in Industry	Seminar
17.	World Thalassaemia Day	Seminar
18.	Non Communicable Diseases, a threat to National Development	Conference

List of Journal Funded

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

Sr. No	Name of the Journal	Name of the Society
1.	Soil & Environment	Soil Science Society of Pakistan
2.	Pakistan Journal of Zoology	The Zoological Society of Pakistan
3.	Pakistan Physiological Society Journal	Pakistan Journal of Physiology
4.	Pakistan Journal of Science	Pakistan Association for the Advancement of Science
5.	Pakistan Journal of Nematology	Pakistan Society of Nematologists
6.	Pakistan Journal of Botany	Pakistan Botanical Society
7.	Pakistan Journal of Statistics	Islamic Society of Statistical Sciences
8.	Journal of Applied Probability and Statistics	Islamic Society of Statistical Sciences
9.	Pakistan Journal of Weed Science	Weed Science Society of Pakistan
10.	International Journal of Economic and Environmental Geology	Society of Economic Geologists & Mineral Technologists (SEGMITE)