

DRAFT

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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

I. 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 2021-22, a total of 141 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, 72 projects were under-process, of which, no project was recommended by Technical Committee for the approval of Foundation. While, 27 projects were approved by the Executive Committee for funding at total cost of Rs.95.537 million. An amount of Rs.25.672 million were released on account of first installments of already approved projects. Whereas, 54 research projects were remained on-going and an amount of Rs.5.607 million was released on account of due installments and evaluation fee of these projects. A total 19 progress reports (semiannual, 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 03 completed projects, 09 research papers were published in national/international journals. In addition, 02 Ph.D. and 07 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. 5.12 million was released to various institutions for organizing 46 conferences, seminars, and workshops on important scientific topics. However, Scientific Survey, 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 socio-economic 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 report period, 21 projects were finalized under 4th joint call for proposals with NSFC, China and 3rd joint call with TUBITAK-Turkey. International Linkages activities of Pakistan Science Foundation were expanded to the greater extent. More effective linkages were developed with international counterparts to benefit the scientific community of Pakistan. A Total 78 projects remained ongoing (including newly initiated projects) while 45 technical reports (semi-annual and annual) of ongoing projects were received and an amount of Rs. 38 million was released on account of due installment of already ongoing projects and first installment of newly initiated projects. Moreover, PSF-NSFC jointly launched call for

proposals under Joint Scientific Exchange Program. The Chairman, PSF hold various meetings with international counter parts to further expand the PSF activities at international scale.

PLANNING AND DEVELOPMENT SECTION

P&D Section intensifies the mandate of the PSF and its subsidiary organizations through getting funds from PSDP of the Ministry of Science & Technology. After the formulation of P&D Directorate in Year 2000, it is coordinating with different Sections of PSF, PASTIC, PMNH and MoST for preparation, finalization and processing of new PC-Is, submission of PC-IVs / PC-Vs to MoST and various non-development activities like compilation & submission of Reports, Briefs, Presentations, Comments, Replies to National Assembly/Senate Questions and travel grant activity.

COMPETITIVE RESEARCH PROGRAMME

The Competitive Research Programme is the PSDP awarded to PSF to finance research projects under 04 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.

During 2021-22, a total of 770 concept proposals received under two calls (4th Call and Smog Call). A total of 41 projects worth Rs. 259.65 million approved for funding after completion of

peer review and technical evaluation through different Execution Committees. Out of these approved projects, first installment of 16 projects amounting Rs. 75.832 million was released. An amount of Rs. 11.7 Million were release to 53 ongoing projects on account of due installments.

CPR projects are mostly of applied nature and result in development of new products/technologies/processes/techniques. Some short term projects resulted in development of prototypes like, indigenous Ventilator machine, Diagnostic catheter and automatic Syringe Pump for Intravenous Infusion of COVID-19 Patients in ICU.

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

This PSDP 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 2021-22, an amount of Rs. 99.42 million was utilized under this project for the monetary benefits and the additional interventions designed for the students.

PSDP “LAUNCHING OF STEM IN PAKISTAN, PHASE-I

In pursuance of the Government’s vision of establishing a knowledge based economy, the Pakistan Science Foundation (PSF) under the Ministry of Science and Technology has recently started a PSDP “Lunching of STEM in Pakistan, Phase-I”. One of the targets of the project is to give impetus to Pakistan’s preparations for developing a workforce for the Fifth Industrial Revolution.

Under the STEM project, 50 Higher Secondary Schools (HSSs)/Cadet Colleges have been selected by transforming their existing labs into Mini STEM FABLABs, in addition to teacher

training programs and module development on STEM education. These FABLABs will provide students an opportunity to get on hands training on state of the art equipment including Design Computers, 3D Printers, Vinyl Cutters, and Robotics ultimately enabling these young minds for a better future.

NATIONAL TECHNOLOGY INNOVATION THROUGH INDUSTRY-RESEARCH CENTERS AND OTHER STAKEHOLDERS COLLABORATION

Innovation is basically the introduction of new technologies, products, business processes, and ideas in the market. Most of the economic prosperity attained by the developed countries today, is because of the radiation of innovative ideas, products and technology. To meet the need of time, this PC-I was designed to bridge this gap, and some of the measures proposed in this PC-I to establish a system of national technology innovation through industry-research centers and other stakeholder.

The project was approved by DDWP on 10.12.2020 at a total cost of Rs.1959.469 million. Its allocation for 2021-22 was Rs.400 million, however, Rs.200 million was released. Of this amount, a total Rs.5.834 million was utilized and Rs.394.166 million were surrendered to MoST.

FINANCIAL SUPPORT TO SCIENTIFIC SOCIETIES IN PAKISTAN (PHASE II)

Under this on-going development project an amount of Rs.15.00 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 80 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 six 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 2021-22 are summarized below:

A total 24715 S&T documents and 1649 bibliographies in digital form were supplied to 1362 R&D workers, and 11500 records were abstracted and indexed into the database of Pakistan Science Abstracts. Further, around 5342 users visited PASTIC library for getting references, reading, photocopying, internet browsing and web searching. Besides, the library received 183 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. In Reprographic Services, 75 printing jobs from 15 R&D organizations were completed. In addition, 06 online issues of “Technology Roundup” a bimonthly Trade and Technology news e-bulletin were published, 02 Workshops under UIP (University Industry Partnership), 05 Seminars/workshops on IPR (intellectual Property Rights) and Entrepreneurship were organized. One Expo on Stem & IT Innovations: Innovative Trends in Science Technology, Engineering Mathematics (STEM) and ICTs was also organized at University of Agriculture, Faisalabad. Regarding the Awareness and Promotion of PASTIC Services, a total 11 stalls including 5 awareness seminars at various departments of universities across the country through sub-centers were organized.

Moreover, 36 workshops on various research related themes such data analysis (SPSS, R), Literature Search, Research Methodology and Research Proposal/Paper Writing, Reference Management (Mendeley, EndNote, Zotero) and Quality Assurance in Higher Education were organized for capacity building and skill development of researchers.

As the PASTIC is already designated as National Focal Point of UNESCO IFAP National Committee (UNESCO Information for All Programme IFAP), in this regard, a training

workshop on “Data Literacy & Journalism: Step towards Interpreting & Drafting Data Driven Stories” was organized.

PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Pakistan Museum of Natural History the only Natural History Museum in the country was established in 1976 as an attached organization of the Pakistan Science Foundation, Ministry of Science & Technology, Government of Pakistan. Pakistan Museum of Natural History (PMNH) has four principal divisions namely Botanical Sciences Division, Earth Sciences Division, Zoological Sciences Division 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 organizes trainings, workshops, seminars, symposia and other educational interactive activities related to natural history, environment and biodiversity of Pakistan. International days are also observed. PMNH has formed 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 1.4 million natural history specimens in its repositories. Research outcome of these field works and 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-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 their 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 2021-22 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.

I. PAKISTAN SCIENCE FOUNDATION (PSF)

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 approves 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, 141 research proposals/concept papers remained under active consideration of the Foundation. Out of these, 72 projects were under-process and 27 were approved by the Executive Committee of the Foundation at a total cost of Rs.95.537 million (**Annexure-II**) whereas Rs.25.672 million were released on account of first installments of already approved projects. A total of 05 projects were also recommended by various technical Committees for approval (**Annexure-III**), however, these could not be approved from Executive Committee due to paucity of funds.

b. On-Going Projects

During the period, 54 research projects remained on-going and 19 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. It may be mentioned that due installments of ongoing projects are released only if the interim progress of the projects is satisfactory. An amount of Rs.5.607 million 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-IV.

c. Completed Projects

During the year 06 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 adaptation of these reports by the Committees, 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/P-AU/Agr (467)	Bio Management of Alligator weed through its Utilization as Compost and Organic Mulch
2.	PSF/Res/P-AU/Bio (352)	Molecular Epidemiology and Immunohistochemistry of Enteropathogenic <i>Escherichia coli</i> (EPEC) in Bovine and Human Neonates
3.	PSF/Res/C-PMNH/Bio (268)	Studies on Algae of Major Rivers of Punjab with Special Emphasis on its Consumption by Economically Important Fishes
4.	PSF/Res/KPK-IBMS/Med (487)	Status of Iron balance and Thalassaemia trait in District Peshawar, Khyber Pakhtunkhwa
5.	PSF/Res/S-ICCBS/Med (431)	A Data Base Development of the Unique Metabolic Pathways of the Infectious Pathogens
6.	PSF/Res/S-AKU/Med (479)	Understanding the Association of SIRT1 Genetic Variants with Microenvironment of the Oocyte in Infertile Female

Agricultural Sciences

1. Project No:	PSF/Res/P-AU/Agr (467)
Project Title:	Bio Management of Alligator weed through its Utilization as Compost and Organic Mulch
Duration:	02-Years
Date of Initiation:	01.07.2017
Date of Completion:	30.06.2019
Total Cost:	Rs.1,382,916/-
Total Expenditure:	Rs.963,854/-
Principal Investigator:	Prof Dr. Asif Tanveer
Name of Institution:	University of Agriculture Faisalabad

SUMMARY:

The economy of Pakistan depends heavily on agriculture. Importance of this sector is manifold as it feeds people, provides raw materials for industry and is the base of our foreign trade. But due to various factors per acre yield is low. Soil depletion is one of the main issues causing low yield. Due to continuous farming and addition of no organic matter, the nutrients in soils get depleted and these soils could not provide balance nutrition to crop. So we cannot achieve better soil productivity. Organic matter is the most important component of soil. There are different methods to control weeds which include hand weeding with hoes, lethal wilting with high heat, burning and chemical herbicides use. But hand weeding with hoes is costly as it requires labor and chemical control need application of herbicides, as most herbicides pose a significant health risk to both humans and animals if the chemical substances are breathed or ingested, or if they come in contact with skin during handling or application. It is also costly method and can produce resistance in weeds. Harvesting the weeds and its use for composting and as mulching have become an attractive way to manage troublesome weeds and recycle natural nutrients. There is need to focus on utilization of weeds in productive ways, so that people may benefit from one aspect that has been largely ignored.

Two 02 years study was carried out and 08 experiments were conducted during 1st and 2nd year of the project at Agronomic Research Area located at Directorate of Farms, University of Agriculture, Faisalabad. During second year, experiments of first year (2017-18) were repeated. Experiments of okra crop were titled as *Fortifying the effect of NPK with Alligator weed compost on growth and yield of okra* and *Organic weed management in okra through Alligator weed mulch*. While, experiments of garlic were titled as *Fortifying the effect of NPK with Alligator weed compost on growth and yield of garlic* and *Organic weed management in garlic through Alligator weed mulch*. The experimental design was a randomized complete

block with four replications. Data about growth, yield and quality parameters were recorded for each experiment. While, data about number of weeds m^{-2} (weeds density), weeds fresh weight and weeds dry weight were also recorded in those experiments related to Alligator weed mulch.

The present investigation for utilization of Alligator weed biomass as a compost reveals that the maximum vegetative growth, yield attributing characters i.e. total yield of okra and garlic was found in integrated application of fertilizers and compost (500 kg ha^{-1} compost+75% recommended NPK for okra and 500 kg ha^{-1} compost+50% recommended NPK for garlic) when compared to recommended dosage of chemical fertilizers and compost alone. Thus practices for composting can not only prevent invasion of Alligator weed but also is a better way to reduce the farmer's budget for crop fertilization.

While, results about utilization of Alligator weed biomass as a mulch suggests that organic mulches (Alligator weed mulch @ 10 t/ha) through effective weed controls are effective in improving growth and yield of okra and garlic.

Thus, use of Alligator weed as mulch and making its compost has great potential as an on-farm resource which can be utilized by poor farmers to control weeds; build soil, and increase crop yield at low cost. Alligator weed removal for use will reduce the competition during early growth stages of crop/vegetable growth and keep weed population below economically damaging level. This will save our national drainage of money for purchasing inorganic fertilizers and herbicides.

Biological Sciences:

2. Project No:	PSF/Res/P-AU/Bio (352)
Project Title:	Molecular Epidemiology and Immunohistochemistry of Enteropathogenic <i>Escherichia coli</i> (EPEC) in Bovine and Human Neonates
Duration:	03-Years
Date of Initiation:	01.11.2006
Date of Completion:	31.10.2009
Total Cost	Rs.875,180/-
Total Expenditure:	Rs.588,761/-
Principal Investigator:	Dr. Ahrar Khan
Name of Institution:	University of Agriculture Faisalabad

SUMMARY:

Enteropathogenic *Escherichia coli* (EPEC) is an important cause of bacterial diarrhea in buffalo neonates and is also found in food commodities. Milk, milk products and beef can be the major sources of transmission of this pathogen to human beings. Under local conditions work on various aspects such as molecular characterization of EPEC and its prevalence in calves and food commodities is scarce, therefore, present study was under taken' For this purpose, total 628 samples including 110 fecal samples of buffalo neonates, 50 diarrheic children and 468 food commodities comprises of milk 12g, yoghurt 10g, salad 10g beef 10g and ruyta 2g were analyzed. After initial identification of E coli on MacConkey's agar, EMB agar and by ApI 20 E system, genes were detected by PCR. on MacConkey's agar plates rose pink colonies of E coli were observed in 37.27 and, 38%, fecal and stool samples, respectively. E. coli was isolated 34.82, 24.74, 33.33, 18.95 and 0% from milk, beef, yoghurt, salad and rayta samples, respectively. E. coli positive samples were streaked on EMB agar and green metallic shin was observed in 100, 100, 82.05, 70.3, 91.59 and 77.7% fecal stool, milk, beef, yoghurt and salad samples, respectively. Positive samples were further analyzed by API 20 E system. Total E coli was confirmed in 87 (64.92%) samples consisted of fecal 28 (68.29%), stool 13 (68.42%) milk 13 (40.62%), beef 14 (82.35%), yoghurt 9 (81.82) and salad 10 (71.43%) samples. These total 67 samples comprised of 25 biotypes. The most common biotype was 5144572 (35.63%) present in fecal, stool and in food commodities (milk, beef, yoghurt and salad). Other two most prevalent biotypes were 2044552 (10.34%), and 5044152 (6.90%) present in different samples. Based on PCR, out of 87 total 68 samples were positive for genes while 19 samples harbored no gene.

These genes positive samples were consisted of 27 (31.1%) EPEC and 41 (60.29%) enterohaemorrhagic *Escherichia coli* (EHEC). EPEC comprised of fecal 7 (35%), stool 4 (40%), milk 8 (66.67%), beef 5 (62.5%), yoghurt 1 (100%) and salad 2 (20%) samples. EHEC was consisted of fecal 13 (65%), stool 6 (60%), milk 4 (33.33%), beef 3 (37.5%), yoghurt 7 (87.5%) and salad 8 (80%) samples. Out of 41 EHEC isolates, *stx1* gene was present in 4 (9.76%) and *stx2* in 12 (29.27%) samples. While in combination genes were present, *eaeA* and *stx1* in 2 (4.88%), *eaeA* and *stx2* in 17 (41.46%); *stx1* and *stx2* in 2 (4.88%), *eaeA*, *stx1* and *stx2* in 5 (12.19%) samples. Out of 53 diarrheic and 57 healthy calves, genes were detected in 20 samples, 14 from diarrheic and 6 from healthy calves. In these 20 gene positive samples, 7 were of EPEC and 13 were of EHEC. out of 7 EPEC, 5 (71.43%) were in diarrheic and 2 (28.57%) in healthy calves' Out of 13 EHEC, 9 (69.23%) were in diarrheic and 4 (30.77%) in healthy calves. The most prevalent biotype 5144572 containing *eaeA* gene was used in experimental study. In this study, New Zealand white rabbits consisted of three groups, 2 groups B and C contained 12 rabbits in each. Rabbits in group B and C received inoculum orally 10⁷ and 10⁶ CFU, respectively. Control group A consisted of 6 rabbits received 1ml

phosphate buffered saline Diarrhea developed was scored as mild, moderate and severe on the bases of clinical signs Gross and histopathological lesions were recorded. Histopathological studies were carried out on intestinal samples. E.coli was identified by API20 E system and PCR in this study and it was concluded that E.coli is highly prevalent in buffalo calves' fecal samples, diarrheic children and food commodities. Biotyping is easy, less laborious, and rapid identification method but it is helpful only in initial identification of *Escherichia coli*. For detection of EPEC, molecular methods are mandatory because there is no relation between biotype and genotype. EPEC is 2nd most prevalent pathogen after EHEC. Experimental studies in rabbits indicated that EPEC is pathogenic; therefore, there is risk of transmission of this organism from animals to humans through milk and food items. There is dire need to improve hygienic conditions to save precious lives of calves as well as human from the threat of enteropathogenic *Escherichia coli*.

3. Project No:	PSF/Res/C-PMNH/Bio (268)
Project Title:	Studies on Algae of Major Rivers of Punjab with Special Emphasis on its Consumption by Economically Important Fishes
Duration:	03-Years
Date of Initiation:	01.05.2007
Date of Completion:	30.04.2010
Total Cost	Rs.960,784/-
Total Expenditure:	Rs.380,780/-
Principal Investigator:	Dr. Muhammad Rafique
Name of Institution:	Pakistan Museum of Natural History Islamabad

SUMMARY:

The province of Punjab has the most extensive network of rivers and contributes a substantial part to the fish production in Pakistan especially the commercially important cyprinid fishes. High productivity of important fishes mainly depends upon the growth of algae. There are authentic references to support the claims that almost 75% of the gut contents of these fishes constitute algae. In spite of vital importance of these natural resources i.e., fish and algae. No systematic and comprehensive studies have ever been conducted in this regard. The present study was aimed to explore the algal flora of different rivers of Punjab in detail, up to species and sub-species level, with special reference to those algae that are eaten by important

herbivorous carp fishes. A total of 98 species of algae have been identified from the water bodies of the five rivers of the Punjab out of which 18 species of algae are identified as fish food.

Health Sciences:

4	Project No:	PSF/Res/KPK-IBMS/Med (487)
	Project Title:	Status of Iron Balance and Thalassaemia Trait in District Peshawar, Khyber Pakhtunkhwa
	Duration	02-Years
	Date of Initiation:	01.11.2017
	Date of Completion:	31.10.2019
	Total Cost	Rs.2,118,540/-
	Total Expenditure:	Rs.1,893,594/-
	Principal Investigator	Dr. Yasar Mehmood Yousafzai
	Name of Institution	Khyber Medical University, Peshawar

SUMMARY:

Microcytic anemia is more prevalent in Peshawar, with remarkable number of Beta thalassemia traits (carriers) in general population. Iron deficiency Anemia general population as well as among individual with Microcytic anemia necessitate further research and proper nutritional supplement. However, non-iron deficiency anemia and non-thalassemic trait anemia also account a significant burden among the selected population. The study highlighted the spectrum of hematological parameters and its difference among male and female and the founding was found similar as reported by other literature.

5.	Project No:	PSF/Res/S-ICCBS/Med (431)
	Project Title:	A Database Development of the Unique Metabolic Pathways of the Infectious Pathogens
	Duration	03-Years
	Date of Initiation:	25.01.2017

Date of Completion:	24.04.2020
Total Cost	Rs.2,659,344/-
Total Expenditure:	Rs.2,204,224/-
Principal Investigator	Dr. Reazuddin Dr. Panjwani Center for Molecular Medicine and Drug Research
Name of Institution	International Center for Chemical and Biological Sciences, University of Karachi, Karachi

SUMMARY:

Infections are prevalent and often getting worst, even to death, such as, HIV, HCV, Dengue, Tuberculosis, etc. In addition to that the adoption to unique and new metabolic pathways by the bacteria for survival in acute unfavorable conditions (i.e., resistance to antibiotics) is another alarming situation in the recent world. The spread of infection is more common due to mass globalization, and frequent travelling is one of the major reason for spreading the disease. Multiple drug resistance (MDR) is defined when the pathogens acquired resistance to the front line antibiotics being administered as treatment. For instance, *Mycobacterium tuberculosis* acquires the resistance against Isoniazid and Rifampicin, both are the first line antibiotics against TB. The success of a pathogen in host cell depends upon multiple factors. One of the key mechanism of pathogen's ability to multiply and propagate to other parts of the host is largely dependent upon the interactions with the host molecular machinery. Similarly, the proteome machinery of the pathogen also seize the host's cellular metabolic functions. Pathogen's routine metabolic mechanism interrupts by the drug or antibiotic, which is administered to cure the disease. However, the pathogen has capability to bypass and achieve new and unique metabolic pathways to survive in that acute unfavorable condition, and hence results in resistance. This is where our current project intervenes and we designed a database that stores this unique metabolic pathway information. The MDR has emerged as the major health threat to the humans. Combating this challenge requires alternative methods for the identification of potential novel therapeutic targets against MDR pathogens. One of the widely applied methods for the identification of new therapeutic targets is the subtractive genome analysis under the broad umbrella of Computational Biology. The complete genome and correspondingly the proteome of almost all pathogens are now sequenced, and available in the form of databases, e.g. NCBI . In the current project, we proposed a central database of only those metabolic pathways and their corresponding enzymes which are unique to the pathogens

only but absent in the host (i.e., absent in human). The Bioinformatics databases are common these days and attracted scientific community as central repository of significant biological information. One such example is the Database of Unique Metabolic Pathways (DUMP) curated by us. The proposed database is accessible freely to the academics whereas the commercial availability will be on cost sharing basis. The proposed database will eventually be utilized by the scientific community to discover drug targets against the pathogens. In the absence of such database, the discovery of the drug targets against the deadly pathogens is laborious and time consuming. Our proposed unique metabolic pathways database has the potential to expedite the process of drug discovery targeting the significant metabolic pathways of the pathogen. In this way, the future discovery of new chemical as drug molecules may be expedited, and the cross reactions with the host pathways, or the side effects of the drugs will be minimized.

6	Project No:	PSF/Res/S-AKU/Med (479)
	Project Title:	Understanding the Association of SIRT1 Genetic Variants with Microenvironment of the Oocyte in Infertile Female
	Duration	2.5-Years
	Date of Initiation:	01.08.2017
	Date of Completion:	31.01.2020
	Total Cost	Rs.2,070,374/-
	Total Expenditure:	Rs.1,408,024/-
	Principal Investigator	Dr. Rehana Rehman
	Name of Institution	The Aga Khan University, Karachi

SUMMARY:

Infertility and impaired fecundity are a growing health concern, affecting approximately 15% of couples worldwide and 23% couples in Pakistan. Fertility predominantly depends on the maintenance of the quantity and quality of the ovarian reserve which is determined by the extrinsic and intrinsic factors. The reserve declines with an increase in the age of a female, owing to the consumption of the follicle, and majorly due to the imbalance in the redox activity. Oxidative stress (OS) produced by mitochondrial dysfunction within the ovaries are considered as the main cause for chromosomal segregation disorders, maturation and fertilization failures, or oocyte/embryo fragmentation. Cellular redox activity is a normal mechanism of the male and female reproductive system but it's in equilibrium affects fertility by hindering attainment and maintenance of oocyte developmental potential during in vivo processes. The presence of systemic and follicular oxidative stress markers in patients of endometriosis has also been identified. Sirtuin (silent information regulator, SIRT), a family of NAD-dependent enzymes are evolving as main regulators of oxidative stress. They are known to repair cells damaged due to oxidative stress by stimulating the expression of antioxidants and thus preventing dysfunction of the ovarian cells. SIRT1 signaling initiates positive ovarian cell response. Moreover, a significant change of SIRT1 mRNA has also been observed with an increase in reactive oxidative species. The raised levels of OS makers are hypothesized to compromise the nuclear maturation and the mitotic spindles of the maturing oocytes. Metformin is administered to PCOs females but yet its role is ill-defined. To the best of our knowledge, no study has yet been conducted in Pakistan which focuses on the association of oxidative stress, SIRT1 genetic polymorphism, and granulosa cells from infertile females. This pioneering study, therefore, aims to identify the effect of SIRT1 genetic variation on OS, infertility, and improvement of OS with Metformin in our population.

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 03 completed projects, 09 research papers were published in different national/international journals. Details are at **Annexure-V**.

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/P-AU/Agr (467)	Mr. Muhammad Shahbaz Asghar	MSc (Hons.)
2.	PSF/Res/P-AU/Bio (352)	Miss Samia Shah	PhD
		Mr. Zeeshan Ahmad	M.Phil
3.	PSF/Res/KPK-IBMS/Med (487)	Ahmed Rizwan	MPhil
		Waqar Ahmed	MPhil
		Sikandar Ahmed	MPhil
		Maryam Afridi	MPhil
		Zeeshan Ahmed	PhD
4.	PSF/Res/S-ICCBS/Med (431)	Ms. Fareha Masood	MPhil

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 2021-22, a total 46 requests were approved at a total cost of Rs. 6.488 million and an amount of Rs.5.12 million was released to various institutions for organizing 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 Approved (Rs.)
1.	3 rd International Conference on Chemical Engineering (ICCE-2021) at Mehran university of Engineering and Technology, Jamshoro on 22-23 rd September 2021	Prof. Dr. Khadija Qureshi, Department of Chemical Engineering, Mehran university of Engineering and Technology, Jamshoro	200,000
2.	3 rd International Conference on Sustainable Energy Technologies (ICSET-2021) at U.S. Pakistan Center for Advanced Studies in Energy (USPCASE) University of Engineering and Technology, Peshawar on 10th August 2021.	Dr. Adnan Daud Khan, Director U.S. Pakistan Center for Advanced Studies in Energy (USPCASE) University of Engineering and Technology, Peshawar.	250,000
3.	National Artificial Intelligence Forum 2021 at Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule Institute of Applied Sciences and Technology (PAF-IAST) Khanpur Road, Mang, Haripur on 2nd September 2021.	Prof. Dr. Muhammad Mujahid, Rector, Pak-Austria Fachhochschule Institute of Applied Sciences and Technology (PAF-IAST) Haripur	250,000
4.	1st International Conference on Gene Editing for improving the productive Capabilities in Plants and Animals (GEIPC 2021) at Conference Hall, The University of Agriculture Dera Ismail Khan on 23 rd August, 2021	Mr. Shoaib Ahmed Anees, Lecturer The University of Agriculture Dera Ismail Khan	187,700
5.	2nd International Conference on the YAK (<i>Bos grumiensis</i>) at University of Baltistan, Skardu on 14th-15th October, 2022	Dr. Tanveer Hussain, Associate Professor, Department of Molecular Biology Virtual University of Pakistan Lahore	215,000
6.	6th Multi Disciplinary Student Research international Conference 2021 at University of Wah on 30 Nov.-01 Dec., 2021.	Prof. Dr. Zulfiqar Ahmed, Director ORIC University of Wah Wah Cantt	276,800
7.	First International Conference on "General Chemistry from fundamentals to Applications" at COMSATS University, Islamabad Campus on Feb 10-11, 2022.	Dr. Sana Sabahat Assistant Professor, Department of Chemistry COMSATS University Islamabad	100,000

8.	Workshop on Awareness and Control of <i>Asphodelus tenuifolius</i> (Wild onion) in chickpea at District Karak on April 20-21, 2022	Dr. Imtiaz Khan Assistant Professor, Department of Weed Sciences, University of Agriculture, Peshawar	100,000
9.	International Conference on Water, Energy and Environment for Sustainability (IC-WEES) at Atta-ur-Rehman School of Applied Biosciences (ASAB)-NUST on 27-29 October, 2021	The Principal, Atta-ur-Rehman School of Applied Biosciences NUST Islamabad	200,000
10.	International Conference on Computing, Electronics and Electronic and Electrical Engineering (ICE-CUBE) 2021 at Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS), Quetta on October 26-27, 2021.	Dr. Bakhtiar Khan Kasi Dean Faculty of Information and Communication Technology (BUITEMS) Quetta	100,000
11.	International Seminar on Innovation and Food Chain Management in Food and Agriculture at Muhammad Nawaz Shareef University of Agriculture, Multan on 28-29 October, 2021	Prof. Dr. Zulfiqar Ali Principal Officer ORIC Muhammad Nawaz Shareef University of Agriculture Multan	100,000
12.	Life during COVID-19 Era, Prospects and challenges at Balochistan University of Information Technology, Engineering and Management Sciences BUITEMS on November 08, 2021	Prof. Dr. Nazeer Ahmed Dean, (FLS&I), BUITEMS Quetta	100,000
13.	4th International Conference on Applied Zoology at QAU, Islamabad on 24-25 November, 2021	Dr. Muhammad Ishtiaq Ali Tenured Associate Professor QAU Islamabad	200,000
14.	4th international Symposium on Advances in Molecular Biology of Plants and Health Sciences at National Center of Excellence in Molecular Biology, University of the Punjab, Lahore on 23-24 December, 2021.	Dr. Bushra Rashid National Center of Excellence in Molecular Biology University of the Punjab Lahore	200,000
15.	15th international Symposium on Natural Product Chemistry (ISNPC-15) at International Center for Chemical and Biological Sciences, University of Karachi on 21-24 February, 2022	Prof. Dr. M. Iqbal Chaudhary International Center for Chemical and Biological Sciences University of Karachi Karachi	350,000

16.	Fighting for the Rights in Post COVID-19 Era; International day of people with disabilities at National Skills University, Islamabad on December 03, 2021	Dr. Muhammad Arif Nadeem Saqib, National Skills University Islamabad	150,000
17.	Collaboration for BUIITEMS job fair at BUIITEMS, Quetta on December 21, 2021	Mr. Faisal Nosherwani Additional Director UA and FA BUIITEMS Quetta	100,000
18.	19th International and 31st National Conference on Emerging Trends in Chemistry at University of Management and Technology Lahore on December 16-18, 2021	Prof. Dr. Sammia Shahid, Dean ORIC, University of Management and Technology Lahore	150,000
19.	SJSP Science Expo at sunrise Technology, Flat No. 4, New Ghulam Plastic, Gulberg, Peshawar on November 30, 2021	Mr. Asif Khan Turk Editor Sunrise Technology Peshawar	100,000
20.	Seminar on Ultravoilent Disinfection for Air and Surfaces at National Laser and Optronics College, Pakistan Institute of Engineering and Applied Sciences, Islamabad on December, 2021	Dr. Muhammad Saleem Deputy Chief Scientist National Laser and Optronics College Pakistan Institute of Engineering and Applied Sciences Islamabad	25,000
21.	6th International Conference on Energy, Environment and Sustainable Development 2022 (EESD-2022) at Mehran University of Engineering and Technology, Jamshoro on January 17-19, 2022	Prof. Dr. Sohail Ahmed Somroo Department of Chemical Engineering at Mehran University of Engineering and Technology Jamshoro	100,000
22.	Hands on Training Workshop on Clinical Electrocardiography at Department of Physiology, The Islamia University of Bahawalpur on January 01, 2022.	Dr. Umer Farooq Associate Professor/Chairman, Department of Physiology The Islamia University of Bahawalpur	100,000
23.	Halt Soil Salinization, Boost Crop production 2021 at Directorate of Agriculture Research Soil and Water testing, ARI Saraib, Quetta on December 06, 2021	Mr. Hidayat Ullah Kakar Vice President, Balochistan Soil Science Society of Pakistan	200,000

24.	2021 International Day of Mountain Role of Communities in Climate Change Vis a Vis Biodiversity and Food Security: Pakistan and COP-26, 2021 at Kohsar University, Murree on 14 December 2021.	Dr. Habib Bokhari Vice Chancellor Kohsar University Murree	200,000
25.	National IP and Brand Protection Summit on Changing Contours of Innovation in Pakistan: Role of Intellectual Property Corporate Linkages and Technology Transfer at Jinnah Auditorium, NUST, Islamabad on 30 th December 2021	Mr. Muhammad Anwar Fareid Director I&C NUST Islamabad	150,000
26.	1 st International Conference on Chemical Science: A Multidisciplinary Approach (ICCS-MA) at Shah Abdul Latif University, Khairpur, Sindh on 23 rd -25 th February, 2022	Prof. Dr. Mushtaque Ali Jakhrani Director Institute of Chemistry Shah Abdul Latif University Khairpur Sindh	100,000
27.	3 rd International Conference on Space (ICS2022) entitled: Role of Space Technology and Applications in Socio-Economic Development at Serena Hotel, Islamabad on 28 th -30 th March 2022	Mr. Osama Bashir Conference Secretary SUPARCO Headquarters Near CDA Toll Plaza Islamabad	150,000
28.	Hands on Training Workshop of Computer Assisted Semen Analyzer and Artificial Insemination in Poultry at Department of Veterinary Clinical Sciences, Faculty of Veterinary and Animal Sciences, University of the Poonch Rawalakot AJK on 30 th March 2022	Dr. Muhammad Zubair Associate Professor Department of Veterinary Clinical Sciences, Faculty of Veterinary and Animal Science, University of the Poonch Rawalakot AJK	84,000
29.	International Exhibition and Workshop on the Role of Artificial Intelligence (IW-RAI) in Health care, Agriculture and Energy Sector at COMSTECH Secretariat, Islamabad on 31 st March, 2022	Prof. Dr. Mohammad Mujahid, Rector Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule Institute of Applied Sciences and Technology (PAF-IAST) Haripur	150,000
30.	International Conference on Innovations in Chemistry and Physics (ICP-2022) at University of Education, Faisalabad Campus on 14 th -15 th March, 2022	Prof. Dr. M. Abid University of Education (Lahore), Faisalabad Campus	50,000

31.	Two-Day Workshop on Laser Confocal Microscope (LSM-510) at NILOP, Islamabad on 24-25 th May, 2022	Dr. Aziz ul Rehman Principal Scientist, National Institute of Lasers and Optronics College PIEAS Islamabad	40,000
32.	03 Days International Conference on Sustainable Development goals entitled "Localizing the SDGs through Academia" at Lahore College for Women University, Lahore on March 29-31, 2022	Prof. Dr. Amina Muazzam Lahore College for Women University Lahore	150,000
33.	10 th International Conference on Semiconductors Materials and Nanodevice (ICSMAND 1) at National Skills University, Islamabad on March 31-April 2022	Prof. Dr. Muhammad Asghar Hashmi, Director ORIC National Skills University Islamabad	150,000
34.	5 days International Conference on Food Security through Sustainable Plant Protection Strategies at Department of Plant Protection, University of Agriculture Peshawar on 16th -20th January, 2022	Prof. Dr. Shah Alam Department of Plant Protection University of Agriculture Peshawar	100,000
35.	Inter-universities Consortium on Climate Change, Sustainability and Conservation (CCSC) at The Islamia University of Bahawalpur on March 21-22, 2022	Dr. Wajid Nasim Associate Professor Department of Agronomy Faculty of Agriculture & Environment The Islamia University of Bahawalpur	100,000
36.	Indigenous Crop Improvement Programs: A Way Forward for Ensuring Food Security and Poverty Alleviation at the University of Agriculture Peshawar on March 21-22, 2022	Prof. Dr. Iftikhar Hussain Khalil Chairman Department of Plant Breeding and Genetics, The University of Agriculture Peshawar	100,000
37.	3rd international conference entitled "Climate Smart Agriculture: the Way towards Ecosystem Restoration at Muhammad Nawaz Shareef University of Agriculture, Multan on March 15-16, 2022	Dr. Abdul Ghaffar Associate Professor Muhammad Nawaz Shareef University of Agriculture Multan	95,000

38.	1st National Conference on Emerging Trends in Food Science and Nutrition at University of Management and Technology, Lahore on 28-29 March, 2022	Dr. Nauman Khalid Director School of Food and Agricultural Sciences (SFAS), UMT Lahore	100,000
39.	Laboratory Diagnosis of Zoonotic Tuberculosis; A public health concern related to one health at Seminar Hall, Faculty of veterinary and Animals Sciences, University of Poonch on 11-12 May, 2022	Dr. Shahzad Akbar Khan, Associate Professor, Chairman, Department of Pathobiology, University of Poonch Rawalakot AJK	50,000
40.	International Conference on Artificial Intelligence-ICAI 2022 at National University of Science and Technology, Headquarters, H-12 Islamabad on 30-31 st March 2022	Prof. Dr. Yasar Ayaz- CPD/Chairman NCAI, National Center of Artificial Intelligence.	150,000
41.	7 th international conference on, "Climate Smart Agriculture: Innovations and Adaptations at Rawalakot on 15-17 June, 2022	Prof. Dr. Nasir Rahim Dean Faculty of Agriculture University of Poonch Rawalakot AJK.	150,000
42.	2 nd International Conference on Physics –Hybrid Mode at Air University, Islamabad on 17-18 May, 2022.	Prof. Dr. Asghari Maqsood Air University PAF Complex E-9 Islamabad.	65,000
43.	6 th International Conference on Earth Sciences Pakistan 2022 organized by National Centre of Excellence in Geology, the University of Peshawar at Summer Campus Baragali, Abbottabad on 25 th -27 th June 2022	Dr. Liaqat Ali Convener ESP 2022 Director NCEG The University of Peshawar	300,000
44.	Workshop entitled Algal Collection Techniques and their Economic Uses on 18-19 May 2022 at Institute of Botany, University of Punjab, Quaid-i-Azam Campus, Lahore	Dr. Ghazala Yasmeen Butt Professor of Botany Institute of Botany University of the Punjab Lahore	100,000
45.	National Symposium on Sustainable Management of Land and Water for Climate Smart Agriculture on 2-3 June, 2022 at The University of Haripur	Dr. Ali Raza Gumrani Associate Professor The University of Haripur Haripur	100,000

46.	1 st Workshop on "Density Functional Theory and its Applications" at Abdul Majid Mian Hall, Department of Physics, Islamia College Peshawar on 18 November 2022	Dr. Ghulam Murtaza Incharge Materials Modelling Lab Department of Physics Islamia College Peshawar	100,000
Total:			6,488,500/-

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, no such request was received.

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 year, no new request was accepted because of a shortage of funds.

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 across 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:

- b) During the report period, 164 concept papers remained under consideration of the NSLP. Out of these concept papers, 60 projects were presented in three Technical Committee meeting held during the report period. Technical Committee recommended 41 new projects for funding at total cost of Rs. 151.67 million. List of projects recommended for funding during the report period is given in **Annexure VI.**

c) On-Going Projects

During the year, there were 80 ongoing research projects and 61 progress reports of 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 next due installment were released. 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.57.648 million was released on account of due installments of on-going projects. A list of semiannual, annual and final reports is given in **Annexure VII**.

d) Completed Projects

- e) During the year 11 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. Details of the projects along with the scientific output are given below.

Project No	PSF/NSLP/P-CIIT (664)
Project Title	Evaluating the Potential of Zero Energy Cool Chambers (ZEEC) for Horticultural Crops
Duration	2-years
Date of initiation	01-09-2017
Date of completion	30-08-2019
Final report received	02-08-2021
Final technical report was adopted in the Technical Committee meeting held on	20.09.2021
Location of project	COMSATS University Islamabad, Vehari Campus
Principal Investigator	Dr. Samina Khalid Assistant Professor
Total Expenditure	Rs.965,800/-
Main objectives	<ul style="list-style-type: none"> • To evaluate the storage behavior of horticultural crops inside zero energy cool chamber. • To design, fabricate and utilization of ZECC for short term storage of fruits and vegetables. • To disseminate this technology to small farmers and retailers.

Project No	PSF/NSLP/P-UAF (670)
Project Title	Spectrochemical Studies of Pollutants in Soil,

	Water and Vegetation Using Laser Induced Breakdown Spectroscopy
Duration	3-years
Date of initiation	22.06.2017
Date of completion	30.06.2020 (extended upto 30-06-2021)
Final report received	25.07.2021
Final technical report adopted in the Technical Committee meeting was held on	20.09.2021
Location of project	University of Agriculture, Faisalabad
Principal Investigator	Dr. Yasir Jamil Associate Professor/Chairman Department of Physics
Total Expenditure	Rs.4,459,298/-
Main objectives	<ul style="list-style-type: none"> • To establish dedicated facility for the analysis of environmental samples using pulsed laser system and high resolution spectrometer • To use Laser Induced Breakdown Spectroscopy (LIBS) for the detection of contaminants in water, soil and vegetation. • To devise method using LIBS for rapid detection of elements and their relative abundance in environmental samples.

Project No	PSF/NSLP/KP-UoS (737)
Project Title	A Rapid Method for the Isolation of Bioactive Phytochemicals from <i>Parthenium hysterophorus</i> for New Pharmaceutical Products Development
Duration	2-Years
Date of initiation	08.05.2019
Date of completion	07.05.2021
Final report received	29-08-2021
Final technical report was adopted in the Technical Committee meeting held on	20.09.2021
Location of project	University of Swabi, KPK

Principal Investigator	Prof. Dr. Imtaiz Ali Khan Vice Chancellor
Total Expenditure	Rs .1,864,356/-
Main objectives	<ul style="list-style-type: none"> • Phytochemical screening test for detection of active compounds in crude methanolic extract and different fractions such as n-hexane, chloroform, ethyl acetate of <i>Parthenium hysterophorus</i> • Purification of pharmacologically active phytochemicals from chloroform, ethyl acetate fractions of <i>Parthenium hysterophorus</i> • Structure identification of active phytochemicals by means of several spectroscopic techniques such as UV, FT-IR, H-NMR, C-NMR, EI-MS, and further confirmation of crystalline compounds by single x-ray crystallographic analysis. • Crude methanolic extract, its fractions such as n-hexane, chloroform, ethyl acetate, and identified compounds will be screened for <i>in vitro</i> and <i>in vivo</i> biological activities. • The active compounds will be subjected to POM and docking analyses to identify active sites responsible for pharmacological activity
Project No	PSF/NSLP/P-UAAR (695)
Project Title	Molecular Cloning and Heterologous Expression of Endopolygalacturonase gene in <i>E. coli</i> as a Promising Application for Food Industry
Duration	03-Years
Date of initiation	01.07.2018
Date of completion	30.06.2021
Final report received	21.09.2021
Final technical report was adopted in the Technical Committee meeting held on	12.10.2021
Location of project	Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
Principal Investigator	Dr. Muhammad Javaid Asad

	Associate Professor Department of Biochemistry
Total Expenditure	Rs.3,373,687/-
Main objectives	<ul style="list-style-type: none"> • Isolation, purification of indigenous bacterial strains and identification of endo-PG positive strains. • Molecular characterization of endo-PG positive strains. • Cloning and expression of endo-PG gene in <i>E. coli</i>. • Production, purification and characterization of endo-PG.

Project No	PSF/NSLP/P-UVAS (697)
Project Title	Evaluation of Biological and Trans-Placental Potentials of Tick-Borne Diseases in Cattle
Duration	3-Years
Date of initiation	13-04-2018
Date of completion	12-04-2020
Final report received	29-09-2021
Final technical report was adopted in the Technical Committee meeting held on	12.10.2021
Location of project	College of Veterinary & Animal Sciences (CVAS), Jhang
Principal Investigator	Dr. Farhan Ahmad Atif Associate Professor (Medicine)
Total Expenditure	Rs. 2,395,014
Main objectives	<ul style="list-style-type: none"> • Evaluation of biological and transplacental transmission potentials of tick-borne pathogens in cattle.

Project No	PSF/NSLP/KP-AU (646)
Project Title	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i>

Duration	3-Years
Date of initiation	10-04-2018
Date of completion	09-04-2021
Final report received	15-09-2021
Final technical report was adopted in the Technical Committee meeting held on	12.10.2021
Location of project	Abdul Wali Khan University, Mardan
Principal Investigator	Dr. Abid Ali Assistant Professor Department of Zoology
Total Expenditure	Rs.4,070,386/-
Main objectives	<ul style="list-style-type: none"> • Identification and cloning of MP and Bm86 coding gene from Pakistani strain <i>R. microplus</i>. • Recombinant expression of MP and Bm86 protein. • Purification of MP and Bm86 antigenic protein. • Vaccination trials using MP and Bm86 as cocktail antigens against <i>R. microplus</i> infestation in animals.

Project No	PSF/NSLP/P-UCP (712)
Project Title	Optimization, Validation and Multiplexing of 11 ChrX MiniSTRs in Pakistani Population
Duration	02-Years
Date of initiation	11-05-2018
Date of completion	10-05-2020
Final report received	16-09-2021
Final technical report was adopted in the Technical Committee meeting held on	12.10.2021
Location of project	University of Central Punjab, Lahore
Principal Investigator	Dr. Muhammad Saqib

	Associate Professor Faculty of Life Sciences
Total Expenditure	Rs.1,196,000/-
Main objectives	<ul style="list-style-type: none"> • In house method optimization, validation and testing of a multiplex system. • Parallel amplification of 11 ChrX miniSTRs in Pakistani Population. • Highly Polymorphic Markers included to observe variations in Pakistani Population. • Multiplexing DXS101, DXS6789, DXS6793, DXS7132, DXS7423, DXS7424, DXS8378, DXS9902, GATA172D05, GATA31E08 and HPRTB as well as the gender determining locus, Amelogenin in a single reaction to generate first data in this regard for Pakistani Population. • The Project nature has been changed from Basic to Applied as per Subject Expert's opinion • Production of commercial kit to be used in Forensic/diagnostic laboratories for population analysis.

Project No	PSF/NSLP/P-UVAS (689)
Project Title	Use of Indigenous Fruit Extracts as Nutraceuticals and Their Therapeutic Efficacy Against Clostridium perfringens in Broiler Chicken
Duration	2-Years
Date of initiation	01-04-2018
Date of completion	30-11-2020
Final report received	17-09-2021
Final technical report was adopted in the Technical Committee meeting held on	03.02.2022
Location of project	University of Veterinary and Animal Sciences, Lahore
Principal Investigator	Dr. Gulbeena Saleem Assistant Professor, Department of Pathology
Total Expenditure	Rs.2,627,219/-

Main objectives	<ul style="list-style-type: none"> • Know current scenario and molecular identification and isolation of strain of <i>C. perfringens</i> prevalent in Pakistan. • Investigate the strains of the <i>C. perfringens</i> circulating in our environment which can help us to devise future strategies for its control in Pakistan. • To evaluate several cost-effective interventions like fruit extracts (pomegranate, mango kernel, banana peels and citrus peel) to control <i>C. Perfringens</i> in broiler chickens.
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Project No	PSF/NSLP/KP-NIFA (705)
Project Title	Pilot scale production and popularization of compost tea as organic fertilizer nutrient source
Duration	2-Years
Date of initiation	01-10-2018
Date of completion	31-03-2021
Final report received	07-10-2021
Final technical report was adopted in the Technical Committee meeting held on	03.02.2022
Location of project	Nuclear Institute for Food & Agriculture, Peshawar
Principal Investigator	Mr. Zahid Ali Senior Scientist Nuclear Institute for Food & Agriculture, Peshawar
Total Expenditure	Rs.2,291,724/-
Main objectives	<ul style="list-style-type: none"> • To standardize the protocol for the large scale production of compost tea • To transfer technology to the end-users in selected districts of Khyber Pakhtunkhwa through training and demonstration.

Project No	PSF/NSLP/KP-NIFA (656)
Project Title	Commercialization of Existing Technology of Mushroom and Popularization of Oyster and Milky Mushrooms as Cottage Industry for Economic

	Uplift of Landless Communities of KPK, Balochistan & Upper Punjab.
Duration	3-Years
Date of initiation	01.12.2016
Date of completion	31.05.2021 (1.5 year extended)
Final report received	01.02.2021
Final technical report was adopted in the Technical Committee meeting held on	17.05.2022
Location of project	Nuclear Institute for Food & Agriculture, Peshawar
Principal Investigator	Dr. Muhammad Ibrahim Principal Scientist, Nuclear Institute for Food & Agriculture, Peshawar
Total Expenditure	Rs. 3,105,848/-
Main objectives	<ul style="list-style-type: none"> • Commercialization of mushroom cultivation technology in KPK, Balochistan and upper Punjab through popularization and awareness. • Establishment of model farms in selected districts (model farms centers) of KPK, Northern districts of Punjab province and Balochistan. • To introduce technology package as kitchen gardening and cottage industry • To provide easy availability of mushroom spawn (seed) to the farmers

Project No	PSF/NSLP/B-BU (714)
Project Title	Develop Web-accessible Documented and Illustrated Information on Plants of Balochistan
Duration	2-Years
Date of initiation	01-12-2017
Date of completion	30-11-2019 (extended 1.5-year)
Final report received	14-01-2022

Final technical report was adopted in the Technical Committee meeting held on	17.05.2022
Location of project	University of Baluchistan, Quetta
Principal Investigator	Meritorious Prof. Dr. Mudassir Asrar Dean, Faculty of Life Sciences
Total Expenditure	Rs.1,729,800/-
Main objectives	<ul style="list-style-type: none"> • Field surveys and collection of samples will be made from 10 selected districts of Balochistan. All types of plants including Algae, Fungi, Mushrooms, Bryophytes, Pteridophytes, Angiosperms and Gymnosperms will be collected preserved in jars. • Preparation of herbarium sheets and identification specimens up-to species level • Development of herbarium at the University of Balochistan, Quetta. • Establishment of an online accessible open herbarium (plant data base). • Digitization of plants and uploading the data. • This information will be published in the form of a book/brochures etc.

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 or patents of its results in scientific journals. Based upon the results of research projects 10 research papers were published in peer review journals the details of which are given at **Annexure VIII**.

1.2.1.3. Project Formulation Workshops

A total of 02 Project Formulation Workshop was organized to enhance the capacity of the researchers for writing project proposals. The workshop was organized at the University of Lahore, Lahore and Lasbela University of Agriculture Water and Marine Sciences, Uthal, Balochistan.

The workshop enabled and trained 101 researchers and scientists in preparing fund winning project proposals.

1.2.1.4. Meetings of Fund Management Committee of NSLP

During the year, 04 meetings of the Fund Management Committee (FMC) were held on 20.10.2021, 01.03.2022, 24.05.2022 and 23.06.2022, respectively to review the financial matters of NSLP. The

meeting was chaired by the Chairman, PSF/Chief Executive NSLP and attended by members of the Fund Management Committee. The FMC approved budgets of 32 new projects of worth Rs.108.67 million, recommended by the NSLP Technical Committee. An amount of Rs.44.63 million was released to these new projects on account of 1st installment. List of projects recommended for funding during the report period is given in **Annexure VI**.

1.2.1.5. Meetings of Technical Committee of NSLP

During the year 2021-22, a total 05 meetings of the Technical Committee were held on 20.09.2021, 12.10.2021, 03.02.2022, 17.05.2022 and 21.06.2022, 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 60 new projects were presented to the Technical Committees out of which 41 projects were recommended for funding.

R&D-Industry Programme

Focusing on collaborative research and strong industrial linkages, R&D-Industry Programme is bringing together researchers, end-users and the funding institutions at one platform to create an environment of a unified approach to identify and solve industrial problems through applied research and technology transfer mechanism.

a) Under Process Project

During 2021-2022, a total of **13** research proposals/concept papers in scientific disciplines like Agricultural Sciences, Biological Sciences, Biotechnology & Genetic Engineering, Chemistry, Engineering Sciences, Health sciences, Environmental Sciences and Physics remained under active consideration.

b) On-going Projects

Total 11 research projects (**Annexure IX**) were on-going and an amount of **Rs. 0.81 million** was released on account of due instalments and evaluation fee of these projects to subject experts.

1.3 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 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 project was revised on 24th September 2021 without any change in its cost for extended period of implementation upto 30th June 2026.

During 2021-22, a total of 770 concept proposals received under two calls (4th Call and Smog Call). A total of 41 projects worth Rs. 259.65 million approved for funding after completion of peer review and technical evaluation through different execution committees. Out of these approved projects, first installment of 16 projects amounting Rs. 75.832 million was released. Due installments on account of 53 ongoing projects amounting Rs. 11.7 million was released. Project is mostly executed through different Committees (8 meetings of Scrutiny Committee, 16 meetings of Technical Committees, 4 meetings of Project Award Committee and 01 meeting of Steering Committee) for review and award of the research projects/grants.

CPR projects are mostly of applied nature and result in development of new products/technologies/processes/techniques. Some short term projects resulted in development of prototypes of some equipment like, indigenous Ventilator machine, Diagnostic catheter and automatic Syringe Pump for Intravenous Infusion of COVID-19 Patients in ICU.

a) **Project Objectives:**

The main objectives of the project 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.
- viii. Capacity building trainings for the project staff (National) and Project Formulation Workshops for the researchers.

Achievements:

1st Call for Proposal

The 1st Call was launched and no project could be funded during 2019-20 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 200 pending research projects, 144 research projects were finalized during 2021-22 and 56 are under process. 22 new research projects were funded under this call during 2021-22.

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. No.	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 project/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 (2021-22)	22
5.	Number of Projects Under Process	56

Projects Funded Under 1st Call for Proposals

Sr. No.	Project No. & Title	P.I. Name / Organization	Cost (Rs.) Duration
1.	PSF/CRP/Consrn-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/Consrn 733 Determining Contribution of Liver Cirrhosis in Hepatocellular Carcinoma through Tissue-gene Interaction	Dr. Asma Gul Associate Professor/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 Assistant Professor Industry Liaison officer, Department of Textile Engineering, University of Engineering and Technology Lahore	4,869,250 3-Years

		(Faisalabad Campus)	
5.	PSF/CRP/T-helx-186 Development of Value added Zincated Urea with Slow-Release Nitrogen feature	Dr. Muhammad Bilal K. Niazi Associate Professor/ Head of Department Department of Chemical Engineering, School of Chemical & Materials engineering (SCME), National University of Sciences & Technology (NUST) Islamabad	6,840,000 3-Years
6.	PSF/CRP/T-Helx- 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 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	Dr. Salman Raza Naqvi Assistant Professor School of Chemical & Materials Engineering, National University of Sciences & Technology Islamabad	6,745,000 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
9.	PSF/CRP/T-helx (141) Development and commercialization of indigenous technology for production of moringa, seed oil as food ingredient	Dr. Muhammad Shahbaz Assistant Professor Food Science and Technology MNS-University of Agriculture Multan	5,000,000 2-Years
10.	PSF/CRP/P-UET/Constrm- (06) Innovative Solar Water Desalination System Based on Novel Nanomaterials for Renewable Energy Exploitation	Dr. Muhammad Amjad Assistant Professor Department of Mechanical Mechatronics and Manufacturing Engineering University of Engineering and Technology Lahore	6,000,000 2-years
11.	PSF/CRP/Constrm-58 CRISPRi mediated tissue specific reduction of gossypol contents in cottonseeds	Dr. Aftab Ahmad Assistant Professor Department of Biochemistry Cotton Biotechnology Lab.CAS-AFS	62,50,000 2-Years

		University of Agriculture Faisalabad	
12.	PSF/CRP/P-PMAS/Constrm-260 Identification and development of functional molecular markers related to resistance against viral diseases in chili	Dr. Rashid Mehmood Rana (PhD) Assistant Professor Department of Plant Breeding & Genetics PMAS-Arid Agriculture University Rawalpindi	4,600,000 2-Years
13.	PSF/CRP/Constrm-377 Development of Recombinant Vaccine Based on Gametocyte Antigens of Eimeria, Its Subsequent Trials and Marketing	Dr. Haroon Akbar Associate Professor Department of Parasitology, University of Veterinary and Animal Sciences, Lahore	6,900,000 2-Years
14.	PSF/CRP/Constrm-610 Indigenous development of characterization equipment for a multitude of electronic and electrochemical devices	Dr. Memoon Sajid, Assistant Professor G-07. Faculty of Electrical Engineering, GIK Institute of Engineering Sciences and Technology, Topi, Swabi, KP	1,900,000 2-Years
15.	PSF/CRP/Cons-114 Integrative Omics Studies of Environmentally and Medicinally Important Lichens of Pakistan	Dr. Arslan Ali, Assistant Professor, Dr. Panjwani Center for Molecular Medicine and Drug Research, University of Karachi	2,645,000 2-Year
16.	PSF/CRP/Constrm-152 Epidemiological Investigation, Molecular Identification and Risk Assessment of MERS-CoV Infection in Dromedary Camels and High-risk Population	Prof. Dr. Tahir Yaqub Chairman Department of Microbiology University of Veterinary and Animal Sciences, Lahore	4,300,600 2-Years
17.	PSF/CRP/Constrm -398 Novel therapeutic approach of capped magnetic nanoparticles for Cancer treatment via hyperthermia therapy	Dr. Tariq Munir Assistant Professor Department of Physics Govt College University Faisalabad	4,493,000 2-Years
18.	PSF/CRP/Constrm 579 Development and lead optimization of novel ME2 and 6PGD inhibitors that halts fibroblast accelerated migration of cancer cells	Dr. Azhar Raul Assistant Professor Department of, Zoology Government College University Faisalabad	9,990,000 2-Years
19.	PSF/CRP/P-NTU/T-Helix (194) Indigenous Development of Needle less Roll To Roll Pilot- Scale Electro spinning Machine	Dr. M. Bilal Qadeer Assistant Professor Department of Yarn Manufacturing National Textile University (NTU) Faisalabad	19,487,318 3-Years
20.	PSF/CRP/T-Helix- 176	Dr. Muhammad Ali Assistant Professor	6,846,330

	Electrically heated textile articles of clothing produced by printing of resistive inks.	Department of Textile Engineering NED University of Engineering & Technology Karachi	2-Years
21.	PSF/CRP/TH-22 Synthesis of important APIs (active pharmaceutical ingredients) with potential market demand: A step towards enhancement in Pakistan Economy	Dr. Nusrat Shafiq Assistant Professor Department of Chemistry Government College Women University Faisalabad	5,603,000 2-Years
22.	PSF/CRP/TH-175 Transforming the laboratory scale synthesis of precious fine organics into bench scale synthesis by value addition of d-(+)- glucosamine with an aim to develop the product portfolio for a company wz. Glycane fine organics	Dr. Farooq Ahmad Khan Assistant Professor HEJ Research Institute of Chemistry International Center for Chemical & Biological Sciences University of Karachi Karachi	2,150,000 2-Years
23.	PSF/CRP/T-helx-188 Bacteria-coated Bio-fortified DAP fertilizer to enhance crop productivity and soil fertility	Dr. Sumera Yasmin Principal Scientist National Institute for Biotechnology and Genetic Engineering Faisalabad	7,881,500 2-Years
24.	PSF/CRP/P-GCU/Constrm-(27) Effect of Natural and Synthetic Reproductive Inhibitors on Sex Control, Hematology, Genotoxicity, Erythrocyte Activity and Histology in Two Exotic Fish Species (Cyprinus Carpio and Tilapia Niloticus)	Dr. Farkhanda Asad Assistant Professor Department of Zoology Govt. College University Faisalabad	1,877,500 2-Years
25.	PSF/CRP/Constrm-66 Climate Effects on Decadal Variations in Northern Arabian Sea Jellyfish Populations	Dr. Baradi Waryani Associate Professor Department of Fresh Water Biology and Fisheries University of Sindh Jamshoro	2,005,000 2-Years
26.	PSF/CRP/Constrm-713 Fabrication of Paper Based Pop-Up Electrochemical Device for the Rapid Detection of Arsenic in Drinking Water and Blood Serum	Dr. Shagufta Kamal Assistant Professor Dept. of Biochemistry Govt. College University Faisalabad	6,000,000 2-Years

27.	PSF/CRP/Constrm-591 Enhancement of seed-oil content in cotton by transformation with Atffiil driven by seed specific Promoter	Dr. Uzma Qaisar School of Biological Sciences, University of the Punjab Lahore	4,695,800 2-Years
28.	PSF/CRP/T-helix-157 Development of E-beam Irradiation Treatment Protocols for Exportable Fruits and Vegetables with Especial Reference to Insects and Athogens Disinfestation	Dr. Abdul Mubeen Lodhi Professor, Department of Plant Protection, Sindh Agriculture University Tandojam	8,479,000 2-Years
29.	PSF/CRP/Constrm-488 Potential Risks of Glacier Lake Outburst Floods Under Climate Change along China-Pakistan Economic (CPEC)	Dr. Muhammad Saifullah Assistant Professor, Department of Agricultural Engineering, Muhammad Nawaz Shareef University of Agriculture, Multan	5,234,500 2-Years
30.	PSF/CRP/Constrm-732 Enhancing Export Potential of Locally Developed Implants by Designing and Developing Hybrid Coated Micro Porous Titanium Based Implant Materials Capable of Reducing /Overcoming Stress Shielding and Aseptic Loosening in Orthopedic Implants	Dr. Khurram Yaqoob Assistant Professor, & UG Coordinator School of Chemical and Materials Engineering (SCME) National University of Science and Technology (NUST) Islamabad	1,359,600 2-Years
31.	PSF/CRP/C-NUST/T-Helix-161 Run - of - River (zero-head) Hydropower Generation Unit : Product Development, Manufacturing & Installation of Hydropower Generation System of 48 KW	Dr. Azhar ulhaq Assistant Professor Head Power & Energy Research Group National University of Science and Technology (NUST) Islamabad	6,338,333/- 2-Years
32.	PSF/CRP/Cons-623 Screening and Validastion of natural herbal Dewormer for Livestock	Murtaz-ul-Hassan Associate Professor Veterinary Parasitology & Microbiology PMAS Arid Agriculture University Rawalpindi	3,281,800/- 2-Years
33.	PSF/CRP/TH-42 Development of Pak Army CCD and Khaki Uniform Fabric with Improved Properties	Dr. Ahsan Nazir Assistant Professor Department of Textile Processing National Textile University Faisalabad	12,353,935 2-Years

Call for Proposals on Personal Protective Equipment (PPE):

This call for proposals was launched in April, 2021 to carry out indigenous research to better understand and address challenges pertaining to Effect of Personal Protective Equipment (PPE) Waste on Environment and its Management in Pakistan in 03 funding streams viz., Consortium Research Grants, Triple Helix Model and Individuals Research Grant. A total of 129 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	129
2.	Total Number of Concept Proposal dropped by Internal Scrutiny	97
3.	Total Number of Project Proposals Dropped due to Non submission of full length proposal	14
4.	Number of Projects approved by Project Award Committee (2021-22)	01
5.	Number of Projects Under Process	01

Project Funded Under Call for Proposals on Personal Protective Equipment (PPE):

Sr. No.	Project No. & Title	P.I. Name / Organization	Cost Duration
1.	PSF/CRP/3/PPE/50 Development of economical nanocomposites through upcycling of Personal Protective Equipment (PPE) waste for automotive and electronics applications	Arshad Hussain Assistant Professor Department of Electronics Quaid-i-Azam University Islamabad	Rs. 4,945,900/- 2-Years

TUBITAK-III

Pakistan Science Foundation launched joint call along with the Scientific and Technological Research Council of Turkey (TUBITAK) under the protocol on cooperation in Science and Technology. The call was launched in 2020. Total 32 research proposal were received. A joint meeting of the Technical Committee was held and 9 research projects were shortlisted. These 9 project proposal were presented before Project Award Committee and same were approved for funding. Following is the list of approved research projects:

Sr. No.	Project No. and Title	PI Name and Organization	Cost (Rs.) Duration
1.	PSF/TUBITAK-III/Biomed/C/QAU (16) 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	Rs.14,000,000/- 03-years
2.	PSF/TUBITAK-III/Engineering/C/NCP (17) An Investigation of Environmentally Friendly Na-Ion Electrode Materials and their Battery Performance	Dr. Muhammad Arshad SSO Department of Nano science & Technology, NCP Quaid-i-Azam University Islamabad	Rs.12,320,000/- 03-years
3.	PSF/TUBITAK-III/Engineering/P/COMSATS (18) Innovative Bio Degradable Zinc Materials and Implants for Pediatric Orthopedic Applications	Dr. Farasat Iqbal IRCBM COMSATS University Lahore	Rs.12,919,990/- 03-years
4.	PSF/TUBITAK-III/Biomed/P-COMSATS (19) Translating Smart Design V-Patch for Vesicovaginal Fistula Repair: Bench-Top to Clinical Application	Dr. Muhammed Yar Interdisciplinary Research Center in Biomedical Materials, COMSATS University Islamabad Lahore Campus	Rs.12,500,000/- 03-years
5.	PSF/TUBITAK-III/Eng/C-COMSATS (20) 2D Material Based Flexible Li-Ion Batteries for Robust and Wearable Electronics	Dr. Shumaila Karamat COMSATS University Islamabad	Rs. 9,965,000/- 03-Years

6.	PSF/TUBITAK-III/Biomed/P-COMSATS (21) Better Bones Regeneration- Development of Osteogenic Bio Ceramics Reinforced Tri-Layer Electro Spun Fibers	Dr. Hamad Khalid (PhD) COMSATS University Lahore Campus	Rs. 11,197,122/- 02 year- 05 months
7.	PSF/TUBITAK-III/Engineering/P/UOP (22) Energy Storage Through Carbon Dioxide Conversion to Methanol	Prof. Dr. Muhammad Rashid Usman Institute of Chemical Engineering & Technology University of the Punjab, Lahore	Rs.11,125,000/- 02-years
8.	Project No. PSF/TUBITAK-III/Eng/P-FCC (23) Energy Storing, Lighter and Stronger Textiles based on Li1.2Mn0.54Ni.013cO0.13o2/c/Ag Coated Yarn (cathode) and rGO/Unzipped MWCNTs Yarn (anode)	Dr. Hamid Latif Associate Professor Pakistan Forman Christian College (FCC) Lahore	Rs.12,500,000/- 02-years
9.	PSF/TUBITAK III/Eng/K-GIKI (24) 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	Rs. 8,428,000/- 03-years

10. 4th Call for Proposal on Triple Helix Model:

The 4th Call was launched in 2021 in one funding streams viz., 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 621 concept proposals were received. Following is the detail of research projects and the list of approved projects:

Sr. No.	Project No. & Title	Name & Address of P.I.	Cost (Rs.) Duration
1.	PSF/CRP/TH/4/CFP/430 Essential oil nano emulsion dip coatings on fruits (Kinnow) to increase their market availability (Shelf life) for economic boost.	Hamid Majeed, Assistant Professor Department of Food Sciences Cholistan University of Veterinary and animal sciences Bahawalpur.	4,745,0000 2-Years
2.	PSF/CRP/TH/4/CFP/597 Development and commercialization of semen technology for rapid geno-economics gains in indigenous dairy breeds of Pakistan	Dr. M. Irfan-ur-Rehman Khan Associate Professor Tenured Dptt. of Theriogenology University of Veterinary and Animal Sciences Lahore	5,961,500 02-Years
3.	PSF/CRP/TH/4/CFP/156 Development of Nano Bio fertilizer (Nano-Encapsulated PGPR) with Silicon dioxide Nano-Particles for improvement in Wheat Growth and its commercialization	Dr. Noshin Ilyas Assistant Professor Department of Botany PMAS Arid Agriculture University Rawalpindi	4,724,650 02-Years
4.	PSF/CRP/TH/4/CFP/121 Design and Development of 2D Styrofoam Cutting Machine.	Dr. Imran Zaka Deputy Chief Engineer Department of Electronics Division/PINSTECH Islamabad	1,040,000 02-Years
5.	PSF/CRP/TH/4/CFP/453 AI-based skilled people marketplace for finding nearby experts and tasks to facilitate citizens	Dr. Maqbool Khan Assistant Professor Department of IT&CS University of PAF-IAS	1,101,000 02-Years

6.	PSF/CRP/TH/4/CFP/618 Development of styrenics blends with elastomers and thermoplastics for commercial applications	Prof. Dr. Asif Ali Qaiser Chairman, Department of Polymer and Process Engineering University of Engineering and Technology Lahore	12,059,000 02-Years
7.	PSF/CRP/TH/4/CFP/523 Development of Reactive Inks for Digital Printing.	Dr. Saira Faisal Associate Professor Department of Textile Engineering NED University of Engineering & Technology Karachi	5,331,880 02-Years
8.	PSF/CRP/TH/4/CFP/564 Evaluation of Lithium mineral deposits in the sedimentary succession of Permian age, Salt Range, Pakistan: An economic implication for renewable and sustainable energy development.	Dr. M. Jawad Munawar Assistant Professor Institute of Geology University of the Punjab Lahore	988,584 1.5-Years

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

Brief Progress of the STFS Project

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 revised and approved by the CDWP on July 6, 2017 at a total cost of Rs.1,285.361 million for a period of 5 years. Keeping in view the success of the project as well as high demand/requests of the students, the revised PC-I was prepared having completion date of June, 2025 with intake of 500 students per year and the same was approved by the DDWP of MoST on 14.01.2022 at total cost of Rs.1517.071 million.

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 will 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 05 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

Allocation for the Year 2021-22

- Fund allocation for Year 2021-22: 100.00 million

Sr. No	Item Description / PC-I Head	Expenditure in 2021-22
1	Establishment of National Science School	0*
2	Advertisements about STFS and selection of students	0.20
3	Selection / Monetary Benefits for the students	67.99
4	Additional Interventions	17.813
5	Special Activities of the project	4.1
6	Salaries / Allowances / Honoraria	3.787
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	4.227
10	Contingencies including POL and other Misc. expenses	1.302
	Total	99.419

*(Activity dropped)

1. Selection and Monetary benefits to STFS 5th batch

Selection and monetary benefits for 4 batches were completed. For selection of 300 students of STFS 5th batch, as per directives of Ministry of Science and Technology, Candidates Testing Services (CTS) was hired through open bidding process for conducting of screening/written test. After Written Science Aptitude and IQ test, interviews were conducted by PMU-STFS. The 300 students of 5th batch were selected as per approved formula by MoST.

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

Detail regarding distribution of students is 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	(21)	135	(51)		(31)	(16)	(11)	(5)	270
			31(R)	20 (U)					

Total 299 students out of finally selected 300 students were awarded monetary benefits i.e. scholarships and tuition fee for 21 months in various installments. Remaining/final scholarship/tuition fee has been processed.

As per revised PC-I, number of students have been increased from 300 to 500 for each batch with an increased amount from Rs.10,000 to Rs.15,000. It has also been ensured that disability and minority quota is also implemented in the revised PC-I.

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.

In this regard, study tours for STFS 4th and 5th batch were arranged in December, 2021 and March, 2022 respectively. The students visited the top notch S&T organizations and universities of Rawalpindi/Islamabad including NILOP, (National Institute of Lasers and Optronics), PINSTECH (Pakistan Institute of Nuclear Science & Technology), NCP (National Centre for Physics), NUST (National University of Science and Technology), PMNH (Pakistan Museum of Natural History) and Lawrence College Murree. A Science Walk was arranged in collaboration with the Kohsar University, Murree. The honorable Vice Chancellor, Kohsar University, faculty members and Students of the university also accompanied the STFS students in the Science Walk.

Training sessions on STEM education and Inquiry Based Science Education (IBSE) were conducted by the team of Robotmea, Islamabad. Along with all these activities, STFS students got the opportunity to interact with national and international eminent scientists, who gave them lectures on the importance and utilization of modern Sciences and shared innovative ideas on future aspects of Science and Technology. Well known motivational speakers and career counsellors of the country also added value in the event by guiding students in pursuing their career aspirations and be a useful citizens of the society.

3. 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, 3rd and 4th batch completed their research projects and submitted their reports in the form of posters/reports. More than 40 research projects of 5th batch were received in Poster/report form. In total, more

than 340 research projects were completed by the students. Posters of previous batches were printed for STFS-PMU record.

4. 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 04 agencies; M/s Daily Ausaf (Pvt) Ltd, M/s The Nation Publication Pvt. (Ltd), M/s District News Quetta Pvt. (Ltd) and M/s Paigham, Faislaabad.

5. Procurement of office furniture and equipment

Purchased Computer stationary and other stationary 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 scientists 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

PSDP “Launching of STEM in Pakistan, Phase-I (Revised)”

Rationale:

In pursuance of the Government’s vision of establishing a knowledge based economy, the Pakistan Science Foundation (PSF) under the Ministry of Science and Technology has recently launched a PSDP “Launching of STEM in Pakistan, Phase-I”, an umbrella project which shall be simultaneously executed throughout the country with the support of federal and provincial stakeholders/education departments. One of the targets of the project is to give impetus to Pakistan’s preparations for developing a workforce for the Fifth Industrial Revolution.

Under the STEM project, 50 Higher Secondary Schools (HSSs)/Cadet Colleges have been selected by transforming their existing labs into Mini STEM FABLABs, in addition to teacher training programs and module development on STEM education.

Major objectives of the STEM project are;

- To officially launch STEM, the modern tool for promotion of Science, Technology, Engineering and Mathematics Education in Pakistan (in 50 HSS/Cadet Colleges in 1st phase).
- To coordinate provision of specialized national and international capacity building programs on STEM education for science teachers and pedagogues.
- To coordinate development, introduction and adoption of modern pedagogical tools & interventions for STEM including STEM framework/global best practices like IBSE/ LAMAP.
- To equip our youth with meaningful learning through hands-on experiences, and improve their cognitive abilities.
- To develop entrepreneurship skills amongst students through STEM education to make them job givers instead of job seekers.

The above mentioned development project “Launching of STEM in Pakistan, Phase-I (Revised)”, was approved by the DDWP of MoST in the meeting held on 4.8.2021 at a total cost of Rs. 993.784 million with 36 months duration. Administrative approval No. F.No.4(71)/2020-DEA (P&D) dated 15.10.2021 has been issued by the Ministry of Science and Technology.

Fiscal Year 2021-22 was the first year of the project in which multiple milestones were achieved. A brief of the performance of the subject PSDP is given below;

- **DEVELOPMENT OF TRAINING MODULES**

Since the initiation date of the project (08-10-2021), a number of activities were carried out. Under the PSDP, training modules are being developed for the grade 9th, 10th, 11th, 12th, for which correspondence with national stakeholders including National Curriculum Council (NCC), Federal Directorate of Education (FDE) and Agha Khan University (AKU), was made which enabled us to make consolidated document in regard of development of training modules. Furthermore, 76 best national scientists were contacted throughout the country and were requested to provide experiments for the STEM. A tender for the Development of Training Modules on STEM Education has also been in process and is expected to be completed by December 2022.

- **STEM FABLABs**

Fifty top of the notch schools are selected during 2021-22 based on their annual performance in which Mini STEM FABLABs are being developed for which the payment of 1 million to each school for enabling the FABLABS is made to some schools. These FABLABs will provide students an opportunity to get on hands training on state of the art equipment including Design Computers, 3D Printers, Vinyl Cutters, and Robotics ultimately enabling these young minds for a better future. The complete list is attached (**Annexure-X**).

- **STEM PSF ACADEMY/PMU**

A tender of the purchase of IT Equipment was completed during FY 2021-22, under which, the different IT Equipment were purchased and installed in STEM PSF Academy.

1.5 National Technology Innovation through Industry-Research Centers and Other Stakeholders Collaboration

Executive Summary

Innovation is basically the introduction of new technologies, products, business processes, and ideas in the market. Most of the economic prosperity attained by the developed countries today, is because of the radiation of innovative ideas, products and technology. Nevertheless, the vast potential returns to innovation, developing countries invest far less than technologically advanced countries. In the developing countries, private and public mainly focus on forgone productivity growth and hence lost competitiveness. Therefore, thought to be more productive misses the crucial point of innovativeness, developing countries are unable to introduce innovation in their industries.

Research collaborations have an important and crucial role in the advancement of ideas and knowledge. Research centers/university-industry collaborations have been recognized as the main factor to promote outcome based scientific culture. Over the past few decades, there has been increasing trend in the commercialization of innovative scientific research outcomes both in developed and developing countries. Research centers and industries are encouraged by the government to collaborate, share data, to adopt an open science model, and disseminate new knowledge. Both stakeholders are also motivated to foster scientific progress, meet philanthropic goals, and also to maximize the impact of their research on society.

Furthermore, such research collaborative activities are rapidly increasing worldwide mainly because of new fruitful policies. These policies provide a smooth platform (between different stakeholders such as universities and industries) for science and technology-based collaboration leading towards commercialization. Unfortunately, in Pakistan such interactions have not been established, due to several reasons such as old habits, bad rules, broken processes, not empowering the best to lead, and more importantly due to unruffled and shifts in the political /social landscape. Although, Pakistan is home to over 210 universities and HEIs overseen by the Higher Education Commission but it has not fully realized and implemented the true impact of these collaborations, except a few examples of such alliances. Therefore, government of Pakistan needs to play a vital role in nurturing these collaborations for the mutual benefit of all the stakeholders (*i.e.* academia, research institutes, industry, and the state).

This whole process, demands a multi-pronged approach and several measures to stimulate University/research institution-industry interactions. To meet the need of time, this PC-I is designed to bridge this gap, and some of the measures proposed in this PC-I to establish a system of national technology innovation through industry-research centers and other stakeholder's collaboration are as follows:

1. National Technology Innovation Fund
2. Specialized Incubators
3. Technology Innovation Portal
4. Public-Private Sector Innovation Capacity Building
5. National Technology Innovation Strategy
6. National Strategies for Verticals & Horizontals

Project objectives and its relationship with Sectoral objectives

Generating new knowledge, and creating innovation is the crucial role of research institutions/universities, as they are the main hub to produce and develop human resource with required skill set for R&D. Research institutions work hard to achieve scientific excellence for which they focus at the cutting edge of science and technology. On the other hand, if research institutions have on board the relevant industry, they can successfully transform the new knowledge into valuable and patentable applications. On the other hand, besides creating jobs they can adopt new technologies to enhance their competitiveness. With the aim to take benefit from research institution-industry collaboration, and to promote research collaborative culture, this PC-I is designed, and expected that by developing such linkages can be mutually beneficial in variety of ways, and for this following objectives are set to be achieved:

1. **To achieve social prosperity:** by developing domestic innovation, and domestic productivity fostering economic growth.
2. **To develop better and successful university-industry linkages:** long-term strategic partnerships (linkages) between research institutions and industries (developers and

users) will be established with built-in flexibility to work best for the development of Pakistan.

3. **To develop the capacity and capability of R&D institutions:** Programmes will be offered for supporting institutions to translate their innovative ideas (lab. scale/prototype) to commercially viable product for the strengthening of national innovation system. Additionally, technology resources will also be increased through these programmes to conduct high level of productive R&D activities.
4. **To develop Institutions and individual researcher networks:** Networks between institutions and individual researchers will be developed at national levels for empowerment of national R&D system, and also for productivity improvement.
5. **To enhance the innovation, productivity, and creativity:** creativity and productivity of national R&D system will be increased by offering different programmes to meet the demand of advance technology in the industrial sector, and to improve the competitiveness of products and innovation culture.
6. **To develop entrepreneurial eco-system:** programmes will be offered with focus to establish more engaged and entrepreneurial research institutions of international standards, with a holistic perspective towards university-industry partnerships. Similarly, specialized incubators will be established to meet this objective.
7. **To produce a pool of highly trained manpower:** training of young entrepreneurs, and lifelong learners will be focused in preparing for the future. To generate better technical skills in the workforce. During these training programs, key capabilities (complementarities) for innovation such as technological, production, and organizational/managerial capabilities will be focused.
8. **Knowledge transfers:** up skilling and knowledge transfer, and engagement of professionals will be the prime focus of this PC-I.
9. **Specialized Incubation Centers (ICs):** to enhance research institution-industry collaboration, efforts will be made to establish the Specialized Incubation Centers (ICs) in the campuses of universities to encourage entrepreneurship among the students and researchers.

10. **Product development, and commercialization:** academia will be incentivized in the product development, and commercialization.
11. **Incentivization of R&D:** R&D in private sector / industries will be incentivized.
12. **Hub of innovation:** hub of innovation will be established for the applications of Artificial Intelligence (AI) / Internet of Things (IoT), and Industrial Biotechnology (IB) in the country.
13. **Startups:** new startups will be hosted under this PC-I in the areas of AI/IoT, and Industrial Biotechnology applications to produce more spinouts.
14. **Commercialization:** AI tools will be commercialized through AI/IoT, and Industrial Biotechnology based incubation centers.
15. **Employment opportunities:** employment opportunities will be created for the youth of Pakistan by training them in the areas of AI/IoT, and Industrial Biotechnology.

Overall Progress of the Project:

The project was approved by DDWP on 10.12.2020 at a total cost of Rs.1959.469 million. Its allocation for 2021-22 was Rs.400 million, however, Rs.200 million was released. Of this amount, a total Rs.5.834 million was utilized and Rs.394.166 million were surrendered to MoST. During the year, the following activities were carried out:

Advertisement for the appointment of staff including the Project Director floated in newspaper and after completing all the codal formalities, the selection of Project staff was underway but due to the instructions of Establishment Division regarding Quota observance, the whole process was halted.

- 1st Call for proposals under various disciplines was launched and 663 project proposals received.
- 08 Project Proposals review meetings were conducted, 437 proposals reviewed, 64 concept proposals from various disciplines shortlisted for further processing. 10 Full length proposals received from Principal Investigators for review process.

- Call for the establishment of two Specialized Incubators in the field of Artificial Intelligence (*AI*) launched in National dailies. In response, 17 proposals were received from various Universities of Pakistan.
- Initiatives were taken for the establishment of Project Management Unit (PMU) of NTIF. Procurement process for I.T. equipment and furniture for NTIF (PMU) completed.

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 of 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 enhancing/improving 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;

- Science Caravans (Mobile Science Exhibitions)
- Establishment of Science Centre, Museums, Herbaria & Planetaria
- Strengthening of science laboratories of Govt. High Schools of rural areas
- Organization of S&T Fairs and Traveling Expos
- Organizing Science Poster, Essay and Quiz Competitions
- Holding Popular Science Lectures
- Distribution of Popular Science Magazines, Scientific Books and literature to Schools, Universities and S&T Organizations
- Financial Assistance for Science Popularization activities of the other organizations.
- Training workshops for the teachers on Inquiry Based Science Education “la main a la pate”-LAMAP
- Establishment of Science Clubs in High Schools
- Participation of Pakistani students in International moots like Asian Science Camp, London International Youth Science Forum-LIYSF etc.

These activities play a significant role in capacity building of the students for adapting and thinking upon the modern scientific inventions and technologies.

2.1 Inter-University Competition to Develop Low Cost Plastic Waste Recycling Machine/Solutions

The five awareness sessions on plastic waste management were organized by Pakistan Science Foundation (PSF) in collaboration with UNESCO, UNDP, Global Water Challenge, Coca Cola Foundation and New Worldin in August-December, 2021 at Islamabad. The first session was organized as awareness session on title “Challenges and strategies for effective plastic management to improve human health” on 4th August 2021 at PSF Auditorium, Islamabad. Mr. Shibli Faraz, Senator & Federal Minister for Science and Technology and Ms. Patricia McPhillips, Country Director UNSECO Pakistan participated in the event as a chief guest and guest of honor respectively. Dr. Rab Nawaz, Senior Director Programmes, World Wide Fund (WWF) for Nature Pakistan also participated in the event. Total 65 participants including students, faculties from different universities and general public participated in the event.

2.2 Youth Recognition Programme

Popularization of science is to make an effort to image scientific ideas in such a way that everyone can understand the fundamental concept of Science and its 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 through science competitions to strengthen the science culture in the society. PSF organized an event on Youth recognition in which cash prizes were distributed among the young scientists on June 2021.





Glimpses of Youth Recognition Program

2.2.1 30th Annual Intra and Inter Board Science Essay and Poster Competitions remained under process during the report period.

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 report period.

2.3 World Science Day for Peace and Development (WSDPD 2021):

PSF in collaboration with UNESCO Islamabad, 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, on 10th Nov 2021 at PSF, Auditorium. Since 2001, the World Science Day for Peace and Development is celebrated to highlight the importance of science. This year role of **“Building Climate Ready Communities”** and the need to engage the wider public in debates emerging and important contemporary issues relevant to science was discussed. As this year was marked by the COVID-19 pandemic. Mr. Shibli Faraz Federal Minister for Science and Technology remarked that now exists an opportunity to renew our resolve 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 at a global level. A representative UNESCO, President, ECO Science Foundation. SSO Global Change Impact Studies Center, Ministry of Climate spoke on the role of WSDPD-2021, key issues concerning people and nature interactions, the impact of science, Building Climate Ready Communities 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 centers and science museums, independent science communicators and science journalists.



Celebration of World Science Day on 10th Nov, 2021 in PSF



Minister of S&T distributing the Certificates among the winner Students

2.3 World Science Day was also celebrated at Provincial Carawan office

1. Multan Unit:

PSF Science Caravan Multan Unit Celebrated this Day with the collaboration of Govt. Comprehensive Higher Secondary School, (Boys) Multan with some special events or actions such as:

- Diffused the WSDPD in School, through the message by UNESCO and different types of banners.
- Organized an 'Open Day' in GCHSS, Multan to highlight the importance of science for peace and development.
- Incorporated the messages of WSDPD into official speeches and other activities taking place on 10 November.
- Organized a Quiz Competition to emphasize the many different ways science and technology touch our daily lives.
- Distributed the Prize's (trophies & Certificate) by the Chief Guest of the ceremony Mr. Roshan Badshah, Principal, GCHSS, (Boys) Multan to position holder students:



Speech being delivered by Chief Guest during the event

2. Quetta Unit:

PSF Science Caravan Unit Quetta celebrated World Science Day at Dar-e-Arqam School Quetta on dated: 10th November 2021.

Around 50 teachers attended the lecture. Mr. Khawar Faryal (Assistant Director) Regional Meteorological Department Quetta, briefed importance of Building Climate Ready Communities.



Celebration of World Science Day at Quetta

3. Sukkur Unit:

World Science Day for Peace and Development on theme “Building climate Ready Communities” was arranged at Govt. (Boys) higher Secondary School Phulji, District Dadu on November 10, 2021. The Science Caravan Sindh Unit Sukkur organized speech competition among the students to highlight the importance of World Science Day and overall activities of PSF. Around 150 District Education Officers, Town Education Officer, Head Master, Head Mistress GGHS Phulji, Subject specialists, teachers and students, participated in this program.



Chief Guest addressing the audience on occasion

4. Peshawar unit:

As a part of the above activities, the Popular Science Lecture was delivered by the Assistant Scientific Officer, Science Caravan KPK-Unit Peshawar. The event was held in a spacious hall of the said school. The lecture theme was “Building Climate resilience communities”.

More than 500 students, teachers & dignitaries benefited from this lecture.



Participants listening the Lecture in Peshawar

Quiz Competition

On the same day i.e. 13th November, 2021, quiz competition was arranged with the collaboration of School & College management in spacious Hall. The quiz was elaborated in three stages within four groups,

Speech Competition (English)

It was arranged by Mansehra Public School & College containing Model, Speech, Quiz and Business Enterprises.

Model Competition

This competition was held in open courtyard of the school. The models on various scientific themes were properly arranged on the tables. Lecturers & experts Judges, visited the site & performed duties on that occasion.

Prize Distribution Ceremony

At the end prizes distribution ceremony was held in open area of the school and prizes were distributed in winner students. On that occasion Chief Guest Professor Dr. Jamil and other dignitaries were invited by the Principal to distribute & hand over the prizes to winner students.

5. TandoJam unit:

The Science Caravan Sindh Unit, Tando Jam celebrated “World Science Day Peace & Development” on 11th November 2021 at Govt. Boys High School No.2, Tando Jam. In this regard, a Model Competition Program was also arranged on “**Building Climate-Ready Communities**”. The program was started with motive of program and work of Pakistan Science Foundation and Science Caravan Sindh Unit-II Tando Jam. The audience were informed for the importance of

modern science and its applications in daily life. The Chief Guests distributed shields and certificates among the winning students of school.

2.4 Online Participation of Pakistani Students (Team) in 18th International Junior Science Olympiad (IJSO)

Four selected Pakistani students participated “online” in the 18th International Junior Science Olympiad (IJSO) held in UAE on 12-21 December 2021. “Online” participation of Pakistani students arranged at Pakistan Scientific and Technological Information Center (PASTIC), a subsidiary organization of PSF. While Syeda Rehana Batool, Principal Scientific Officer represented Pakistani IJSO team as leader at UAE. The IJSO academic competitions included challenging tests in topics of science based on theoretical and practical assignments. The tests were designed to address students’ understanding of scientific concepts, and their ability to apply concepts to the situations described in the tests.

2.5 Organizing National and Regional Training Workshop on “Supporting Skills for Women Innovators”

The Foundation organized national and regional training workshop on “Supporting Skills for Women Innovators” at auditorium PSF, Islamabad on 30th December, 2021, wherein, welcome address was given by the Chairman, PSF Prof. Dr. Shahid Mahmood Baig, S. I. Mr. Mohammad Djelid, Director of UNESCO Regional Science Bureau for Asia and Pacific highlighted active participation of skilled women for innovations in the field of science and technology. Dr. Humayun Shuja, Director Entrepreneurship Development at Preston University Islamabad delivered talk on participating of Pakistani women in E-commerce.

Popular Science lecture conducted at PSF

Pakistan Science Foundation (PSF) has been mandated to create Science awareness at grassroots level for promotion of S&T. A popular lecture was arranged on theme “Nitric Oxide Nasal Spray for COVID-19 Treatment and breath test for COVID-19 Diagnosis” on 11 May, 2022 at PSF, Auditorium. Dr. Isaac John delivered the lecture and said that at two stages the spray acts as a person is infected with COVID-19. If used before infection, it reduces of entry and replication of the virus inside the respiratory tract whereas if people already diagnosed with virus use the spray it encapsulated the virus and inhibits its replication ultimately reducing the chances of infection.

Prof. Dr. Shahid Mehmood Baig, *S.I.* Chairman, PSF addressed on the occasion as Chief Guest and highlighted various activities of the Foundation carried out for promotion of Science all over the country for awareness of the young Scientists He emphasized on importance of Science and Technology for socio economic development of Pakistan. All science Popularization activities of PSF are aimed to create science awareness in students and to motivate them towards science education. These activities play a significant role in capacity building of the students for adopting and thinking upon the modern scientific inventions and technologies.

2.5.1 Science Caravans

Pakistan Science Foundation is an Organization that has a mandate of promotion and of Science at grass roots level under the National Science Policy 1984 and STI Policy 2012. So, for that purpose Pakistan Science Foundation has established 9 Science Caravan Units 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 practical's of Physics, Chemistry, Biology, Scientific Models, Scientific documentaries and Star lab/Planetarium Show. Science Caravan Federal unit is conducting 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 can , 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.

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

Summary of Science Exhibitions by PSF Science Caravan Units

S. No.	Unit	No of Exhibition	No. Days	No Schools	No. Students
1.	Science Caravan, Federal	9	34	35	9069
2.	Science Caravan, Peshawar	13	39	59	12639
3.	Science Caravan, Multan	08	31	29	9122
4.	Science Caravan, Faisalabad	13	78	113	18156
5.	Science Caravan, Tandojam	06	16	93	13460
6.	Science Caravan, Sukkur	09	55	68	18230
7.	Science Caravan, Quetta	14	29	46	7700
Total		72	282	443	88376

Detail of Science Caravan Exhibition carried out by all Caravan Units is placed at (**Annexure-XI**)

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 report period, projects were finalized under fourth joint call for proposals with NSFC, China, NSFC-China and 3rd joint call with TUBITAK-Turkey and 21 new projects were initiated during the report period. 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. Total 78 projects remained ongoing (including newly initiated projects) while 45 technical reports (semi-annual and annual) of ongoing projects were received and an amount of Rs. 38 million was released on account of due installment of already ongoing projects and first installment of newly initiated projects Moreover, PSF-NSFC jointly launched call for proposal under Joint Scientific Exchange Program. The Chairman, PSF also hold various meetings with international counter parts to further expand the PSF activities at international scale.

1. Joint R&D Bilateral Projects and Calls

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, as a result of 4th call of proposals launched with NSFC, a total 131 projects were received. After the completion of due process and review by subject experts, finally 12 projects were processed for release of first installments.

A total **27** projects awarded under 03 joint calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 11 projects were also received during this period.

PSF-TUBITAK, Joint Call for Proposals

PSF launched 3rd joint call between PSF & TUBITAK on “Academia Industry Co-operation Call” with the aim of supporting joint research projects in the areas of application-oriented research and development. Total 09 projects selected for funding were processed for release of first installment. Total 12 projects awarded under first and second 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.

PSF-MSRT Joint Call for Proposals

Total 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 06 projects were received during this period.

Call for Joint Proposals with NSF, Sri Lanka

Total 03 projects awarded under first and second calls were ongoing in different universities/S&T organizations across the country. Final Technical and fiscal reports of 01 project was received during this period.

Online Meeting between Pakistan Science Foundation (PSF) and Bulgarian Academy of Sciences (BAS)

PSF seeks S&T cooperation with Bulgaria through Bulgarian Academy of Sciences (BAS), which is the biggest research organization in Bulgaria. BAS was established in 1869 and is the oldest institution for promotion of science in Bulgaria and is the leading scientific centre, which promotes and conducts research, trainings and dissemination activities and provides expertise of national and international importance related to the Bulgarian society and state. In this regard, an online meeting was held on 16th March, 2022 to discuss the possible areas of joint scientific exchange and activities under the leadership of Prof. Dr. Shahid Mahmood Baig, Chairman, PSF. Dr. Ahsan Feroze, Director-IL along with officers of IL wing also attended the meeting.

After detailed discussion, the chairs from both sides found many similarities in many of the core functions of both organizations. Both sides mutually showed their consent to undertake the following steps to strengthen the bilateral ties between PSF and BAS.

- Both organizations agreed to initiate Joint Plan for Scientific Exchange, and the modalities of the proposed exchange programme shall be mutually finalized through electronic exchange in the middle of the year, 2022.
- Both sides are ready to organize joint scientific seminars, conferences, symposia, meetings and workshops in near future.
- Joint R&D projects will also be initiated on mutually agreed areas after discussion.

H.E. Ms. Irena Gancheva, Ambassador of Bulgaria to Pakistan also shared her thoughts with the participants and assured to support PSF and BAS for joint mutual exchange and activities.

PSF and NSFC-China Jointly Launched Call for Proposals:

National Natural Science Foundation of China (NSFC) and Pakistan Science Foundation (PSF), invited HEC Chartered Universities, Research Centers and Institutes to submit joint proposals for Scientific Exchange Program on 14.04.2022 to 06.07.2022, which has been launched as first of its kind in PSF history with the aim for long term and short term capacity building /HRD/Internship/Apprenticeships at international level.

The call's research priority areas are aligned with the national strategies of both countries having following themes;

1. Computer science: Internet of Things (IoT), Blockchain, Biometrics, Big data and Virtual reality (VR)/Augmented reality (AR), Deep Learning, Artificial Intelligence
2. Information and communication (including 5G)
3. Mechanical design and manufacturing (including Robotics, 3D printing, and Drones)
4. Macro Governance and Policy
5. Climate Change and Mitigation
6. Water, Food and Ecosystem Security

On-Site Monitoring of PSF funded projects;

PSF team comprising of dealing officers and Audit officer alongwith subject expert visited Pakistan Meteorological Department-PMD, Islamabad in June-22 wherein, team met with the PIs of two ongoing projects at PMD. The team was briefed in detail through presentation about the technical work of the project. All the technical and fiscal progress of the project were monitored. Later on, subject t expert gave some suggestions to improve the project quality.

4. PLANNING & DEVELOPMENT

I. Activities under Development Budget:

On-going Development Projects:

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 2021-22, an amount of Rs. **15.00** million was utilized under the PSDP project and spent 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 Fifteen (15) 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 Phytopathological Society
- xiii. Pakistan National Heart Association (PANAHA)
- xiv. The Biological Society of Pakistan
- xv. Pakistan Society for Biochemistry and Molecular Biology

The request received from the societies were considered in the 03 meetings of the Committee constituted in the approved development project. The meetings were held on **5th October, 6th December 2021 and 13th April 2022**. Following activities were undertaken by the societies,

- ✓ Twenty Four (24) International / National Science Conferences / Workshops / Seminars / Symposia organized (**Annexure-XII**).
- ✓ Forty Two (42) issues of eleven (11) Scientific Journals were published (**Annex-XIII**).
- ✓ Linkages Fee paid to four (04) International Federations.
- ✓ Cash Award for the Best Research Paper was given by a society.
- ✓ Websites maintenance of six (06) societies was financially supported.

iv) New Development Projects 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

✓ (Rs in Million)

Project Title	Duration	Amount
Extension of Display Exhibits, Collection Repositories Improvement and Research Facilities Enhancement at Pakistan Museum of Natural History, PMNH	24 months	1866.00
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

II. Activities under Non-Development Budget:

Submission of important reports to MoST/ Planning Commission:

- ✓ Preparation of Annual Report on the Observance and Implementation of Principles of Policy (2019-20) under Article 29 (3) of the Constitution of the Islamic Republic of Pakistan
- ✓ Indication of Expected savings/ Additional Demand during CFY 2021-22 in PSDP projects of Pakistan Science Foundation
- ✓ First Quarter Review of PSDP 2021-22
- ✓ Mid-Year Review of PSDP 2021-22
- ✓ Meeting regarding Funds Utilization and Savings PSDP 2021-22

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

- ✓ Starred National Assembly Question No. 174 Moved by Dr. Nafisa Shah, MNA.
- ✓ Meeting of The National Assembly Standing Committee on Science and Technology will be held on 13th October 2021 at 02:00 PM in Committee Room of Pakistan Council of Scientific and Industrial Research (PCSIR) Islamabad.

II. PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE (PASTIC)

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE (PASTIC)

1. EXECUTIVE SUMMARY:

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 six 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 2021-22 are summarized below:

Bibliographic & Document Supply Service: A total 24715 S&T documents and 1649 bibliographies in digital form were supplied to 1362 R&D workers.

Abstracting and Indexing service: A total 11500 records were abstracted and indexed into the database of Pakistan Science Abstracts (PSA).

National Science Reference Library: A total 5342 users visited PASTIC library for getting references, reading, photocopying, internet browsing and web searching. Besides, the library received 183 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.

Reprographic Services: A total 75 printing jobs from 15 R&D organizations were completed.

Technology Information Service: Six online issues of “Technology Roundup” a bimonthly Trade and Technology news e-bulletin were published and 02 Workshops under UIP (University Industry Partnership) and 5 Seminars/workshops on IPR (intellectual Property Rights) and Entrepreneurship were organized. One Expo on Stem & IT Innovations: Innovative Trends in Science Technology, Engineering Mathematics (STEM) and ICTs was also organized at University of Agriculture, Faisalabad.

Awareness and Promotion of PASTIC Services: A total 11 stalls including 5 awareness seminars at various departments of universities across the country through sub-centers were organized.

Capacity/skill Development of researchers: A total 36 workshops on various research related themes such data analysis (SPSS, R), Literature Search, Research Methodology and Research Proposal/Paper Writing, Reference Management (Mendeley, EndNote, Zotero) and Quality Assurance in Higher Education were organized.

International Liaison: PASTIC has been designated as National Focal Point of UNESCO IFAP National Committee (UNESCO Information for All Programme IFAP). A training workshop on “Data Literacy & Journalism: Step towards Interpreting & Drafting Data Driven Stories” was organized. MoU with DSS Thailand remained under-progress. A Project Proposal in collaboration with BTBU China under joint Exchange Program was submitted to PSF/NSFC.

During the year, a total number of 6704 users/researchers were served through various PASTIC S&T Information services while 3597 researchers were trained.

2. MAIN OBJECTIVES:

- Development of a National S&T/R&D Information Repository of indigenous information resources (databases)
- S&T/R&D information dissemination through contemporary reference information tools

- Strengthen National Science Reference Library for resource sharing & Inter-library collaborations (consortium) and empowerment of information professionals.
- Promotion of R&D based industrial development
- Facilitate printing of S&T/R&D Publications
- Capacity/skill development of researchers & entrepreneurs
- Develop collaborations with national and international information networks

3. 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 2021 to June 2022 are described below:

3.1. 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
- Springer Link
- Research gate

b) HEC licensed databases

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

- Tayler & Francis
- Science Direct
- JSTOR
- Springer link
- Wiley online Library
- IEEE

Under the Bibliographic Information & Document Supply Service, 24725 S&T documents and 1649 bibliographies in digital form were supplied to 1362 users upon their request during the reporting period.

3.2. 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 2021-22, Bibliographic data of 11500 abstracts were entered into the database of Pakistan Science Abstracts.

3.3. PUBLICATIONS

PASTIC supports printing of abstract books of the national or international conferences organized by the renowned national S& T or R& D institutes/ HEIs. During the reporting period 03 Abstract Books along with one Book were published as follows:

- Abstract Book of “*First International Conference on Applied Physics & Engineering (ICAPE 2021)*” organized by NED University, Karachi on September 16-17, 2021.
- Abstract Book of “*Second IEEE International Conference on Digital Futures and Transformative Technologies*” organized by NUST on May 24-26, 2022.
- A Scientific Book in Urdu Language titled “*Pashtunoo ka Geneati Mutala*” (May 2022).
- Abstract Book of “*Sixth International Conference “Earth Sciences Pakistan”* Baragali Summer Campus, Abbottabad organized by Gomal University Dera Ismail Khan on June 25 -27, 2022.

3.4. 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 through:

- Develop 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>).

- Promote 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).
- Promote *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".
- Enhance 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.
- Organize *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.
- Provide 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-centres 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.

Patent Information

During the reporting period, 42 Clients were provided 05 full text Patent and 204 Patent abstracts/other information through Offline/Online Patent Query Form at PASTIC website.

Technology Roundup

Six online issues of bimonthly Trade and Technology news bulletin titled “Technology Roundup” were made available on PASTIC website.

Technology Expo/Exhibition

One Expo titled “PASTIC-UAF STEM & IT Innovation Expo: Innovative Trends in Science, Technology, Engineering Mathematics (STEM) and ICTs,” was held on November 25, 2021 at University of Agriculture, Faisalabad.

Training Workshops/Seminars under TIS

- A training Workshop on "Amazon Web Services (AWS)" was organized on Aug 26, 2021 in collaboration with R&D Cell of Sargodha Chamber of Commerce & Industry (SCCI).
- One day seminar on "Intellectual Property Rights (IPRs) was organized at University of Lahore on December 10, 2021.
- Two Days Training Workshop on "Research Innovation and Business - Bridging the Gap b/w Academia and Industry" was organized at Khwaja Fareed University of Engineering & Information Technology (KFUEIT) R.Y. Khan on February 8 -9, 2022.
- One day Training Workshop on "Research Innovation and Entrepreneurship for Women Scientists" was organized in collaboration with Women University Multan on February 23, 2022.
- One Day Workshop on “IP Licensing and Patent Writing/Filing” was organized at the University Agriculture, Faisalabad on March 30, 2022.
- Two Days Training Workshop on “First Aid during Disaster Management & Research Lab Accidents” Bridging the Gap between Academia and Industry was organized at Federal Urdu University of Arts Science & Technology, Karachi on April 4 -5, 2022.
- One day seminar on "Entrepreneurship: Opportunities & Challenges for Young Generation" was organized at the University of Haripur on June 14, 2022 by PSC Peshawar. Around 800 participants attend the event.

TIS Databases

Industry Databases: Data in the Database of Industries of Pakistan was verified for removal of duplications.

R&D Projects: The Web application for R&D projects was modified and data is verified.

National Scientists Directory (NSD): The web application of National Scientists Directory (NSD) of Pakistan was developed and linked with National Scientists Registration Certificate (NSRC).

3.5. 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 and approximately 5000 miscellaneous documents such as reference material/secondary sources, encyclopedias, government documents, conferences/seminars proceedings, etc. All newly acquired library items are assigned accession numbers, classified under DDC and then labelled with RFID tag, Library stickers and spine tags.

The library also organizes capacity building programs in the area of Library & Information Management, Library Automation, Digital Library, Soft Skills for Librarians, and Information Literacy, etc. Monthly Library bulletin “Fresh Arrivals” is published on regular basis and distributed among relevant circles, and uploaded on PASTIC website.

Main Services of Library

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

Acquisition of Library Material

Total 181 Journal issues, 24 documents & 38 newsletters were received from different national and international organizations.

Technical Processing

Labelling of Library materials with RFID tags remained in progress.

Library Automation

Library automation is in progress using the international open-source library automation software i.e., Koha. During the reporting period, metadata of 243 newly acquired library items along with 4000 old ones are entered into the online system. Now total 7500 library items are available in OPAC for search at <http://www.koha.pastic.gov.pk:5129/>

PASTIC Koha Cloud Service

PNSR library has successfully executed its PSDP project in 2020 under the title of *“Modernization of PASTIC National Science Reference Library for effective Resource Sharing among S&T Libraries of Pakistan”*. PC-IV of the said Project was prepared and submitted to the concerned quarters. Under the said project, PASTIC offered free of cost library automation software “PASTIC Koha Cloud” as a service to all Pakistani Libraries to ensure optimal and effective utilization of national library resources. In this connection, about 100 colleges and universities libraries are facilitated for automating their functions through PASTIC Koha cloud service.

Library Publication

Total 12 issues of Fresh Arrival were published during the reporting period. For details please visit at <http://www.pastic.gov.pk/fresharrivals.aspx>

Users Served by PNSR

Total 5342 researchers visited PASTIC library for reference purpose, reading, photocopying and internet browsing.

3.6. 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 current fiscal year i.e., 2021-22, 75 printing jobs were carried out for 15 R&D organizations of the country.

3.7. 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 on request basis.

During the year 2021-22, following activities were undertaken by the IT team of PASTIC:

Website/Portal Development and Updation

- PSF Jobs/Career Portal for online Job application submission was developed.

- PSF Research Grants Management System for Management of Research grants was developed.
- PASTIC (www.pastic.gov.pk) and PSF (www.psf.gov.pk) website development, management and updation activities.
- IFAP (Information For All Programme) National Committee Pakistan web portal updated and maintained.
- PSF Science Talent Farming Scheme (STFS) project website along with server management (<http://stfs.psf.gov.pk/>) was supervised.
- CSTRDLP web portal (Consortium of Science & Technology and Research & Development Libraries of Pakistan) (<http://consortium.pastic.gov.pk/>) was updated and maintained activity for promotion of resource sharing among libraries.
- SAARC Women Entrepreneurs (SMEs) web portal available at <http://www.saarcweportal.com> has been updated and maintained.

Database/Application Modified / Redesigned

- Pakistan Science Abstract (PSA) Web/Desktop application debugging for automated data extraction and searching.
- Data collection and updation of National Information portal of R&D equipment/services available with scientific organizations were supervised.
- National Scientist Directory and R&D Project web portal was redesigned.

Databases 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)
- 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

3.8. INTERNATIONAL LIAISON

Following activities were carried out during the fiscal year 2021-22.

- A training workshop on “Data Literacy & Journalism: Step towards Interpreting & Drafting Data Driven Stories” in collaboration with Technology Times, was organized on 17th November, 2021 at PASTIC National Centre, Islamabad under UNESCO- Information for All Programme (IFAP).
- MoU with DSS Thailand remained under-progress.
- Project Proposal in collaboration with BTBU China under joint Exchange Program was submitted to PSF/NSFC.
- An online Zoom meeting entitled “Digital Platform for Technology Exchange” between PASTIC and Beijing Association for Science and Technology (BAST), Beijing Technology & Business University (BTBU), Beijing International Science and Technology Exchange Center (BISTEC) and ZGC Tianhe Promotion Center for S&T Achievement Translation was held on 22 September, 2021 under China Pakistan Science Communication network.

3.9. NEWSLETTERS AND REPORTS

- PASTIC Monthly Newsletters are compiled and uploaded at PASTIC website.
- Monthly action plans / target reports are prepared and submitted.
- Quarterly reports are prepared and submitted.
- Annual Report 2020-21 is prepared and submitted.
- Monthly Progress Reports of PASTIC are prepared and submitted.

3.10. PASTIC SERVICES AWARENESS SEMINARS/STALLS

In order to publicize PASTIC Services & activities, PASTIC service awareness seminars and stalls were organized at various departments of universities on regular basis. Through this activity, PASTIC services are popularized and promoted at 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 reporting period (i.e., 2021-22), following PASTIC Service Awareness Seminars/Stalls were organized:

Date	Venue	Organized by
Jul 16, 2021	Arts Campus, University of Baluchistan, Quetta	PSC Quetta
Aug 27, 2021	Biochemistry Department, University of Baluchistan	PSC Quetta
Sep 16-17, 2021	Department of Physics, NED University of Engineering & Technology, Karachi	PSC Karachi
Sep 30, 2021	Dawood University of Engineering & Technology, Karachi	PSC Karachi
Nov 12, 2021	NCE in Physical Chemistry, University of Peshawar	PSC Peshawar
Jan 06, 2022	Federal Urdu University, Karachi	PSC Karachi
Mar 08-09, 2022	ICCBS, University of Karachi	PSC Karachi
Apr 25, 2022	Arts Campus, University of Balochistan, Quetta	PSC Quetta

3.11. HUMAN RESOURCE DEVELOPMENT

Another important activity of PASTIC is to impart training to information professionals and researchers through organizing of workshops / seminars on research related topics e.g., Data analysis, Reference Management, Proposal/paper writing etc. In this regard, following training workshops / seminars were organized.

TRAININGS/WORKSHOPS/SEMINARS ORGANIZED

Title	Timings	Venue	Organized/ Collaborated by
PASTIC SUB CENTRE, FAISALABAD			
Training Workshop on “Statistical Package for Social Sciences (SPSS)”	Jul 29, 2021	KFUEIT, Rahim Yar Khan	PSC Faisalabad
Award Ceremony	Dec 17, 2021	Govt. MC High School, Chur Majra Faisalabad	PSC Faisalabad & District Education Authority Faisalabad
Workshop on “Turn A Job Test / Interview into The Job Offer”	Jan 12, 2022	UAF, Faisalabad	PSC Faisalabad
Online Meeting with Chambers (FCCI & SCCI) for Introduction and Developing Linkages with Chambers/Industrialists under Competitive Research Programmer (PSDP)	Jan 26, 2022	Faisalabad Chamber of Commerce and Industry	PSC Faisalabad
One Day Workshop on “Access of Research Data and its Management	Jan 26, 2022	GCU, Faisalabad	PSF & PSC, Faisalabad
Two Days Workshop/Training On "Research, Innovation and Business: Bridging the gap between Academia & Industry"	Feb 08-09, 2022	Rahim Yar Khan	PASTIC Faisalabad in collaboration with KFUEIT
One day workshop on “Research Innovation & Entrepreneurship for Women Scientists”	Feb 23, 2022	Women University Multan	PSC, Faisalabad in collaboration with WUM, Multan
One Day Training Workshop on ‘IPR Importance and Patent Writing/Filing	Mar 30, 2022	University of Faisalabad	PSC, Faisalabad in collaboration with the University of Faisalabad
Two Days Training Workshop on “Writing a Research Report/proposal and Citation Management”	Mar 31, 2022 to Apr 01, 2022	ORIC Govt College University Faisalabad	PSC, Faisalabad in collaboration with GCU, Faisalabad
Workshop on “Human Brain	May 27, 2022	Govt New Model	PSC, Faisalabad in

Title	Timings	Venue	Organized/ Collaborated by
and its Educational Implications”		High School G.M. Abad Faisalabad	collaboration with District Education Authority Faisalabad
PASTIC SUB CENTRE, KARACHI			
Webinar on "COVID-19 Pandemic Impact on Health, Education and Society"	Aug 12, 2021	Zoom	PSC Karachi
Online training Workshop on “Learn Data Analysis with SPSS "Life Easier with Mendeley”	Aug 26, 2021	PSC Karachi	PSC Karachi
Webinar on "CPEC opportunities for Researchers"	Sep 23, 2021	Zoom	PSC Karachi
“Webinar on "Food Safety & Hygiene Practices"	Oct 15, 2021	Zoom	PSC Karachi
Workshop on “SPSS data Analysis for Beginners"	Nov 23, 2021	PSC Karachi	PSC Karachi
Webinar on “Bioremediation: Eco Sustainable Green Technology"	Dec 2, 2021	Zoom	PSC Karachi
Workshop on “How to Write a Research Article”	Jan 6, 2022	A.Q Khan Auditorium, FUUAST, Karachi	PSC Karachi in collaboration with FUUAST, Karachi & Pakistan Society for Microbiology
Webinar on "Emerging Skills of Researchers”	Feb 15, 2022	Zoom	PSC Karachi
Webinar on "Research Synopsis Writing (Research & Design)”	Mar 29, 2022	Zoom	PSC Karachi
Webinar on "Effective Presentation Skills of a Researcher”	Apr 20, 2022	online	PSC Karachi
Training workshop on “First Aid during Disaster Management & Research Lab Incidents”	Apr 05-06, 2022	FUUAST, Karachi	PSC Karachi in collaboration with FUUAST & Pakistan Society for

Title	Timings	Venue	Organized/ Collaborated by
			Microbiology
Two days training Workshop on "Significance of SPSS in Data Analysis"	Jun 2-23, 2022	PSC Karachi	PSC Karachi
PASTIC SUB CENTRE, LAHORE			
Seminar on "Importance of Intellectual Property Rights in Academia"	Dec 10, 2021	University of Lahore	PSC Lahore in collaboration with UoL and IPO
One-day Training Workshop on "Citation & Literature Management using Mendeley Software"	Jan 19, 2022	GCU, Lahore	PSC Lahore in collaboration with GCU, Lahore
One-day Training Workshop on "Citation & Literature Management using Mendeley Software"	Mar 28, 2022	UMT, Lahore	PSC Lahore in collaboration with UMT, Lahore
PASTIC SUB CENTRE, PESHAWAR			
Workshop on "Data Analysis and Reference Citation in Research using Different Software"	Sep 29-30, 2021	Amir M. Khan Campus, Mardan, UoA, Peshawar.	PSC Peshawar in collaboration with UoA, Peshawar
Training Workshop on "Experimental / Statistical Design in Analytical Sciences"	Sep 2-3, 2021	University of Agriculture, Peshawar	PSC Peshawar
One Day Seminar on "Causes Symptoms and Early Treatment of Breast Cancer"	Oct 13, 2021	QUST, Peshawar	PSC Peshawar
One Day Seminar on "Causes, Symptoms and Early Treatment of Breast Cancer"	Oct 14, 2021	Agriculture University, DIK	PSC Peshawar
Workshop on "Reference Citation in Research using Different Software"	Oct 14-15, 2021	The Agriculture University, DIK	PSC Peshawar, in collaboration with the Agriculture University, DIK
Conference on "Sustainable Process Systems Engineering"	Oct 21, 2021	<i>Pak Austria Fachhochschule</i>	PASTIC in collaboration with <i>Pak-Austria</i>

Title	Timings	Venue	Organized/ Collaborated by
(SPSE-2021)” & “1 st Pakistan Congress on Membranes & Membrane Processes (PCOM-2021)”		Haripur	<i>Fachhochschule, Haripur and Pakistan Membrane Society (PMS)</i>
Workshop on Mendeley	Nov 22-23, 2021	NCEPC, University of Peshawar	Jointly organized by PSC, Peshawar and NCEPC, University of Peshawar
Training workshop on “Smart PLS Modern Data Analysis Technique”	Dec 22, 2021	Kushal Khan Khattak University (KKKU), Karak	PSC Peshawar in Collaboration with KKKU, Karak
Training Workshop on “PASTIC Koha Cloud”	Feb 2-3, 2022	Islamia College Peshawar	PSC Peshawar in collaboration with Islamia College Peshawar
One Day Seminar on “Thesis Writing Skills”	Feb 04, 2022	Forest Institute (PFI) Peshawar	PSC Peshawar
One Day Hand's on Training Workshop: "Mendeley as Electronic Reference Management Tool”	Feb 16, 2022	Women University Mardan	PSC Peshawar in collaboration with Women University Mardan
Training workshop on “Mendeley Reference Manager: Easy Referencing and Citation”	May 25, 2022	Shaheed Benazir Bhutto Women University Peshawar	PSC Peshawar and SBBWU Peshawar
Training workshop on “Entrepreneurship: Opportunities & Challenges for young Generation”	Jun 14, 2022	Iqbal Hall UoH	Jointly organized by University of Haripur (UOH)) and PSC, Peshawar
03-Days Training Workshop on “Statistical Package for Social Sciences- SPSS”	Jun 22-24 2022	NCEPC, University of Peshawar	PSC Peshawar and NCEPC, University of Peshawar
2-Days Training Workshop on “R Software for Statistical Computing”	Jun 28-29, 2022	Islamia College Peshawar	PSC Peshawar and Islamia College Peshawar
PASTIC SUB CENTRE, QUETTA			
Workshop on “Research Methodology and Research	Sep 15, 2021	CASVAB, University of	PSC-Quetta

Title	Timings	Venue	Organized/ Collaborated by
Proposal Writing”		Baluchistan, Quetta.	
Endnote Workshop	Oct 5-6, 2021	Baluchistan University	Jointly organized by PSC Quetta & UoB
Training workshop on “Research Methodology / Research Proposal Writing”	Dec 23, 2021	Brewery Road, Quetta	PSC, Quetta and Public Health Department, Government of Baluchistan
Training Workshop on "Literature Search & ENDNOTE”	Jun 21-22, 2022	University of Balochistan, Quetta	PSC Quetta in collaboration with University of Balochistan

3.12. MEETINGS/WORKSHOPS/TRAININGS/SEMINARS/CONFERENCES ATTENDED BY PASTIC OFFICIALS

Director General PASTIC, Prof. Dr. Muhammad Akram Shaikh

- “First International Conference on Applied Physics & Engineering (ICAPE-2021)” on September 16-17, 2021 at NED University of Engineering & Technology Karachi (PASTIC supported printing of Abstract Book).
- Zoom meeting entitled “Digital Platform for Technology Exchange” between PASTIC and Beijing Association for Science and Technology (*BAST*), Beijing Technology & Business University (BTBU), Beijing International Science and Technology Exchange Center (BISTEC) and ZGC Tianhe Promotion Center for S&T Achievement Translation was held on September 22, 2021.
- Project Awareness Activity / Consortium Launching Ceremony at Shelton’s Rezidor Hotel, Peshawar on September 25, 2021.
- First Conference on Sustainable Process Systems Engineering (SPSE-2021) and 1st Pakistan Congress on Membranes and Membrane Processes (PCOM-2021) on October 21, 2021 at Pak Austria Fachhochschule Haripur.
- Opening & Closing Ceremony of Expo titled, “PASTIC-UAF STEM & IT Innovation Expo: Innovative Trends in Science, Technology, Engineering, Mathematics (STEM) and IT” on November 25, 2021 at University of Agriculture, Faisalabad.

- Fifth Session of the Asia-Pacific Information Superhighway (AP-IS) Steering Committee under the auspicious of UNESCO on November 25, 2021 virtually on behalf of Ministry of Science & Technology, Pakistan.
- Sixth Forum on China-Pakistan Scientific, Technical and Economic Cooperation under the “Belt and Road” Initiative virtually on November 27, 2021.
- Online session of the “Fourth Joint Training Program on Science, Technology & Innovation Policy and Instruments for Sustainable Development for the Belt and Road Countries” jointly organized by ECO-SF and Beijing Technology and Business University on December 15, 2021.
- Consortium launching ceremony of PSDP-funded project titled “National Digital Archive of research published in Pakistani journals” for Sindh Region on January 8, 2022 at Moven Pick Hotel, Karachi.
- Training Workshop on “PASTIC Koha Cloud & Symposium on PASTIC Developed Tools for Easy Resource Sharing Mechanism in Pakistan” on February 2-3, 2022 at Islamia College, Peshawar.
- Two-Days, Seminar and Training Workshop on “PASTIC Developed Tools: Roadmap for Open Science and Training Workshop on PASTIC Koha Cloud” on March 24-25, 2022 at Sir Sadiq Muhammad Khan Library, Baghdad ul Jadeed Campus, The Islamia University of Bahawalpur (IUB).
- Inaugural ceremony of the “Capacity Building Workshop for Science Teachers on Climate Change Education” on March 28, 2022 jointly organized by ECO-Science Foundation, Sukkur IBA University and UNESCO Pakistan at Islamabad.
- Third International Conference on SPACE (ICS’2022) on March 29-30, 2022 organized by SUPARCO at Serena Hotel, Islamabad.
- Annual Prize Distribution ceremony of Kamyab Learning School (KLS) Rawalpindi on March 30, 2022 at Rawalpindi as Chief Guest.
- Consortium launching ceremony of Journal Publishers for Punjab Region along with Project Awareness Activity on June 11, 2022 at Pearl Continental Hotel, Lahore.
- One day seminar on Entrepreneurship: Opportunities & Challenges for Young Generation on June 14, 2022 at University of Haripur.

- Three days International Conference: Earth Sciences Pakistan 2022 organized by National Centre of Excellence in Geology (NCEG), University of Peshawar on June 25-27, 2022 at Baragali Summer Campus University of Peshawar (PASTIC supported printing of Abstract Book).

3.13. DEVELOPMENT PROJECT (ON-GOING)

Title of The Project: Development of National Digital Archive of Research published in Pakistani Journals

Background:

As per mandate, abstracting and Indexing of scientific material published in Pakistani journals are being carried out by PASTIC (Hard Copy/online Database) since its inception (1957). Looking onto the dire need of scientific community to access indigenous scientific knowledge through single online forum and to fill the research gap in line with the national needs, PASTIC has taken the initiative to collect, preserve and disseminate indigenous research published in S&T Journals through development of national digital repository.

Objectives:

- Development of National Digital Repository of Pakistani S&T Journals through ICT's infrastructure expansion
- Development of National Consortium of publishers of Pakistani S&T Journals
- Online federated search of digital repository of S&T Journal's.
- Capacity building of publisher's/researchers toward software application utilization.

Achievements:

During the FY 2021-22, Consortium of Scientific Journal Publishers of Pakistan was launched during the Project Awareness activities organized in different regions of the country. Details of the activities are as follows:

Location	Date	No. of participants
Shelton's Rezidor Hotel, Peshawar	September 25 th , 2021	50
Moven Pick, Karachi	January 8 th , 2022	70
Serena Hotel, Faisalabad	March 19 th , 2022	60
Pearl Continental, Lahore	June 11 th , 2022	57
Total		237

- Project/Consortium website <http://nda.pastic.gov.pk/> has been launched.
- Project funds allocated for the financial year 21-22 were fully utilized as per allocation.
- Tender for application development along hiring of cloud services were launched.
- Development of Project Management Unit along with Data Entry Lab have been partially completed as per allocated funds.
- Launched survey to collect status of availability journal data in hard and soft format.

3.14. MISCELLANEOUS ACTIVITIES

- A meeting on “Developing Linkages with Chambers /Industrialists under PSDP “Competitive Research Programme-CRP” convened by DG PASTIC was held on Nov 19, 2021 at PNC Islamabad.
- The PASTIC feedback was prepared on Draft National Science, Technology and Innovation Policy-2021-22, MoST and sent to PSF/MoST.
- Prepared Brief on Import of Scientific Equipment & Raw Materials along with complete details in context of preliminary meeting to be chaired by Federal Minister for Science & Technology as requested by PS to Minister MoST letter No. 6(3)/2002-ATA-II, dated: March 3, 2022, and Director (RS), PSF.

- Provided Experts List/Nominations for Turn Around Pakistan Conference to JS (P&D), MoST on May 23, 2022 by E-mail.
- A report prepared/edited by Incharge TIS entitled “Report on Vaccine Types, Production, Utilization, Regulatory and Funding Status in Pakistan,” was delivered to MoST/MoFA/PSF.
- Compiled and provided PASTIC information to PCST for its development project entitled “Human Resource Need Assessment of S&T Human Resources for Driving Innovation and Achieving Vision 2025,”
- PASTIC Sponsored “First International Conference on Applied Physics & Engineering (ICAPE-2021)” on September 16-17, 2021 at NED University of Engineering & Technology Karachi by printing of the Abstract Book for the said conference.

III. PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Introduction:

Pakistan Museum of Natural History the only Natural History Museum in the country was established in 1976 as an attached organization of the Pakistan Science Foundation, Ministry of Science & Technology, Government of Pakistan. It has four principal divisions namely Botanical Sciences Division, Earth Sciences Division, Zoological Sciences Division 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 carry 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 organizes trainings, workshops, seminars, symposia and other educational interactive activities related to natural history, environment and biodiversity of Pakistan. International days are also observed. PMNH has formed 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 1.4 million natural history specimens in its repositories. Research outcome of these field works and 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-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 their research in the form of information, technical assistance, specimens as a loan and guidance in their research work.

1.1. Summary of PMNH Progress 2021-22

During report period, 86,587 General Public Visited museum galleries including 102,085 students, 658 foreigners and total amount of Rs. 6,398,755/- was generated from the visitors.

Total 16 Technical Reports were prepared for the field surveys and baseline studies of floral and faunal diversity in the KPK merged districts under the 10 BTTP component, Government of KPK.

Total collections made during the year 2021-22 was 10,783 specimens including the flora, fauna, rocks and fossils from all over the country. Some 33,111 specimens/samples of plants, animals, rocks, minerals and fossils were curated during this period. Total cataloguing of 21,193 specimens was done. Total 7,695 samples were also digitized. The scientific divisions published 51 research papers in the reputed scientific journals. Total 12 officers were appointed in Grade 17 & above along with 10 in Grade 16 & below in the reporting period. Total 12 officers were promoted/upgraded in Grade 17 & above along with 9 in BS 16 & above.

Botanical Sciences Division

1.2. Field Works:

Researchers of Botanical Sciences Division (BSD), conducted field work in the areas of Lal Suhanra National Park Bahawalpur, Pie Forest Sakrand Shaheed Benazirabad, Miani Forest Matiyari/Hyderabad, Umerkot, Mithi, Islamkot Sindh , Muzaffarabad, Potowar (Baga Sheikhan, Sukhu), Siran Valley and Kaghan Valley Reserve Forests, Ayubia National Park , Dunga Gali forest area, Margalla Hills National Park, Midh Ranjha, Kot Momin, Gilgit and neighboring areas (including Naltar, Hunza, Karimabad, Khunjab National Park Hopper, Yaseen valley, Dera Ghazi Khan and its adjoining Suleiman Range including Torghar Conservancy, Kahuta and Kalar Saidan region, Cholistan Desert and Bahawalpur, Hunza Valley (Gilgit-Baltistan), Chitral, Saiyduwali, Painiala, Sheikh Badin, Mughal Kot, Darband and Drazinda of D.I. Khan, South Waziristan and F.R. Tank, Thana Bhola Khan, Rani Kot, Meri Kot, Gawarband and adjoining localities of Dadu District, Sindh, Kanmehtarzai, Muslim Bagh, Zargoan,

Khonozai, Kach, Taftan, Dalbandin Nokkundi, Khuzdar and Bela, Zhob, Baluchistan, Gwadar and adjoining areas and Coastal areas of Sindh and Baluchistan for the collection of higher and lower plant specimens for the purpose of research and public education.

1.2.1. Collection, Cataloguing, Digitization of Natural History Specimens:

Collection & identification

Plant samples collected = 2,918

Curation/ Preservation/ Poisoning / Mounting / Arrangement

Higher/Lower Plants Herbarium = 14,500

Cataloguing

Cataloguing (Higher and Lower Plants) = 15,500

Digitization/Database

Lower/Higher Plants = 2,541

Photography of specimens

Lower and Higher Plants = 900

1.2.2. Laboratory Work:

- i. Maintained fungi cultures (Cordyceps, Trichoderma, Metarhizium, Beauveria, Milky, Oyster, King Oyster) in the BSD laboratory.
- ii. Maintained pure culture and spawn of macro fungi like Oyster Mushroom, King Oyster Mushroom, Milky Mushroom and their spawn.
- iii. Produced and maintained spawn of milky, oyster and *Cordyceps spp.* (mushrooms) in the laboratory of BSD
- iv. Overall curation, preservation, microscopy and identification of Algal herbarium specimens and their classification up to species level.

2. Research Projects:

2.1. National Collaborative Projects:

1. BSD scientist conducted a field visit to merged districts of KP area for the 10BTTP project of KP Government. Worked on the baseline studies of the floral diversity of the different areas of the merged districts. The areas included Bajour area, Mohmand area, North Waziristan, South Waziristan, Orakzai area, Kurram area and Khyber area as vegetation/plant expert from PMNH.
2. PSF/NSLP/C-PMNH (990) Entitled Formulation of Eco-Friendly Trichoderma Based Indigenous Bio-Fertilizer for Management of Plant Diseases. (under review process)
3. PSF/NSLP/C-PMNH (1000) Entitled “Conservation, Propagation and Research on Native Desert Plants in PMNH Islamabad.” (under write-up process)
4. PSF/RES/CP/KPK-SBBU/AGR (29) Project Title: Cultivation/ Processing of Mushrooms at High Altitude Research Centre at Sheringal, Dir Upper under the Shaheed Benazir Bhutto University, Sheringal, Dir Upper (Technology Transfer) (under review).

2.2. International Collaborative Projects/Research Work:

1. BSD scientist conducted fieldwork in Gilgit Baltistan and surroundings areas in collaboration with the University of California, Davis along with Mr. Muhammad Mafakheri on 14-25 December, 2021.
2. Collaboration between Botanical Sciences Division, PMNH and Natural History Museum London, in process.

2.3. Research Publications

1. Koponen, T., Khan, A.S. & Gilani, S. A. G. 2022. Contribution to Mniaceae: Revision of Mniaceae (Bryophyta) in Pakistan.-Acta Bryolichenologica Asiatica 10: 31-38. Finish-Chinese Botanical Foundation.
2. 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.
3. Ilyas N, Akhtar N, yasmin S, Sahreen Sumaira, Hasnain Z, Khaushik P, Ahmend A, Ahmed P (2022) Efficiency of citric acid chalet and *Bacillus* sp. In amelioration of cadmium and chromium toxicity in wheat. *Chemosphere Pub Date : 2021-12-16 DOI : [10.1016/j.chemosphere.2021.133342](https://doi.org/10.1016/j.chemosphere.2021.133342)*
 4. Narejo, G.A., Mirbahar, A.A., Yasin, S. Sirohi, M.H., Saeed, R (2022) Effect of Hydro and KNO₃ Priming on Seed Germination of Cotton (*Gossypium hirsutum* L.) Under Gnotobiotic Conditions. *J Plant Growth Regul.* <https://doi.org/10.1007/s00344-022-10644-y>
 5. Uzma Sitara, Parwaiz Ahmed Baloch, Atta Ullah Khan Pathan, Muhammad Ismail Bhatti, Mohammad Abbas Bhutto, Qazi Mehmood Ali, Abid Ali and Mehwish Iqbal (2022). *In vitro* studies to determine antibacterial and antifungal properties of three *Pleurotus* species (Oyster mushroom). Pakistan Journal of Botany DOI: 10.30848/PJB2023-1(14)
 6. Uzma Sitara, Parwaiz Ahmed Baloch, Atta Ullah Khan Pathan and Muhammad Ismail Bhatti (2022). Optimization and Effect of Different Grain Sources on Production of Liquid Spawn and Fruiting Body of *Cordyceps militaris*. Internal Journal of Agriculture and Biology DOI: [10.17957/IJAB/15.1953](https://doi.org/10.17957/IJAB/15.1953)
 7. Fatima-tuz-Zuhra, Shariqa Khawaja, Bina Shaheen Siddiqui, Shabana Usman Simjee, Muhammad Ismail Bhatti, S. T. Ali, Sobiya Perwaiz and Sabira Begum (2022). Chemical diversity and Cytotoxicity of *Ganoderma lucidum* from two different localities of Pakistan in Chemical Society of Pakistan, Volume 44, No. 02, April issue, 2022. doi.org/10.52568/001002/JCSP/44.02.2022.
 8. 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 (2021). Production, Purification, and Characterization of Alkaline Protease from *Aspergillus flavus* and its Compatibility with Commercial Detergents, in *BioResources* 16(1), 291-301.
9. Hammal Khan, Muhammad Bilal, Shoaib Nawaz, Abdullah, Sanaullah Abbasi, Amir Hussain, Shabir Hussain², Imran Ullah², Muhammad Arshad Rafiq, Wasim Ahmad (2021) Novel variants in the LRP4 underlying Cennai-Lenz Syndactyly syndrome.

2.4. Research Papers Submitted

Amir Hussain, Muhammad Zafar, Mushtaq Ahmed, Shazia Sultana, Ghulam Yaseen, Salman Majeed, Jameel Raza, Syed Aneel A. Gilani, Muhammad Ismail Bhatti, Ghulam Abbas, Zil E Haleefa, 2022. Ethnobotanical exploration of medicinal plants diversity in southern desert of Sindh, Pakistan. *Journal of Ethnobiology and Ethnomedicine*.

2.5. Research Papers Reviewed

Reviewed an article entitled “Antimicrobial activity of silver nanoparticles synthesis from *Aegle marmelos* LEAF EXTRACT” *Uttar Pradesh Journal of Zoology*.

2.6. Book Published

Published a book by Dr. Syed Aneel Ahmad Gilani as Contributor Author entitled “Some Amazing Gymnosperms” 2021, with ISBN Number: 978-969-7859-22-1 (P.B) publishers Bazm-e-Takhleeq-Adab, Pakistan P/O box, 17667, Karachi-75300.

2.7. Conference abstracts/Proceedings

1. Ghulam Abbas, Zil-e-Haleefa, Amir Hussain (2022) Molecular Mechanism behind the seed priming in cotton (*Gossypium hirsutum* L.). *International Plant Genomics Webinar*, Feb 17, 2022.
2. Ghulam Abbas, H. U Khan, Ameer Ahmed Mirbahar, Sanaullah Yasin (2022) Effect of seed priming on growth yield and biochemical parameters of cotton

(*Gossypium hirsutum* L.). under field conditions. International Congress of Soil Science "Soil Health and Sustainable Development Goals".

3. Presentations/Lectures:

BSD scientists delivered 12 different lectures to students/researchers of different universities.

4. Popular Science Articles / Book Published:

1. A Book published entitled " Some Amazing Gymnosperms" 2021, with contribution of Dr. Aneel Gilani, Curator BSD, ISBN Number: 978-969-7859-22-1 (P.B) publishers Bazm-e-Takhleeq-Adab, Karachi.
2. Ghulam Abbas Narejo (2022) Treatment of COVID-19 pandemic with indigenous knowledge of medicinal plants: A Folklore. The Global Plant Council, (Blog post).
3. Ghulam Abbas Narejo*, H. U Khan, Muhammad Ismail Bhatti, Zil-E-Haleefa, Amir Hussain (2022), Medicinal Plants in the prevention and Treatment of COVID-19 Pandemic: From folklore to pharmacy lab. Technology times, (Weekly E-Magazine).
4. Ghulam Abbas Narejo (2022), Treatment of COVID-19 pandemic with indigenous knowledge of medicinal plants: A Folklore. The Global Plant Council, (Blog post).
5. Amir Hussain, H. U. Khan Muhammad Ismail Bhatti, Ghulam Abbas Narejo, Zil-E-Haleefa (2022) *Senna italica* Plant Used for Various Human Disorder Ailments. Technology times, (Weekly E-Magazine).
6. Sadia Munir, (2022) "*Trametes versicolor* used in medicinal mushroom." submitted in IMA (International Mycological Association).
7. Sadia Munir, (2022) Covid -19 effects on the Human body". Technology times, (Weekly E-Magazine).
8. Amir Hussain (2021) Enhancing the medicinal value of honey bees by feeding on medical plants. Technology times, (Weekly E-Magazine).

9. Amir Hussain (2021) Food Insecurity and Malnutrition in Tharparkar Deserts Sindh-Pakistan. Technology times, (Weekly E-Magazine).
10. Amir Hussain, H.U. Khan, Muhammad Ismail Bhatti, Zile.Haleefa, Ghulam Abbas (2021) Bananas and its interesting facts Bananas and its interesting facts. Technology times, (Weekly E-Magazine).
11. Amir Hussain, H. U. Khan, Muhammad Ismail Bhatti, Saadia Munir, Zil-E-Haleefa, Ghulam Abbas (2022) Use of Indigenous Knowledge of Medicinal Plants for Veterinary Practices in Thar Desert, Sindh. Technology times, (Weekly E-Magazine).
12. Zil E Haleefa, H. U. Khan, S. Aneel A. Gilani, Amir Hussain (2021) How do Humans contribute towards loss of Biodiversity? Technology times, (Weekly E-Magazine).
13. Ghulam Abbas Narejo*, H.U Khan, Aneel A. Gilani, Zil-E-Haleefa, Amir Hussain (2021) Algae: A Perfect Source of Medicines. Technology times, (Weekly E-Magazine).
14. Ghulam Abbas Narejo (2021) Third Generation Biofuel: A Sustainable Source of Energy. Technology times, (Weekly E-Magazine).
15. Zil-e-Haleefa*, H.U. Khan, Sadia Munir, Shahnaz Zakia, Ghulam Abbas (2021) The Night Blooming Jessamine: A Gift of Nature or a Curse. Technology times, (Weekly E-Magazine).
16. Ghulam Abbas Narejo (2021) Seed germination: A physio-molecular journey through germinating seed. The Global Plant Council, (Blog post).

5. Training Courses/Workshops Held/Attended:

1. Officers of BSD attended two days training entitled “Plant Nutrition and Its management” jointly organized by University of Agriculture and NIAB, Faisalabad.
2. BSD scientists attended a lecture entitled “Nitric Oxide Nasal Spray for COVID-19 Treatment and Breath Test for COVID-19 Diagnosis” by Dr. Isaac John from University of London on 11th May, 2022 at PSF Auditorium.

3. BSD scientist attended one day workshop with title “ Artificial Intelligence & Machine Learning in Life Sciences” organized by COMSTECH Islamabad on 24-03-2021.
4. BSD scientist attended inaugural session of Three days short term and six weeks attachment training courses for LIS professionals organized by PASTIC Islamabad.
5. 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.
6. BSD scientist attended as Expert facilitator in one day mushroom cultivation organized by Zarai Taraqiyati Bank Islamabad.
7. Officer BSD attended two days training entitled “Plant Nutrition and Its management” organized by University of Agriculture and NIAB, Faisalabad collaboratively.
8. BSD scientist attended webinar on “Training Program STI Policy and Instrument for the Sustainable Development in the Belt and Road Countries.

5.1. Trainings Courses / Workshops Conducted:

1. BSD scientist conducted 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.

5.2. Seminars/Symposia/Presentations/Webinars/Conferences attended

1. BSD officer participated as invited speaker and presented a talk entitled “Molecular Mechanism behind the seed priming in cotton (*Gossypium hirsutum* L.)” in International Plant Genomics Webinar, Feb 17, 2022.
2. Scientist BSD presented a poster presentation entitled “Effect of seed priming on growth yield and biochemical parameters of cotton (*Gossypium hirsutum* L.) under field conditions.” in International Congress of Soil Science organized by Pakistan Soil Science Society held at University of Agriculture, Faisalabad March 09-11, 2022.
3. BSD scientists organized a one day seminar on International Day for Biological Diversity, 2022 in PMNH.

4. Officer BSD attended webinar training program on “Low Carbon Development and New Energy Vehicles, held on 6-7, July, 2021.
5. BSD scientist attended webinar on “Food Security of Pakistan: Policy practices for Technology Diffusion”.
6. BSD scientist attended international webinar on "Plant Pathogen Interactions" organized by the Department of Plant Pathology, The Islamia University of Bahawalpur held on 15th of July, 2021 The distinguished guest speakers Prof. Dr. Gitta Coaker from Department of Plant Pathology, University of California Davis, USA and Prof. Dr. Shahbaz Talib Sahi from Department of Plant Pathology, University of Agriculture Faisalabad, Pakistan delivered their talks on Plant Pathogen Interactions.
7. BSD scientist attended international webinar entitled “The academic Odyssey Series: Prof. Ross Gleadow. Organized by Global Plant Council.
8. BSD scientist attended international webinar entitled “Importance of Biodiversity and Reinforcing Youth Role in its Conservation”.
9. BSD scientist attended international webinar entitled “Association of Applied Plant Biology-COP26 webinar series”.
10. BSD scientist attended international webinar entitled “Agro-Ecological Approaches for Fall Army Worm Management.
11. BSD scientist attended international webinar entitled “International Plant Phenotyping”.
12. BSD scientist attended international webinar entitled “Sensors and Controllers”.
13. BSD officer attended an international webinar entitled as “Importance of Biodiversity and Reinforcing Youth Role in its Conservation
14. BSD scientist attended two days Conference entitled “Promoting Climate Smart Agricultural and Food Security Conference” dated 7-8 July 2021.
15. BSD scientist attended online conferences Topic “Phytochemical in Medicine and Food” held in zoom meeting dated 24 September,2021 at 11.00 am, Organized by Agha Khan University, Karachi. Speakers : Dr.sara Mudassir
16. BSD scientist attended webinar “Post Wildfire Bioremediation and watershed defense” on 30th September, 2021 Speaker: Maya Elson United Kingdom.
17. BSD scientist attended webinar on “Regulation of above and below ground fluxes in combating climate change” Organized by Botany department of PMAS AAUR.

18. BSD scientist attended webinar on “Role of selenium nanoparticles in alleviating biotic and abiotic stresses” Organized by Botany department of PMAS AAUR.
19. BSD scientist attended webinar on Agroecological approaches for Fall Army worm management by Dr Yelitza Colmenarez- Centre Director, CABI-Brazil.
20. BSD scientist Attended the webinar conferences arranged PASTIC sub center Karachi entitled “Research Synopsis writing and (Research Design), Dated 29.03.2022”.
Speaker: Dr. Syeda Sadaf Akber.

6. Technical Report Submitted.

1. Gilani. S.A.A. 2021. Ecological baseline study of district Bajaur, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
2. Gilani. S.A.A. 2021. Ecological baseline study of district Mohmand, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
3. Gilani. S.A.A. 2021. Environmental baseline study of district Khyber, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
4. Gilani. S.A.A. 2021. Environmental baseline study of district Kurram, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
5. Gilani. S.A.A. 2021. Environmental baseline study of district North Waziristan, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
6. Gilani. S.A.A. 2021. Environmental baseline study of district Orakzai, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.
7. Gilani. S.A.A. 2021. Environmental baseline study of district South Waziristan, KPK with reference to vegetation and floristic diversity. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component.

7. SERVICES TO OTHER ORGANIZATIONS

BSD scientists provided the services to the students of BS, MS, M. Phil. belonging to the various universities of Pakistan in their research and thesis work and also supervised their research activities. Students from the following universities were provided assistance as a co-supervisor in their research work including Quaid-e-Azam International University, Islamabad, University of Haripur, Hazara, Bahria University, Islamabad, National Center of Excellence in Geology, University of Peshawar, National University of Science and Technology, Islamabad, Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad

1. BSD scientist assisted to BS students from Govt. Postgraduate College No.1, Abbottabad regarding microscopy and identification of fresh water Algae.
2. Revised one image of plant specimen *Humulus scandens* collected from Japan, sent from the University of Karachi Herbarium.
3. Two weeks internship activity with BSD scientist, student of Supernova Education System, Islamabad, completed on Mushroom Tissue Culture, Spawn Production and Cultivation and Preservation Techniques.
4. One student from PMAS Arid Agriculture University Rawalpindi working as Internee on micro fungi for the period of three months under the guidance of BSD scientist in March 2021.
5. One student from University of Sargodha completed one month internship activity in Mycological section of BSD under the supervision of Dr. Muhammad Ismail.
6. Completed internship activity on “Extraction of Plant parasitic and beneficial nematodes from soil, funnel method, microscopy, identification and managements” from PMAS Arid Agriculture University, Rawalpindi.
7. Two students from PMAS Arid Agriculture University, Rawalpindi, completed three months internship under supervision of Dr. Ismail Bhatti, BSD, PMNH.

Earth Sciences Division

1. Field Works:

1.1. Geological/ Paleontological field work in Northern areas (Skardu, Astore, Nagar and adjoining areas)

The geological field work carried out in Skardu, Shaigar, Khaplu, Khurmang, Yaseen, Nagar valley and adjacent areas. The objective of the field work focused on petrochemical, biostratigraphic investigation in perspective of metal mineralization for further investigation, measurement of geological section to record lithological/ textural observations of geological units, exploring of fossils and minerals for ESD repository. The study area has plenty of pegmatite intrusions, hosting variety of mineral resources including gemstones. The pegmatite strata were measured at different locations of Shigar and Khaplu to acquire most representative field data i.e. stratigraphical, lithological and facies variation from bottom to top. The minerals and rocks specimens were collected from different geological formations exposed in the area are hornblendite, garnet, mica gneiss, tonolite, epidote, garnet gneiss, biotite granite, granite, diorite, garnet mica schist and marble etc. Different lithological and bio facies were observed, rock samples and fossils were collected from the each bed of outcrop, Moreover loose pebbles were also collected from various locations, after making it certain that were derived from outcrop of yaseen group. Total 725 specimens of different species of fossils and rocks were collected. Representative Bulk samples of 2-3 kg were collected from the altered zones and grab samples of about 1/2 kg were collected from the fresh bed of metavolcanic.

1.2. Geological field work in Abbottabad area:

Dr. M. Murtaza along with Dr. Anwar Qadir (University of Haripur) went for Fieldwork for the SRGP-Project entitled “Assessment of Shale Gas Potential of the Cretaceous Chichali Formation, Hazara Basin, Lesser Himalaya, Pakistan”. Different successions belonging to the Chichali Formation were studied. For geochemical analysis, different samples belonging to Chichali Formation were taken from Abbottabad area. For comparison, samples from other shale formations were also taken from different areas of Hazara region. 32 samples belonging

to Chichali Formation were taken from Abbottabad area and subjected to different geochemical analysis.

Research Publications

1. Sayyed Ghyour Abbas, Muhammad Adeeb Babar, Muhammad Akbar Khan, Ibrar Hussain, Muhamamd Akhtar, Aamir Yasin, Maheen Khalid. (2021). *Tragoportax* and *Miotragocerus* from Nagri Formation type locality, Siwalik Group, Pakistan (early Late Miocene): Taxonomic problems and hypotheses regarding their resolution. *Annales de Paléontologie* 107 (2021).
2. Muhammad Ahmed Farooqui, Khalil-Ur-Rehman, Aamir Yaseen, Ghazala Roohi, Muhammad Umar. "Provenance, depositional and tectonic settings of Ispikan Group Makran Accretionary Prism, Pakistan". *Kuwait J.Sci.*, Vol.49, No.(1), 2022.
3. K. A. Mirani, H. Rahim, S. Qamar, M. Hussain, W. Ahmad, M. Imran and J. A. Jan. 2022, Provenance analysis of Early Jurassic Datta Formation, Western Salt Range, Upper Indus Basin, Pakistan. *Kashmir Journal of Geology (KJG)*, Volume 13 p 16-26.
4. 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*.
5. Muhammad Jamil, Numair Ahmed Siddiqui, Nisar Ahmed, Muhammad Usman, Muhammad Umar, Hamad ur Rahim and Qazi Sohail Imran "Facies Analysis and Sedimentary Architecture of Hybrid Event Beds in Submarine Lobes: Insights from the Crocker Fan, NW Borneo, Malaysia" *Journal of Marine Science and Engineering*.
6. Mumtaz Muhammad Shah, Saifullah Afridi, Emad U. Khan, Hamad ur Rahim and Muhammad R. Mustafa "Impact of igneous intrusion on the reservoir properties of Devonian Khyber limestone, Peshawar Basin, NW, Pakistan." In *Geofluids*, Wiley Journal.

1.3. Submitted:

Two research papers submitted in international journals for publication.

2. LABORATORY WORK:

2.1. Collection status of Rocks, Minerals & Fossils

• Invertebrate fossils	3500
• Rocks	650
• Minerals	450
• Wood fossils	65

2.2. Cataloguing of Rocks & Fossils

• Invertebrate fossils	1900
• Vertebrate fossils	750
• Rocks	370
• Wood Fossils	45

2.3. Digitization of Rocks & Fossils

• Invertebrate fossils	1550
• Vertebrate fossils	630
• Wood fossils	45
• Rocks	450

3. SERVICES TO OTHER ORGANIZATIONS

During 2021-22, services were provided to the students of BS, MS, M. Phil. belonging to the various universities of Pakistan in their research and thesis work and also supervised their research activities. Students from the following universities were provided assistance in their research work;

1. Quaid-e-Azam International University, Islamabad
2. University of Haripur, Hazara
3. Bahria University, Islamabad
4. National Center of Excellence in Geology, University of Peshawar
5. National University of Science and Technology, Islamabad
6. Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad

5. DESIGN AND DISPLAY ACTIVITIES OF PMNH FOR INFORMAL EDUCATION:

5.1. “Up- gradation of Paleo Gallery”

As per mandate of PMNH, to provide informal education to the common people particularly to the young masses and to create awareness among the public about the natural wealth of Pakistan, Upgradation of Paleo Gallery was made. The old Paleo Gallery was converted to new one. Through this diorama, people may have an idea about vertebrate and invertebrate fossils potential of our country.

5.3. Construction of “Invertebrate Fossils of Pakistan” Diorama

Earth Sciences Division has started construction of “Invertebrate Fossils of Pakistan” diorama to replace the existing Earthquake exhibit. Earth Sciences Division has collection of rare specimens of invertebrate fossils from different areas of Pakistan. These specimens are the important aspects of national and natural wealth which will be displayed properly in Invertebrate fossils of Pakistan Diorama to educate the public and motivate students.

6. Seminars/Trainings attended

1. Dr. M. Murtaza, Associate Curator, ESD and Mr. Tassawar Hayat, Research Associate attended and successfully completed training/course on “Project Preparation (PC-I and PC-II)” by Pakistan Planning and Management Institute Working.
2. The officer and staff of the ESD attended world Environment Day at Pakistan Museum of Natural History, Islamabad.
3. The officer and staff of the ESD attended inauguration ceremony of Taxidermy Training workshop at Pakistan Museum of Natural History, Islamabad.
4. Mr. Muhammad Imran, Associate Curator, ESD officially participated in “Consultative Workshop on Development of Integrated plan for Tourism in Islamabad Capital Territory held on 24th on August, 2021.

7. OTHERS

1. Guided Federal Minister of Science and Technology, Mr. Shibli Faraz and Federal Secretary, MoST and other officials during their visit to the PMNH display galleries on 20.08.2021.

2. Guided students and Faculty members of University of Sialkot during their visit to the PMNH display galleries on 26th August, 2021.
3. Guided Ms. Pertricia McPhilips, Representative and Director, UNESCO, Pakistan and other officials during their visit to the PMNH display galleries on 18.10.2021.
4. Guided group of students from the University of Haripur during their visit to the PMNH display galleries.
5. Guided Chinese delegation during their visit to the PMNH display galleries on 18.11.2021.
6. Completed the Urdu translation of write-ups of “National Symbols of Pakistan”.
7. Guided group of students of Quaid-e-Azam University along with faculty members during their visit to the PMNH display galleries on 10.12.2021.
8. Reference PSF Office Order No. PSF/Admn-8(61)/21-Vol-II dated 13.12.2021, Performed duty as a “Chaperon” during the study tour of 4th batch of STFS students in Rawalpindi/Islamabad top notch R&D Institutions and academia of S&T from 20th to 25th December, 2021.
9. Performed duty in PMNH Admin Section as Assistant Director (Esst.) till 22nd December, 2021.
10. Reference PSF Office Order No. PMNH/Admn-4/NTI-1(1)/22, dated 04.02.2022 Mr. Muhammad Imran, Associate Curator, ESD engaged to work as “Deputy Manager” in the PSDP Project “National Technology Innovation Fund (NTIF)”.
11. Muhammad Imran, Associate Curator, ESD performed duty as a “Stage Secretary” in the celebration of International Day for Biological Diversity at PMNH on 23rd May, 2022.

Zoological Sciences Division

1. Field Works:

1. ZSD team conducted field work on the biodiversity of coastal areas of Sindh (Keti Bandar, Bamboor and Karachi) and Baluchistan (Hub River Estuary and Maini Hor) from 07th September 2021 to 22nd September 2021.

2. ZSD researcher participated in baseline survey on the biodiversity of Ex-FATA agencies of KPK in collaboration with 10 billion Tree Tsunami Project of Wildlife Department KPK.
3. ZSD researchers conducted Markhor population estimation survey at District Chitral, Swat and Kohistan in collaboration with KPK wildlife department from 25th Dec, 2021 to 5th Jan, 2022.
4. ZSD team participated into Indus Dolphin Survey, conducted by WWF Pakistan from 25th March to 16th April 2022.
5. ZSD arranged PSF-NSFC project tour for sampling of specimens from 24th May to 10th June, 2022 from Gilgit-Baltistan.
6. ZSD arranged PSF-NSFC project tour for sampling of specimens from 19th to 29th June from Peshawar and adjoining areas.

2. Collection of Natural History specimens:	3,200
3. Cataloguing of Natural History specimens:	2,628
4. Digitization of Natural History specimens:	2,479

8. LABORATORY WORK:

- Curated 18,611 zoological specimens
- Stuffed 20 animals
- Study skins prepared 33 animals
- Head Trophies prepared 15 animals
- Skeleton prepared 02
- Rearranged and replaced naphthalene balls in 98 insect drawers
- Identified and catalogued 18 mammals' specimens collected/ Donated from different areas/Institutions of Pakistan.

9. RESEARCH PAPERS

9.1. International Research Papers

9.2. International Research Papers

1. **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*, 1039:123138. <https://dx.doi.org/10.3897/zookeys.1039.64146>.
2. 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>.
3. 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>.
4. 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>.
5. Hofmann, S., **Masroor R.** & Jablonski D. 2021. Morphological and molecular data on tadpoles of the westernmost Himalayan spiny frog *Allopaa hazarensis* (Dubois & Khan, 1979). *ZooKeys*, 1049: 67–77. <https://doi.org/10.3897/zookeys.1049.66645>.
6. 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>.
7. 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>.
8. 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>.
 9. Hofmann S., **Masroor R.** & Jablonski D. 2021. Genetic variation and tadpoles of the westernmost Himalayan lazy toad *Scutiger occidentalis*. *Zoologischer Anzeiger*, 294: 205–209. <https://doi.org/10.1016/j.jcz.2021.08.008>.
 10. Jablonski D., Idrees M. & **Masroor R.** 2021. *Duttaphrynus stomaticus* (Indian Marbled Toad) and *Eublepharis macularius* (Common Leopard Gecko). Abnormal amplexus. *Herpetological Review*, 52 (3): 607–608.
 11. Gowande G., Pal S., Jablonski D., **Masroor R.**, Phansalkar U. P., D'Souza P., Jayarajan A. & Shanker K. 2021. Molecular phylogenetics and taxonomic reassessment of the widespread agamid species *Calotes versicolor* (Daudin, 1802) (Squamata, Agamidae) across South Asia. *Vertebrate Zoology*, 71: 669–696.
<https://doi.org/10.3897/vz.71.e62787>.
 12. Agarwal I., Bauer A.M., Gamble T., Giri V.B., Jablonski D., Khandekar A., Mohapatra P.P., **Masroor R.**, Mishra A. & Ramakrishnan U. 2022. The evolutionary history of an accidental model organism, the leopard gecko *Eublepharis macularius* (Squamata: Eublepharidae). *Molecular Phylogenetics and Evolution*, 168: 107414.
<https://doi.org/10.1016/j.ympev.2022.107414>.
 13. Jablonski D., Basit A., Farooqi J. & **Masroor R.** 2022. First record of the colubrid snake *Platyceps ventromaculatus* (Reptilia: Colubridae) for Afghanistan. *Zoology in the Middle East*, 68 (2): 186–188. <https://doi.org/10.1080/09397140.2022.2058196>.
 14. Jablonski D., **Masroor R.** & Hofmann S. 2022. On the edge of the Shivaliks: An insight into the origin and taxonomic position of Pakistani toads from the *Duttaphrynus*

melanostictus complex (Amphibia, Bufonidae). *Zoosystematics and Evolution*, 98 (2): 275–284. <https://doi.org/10.3897/zse.98.79213>.

15. Ayobi, A.S., **Masroor R.**, Basit A. & Jablonski D. 2022. The distribution of the critically endangered salamander *Paradactylodon (Afghanodon) mustersi* (Smith, 1940) in Afghanistan. *Herpetozoa*, 35: 133–139.
<https://doi.org/10.3897/herpetozoa.35.e86028>.
16. Amir S.A., Zhang B., **Masroor R.**, Li Y., Xue D-X., Rshiad S., Ahmad N., Mushtaq S., Durand J-D . & Liu J. 2022. Deeper in the blues: DNA barcoding of fishes from Pakistani coast of the Arabian Sea reveals overlooked genetic diversity. *Marine Biodiversity*, 52, 37. <https://doi.org/10.1007/s12526-022-01272-6>.
17. Amir Said, Muhammad Imran, **Muhammad Tahir Waseem**, Abdul Majid Khan, Noman Khalique, Ghulam Sarwar, Rana Manzoor Ahmad. 2022 Feeding Niche Overlap between Native and Alien Fishes in River Swat, Khyber Pakhtunkhwa, Pakistan. *Environmental Biology of Fishes*. (IF: 2.1)
<https://doi.org/10.1007/s10641-022-01254-4>
18. Muhammad Imran, Abdul Majid Khan, Muhammad Altaf, Muhammad Ameen, Rana Manzoor Ahmad, **Muhammad Tahir Waseem** and Ghulam Sarwar (2022). Impact of alien fishes on the distribution pattern of indigenous freshwater fishes of Punjab, Pakistan. 82: e238096 *Brazilian Journal of Biology* (IF: 1.65).
<https://doi.org/10.1590/1519-6984.238096>
19. Ghulam Sarwar, Abdul Majid Khan, Fakhar i Abbas, **Muhammad Tahir Waseem** and Lauren Mae Hennelly. 2021. First record of Body Morphometrics and Chemical Immobilization of Wolves from Pakistan. *Pakistan Veterinary Journal*. (IF: 1.318). 10.29261/pakvetj/2021.054
20. **Muhammad Tahir Waseem**, Abdul Majid Khan, Jay Quade, Anthony Krupa, David L. Dettman, Amtur Rafeh and Rana Manzoor Ahmad. (2021) Stable Isotope Analysis of Middle Miocene Mammalian Communities from the Siwalik Sub-Group of

Pakistan. *Acta Palaeontologica Polonica*, 66 (3): S123-S132 (IF: 2.06). DOI: <https://doi.org/10.4202/app.00788.2020>

21. **Muhammad Tahir Waseem**, Abdul Majid Khan, Jay Quade and Sherry Von Nelson (2021) Palaeoclimatic and Vegetational Change in the Siwalik sub-Group and Its Contemporary Regions: A Stable Isotope Perspective. *Australian Journal of Earth Sciences*, 68 (7): 913-927. (IF: 1.6). DOI: <https://doi.org/10.1080/08120099.2021.1893221>
22. **Muhammad Tahir Waseem**, Abdul Majid Khan, Abdul Ghaffar, Ayesha Iqbal, Rana Manzoor Ahmad. (2021). Palaeodietary and Palaeoclimatic Reconstruction for Late Miocene Hipparionines from the Siwaliks of Pakistan. *Pakistan Journal of Zoology*. 53(3): 1035-1043. <https://dx.doi.org/10.17582/journal.pjz/20180314070354> (IF: 0.86).
23. Siddiqui, P.J.A., Khan, F., Rashid, S., Mushtaq, S., Hassan, H., **Amir S.A.**, (2022) Feeding habits of three sparid brems, *Argyrops spinifer* Forsskal, 1775, *Sparidentex hasta* Valenciennes, 1830, and *Rhabdosargus niger* Tanaka & Iwatsuki, 2013 (family: Sparidae) in the coastal waters of Pakistan. *Mar. Biodivers.* 52, 27. <https://doi.org/10.1007/s12526-022-01264-6>
24. 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. <https://doi.org/10.2478/helm-2021-0006>.
25. Chapple D. G., et al 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>.
26. **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>.
27. 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>.
28. 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>.
 29. 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>.
 30. Hofmann, S., **Masroor R.** & Jablonski D. 2021. Morphological and molecular data on tadpoles of the westernmost Himalayan spiny frog *Allopaa hazarensis* (Dubois & Khan, 1979). *ZooKeys*, 1049: 67–77. <https://doi.org/10.3897/zookeys.1049.66645>.
 31. 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>.
 32. 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>.
 33. 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>.
 34. Hofmann S., **Masroor R.** & Jablonski D. 2021. Genetic variation and tadpoles of the westernmost Himalayan lazy toad *Scutiger occidentalis*. *Zoologischer Anzeiger*, 294: 205–209. <https://doi.org/10.1016/j.jcz.2021.08.008>.

35. Jablonski D., Idrees M. & **Masroor R.** 2021. *Duttaphrynus stomaticus* (Indian Marbled Toad) and *Eublepharis macularius* (Common Leopard Gecko). Abnormal amplexus. *Herpetological Review*, 52 (3): 607–608.
36. Gowande G., Pal S., Jablonski D., **Masroor R.**, Phansalkar U. P., D’Souza P., Jayarajan A. & Shanker K. 2021. Molecular phylogenetics and taxonomic reassessment of the widespread agamid species *Calotes versicolor* (Daudin, 1802) (Squamata, Agamidae) across South Asia. *Vertebrate Zoology*, 71: 669–696.
<https://doi.org/10.3897/vz.71.e62787>.

9.3. National Research Papers

Nil

10. TECHNICAL REPORTS

- i. Developed the Final Markhor Survey report and submitted to KPK wildlife department.
- ii. Nine reports submitted regarding to amphibian and reptiles of Ex- FATA to KPK wildlife department.
- iii. Masroor, R. 2021. Ecological baseline study of district Bajaur, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 31 pp.
- iv. Masroor, R. 2021. Ecological baseline study of district Bajaur, KPK with reference to small mammals. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 22 pp.
- v. Masroor, R. 2021. Environmental baseline study of district Khyber, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 31 pp.
- vi. Masroor, R. 2021. Environmental baseline study of district Khyber, KPK with reference to small mammals. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 21 pp.
- vii. Masroor, R. 2021. Environmental baseline study of district Kurram, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 30 pp.

- viii. Masroor, R. 2021. Environmental baseline study of district Mohmand, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 31 pp.
- ix. Masroor, R. 2021. Environmental baseline study of district North Waziristan, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 31 pp.
- x. Masroor, R. 2021. Environmental baseline study of district Orakzai, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 29 pp.
- xi. Masroor, R. 2021. Environmental baseline study of district South Waziristan, KPK with reference to amphibians and reptiles. A technical report submitted to Khyber Pakhtunkhwa Wildlife Department, 10BTTP component, 31 pp.

11. ON-GOING RESEARCH PROJECTS.

11.1. 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.
- Appointed Research Associate in the Project.
- Two fieldworks (Arranged PSF-NSFC project tour for sampling from 24th May to 10th June, 2022 from Gilgit Biltistan; and 19th to 29th June from Peshawar and adjoining areas.).
- Held 02 Zoom meetings with Chinese collaborator regarding project activities.
- Total 13 students of PMAS Arid agriculture and COMSATS University completed their BSc (Hons) degree under PSF-NSFC project.

11.2. National Projects (submitted)

- Project proposal entitled: Birds / Wildlife Aircraft Strike Hazards & Preventions approved by PSF on 1st April, 2022.

- Research Project entitled: “Establishment of DNA barcode reference Bank for the marine and freshwater fishes of Pakistan submitted to PSF on 20 June, 2022.

11.3. Programme Initiated and completed

- Stuffing of Ibex specimen has been completed and shifted to Ungulate Carnivore Diorama.
- Maintenance and repairing of Birds Diorama was completed.
- Stuffing of Markhor and chukar partridge was completed and shifted to National symbols of Pakistan Diorama of display Gallery of PMNH.
- Recovered Elephant Skeleton from Margzar Zoo, under Islamabad Wildlife Management Board, Islamabad, for the establishment of new diorama at PMNH.

12. WORKSHOPS ORGANIZED

- Organized Taxidermy Training Workshop in collaboration with KPK Wildlife Department under 10BTTP, from 20th to 24th June, 2022.

13. TRAININGS

Provided/organized

- Training entitled “Pinning and preservation of different groups of Beetles (Coleoptera)” provided to 11 students of B.Sc. (Hons) Agriculture Entomology, PMAS Arid Agriculture University, Rawalpindi, at Insect repository, ZSD, PMNH.

Internships

- One student of BS (Hons), Department of Forestry and Wildlife Management, from University of Haripur completed one-month Taxidermy internship, from 1st August 2021 to 2nd September, 2021, at ZSD, PMNH, Islamabad.

14. SERVICES RENDERED TO OTHER ORGANIZATIONS

- Visited PSF Science Center Faisalabad for preparation of preliminary explanation before submission of Science Center Up-gradation on 12th August, 2021.
- Delivered presentation and briefing to the faculty representative of Zoology Department, Agriculture University, Faisalabad on the preparation and maintenance of catalogue register on 20th May, 2022.

15. NO OF STUDENTS SUPERVISED: 09 (3 PHD AND 06 M.PHIL)

- Facilitated Dr. Muhammad Ather Rafi (Ex-Director, National Insect Museum, NARC) regarding his work on identification of Butterflies.
- Facilitated M.Phil student from Arid Agricultural University, Rawalpindi, working on hair analysis of mammalian species.
- Mrs. Misbah Kausar, PhD student /Internee from Department of Zoology, PMAS Arid Agriculture University, Rawalpindi; supported in identification of her research specimens.
- Khan, H.U. M.Phil. student, from University of Science and Technology, Kohat; supervised in his thesis work.
- Shah, S.M. M.Phil. student, from University of Science and Technology, Kohat; supervised in his thesis work.

16. OTHERS

16.1. Workshops/Trainings/Seminars Attended

- Attended the workshop from 23rd-25th May, 2022 on “UNEP’s Capacity Building Workshop through Data Reporting Tool (DaRT)” under Ministry of Climate Change, Islamabad.
- Attended Indus Dolphin Field Survey training session, under WWF Pakistan, from 25th March to 16th April 2022.

16.2. National/International Collaboration/ Liaison

- International collaboration developed in the Project entitled Taxonomic studies of sparid fishes (genus: *Rhabdosargus*) are in progress in collaboration with Karachi University and University of France (MARBEC).
- Attended meetings at Planning commission regarding preparation of PMNH PC-I compliance report with Chief Science & Technology and Chief Economic Appraisal on 18th February 2022
- Attended meeting with Deputy Chief Power regarding discussing Solar energy potential for PMNH PC-I on 21st February 2022
- Arranged Stakeholder Consultation Session regarding PMNH PC-I on 25th February 2022.
- Attended meeting at SUPARCO regarding preparation of PC-1 entitled “establishment of space museum/planetarium observatory at Fountain, Shakarparian, Islamabad on 16th June, 2022.
- Facilitated repositories and labs visits of different delegations from different institutes and foreigners.
- Facilitated and delivered the lectures to students from different 20 universities/colleges/schools.

PUBLIC SERVICES DIVISION

1. Educational Activities

- PMNH organized one day Seminar and Art competition, on the theme/slogan “Building a shared future for all life” during celebration of International Biodiversity Day on 22nd May, 2022.
- PMNH celebrated “World Environment Day” A Panel Discussion was held on the theme “Only one Earth”. Photography Contest among different schools of Rawalpindi and Islamabad inside PMNH premises to give awareness to school children about the importance of this day.
- Stakeholders Consultation Meeting regarding PSDP Project; Extension of Display Galleries, Collection Repositories Improvement, and Research activities was held in PMNH.

2. Internships

Two Students completed their Internship from National Textile University, Faisalabad

3. Visitors Data

PMNH display galleries remained opened in two shifts to facilitate the visitors, National and International delegates, student groups of schools, colleges and universities. A sizeable number of visitors, across Pakistan visited display galleries of PMNH. Detail is given below:

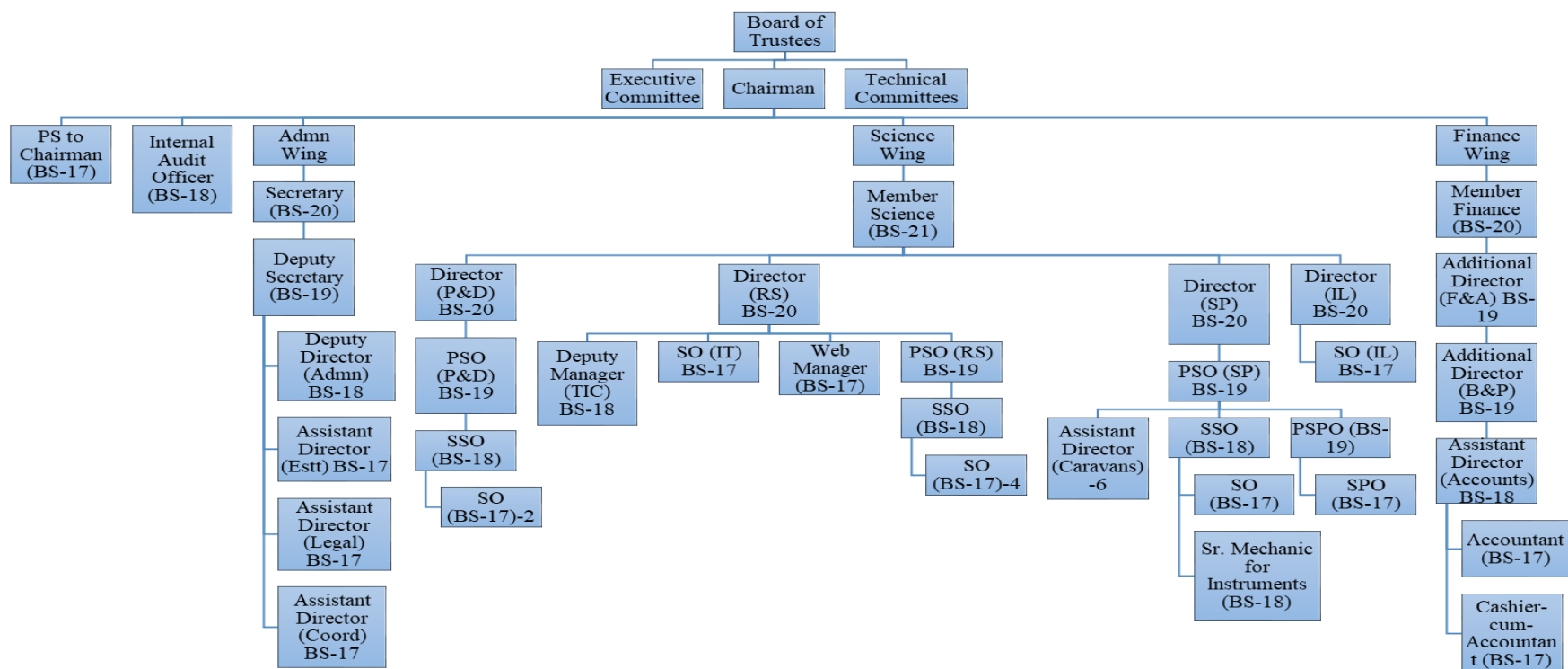
Year	Students	General Public	Foreigners	Children's under 05 years	Total	Amount
2021	66168	58426	258	31712	156564	3263500
2022 Jan-Aug	35917	79225	400	14481	130023	3135255
	102085	137651	658	46193	286587	6398755

4. Other Display Activities

- Renovation of Paleo Gallery
- Wallpaper pasted on the PMNH boundary
- Renovation and Up-gradation of Eco Gallery
- Restoration of Rocks Garden

IV. ORGANIZATION AND ADMINISTRATION

Organogram of Pakistan Science Foundation



4.1 PAKISTAN SCIENCE FOUNDATION

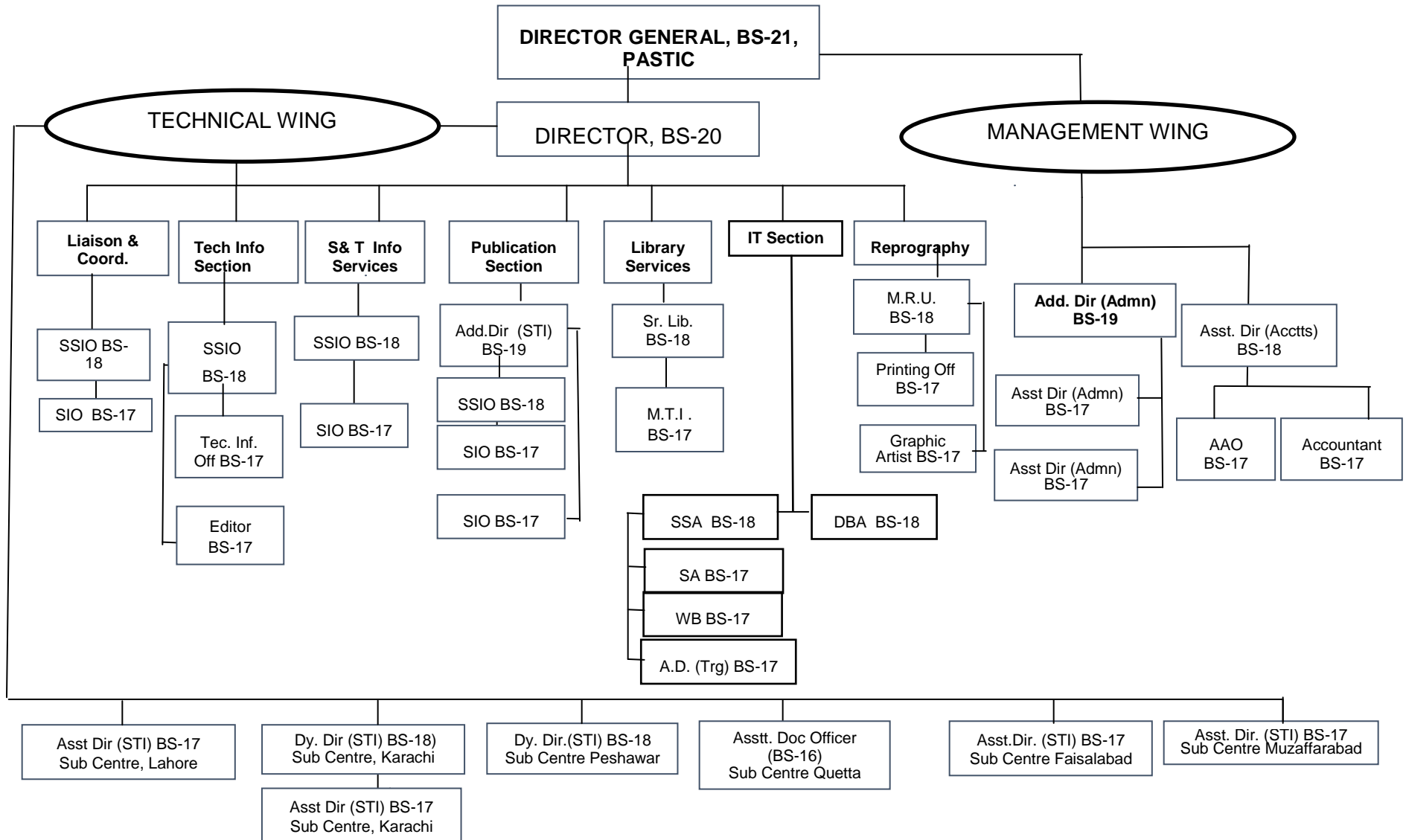
PSF SANCTIONED STRENGTH 2021-22

Sr.	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	5	3	2
11	Principal Science Promotion Officer	19	1	1	-
12	Deputy Secretary	19	1	-	1
13	Additional Manager	19	1	1	-
14	Additional Director (BP&GPF)	19	1	1	-
15	Deputy Director (F&A)	19	1	1	-
16	Senior Scientific Officer	18	4	3	1
17	Deputy Manager (TIC)	18	1	1	-
18	Deputy Director (Admin)	18	1	-	1
19	Deputy Director (Caravan)	18	1	1	-
20	Internal Audit Officer	18	1	1	-
21	Sr. Mechanic for Instruments	18	1	1	-
22	Assistant Director (Accounts)	18	1	1	-
23	Scientific Officer	17	10	10	-
24	Scientific Officer (IT)	17	1	1	-
25	Web Manager	17	1	1	-
26	Asstt. Director (Coord)	17	1	1	-
27	Asstt. Director (Estt)	17	1	-	1
28	Asstt. Director (Legal)	17	1	-	1
29	Asstt. Director (Caravan)	17	5	5	-
30	Accountant	17	1	1	-
31	Cashier-cum-Accountant	17	1	1	-
32	Science Promotion Officer	17	1	-	1
33	PS to Chairman	17	1	1	-
34	Private Secretary	17	2	2	-
35	Photographer	17	1	1	-
36	Sr. Planetarium Assistant	17	3	3	-
	Sub-Total (BS-17 & above)	-	59	48	11

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

72	Naib Qasid	4	8	8	-
73	Naib Qasid	3	1	1	-
74	Naib Qasid	2	1	1	-
75	Naib Qasid	1	9	9	-
76	Security Guard	4	3	3	-
77	Security Guard	3	3	3	-
78	Security Guard	2	3	3	-
79	Security Guard	1	7	7	-
80	Caravan Attendant	4	2	2	-
81	Caravan Attendant	3	4	4	-
82	Caravan Attendant	2	2	2	-
83	Caravan Attendant	1	1	1	-
84	Sanitary Worker	4	2	2	-
85	Sanitary Worker	2	1	1	-
86	Sanitary Worker	1	1	1	-
	Sub-Total (BS-16 & below)	-	153	146	7
	G. Total (BS-01 to 22)	-	212	194	18

ORGANOGRAM OF PASTIC



Pakistan Scientific and Technological Information Centre, Islamabad
Detail Sanctioned Strength of BS-16 and above

Sr.#	BS	Designation	Number of Posts		
			Total	Filled in	Vacant
1	21	Director General	1	1	0
2	20	Director	1	1	0
3	19	Additional Director (STI)	1	1	0
4	19	Additional Director (Admin)	1	1	0
5	18	Deputy Director (STI)	2	1	1
6	18	Sr. System Analyst	1	1	0
7	18	Senior Librarian	1	1	0
8	18	Manager Reprographic Unit	1	0	1
9	18	Database Administrator	1	1	0
10	18	Senior Scientific Information Officer	4	4	0
11	18	Assistant Director (Accounts)	1	1	0
20	17	Assistant Director (Admn)	2	2	0
12	17	Manager Technology Information	1	1	0
13	17	Assistant Director (Training)	1	1	0
14	17	Scientific Information Officer	4	2	2
15	17	Assistant Director (STI)	4	4	0
16	17	System Analyst	1	1	0
17	17	Web Manager	1	1	0
18	17	Printing Officer	1	1	0
19	17	Graphic Designer	1	1	0
21	17	Technology Information Officer (Marketing)	1	0	1
22	17	Editor	1	0	1
23	17	Assistant Accounts Officer	1	0	1
24	17	Accountant	1	1	0
25	16	Superintendent (Admin)	2	2	0
26	16	Assistant Scientific Information Officer	4	4	0
27	16	Assistant Documentation Officer	1	0	1
28	16	Assistant Programmer	2	2	0
29	16	Assistant Web Manager	1	1	
30	16	Assistant Manager Reprographic Unit	1	1	0
31	16	Assistant Printing Officer	3	1	2
32	16	PA to D.G	1	1	0
33	16	Assistant Accounts	1	1	0
Sub Total			51	41	10

4.2 Pakistan Scientific and Technological Information Centre, Islamabad

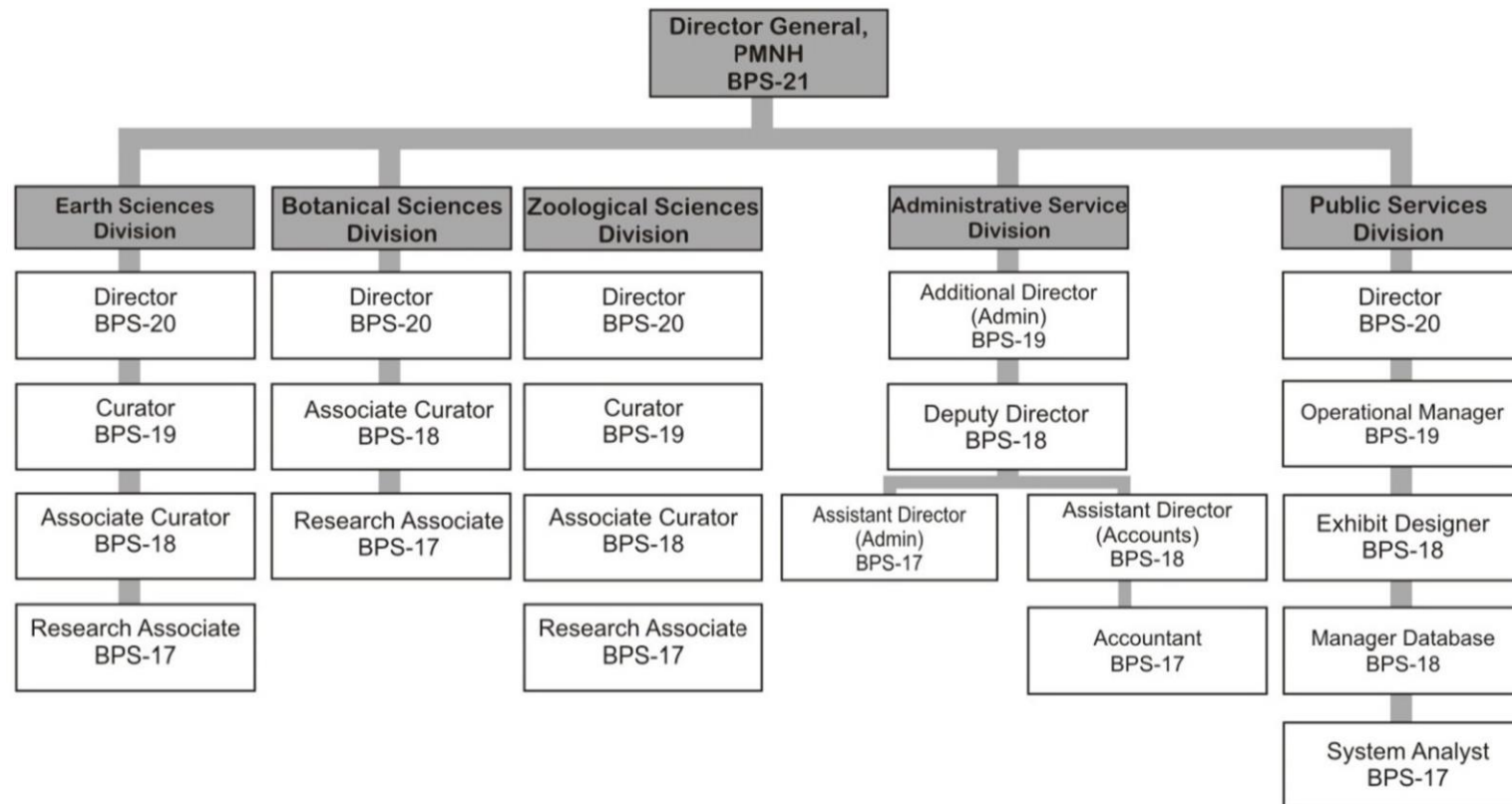
Detail Sanctioned Strength of BS-16 and above F.Y. 2021-2022

Sr.#	BS	Designation	Number of Posts		
			Total	Filled in	Vacant
1	15	Assistant (Admn)	7	7	0
2	15	Data Control Assistant	7	6	1
3	14	Marketing/Field Assistant	1	1	0
4	14	Graphic Assistant	1	1	0
5	14	Layout Artist	1	1	0
6	14	Mechanical Supervisor	1	1	0
7	14	Senior Offset Printer	2	2	0
8	14	Stenotypist	4	3	1
9	14	Data Entry Operator	4	3	1
10	12	Library Assistant	1	1	0
11	11	Technician	1	1	0
12	11	Photo Assistant	1	1	0
13	11	Offset Printer	1	1	0
14	11	Technical Assistant	1	1	0
15	11	Upper Division Clerk	10	10	0
16	9	Lower Division Clerk	11	11	0
17	9	Carpenter	1	1	0
18	7	Electrician	1	1	0
19	7	Assistant Offset Printer	1	1	0
20	5	Bindery Assistant	2	2	0
21	5	Offset Machine Assistant	2	2	0
22	4	Drivers	8	8	0
23	4	Dispatch Rider	1	1	0
24	4	Duplicating Machine Operator	1	0	1
25	3	Head Mali	1	1	0
26	2	Record Sorter	1	1	0
27	2	Photo Attendant	2	2	0
28	2	Qasid	1	1	0
29	2	Patent Attendant	2	2	0
30	2	Library Attendant	2	2	0
31	1	Sanitary Workers	3	3	0
32	1	Bindery Helper	3	3	0
33	1	Mali	2	2	0
34	1	Security Guard	8	8	0
35	1	Naib Qasid	17	17	0
Sub Total			113	109	4
GRAND TOTAL			164	150	14

PAKISTAN MUSEUM OF NATURAL HISTORY, ISLAMABAD

Organizational Chart

2021-2022



PAKISTAN MUSEUM OF NATURAL HISTORY, ISLAMABAD

ASD (Administrative Services Division) 2021-22

PMNH Total Strength

Total sanctioned strength	:	136
Filled Posts	:	115
Vacant Posts	:	21

Appointments from July, 2021 to June, 2022

Grade 17 & above	:	12
<u>Grade 16 & below</u>	:	<u>10</u>
Total:		22

Promotions from July, 2021 to June, 2022

Grade 17 & above	:	12
<u>Grade 16 & below</u>	:	<u>09</u>
Total:		21

4.3. PAKISTAN MUSEUM OF NATURAL HISTORY ISLAMABAD

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	3	2	1
4.	19	Operational Manager	1	1	-
5.	18	Associate Curator	8	8	0
6.	18	Manage Data Base	1	1	-
7.	18	Exhibit Designer	1	-	1
8.	18	Deputy Director (Admin)	1	1	-
9.	18	Assistant Director (Accounts)	1	1	-
10.	17	Assistant Director (Admin)	1	-	1
11.	17	Accountant	2	1	1
12.	17	Research Associate	18	16	2
13.	17	System Analyst	1	1	-
	Sub Total		43	33	10
14.	16	Assistant Librarian	1	1	-
15.	16	PA to D.G	1	-	1
16.	16	Sr. Modeler	1	-	1
17.	16	Superintendent	1	1	-
18.	16	Assistant Research Associate	2	1	1
19.	16	Casting Staff	1	1	-

20.	16	Teacher Guide	1	1	-
21.	16	Associate Artist	2	1	1
22.	16	Taxidermist	2	-	2
23.	16	Fossil Technician	1	1	-
24.	16	Assistant Private Secretary	3	3	-
25.	16	Accounts Assistant	1	1	-
26.	16	Computer Operator	1	1	-
27.	15	Manager Data Base	1	1	-
28.	15	Children Education Programmer	1	1	-
29.	15	Office Assistant	1	1	-
30.	15	Purchase Assistant	1	1	-
31.	14	Sr. Skeleton Preparator	1	1	-
32.	14	Sr. Drying & Fumigating Assistant	1	1	-
33.	14	Sr. Collection Incharge	2	2	-
34.	14	Photographer	1	1	-
35.	14	Store Keeper	1	1	-
36.	12	Calligrapher	1	1	-
37.	12	Sr. Incharge Embalming	1	1	-
38.	12	Drying & Fumigating Assistant	1	-	1
39.	12	Collection Incharge	2	2	-
40.	12	Skelton Preparator	1	1	-
41.	11	U.D.C	2	2	-
42.	9	Museum Guide	1	1	-
43.	9	Carpenter	1	1	-
44.	9	L.D.C	2	2	-
45.	7	Electrician	1	1	-
46.	7	Tracer	1	1	-

47.	7	L.M.O	1	1	-
48.	5	Field Assistant	11	11	-
49.	4	Dispatch Rider	1	1	-
50.	4	D.M.O	1	1	-
51.	4	Driver	5	4	1
52.	1	Security Guard	14	13	1
53.	1	Naib Qasid	7	6	1
54.	1	Sanitary Worker	5	4	1
55.	1	Gardener	1	1	-
56.	1	Helper	5	5	-
	Total Staff (BS-1 to 16)		93	82	11
	Total Officers (BS-17 to 21)		43	33	10
	Total Officers & Staff (BS-1 to 21)		136	115	21

V. PHOTO GALLERY & PRESS CLIPPING

5.1 PSF PHOTO GALLERY



H.E President of Pakistan Dr. Arif Alvi is addressing the audience at inaugural ceremony of “Launching of STEM in Pakistan”



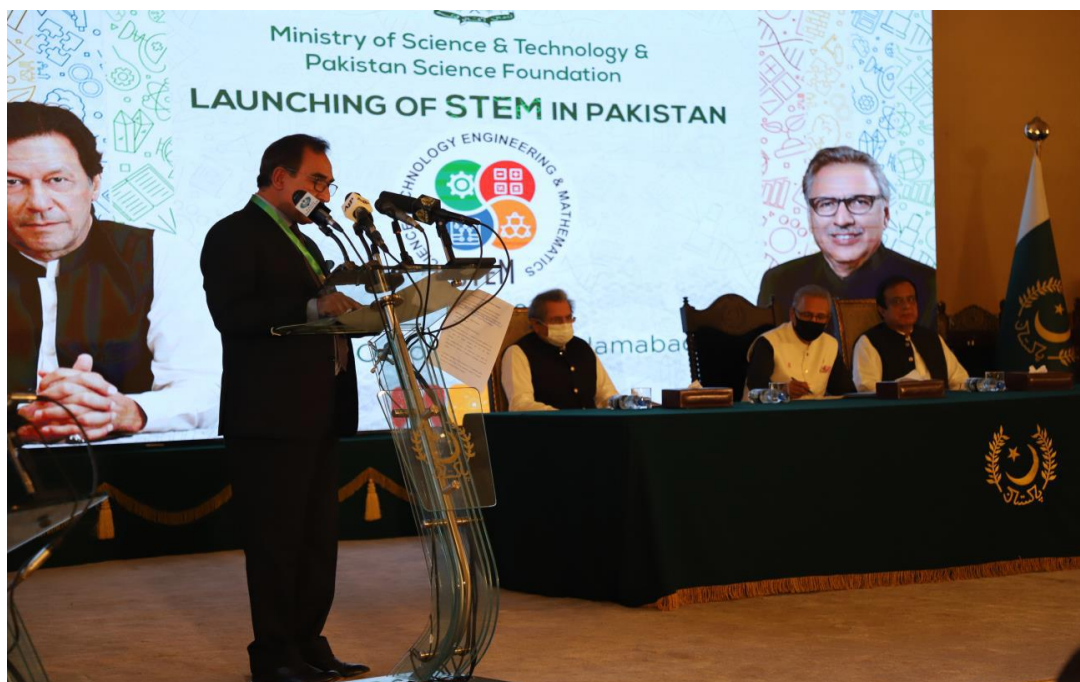
Federal Minister for Science and Technology, Mr. Shibli Faraz addressing the audience on STEM Education and its Need in Nation Development



Federal Minister for Education, Mr. Shafqat Mahmood delivering a speech on the occasion



President H.E Dr. Arif Alvi and Federal Minister for S&T, Mr. Shibli Faraz attending the Inaugural Ceremony of STEM



Chairman, PSF, Prof. Dr. Shahid Mahmood Baig giving Introductory Remarks on the Importance of STEM Education



CRP Team of PSF monitoring Research Project at International Islamic University, Islamabad



Chairman, PSF is chairing the CRP Project Award Committee held meeting in PSF Committee Room.



CRP Team Monitoring PSF funded Research Project at UET Lahore, Faisalabad Campus.



CRP Team Monitoring PSF funded Research Project at NUST Islamabad



PSF officer in Demonstrating Scientific Models to the School Children



PSF officer in Delivering Lecture on Solar System inside the Planetarium



School Children are listening on Eye Model inside the Stem Bus



PSF Official in Explaining the Heart Model to Science during Science Caravan Exhibition



Group Photo of STFS students with Honorable Vice Chancellor, Kohsar University, Murree



STFS Student Visiting Lawrence College, Murree



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 Parts during STEM activities conducted by RobotMea



Research Project by STFS Students Displayed during the Local Study Visit



Motivational Speech and Career Counselling session being delivered by Mr. Kamran Z. Rizvi, Senior Consultant, Executive Coach and Lead Trainer



During STFS Event Honorable Federal Minister, Senetaor Syed Shibili Faraz with Secretary MoST and Chairman, PSF



Group Photo of STFS 5th Batch Students with Worthy Chairman, PSF, Vice Chancellor, Kohsar University, Murree and Vice Chancellor, National Defense University, Islamabad and PSF officials



Group Photo of STFS 4th Batch Students with Federal Minister for S&T, Secretary MoST and Chairman, PSF



Celebration of World Science Day on Nov, 2021 in PSF



Minister of S&T distributing the Certificates among the winner students



Prize distribution to winner student on celebration of WSDPD by Multan unit



Popular science lecture on celebration of WSDPD by Quetta



Govt. boys high school No.2, Tando Jam



Federal Minister for S&T Senator Shibli Faraz addressing the session



UNESCO Country Director Ms. Patricia McPhillips addressing the session



Arrival of Chief Guest "Dr. Isaac John"



A view during the event



Participants of the event



Question Answer session during the event



Presenting of Souvenir to Chief Guest “Dr. Isaac John”



Group photo of the dignitaries at the end of event



H.E. Ms. Irena Gancheva, Ambassador of Bulgaria to Pakistan receiving PSF Shield from Chairman, PSF and held Meeting with Chairman



PSF monitoring and evaluation team holds meeting with PIs during their visit of ongoing projects at PMD-Islamabad



Dean, Faculty of Social Science, Sindh Agriculture University Tandojam presented shields to 1st , 2nd and 3rd position Students



Group Photo of IJSO Team Leaders from participated countries



Syeda Rehana Batool, PSO while participating in IJSO at UAE

5.2 PASTIC PHOTO GALLERY AND PRESS CLIPPING



Chairman PSF, Prof. Dr. Shahid Mahmood Baig (SI), addressing the audience during consortium launching ceremony of PSDP-funded project on January 8, 2022 at Movein Pick Hotel Karachi.



Prof. Dr. Shahid Mahmood Baig,(S.I) Chairman PSF addressing the audience at the Conference on Earth Sciences Pakistan 2022 at Baragali Summer Campus, University of Peshawar.



A group photo of participants with Chief Guest and Guest of Honor on Consortium Launching and awareness ceremony of Journal Publishers/Editors at Serena Hotel, Faisalabad



Prof. Dr. M. Akram Shaikh, DG PASTIC delivering key note Speech at Baragali Summer Campus, University of Peshawar.



DG PASTIC presenting Shield to a Student of Kamyab Learning School (KLS) at Rawalpindi



A group photo of Chief Guests, Director General, PASTIC and VC, University of Haripur, along with participants during seminar on Entrepreneurship: Opportunities & Challenges for young Generation at University of Haripur



DG PASTIC, presenting shield to VC, Islamia College, Peshawar at Islamia College Peshawar during Training Workshop on “PASTIC Koha Cloud”



DG PASTIC is presenting souvenir to President SCCI on occasion of online training workshop at Sargodha Chamber of Commerce & Industry



A glimpse of an online Zoom Meeting of PASTIC with *BAST*, BTBU, BISTEC and ZGC on “Digital Platform for Technology Exchange at PASTIC Islamabad.



Director General, PASTIC delivering online briefing on occasion of “First International Conference on Applied Physics & Engineering (ICAPE-2021)” at NED University Karachi.



A view of Workshop on “Research Methodology and Research Proposal Writing “arranged by PASTIC Sub Centre, Quetta at University of Baluchistan, Quetta.



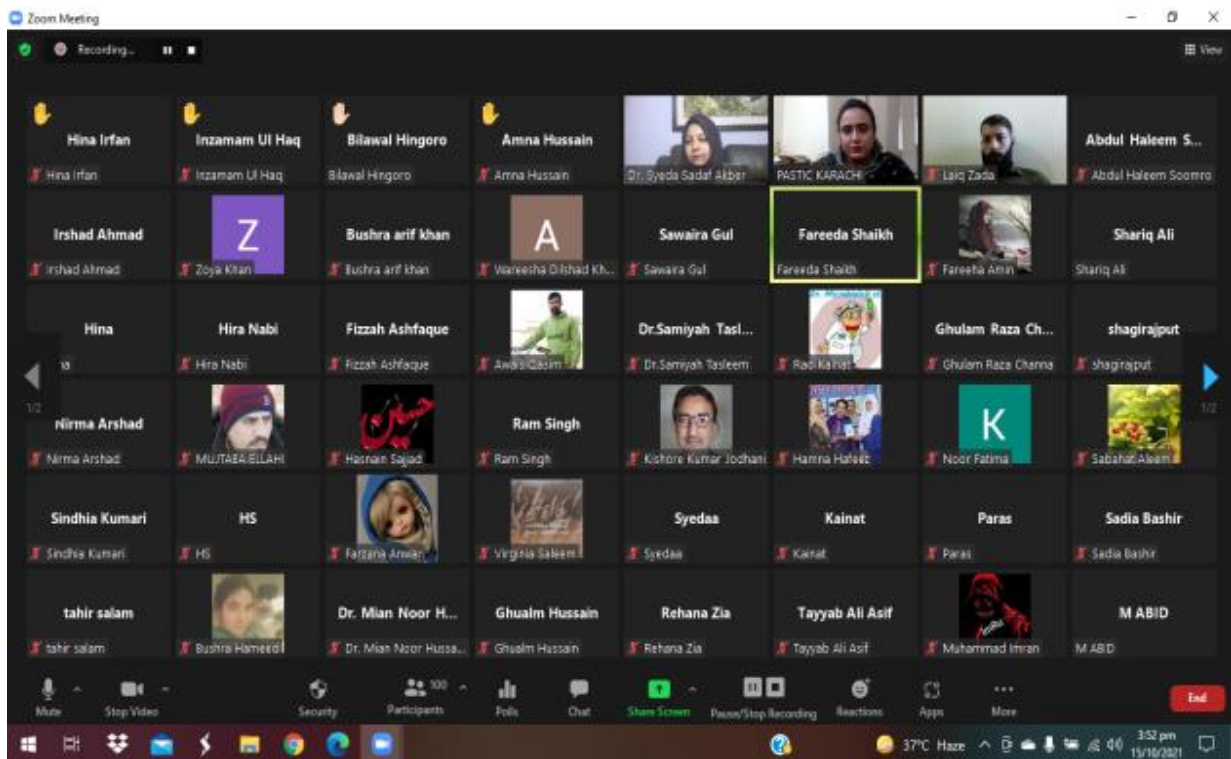
A view of Project Awareness Activity / Consortium Launching Ceremony jointly organized by PASTIC Islamabad and PASTIC Sub-Centre Peshawar at Shelton’s Rezidor Hotel, Peshawar



DG. PASTIC, presenting Certificate to a Participant during Conference on “Sustainable Process Systems Engineering (SPSE-2021)” and “1st Pakistan Congress on Membranes and Membrane Processes (PCOM-2021)” at PAF-IAST, Mang, Haripur



Group photo of the Participants of the seminar on “Causes, Symptoms and Early Treatment of Breast Cancer” jointly organized by PASTIC Peshawar and DINAR Cancer Hospital, Dera Ismail Khan at Agriculture University, Dera Ismail Khan



A Glimpses of the online Seminar on "Food Safety & Hygiene Practices", during the event of World Food Day at PASTIC Sub Centre, Karachi



A view of the participants of the workshop on Endnote jointly organized by PASTIC Quetta and University of Baluchistan



Incharge PASTIC Quetta, presenting shield to the Chief Guest, Dr. Shafiq ur Rehman, VC University of Baluchistan at the closing ceremony of Endnote workshop



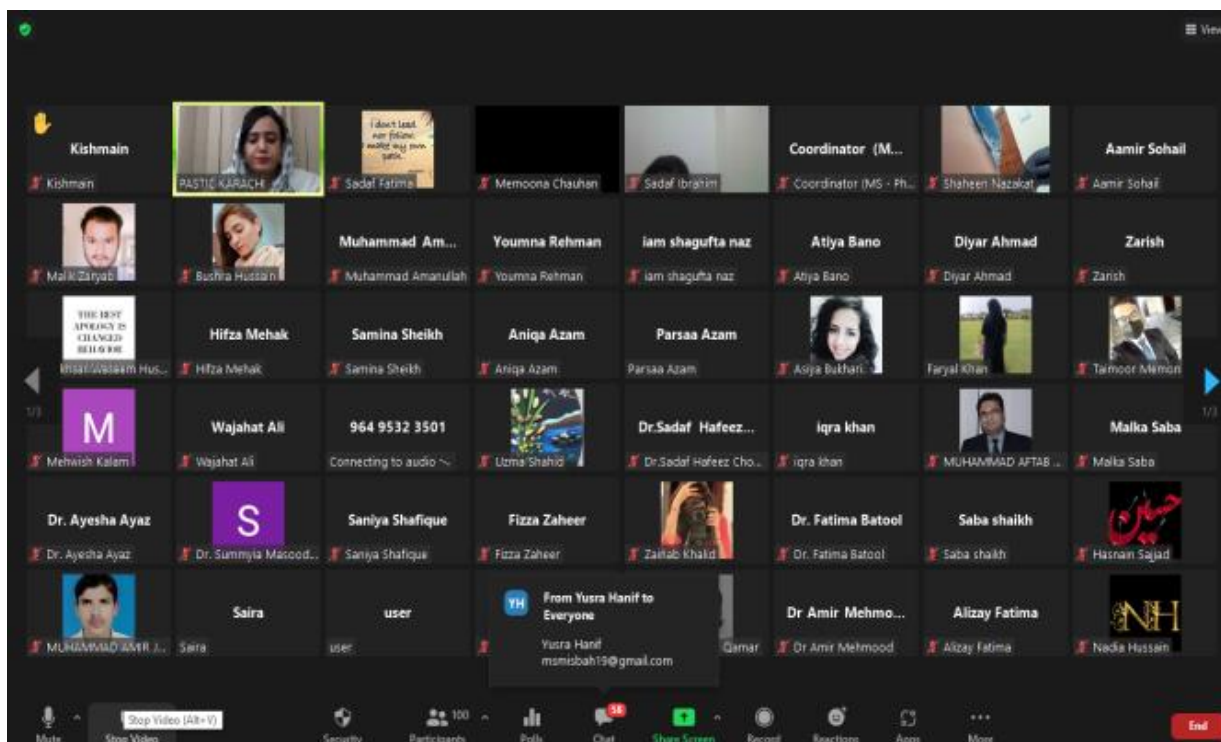
DG PASTIC, visiting a stall at PASTIC-UAF STEM & IT Innovation Expo at ORIC-University of Agriculture, Faisalabad



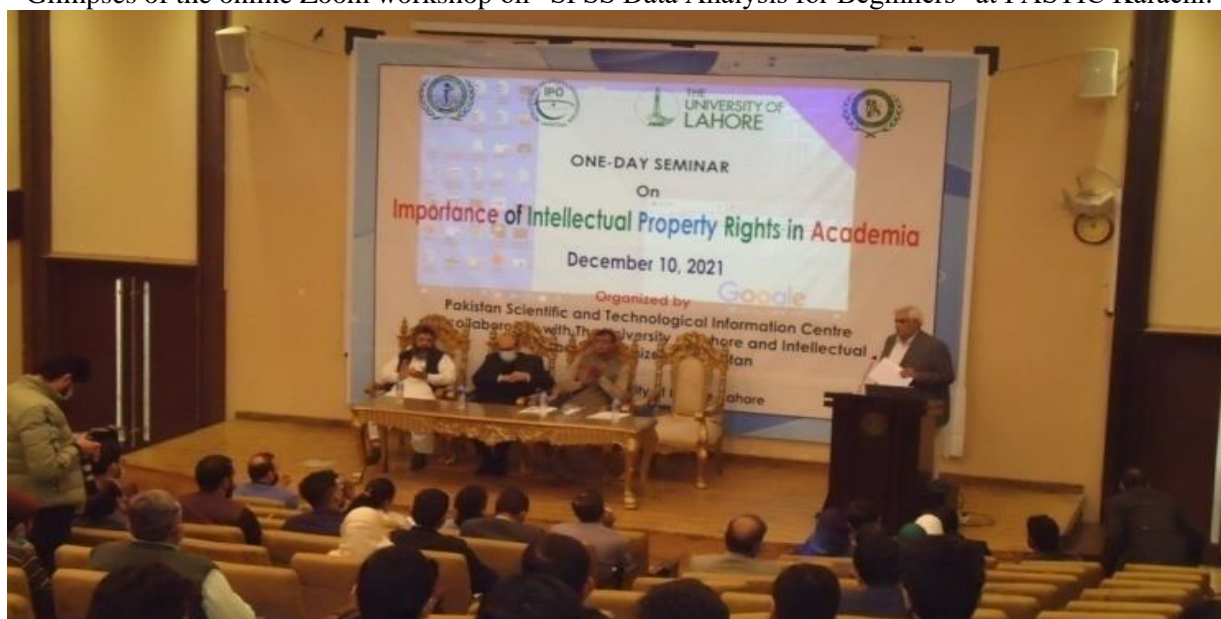
PASTIC-UAF STEM & IT Expo being Inaugurated by VC, UAF and Director General PASTIC at University of Agriculture, Faisalabad.



Group photo of the workshop participants with Chairman NADRA and DG PASTIC on occasion of “Data Literacy & Journalism: Step towards Interpreting & Drafting Data Driven Stories at PASTIC National Centre, Islamabad.



Glimpses of the online Zoom workshop on “SPSS Data Analysis for Beginners” at PASTIC Karachi.



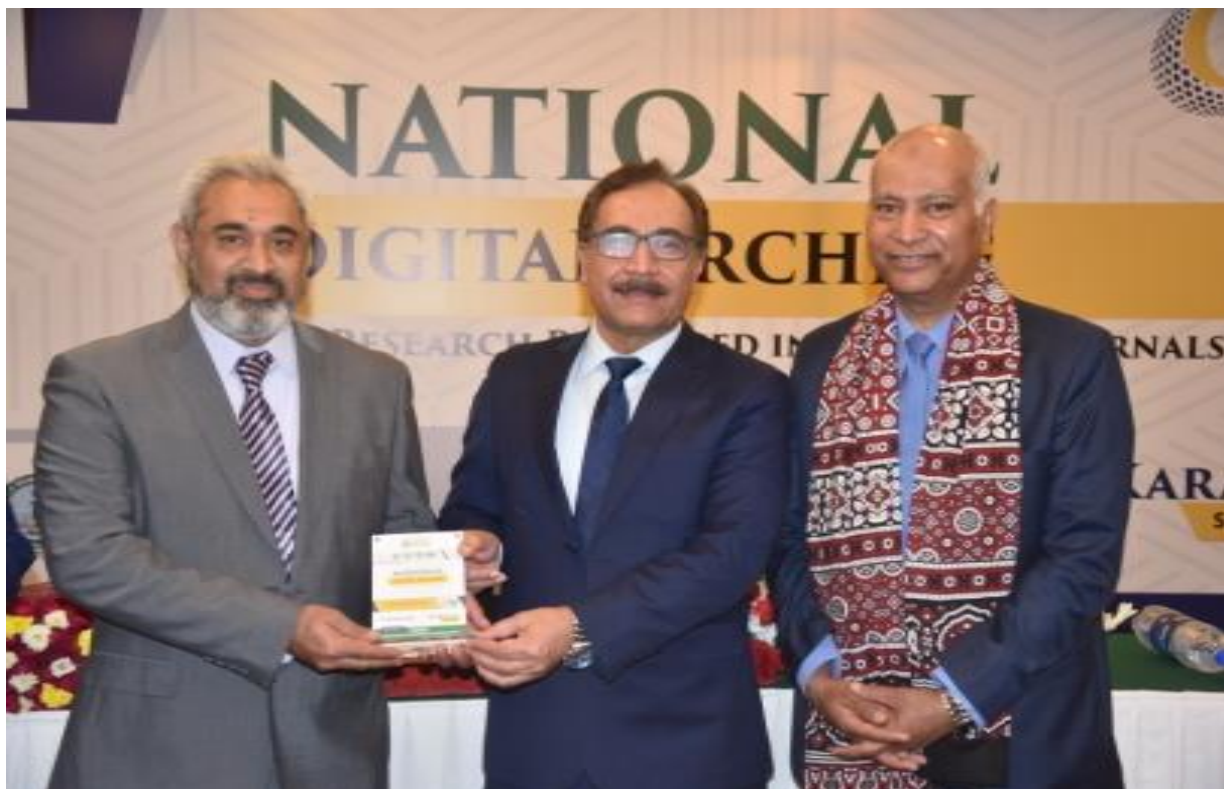
Additional Director (STI), PSC, Lahore briefing during occasion of Seminar on Importance of Intellectual Property Rights in Academia at the University of Lahore, Lahore



Additional Director (STI), PSC, Peshawar during Training workshop on Smart PLS Modern Data Analysis Technique



Group photo of the participants during Consortium Launching Ceremony of PSDP-funded project “National Digital Archive of research published in Pakistani journals” with Chief Guest, Chairman, Pakistan Science Foundation at Movein Pick Hotel, Karachi.



Chairman PSF, presenting souvenir to Project Manager Mr. Saifullah Azim during Consortium Launching Ceremony of PSDP-funded project at Moveinpick Hotel, Karachi.



A group photo of participants with Prof. Dr. Asghar Zaidi VC. GCU. Lahore during Workshop on Citation and Literature Management by using Mendeley Software jointly organized by PASTIC, Lahore and Government College University, Lahore.



View of the Participants in workshop on "Research, Innovation and Business: Bridging the gap between Academia and Industry" jointly organized by PSC, Faisalabad and KFUEIT at Rahim Yar Khan.



Group Photo of the Publishers and Editors with Chief Guest, Chairman, PSF Prof. Dr. Shahid Mahmood Baig, (S.I), and Guest of Honor, DG PASTIC, Prof. Dr. Muhammad Akram Shaikh during Consortium launching ceremony of Journal Publishers for Punjab Region held at Pearl Continental Hotel, Lahore.



Assistant Director (STI) PSC Karachi giving presentation during workshop on "Significance of SPSS in Data Analysis" at PASTIC Sub Centre, Karachi.

NEWS CLIPPING

بروز جمعہ المبارک 8 اکتوبر 2021

کوئٹہ: بلوچستان یونیورسٹی میں پروگرام ہونے چاہیے وقت کی اہم ضرورت ہے

فیصلی میمبرز اسکا لرنر طلبہ طالبات نے بڑھ چڑھ کر حصہ لیا آخر میں یونٹ انچارج عبدالحق سیال سب کا شکریہ ادا کیا



کوئٹہ (نمائندہ کارساز) اختتامی تقریب مہمان خاص وزیر اعلیٰ بلوچستان کی مشیر میر عثمان پرکاشی کو سب سینئر بلوچستان پابنک عبدالحق سیال اور پروفیسر انور پانیزی لائف سائنسز کی ڈین مہمان گیسٹ آف آنرز کو شیلڈ دے رہے ہیں، یہ پروگرام Endnotesoftware

میں حوا جس ریسورس پرسن محمد عرفان مسعود صاحب نے لیکچر دیا اور مہمانوں نے تعریف کی اور آرگنائزنگ ٹیم

پابنک انچارج عبدالحق سیال کی کاوشوں کو سراہا گیا اور کہا گیا بار بار ایسے پروگرام بلوچستان یونیورسٹی میں کراتے رہیں یہ وقت کی اہم ضرورت ہے اس ٹیم میں میڈم مارخ میڈم نایاب لیکچرار زولاجی ڈپارٹمنٹ اور ان کی ٹیم کو سراہا گیا اس میں فیصلی میمبرز اسکا لرنر طلبہ طالبات نے بڑھ چڑھ کر حصہ لیا آخر میں یونٹ انچارج عبدالحق سیال سب کا شکریہ ادا کیا اور عنقریب zoom آنے لائن کا بھی اہتمام کیا جائے گا۔

BREAKING NEWS

CHAIRMAN NADRA SAYS POWER OF DATA IS NOT JUST A NUMBER STORY, ITS DATA JOURNALISM

November 28, 2021 Latest News, Pakistan



ISLAMABAD: Data Journalism plays a vital role in societal transformation, traditional journalistic practices has no more potential to impact society, journalist community needs to learn modern tools of understanding and interpreting data. This was stated by Tariq Malik, Chairman National Database and Registration Authority (NADRA), while speaking at a Training Workshop on Data Journalism jointly organized by Technology Times – A science media company, Regional Rapport, and Pakistan Scientific and Technological Information Center (PASTIC).

'Knowledge-based economies proving mettle in world'

Our correspondent

FAISALABAD: A PASTIC-UAF sciences, engineering, math, and information technology exhibition of projects and applications was staged at the Expo Centre University of Agriculture Faisalabad in which students of 40 institutions exhibited their 300 innovative projects.

The exhibition was inaugurated by UAF Vice Chancellor Prof Dr Iqrar Ahmad Khan and Pakistan Scientific and Technological Information Center (PASTIC) Director General Akram Sheikh.

It was arranged by Office of Research Innovation and Commercialisation (ORIC) UAF and Pakistan Scientific and Technological Information Centre (PASTIC). It was themed at encouraging innovative trends in sciences, engineering and IT, etc. as a step

towards knowledge-based economy in which more than 300 projects were put on display.

Prof Dr Iqrar Ahmad Khan said in the modern era, only knowledge-based economies are proving their mettle in the world and we have to polish innovative ideas to redress the grievances of farming community, general public, and industry. He said we have talented youth who come up with innovative ideas. He said if we provide them a proper platform, it will help refurbish their skills to play their due role in the prosperity of the country.

He said information technology had become an integral part of our life as it helped the mankind to open up new window of the development and prosperity. He maintained the development made in the last three decades due to IT

was unmatched and it has turned the world into a global village.

PASTIC Director General Dr Muhammad Akram said owing to increasing population, the students have to develop the entrepreneurship skills to become self-employed for poverty alleviation in the country.

Director ORIC Dr Zahir Ahmad Zahir said enhanced academia and industry linkages will ensure the knowledge based economy. He said that the country was blessed with talented people.

Dr Abdul Rasheed said that 300 projects from 40 educational institutions including 18 universities were put on the display. He said they were making all possible measures to refurbish the skills of the students. Dr Khurram Zia, Engineer Amir Hussain, Habib Gaba, Munawar also spoke.

نمائش کا اہتمام زرعی یونیورسٹی کے شعبہ کسٹریج انوویشن اور پاکستان سائنٹیفک اینڈ ٹیکنالوجیکل انفارمیشن سنٹر نے کیا

فیصل آباد (ایکسپریس رپورٹ) زرعی یونیورسٹی فیصل آباد میں آفس آف مریج اور یونیورسٹی کے کچھ سربراہین اور پاکستان سائنسک ایڈوائزری کمیٹی کے سربراہین نے مشترکہ طور پر ایک

دو روزہ سائنس کیسٹائونری سیمینار، ریاضی اور انجینئرین کیسٹائونری میں سے ایک یونٹ پر مبنی ورکشاپس اور پریس کان کنیشن کا انعقاد کیا۔ سیمینار میں ایک خاص کارٹین زرعی یونیورسٹی کے 300 سے زائد باغی (6 مئی 15)

واپس پھر یونیورسٹی کے ڈائریکٹر اور اسٹاف کے ایک بڑے گروپ نے شرکت کی۔

[illegible]

زرعی یونیورسٹی میں نئے آئیڈیا سرپرائز بریکنگ کی نمائش

نمائش کا مقصد طلباء کی اعلیٰ صلاحیتوں کو اجاگر کرنا ہے، ذہنی تخلیق میں مزید نکھار پیدا کرنا ہے اور دنیا میں پاکستان کا نام روشن کرنا ہے۔
طلباء کی تخلیق کی ہوئی مصنوعات کو عوام اور انڈسٹری کے سامنے پیش کرتے ہوئے مقابلہ جاتی ماحول کو پروان چڑھانا ہے ڈاکٹر محمد اکرم ڈاکٹر احمد

جامعات کے ساتھ ساتھ کالج اور سکولوں کے طلباء نے بھی حصہ لیا جس کا موقع ان کی تخلیق کی ہوئی مصنوعات کو عوام اور انڈسٹری کے سامنے پیش کرتے ہوئے مقابلہ جاتی ماحول کو پروان چڑھانا ہے اس موقع پر زرعی یونیورسٹی کے وائس چانسلر ڈاکٹر اقرار احمد اور صدر چیئرمین آف کامرس کے نمائندے انجینئر احمد حسن نے طلباء کے نمائش پر انجیلکس کو بے حد سراہا۔ نمائش کے آخر میں ڈاکٹر محمد اکرم، چیئرمین ناصر دلاشاد سندھو، عمران سندھو نے اول دوم سوئم آنے والے طلباء کو نقد انعامات بھی دیئے گئے۔

دیگر شریک تھے۔ نمائش میں ملک بھر سے 50 تعلیمی اداروں کے طلباء نے 300 پراجیکٹس نمائش کیلئے پیش کئے حیدر آباد سندھ، رحیم یار خان، ملتان، اسلام آباد اور فیصل آباد سمیت ملک بھر کے تعلیمی اداروں کے طلباء نے پراجیکٹس نمائش میں رکھے DG پائسک ڈاکٹر محمد اکرم شیخ ورڈائز کیلٹر اورک ڈاکٹر ظہیر احمد نے اس موقع پر خطاب کرتے ہوئے کہا کہ نمائش کا مقصد طلباء کی اعلیٰ صلاحیتوں کو اجاگر کرنا ہے، اور ذہنی تخلیق میں مزید نکھار پیدا کرنا ہے۔ اور دنیا میں پاکستان کا نام روشن کرنا ہے اس نمائش میں

فیصل آباد (سٹی رپورٹر) پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے زیر اہتمام ایکسپو سنٹر زرعی یونیورسٹی فیصل آباد میں سائنس ٹیکنالوجی انجینئرنگ ریاضی اور انفارمیشن ٹیکنالوجی میں نئے آئیڈیا سرپرائز بریکنگ اور پرائز پلان کی نمائش کا انعقاد کیا گیا جن کے مہمان خصوصی DG پائسک ڈاکٹر محمد اکرم شیخ اور VC زرعی یونیورسٹی ڈاکٹر اقرار احمد خاں، عبدالغفار پائسک، چیئرمین ناصر دلاشاد سندھو، چیئرمین محمد عمران سندھو، ڈاکٹر حبیب اسلم گابا، سینئر وائس پریذیڈنٹ چیئرمین رانا فیاض احمد



فیصل آباد، پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے زیر اہتمام سائنس ٹیکنالوجی، انفارمیشن ٹیکنالوجی، انجینئرنگ ٹیکنالوجی میں نئے آئیڈیا سرپرائز بریکنگ اور پرائز پلان کی نمائش کا افتتاح DG پائسک ڈاکٹر محمد اکرم شیخ اور VC زرعی یونیورسٹی ڈاکٹر اقرار احمد خاں، عبدالغفار پائسک، ڈاکٹر حبیب اسلم گابا، محمد حسین پائسک، وائس پریذیڈنٹ چیئرمین رانا فیاض احمد و دیگر افتتاح کر رہے ہیں جبکہ دوسری طرف چیئرمین ناصر دلاشاد سندھو، چیئرمین محمد عمران سندھو، احمد حسن طلباء میں نقد انعامات تقسیم کر رہے ہیں



Islamabad POST

Saturday, November 27, 2021

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than wars: Fawad

Detailed News On Page-01



PASTIC-UAF organizes one day science exhibition

The exhibition was inaugurated by UAF Vice Chancellor Prof Dr Iqbal Ahmad Khan and Pakistan Scientific and Technological Information Center (PASTIC) Director General Akram Sheikh

ISHFAQ MUGHAL

FAISALABAD: One-day PASTIC-UAF sciences, engineering, math, and information technology exhibition of projects and applications was staged at the Expo Center University of Agriculture Faisalabad in which students of 40 educational institutions exhibited their 300 innovative projects.

The exhibition was inaugurated by UAF Vice Chancellor Prof Dr Iqbal Ahmad Khan and Pakistan Scientific and Technological Information Center (PASTIC) Director General Akram Sheikh.

It was arranged by Office of Research Innovation and Commercialization (ORIC) UAF and Pakistan Scientific and Technological Information Center (PASTIC). It was themed at encouraging innovative trends in sciences, engineering and IT etc as a step towards knowledge-based economy, in which more than 300 projects were put on display.

Prof Dr Iqbal Ahmad Khan said that in the modern era, only knowledge based economies are proving their mettle in the world and we have to polish innovative ideas to

redress the grievances of farming community, general public, and industry. He said that we have talented youth who come up with innovative ideas. He said if we provide them a proper platform, it will help refurbish their skills to play their due role in the

prosperity of the country. He said that information technology had become an integral part of our life as it helped the mankind to open up new window of the development and prosperity.

He added that the development made in the

last three decades due to IT was unmatched and it has turned the world in a global village.

PASTIC Director General Dr Muhammad Akram said that owing to increasing population, the students have to develop the entrepreneurship skills to become self-employed for poverty alleviation in the country. He said that they were missioned at developing a national science and technology research and development information repository of indigenous information resources (databases) and to disseminate research and technology information through contemporary information services and tools.

Director ORIC Dr Zahir Ahmad Zahir said enhanced academia and industry linkages will ensure the knowledge based economy. He said that the country was blessed with talented people.

Dr Abdul Rasheed said that 300 projects from 40 educational institutions including 18 universities were put on the display. He said that they were making all possible measures to refurbish the skills of the students.

Dr Khuram Zia, Engineer Amir Hussain, Habib Gaba, Munawar also spoke on the occasion.



FAISALABAD: UAF Vice Chancellor Prof Dr Iqbal Ahmad Khan inaugurates One-day PASTIC-UAF, sciences, engineering, math, and information technology exhibition of projects and applications at the Expo Center University of Agriculture Faisalabad. — DNA

'KohaCon 2021' International Conference held in National library of Pakistan in Islamabad



KohaCon21 international conference was being held at the National Library of Pakistan from 13 to 18 December 2021. KohaCon is a yearly get together of the Koha Community. The first Koha Conference was held in Paris, France in 2006. This year, with the efforts of the Pakistani Koha Community (especially of its President, Mr. Sher Afzal Khan),

Software (FOSS) movement in the world. The inaugural session started on 13th December with the recitation of the Holy Quran and national anthem of Pakistan. The KohaCon21, being held hybridly, was attended by a large number of delegates from all over Pakistan and from around the world physically as well as through online mode. Mr. Zakria Qasmi, the ses-

sion secretary, compared the whole event. Pakistan was voted to host the international Koha Conference.

This is a moment of great pride for all Pakistanis, especially for library science professionals and academia, as it will not only improve the soft image of Pakistan, but it will also establish its credentials as a leader of the Free Open Source

movement in the world.

Mr. Mudassar Mushtaq, the director general of the National Library of Pakistan (NLP), welcomed the delegates and briefed them about the NLP. Thereafter, Mr. Sher Afzal Khan, the conference secretary, briefed about the importance of FOSS, especially Koha, and its pivotal role in modernizing the libraries around the world, especially in the resource constrained developing world.

He said that the main purposes of these annual international KohaCons are exchanging experiences in new functionalities; training and bug squashing; promoting collaboration to enhance the use of open source integrated library system (ILS) Koha; and to encourage new developments in Koha. He also said that these conferences play a vital role to enhance regional, national and international cooperation in respect of knowledge and resource sharing.



بروز ہفتہ 25 دسمبر 2021

پاسک پاکستان سائنٹیفک ٹیکنالوجی انفارمیشن سب سینٹر کوئٹہ کی جانب سے سیمینار منعقد کیا گیا

پاکستان سائنٹیفک ٹیکنالوجی انفارمیشن سب سینٹر کی بہترین کوششیں ساجد واٹس چانسلر انورپانیزٹی صافوں سے گفتگو



کوئٹہ (خصوصی رپورٹ) 23 دسمبر کو برہم انٹیلیجنٹ آف پبلک ہیلتھ ڈپارٹمنٹ کوئٹہ میں ایک روزہ سیمینار منعقد کیا گیا جو کہ پاسک پاکستان سائنٹیفک ٹیکنالوجی انفارمیشن سب سینٹر کوئٹہ کی جانب سے تھا جس میں پاسک کے انچارج جناب عبدالخالق سیال صاحب ڈائریکٹر انٹیلیجنٹ پبلک ہیلتھ ڈاکٹر نسیم اللہ صاحب اور صمان خصوصی جناب پروفیسر ڈاکٹر انورپانیزٹی صاحب ساجد واٹس چانسلر بلوچستان یونیورسٹی اور ڈاکٹر کسب ڈائریکٹر ظفر صاحب نے بھی شرکت کی ورکشاپ کے

ریسورس پرسن میڈیم نایاب خان تھی جو کہ بلوچستان یونیورسٹی زولاجی ڈپارٹمنٹ سے تھیں بعد میں ڈاکٹر نسیم ڈائریکٹر انورپانیزٹی اور ڈاکٹر ظفر اور انچارج عبدالخالق سیال صاحب نے شرکاء سے اپنے خیالات کا اظہار کیا ڈین یونیورسٹی بلوچستان انورپانیزٹی نے روح کو تازہ کرنے اور زندگی میں آسانیاں پیدا کرنے والی ایک پرجوش تقریر کی جس نے شرکاء کے دل پر بہت گہرا اثر محسوس اختتامی تقریب میں صمانان گرامی کو اسناد اور شیلڈ فراہم کی گئی اور معزز صمان گرامی کو شیلڈ اور اسناد پیش کی گئے آخر میں انچارج عبدالخالق سیال صمانون کا شکریہ ادا کیا ایسے مزید پروگرام سیمینار کرتے رہیں گی۔



بروز اتوار 26 دسمبر 2021

پاکستان سائنٹیفک ٹیکنالوجی انفارمیشن سب سینٹر بلوچستان
تعاون انسٹیٹیوٹ پبلک ہیلتھ کی جانب سے سیمینار منعقد کیا گیا
عبدالسلام خان کو تقریفی اسناد پروفیسر ڈاکٹر انور پانیزئی اور ڈائریکٹر پبلک ہیلتھ ڈاکٹر نسیم اللہ دے رہے ہیں



جیکب آباد (نامہ نگار کامریڈ نیاز احمد بنگلانی) ایک
روزہ سیمینار پاکستان سائنٹیفک ٹیکنالوجی انفارمیشن
سب سینٹر بلوچستان تعاون انسٹیٹیوٹ پبلک
ہیلتھ کی جانب سے کیا گیا میں عبدالسلام خان کو
تقریفی اسناد آرگنائزنگ سرٹیفکیٹ سابق وائس
چانسلر ڈین لائف سائنسز پروفیسر ڈاکٹر انور پانیزئی
صاحب اور ڈائریکٹر پبلک ہیلتھ بلوچستان ڈاکٹر نسیم

اللہ صاحب دے رہے ہیں بروری روڈ کوئٹہ میں سیمینار میں ستیر ڈاکٹر زریچر زاسکار زاسٹوڈنٹس شامل
تھے۔

جی سی یونیورسٹی میں ڈیٹا مینجمنٹ پبلیکیشن کے موضوع پر سیمینار کا انعقاد

جدید ریسرچ کے ذریعے ہی ملک میں مستحکم معاشی بڑھوتری اور تعلیمی انقلاب ممکن ہے ڈاکٹر عبدالرؤف بھٹی

فیصل آباد (سٹی رپورٹر) گورنمنٹ کالج یونیورسٹی ڈیٹا تک رسائی کے متعلق آگاہی فراہم کی۔ ڈاکٹر فیصل آباد کے ORIC ڈیٹا مینجمنٹ کے زیر اہتمام عبدالرؤف بھٹی ڈائریکٹر ORIC نے اپنے ایک روزہ ورکشاپ کا انعقاد کیا گیا۔ ورکشاپ میں یونیورسٹی کے ریسرچ سے منسلک اساتذہ اکرام کے علاوہ پاکستان سائنٹیفک اینڈ ٹیکنالوجی انفارمیشن سنٹر کے ڈپٹی ڈائریکٹر محمد حسین، بہاولدین ذکر یا یونیورسٹی ملتان سے ڈاکٹر سادات مجید نے بھی شرکت کی۔ ورکشاپ کا مقصد اساتذہ کے لیے عصر حاضر کے جدید تقاضوں کے مطابق ٹیکنالوجی کا استعمال کرتے ہوئے متعلقہ شعبہ کی ریسرچ اور پبلیکیشنز تک رسائی ممکن بنانا تھا۔ اس موقع پر ڈاکٹر سادات مجید اور ڈاکٹر محمد حسین نے ورکشاپ کے شرکاء کو جدید طریقوں کو استعمال کرتے ہوئے

ڈیٹا تک رسائی کے متعلق آگاہی فراہم کی۔ ڈاکٹر عبدالرؤف بھٹی ڈائریکٹر ORIC نے اپنے خطاب میں ریسرچ سے منسلک اساتذہ کو جدید طریقوں سے سائنسی مواد کو ڈھونڈنے پر زور دیا۔ انہوں نے اس موقع پر وائس چانسلر ڈاکٹر شاہد کمال کے ویرن کی تعریف کی جن کی بدولت ریسرچ کے شعبہ میں جی سی یونیورسٹی فیصل آباد کا شمار نہ صرف پاکستان بلکہ دنیا کی بہترین جامعات میں ہونے لگا ہے۔ ان کا مزید کہنا تھا کہ یونیورسٹی میں ریسرچ کلچر کو فروغ دینے کے لیے ٹریننگ ورکشاپ اور سیمینار کا انعقاد انتہائی ضروری ہے جس کے ذریعے اساتذہ اور طلباء میں جدید ریسرچ اور نئی ایجادات کے راستے ہموار ہوتے ہیں۔



فیصل آباد: ڈاکٹر عبدالرؤف بھٹی، ڈاکٹر سادات مجید اور دیگر سیمینار کے شرکاء سے خطاب کر رہے ہیں

Daily "KARSAZ" Sargodha

روزنامہ کارساز
بایئرینڈ
0301-6704833
سرگودھا
پاکستان

جلد نمبر: 21 بروز منگل 18 جنوری 2022 صفحات: 4، قیمت 10 روپے شمارہ نمبر: 53

جدید ٹیکنالوجی کی ضرورت ہے، تاکہ ڈیجیٹل معلومات دریافت ہو

عبدالخالق سیال کو شیلڈ تقریبی اسناد دے اور عبدالخالق ان کی ٹیم نے آفیسرز کو شیلڈ فراہم کیا گیا



کوئٹہ (کارساز رپورٹ) پاکستان سائنس فائونڈیشن اسلام آباد سائنس کاروان یونٹ بلوچستان کی جانب سے موبائل سائنس نمائش کا افتتاحی صمان میر عمر خان جمالی اور ڈیپٹی کمشنر جعفر آباد اور ڈسٹرکٹ ہیجوکیشن آفیسر فیض اللہ کاظم صاحب نے افتتاح کیا اور اپنے اپنے تاثرات ریکارڈ کروائے اس دوران پی ایس ایف نمائندہ عبدالخالق سیال اور صفدر اقبال نے بریٹ کیا یہ پروگرام حر ضلعی بلوچستان میں کرتے رہتے ہیں تاکہ طلباء و طالبات کیلئے سنگ میل ثابت ہو اور کاوشوں کو سراہا

کیا ڈیپٹی کمشنر اور ہیجوکیشن آفیسر نے یہ پروگرام بچوں اور اساتذہ کیلئے فائدہ مند ہے اس جدید ٹیکنالوجی کی ضرورت ہے یہ پروگرام کا سلسلہ رہنا چاہئے اس قسم کی نمائش کو کثرت سے جاری رہنا چاہئے تاکہ ڈیجیٹل معلومات دریافت کیا جاسکے طلباء و طالبات کو تبدیلی دیکھنے کا موقع ملے اس نمائش دوران فیمل فریڈ ہسٹر ڈسٹرکٹ ہیجوکیشن آفیسر فیمل نے بھی دیکھا آخر عبدالخالق سیال کو شیلڈ تقریبی اسناد دے اور عبدالخالق ان کی ٹیم نے آفیسرز کو شیلڈ فراہم کیا گیا۔

جہان پاکستان

جمعرات، 16 جمادی الثانی 1443ھ 20 جنوری 2022ء

ریسرچ میں زبان کی بہت اہمیت ہے، پروفیسر عزیز

ریسرچ جتنی سادہ اور عام فہم ہوگی اتنی ہی اس کی افادیت ہوگی

کراچی (اسٹاف رپورٹر) وفاقی جامعہ اردو، شعبہ خردیاتیات کے تحت پاکستان سوسائٹی قائد مانیکرو پائلوجی اور PASTIC کے تعاون سے تیرہویں دوسالہ بین الاقوامی کانفرنس "تحقیقی معنائیں کیسے لکھیں" How to Write a Research Articles کے عنوان پر ورکشاپ کا انعقاد کیا گیا۔ جس کے مہمان خصوصی پروفیسر آف اوٹاوا کیٹرل کے پروفیسر سید عزیز تھے جبکہ مہمانوں میں ہاشمی گروپ آف اسپتال کی ڈاکٹر

سیدہ صدیقہ اکبر اور PASTIC کی محترمہ انجینئر نے شرکت کی۔ ورکشاپ میں آگنایزر کے فرانسس ڈاکٹر سعدیہ غلیل نے انجام دیے۔ ورکشاپ کا آغاز کلام پاک کی تلاوت قرآن پاک اور نعت رسول سے ہوا۔ اس موقع محترمہ انجینئر نے آسانی سے آجائے گی اور زیادہ سے زیادہ لوگ اس سے مستفید ہوں گے اس کے علاوہ ریسرچ بھیجے لکھنے کے طریقہ کار کی وضاحت کی اور کچھ اہم غلطیوں کی نشاندہی کی جو ہم (بقیہ صفحہ 6 پر)

آسانی سے آجائے گی اور زیادہ سے زیادہ لوگ اس سے مستفید ہوں گے اس کے علاوہ ریسرچ بھیجے لکھنے کے طریقہ کار کی وضاحت کی اور کچھ اہم غلطیوں کی نشاندہی کی جو ہم (بقیہ صفحہ 6 پر)

پروفیسر عزیز

ریسرچ بھیجے لکھتے ہوئے کرتے ہیں۔ جس میں سب سے اہم غلطی زبان کا انتخاب ہے۔ ہم ریسرچ بھیجے لکھتے ہوئے بڑی بڑی ڈسٹری سے مشکل الفاظ ڈھونڈ کر نکالتے ہیں جو پڑھنے والوں کے لئے سمجھنے میں مشکل کا باعث بنتے ہیں۔ جس کی وجہ سے وہ ہماری ریسرچ سے مستفید نہیں ہو سکتے۔ انہوں نے اپنے پیپر میں غلطی کی اہمیت کو اجاگر کرتے ہوئے کہا کہ ایک اچھا ٹائٹل ایک اچھی پبلیکیشن کی طرح ہوتا ہے جس طرح ایک اچھی پبلیکیشن آپ کی توجہ اس چیز کی طرف مبذول کروا لیتی ہے بالکل اسی طرح ایک اچھا ٹائٹل پڑھنے والے کو اپنی طرف متوجہ کر لیتا ہے۔ ورکشاپ کے اختتام پر پاکستان سوسائٹی قائد مانیکرو پائلوجی کی سربراہ ڈاکٹر شاہانہ عروج کاظمی کا شکریہ ادا کیا اور مہمان خصوصی پروفیسر سید عزیز، صدیقہ اکبر، محترمہ انجینئر، ڈاکٹر زبیر اعوان کو شیفز چیک کی گئیں اور اسٹیج ڈاکٹر زبیر اعوان کی پبلیکیشن سے بھیجے گئے۔



وفاقی جامعہ اردو شعبہ خرد حیاتیات کے تحت بین الاقوامی کانفرنس

کراچی (پ ر) وفاقی جامعہ اردو شعبہ خرد حیاتیات کے تحت پاکستان سوسائٹی فار مائیکرو بائیولوجی اور PASTIC کے تعاون سے تیرہویں 2 سالہ بین الاقوامی کانفرنس "تحقیقی مضامین کیسے لکھیں" کے عنوان پر ورکشاپ کا انعقاد کیا گیا۔ جس کے مہمان خصوصی یونیورسٹی آف اوٹاوا کینیڈا کے پروفیسر سید عزیز تھے جبکہ مہمانوں میں ہاشمی گروپ آف اسپتال کی ڈاکٹر سیدہ صدف اکبر اور PASTIC کی محترمہ افسین نے شرکت کی۔ آگنٹائزر کے فرائض ڈاکٹر سعدیہ خلیل نے انجام دیے۔ محترمہ افسین نے PASTIC کے کردار پر روشنی ڈالی اور یہ بتایا کہ یہ کس طرح پاکستان میں ریسرچ کو سپورٹ کر رہا ہے۔ اس طرح کے ورکشاپ کو انعقاد کرانے میں PASTIC کا بہت اہم کردار ہے۔ ڈاکٹر سعدیہ خلیل نے پاکستان سوسائٹی فار مائیکرو بائیولوجی کی طلباء ٹینک میں کاوشوں کو سراہا۔

روزنامہ ایکسپریس، فیصل آباد۔ جمعۃ المبارک، 28 جنوری، 2022ء



جی سی یو: اساتذہ کیلئے ایک روزہ تربیتی ورکشاپ

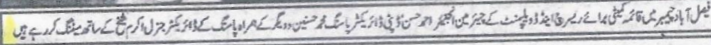
ڈاکٹر سادات مجید، ڈاکٹر محمد حسنین نے شرکاء کو آگاہی فراہم کی

فیصل آباد (ایکسپریس رپورٹ) گورنمنٹ ورکشاپ میں یونیورسٹی کے ریسرچ سے منسلک کالج یونیورسٹی فیصل آباد کے ORIC ڈیپارٹمنٹ اساتذہ اکرام کے علاوہ پاکستان سائنٹیفک اینڈ کے زیر اہتمام ایک روزہ ورکشاپ کا انعقاد کیا گیا۔ ٹیکنالوجی انفارمیشن سنٹر (باقی صفحہ 6 نمبر 10)

جی سی یو

(10)

کے ڈپٹی ڈائریکٹر محمد حسنین، بہاولدین ڈکریا یونیورسٹی
مٹان سے ڈاکٹر سادات مجید نے بھی شرکت کی۔
ورکشاپ کا مقصد اساتذہ کے لئے عصر حاضر کے جدید
تقاضوں کے مطابق ٹیکنالوجی کا استعمال کرتے ہوئے
متعلقہ شعبہ کی ریسرچ اور پبلیکیشنز تک رسائی ممکن بنانا
تھا۔ اس موقع پر ڈاکٹر سادات مجید اور ڈاکٹر محمد حسنین نے
ورکشاپ کے شرکاء کو جدید طریقوں کو استعمال کرتے
ہوئے ڈیٹا تک رسائی کے متعلق آگاہی فراہم کی۔



اس وقت حکومت کی تمام تر توجہ مصلحتی پیداوار اور برآمدات بڑھانے پر ہے جبکہ ہر شعبہ میں ویلجیو ایٹیشن پر بھی خصوصی توجہ دی جا رہی ہے

طیال آباد (سی آر پی آر) ڈیپارٹمنٹ کے ایک افسر نے ایک میٹنگ میں کہا کہ موجودہ دور میں مصلحتی، معاشی اور پیداوار کی تعلیم کی ضرورت ہے۔ چنانچہ

کیلئے کلے جگر کے پیچھے آف کاوس اینڈ انڈسٹری کے

دور میں موزوں اور تجارتی رابطے اپنانے کی ضرورت ہے جس میں

سلسلہ پاکستان سائنس ڈیپارٹمنٹ اور پاکستان

گورنر ادا کرے کیلئے پوری طرح تیار ہے۔

پاکستان سائنس کونسل کے چیئرمین نے

(PASTIC) کے ڈائریکٹر جنرل محمد آرمین نے

تمام تر توجہ مصلحتی (باقی صفحہ اعداد نمبر 3)

آباد اور گورنر گنڈا پیچھے کے دور میں برآمدات اور

کے دور میں سلسلہ مایک اینڈ لائن میٹنگ سے خطاب

کرتے ہوئے کہا کہ انہیں نے کہا کہ اس وقت حکومت کی

تمام تر توجہ مصلحتی (باقی صفحہ اعداد نمبر 3)

BUSINESS RECORDER

Lahore, Sunday 30 January 2022, 26 Jamadi-us-Sani 1443

Importance of workable relations between chambers highlighted

FAISALABAD: Expedient exchange of information through reliable linkages between chambers is imperative to survive in this age of rapid inventions and cutting edge technologies, said Muhammad Akram Sheikh Director General PASTIC.

He was addressing an online meeting between Faisalabad Chamber of Commerce & Industry (FCCI) and Sargodha Chamber. He said that Pakistan Science Foundation (PSF) and Pakistan Scientific and Technological Information Centre (PASTIC) are ready to play their key role in this connection. PASTIC has expertise to compute and provide much needed information to the concerned quarters. The focus of the current Government was also on enhancing industrial production and exports with a special emphasis on value addition. A workable relation between different chambers is necessary and this project has been launched to encourage development of a joint database of different trade bodies. He hoped that this project would provide an opportunity to the collaborating chambers to share their knowledge, database and experience for the benefit of each other.

Muhammad Hasnain Deputy Director PASTIC Faisalabad said that this centre was making continuous

efforts to convince students to adopt productive science subjects for their future studies. "We are also providing necessary information to the PhD scholars for their research projects," he said and added that due to our efforts, a large number of students have switched over from arts subjects to science subjects. He said that now girls are studying science subjects and have excelled in their relevant fields.

Engineer Ahmad Hassan, Chairman FCCI Standing Committee on Research and Development, said that full throttled scientific development has posed new challenges particularly for the developing countries to compete with the developed countries. He lamented that our industrial sector is still using obsolete versions of machinery and technologies which are neither cost effective nor efficient. We must exploit Information Technology (IT) and artificial intelligence by replacing our old with hi-tech machinery. He underlined the importance of linkages between industry-academia and chambers so that we must utilize locally produced raw material to the manufacturing of value added products and thus help Pakistan to earn sizable foreign exchange by exporting the same. FCCI was the first chamber that had launched different research projects in collaboration with

the University of Engineering & Technology (UET) to develop a module to identify the wastage of electricity in industrial and commercial units. He said that utilizing this system, we could not only cut down our cost of production but also provide surplus electricity to the new industrial units.

"Similarly, it also helps the agriculture sector to save maximum energy by using energy efficient motors," he said and added that the major problem is our behaviour as most of our industrialists are reluctant to use the new technologies. We must educate, convince and continuously sensitize them to remain vigilant and start using new technologies for their own benefits. He also appreciated the efforts of Dr Habib Aslam Gaba for industrial-academia linkages and said that this process should continue with the same spirit in the near future.

Faisal Razak Khawaja Chairman Research & Development Committee of the Sargodha Chamber also addressed the meeting and underlined the importance of developing the linkages between regional chambers. Later Engineer Ahmad Hassan offered a vote of thanks and assured that such meetings would also be arranged with other chambers.—PR

TRIBUNE

PARTNER OF

Chambers asked to exchange information

30-01-22

Expert says collaboration a must in age of inventions, cutting-edge technologies

FAISALABAD

Expedient exchange of information through reliable linkages between chambers is essential to survive in this age of rapid inventions and cutting-edge technologies, said Pakistan Scientific and Technological Information Centre (PASTIC) Director General Muhammad Akram Sheikh.

In a virtual meeting with the Faisalabad Chamber of Commerce and Industry (FCCI) and Sargodha Chamber of Commerce and Industry on Saturday, he said that work-

able relation between different chambers was necessary to collaborate and share their knowledge, database and experience for the benefit of each other. "Pakistan Science Foundation and PASTIC are ready to play their key role in this connection," he remarked, adding that the centre had expertise in computing and could provide much-needed information to the chambers.

He emphasised the need to develop a joint database of different trade bodies.

The focus of the government was on enhancing industrial production and exports with special emphasis on value addition, he underlined.

On the occasion, PASTIC Deputy Director Muhammad Hasnain underlined that they

were making continuous efforts to convince students to adopt science subjects for their future studies.

"We are also providing necessary information to PhD scholars for their research projects," he said and added that due to the efforts, a large number of students had switched to science subjects.

FCCI's Standing Committee on Research and Development Chairman Ahmad Hassan said that rapid scientific developments had posed new challenges to the emerging countries that were competing with the developed world.

"Our industrial sector is still using obsolete versions of machinery and technologies, which are neither cost effective nor efficient," he lamented. AP



Islamabad POST

Monday, January 31, 2022

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PPP workers on streets to send govt packing

Detailed News On Page 09



Exchange of info between chambers is imperative

BUREAU REPORT

FAISALABAD. Expeditious exchange of information through reliable linkages between chambers is imperative to survive in this age of rapid inventions and cutting edge technologies, said Muhammad Akram Sheikh Director General PASTIC. He was addressing an online meeting between Faisalabad Chamber of Commerce & Industry (FCCI) and Sargodha Chamber. He said that Pakistan Science Foundation (PSF) and Pakistan Scientific and Technological Information Centre (PASTIC) are ready to play their key role in this connection. He said that PASTIC has expertise to compute and provide much needed information to the concerned quarters. He said that the focus of the current Government was also on enhancing industrial production and exports with a special emphasis on value addition. He



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Mr. Muhammad Hasnain Deputy Director PASTIC Faisalabad said that this centre was making continuous efforts to convince students to adopt productive science subjects for their future studies. "We are also providing necessary information to the PhD scholars for their research projects",

he said and added that due to our efforts, a large number of students have switched over from arts subjects to science subjects. He said that now girls are studying science subjects and have excelled in their relevant fields.

Engineer Ahmad Hassan, Chairman FCCI Standing Committee on Research and Development, said that full throttled scientific development has posed new challenges particularly for the developing countries to compete with the developed countries. He lamented that our industrial sector is still using obsolete versions of machinery and technologies which are neither cost effective nor efficient.

The Vice Chancellor said that Rahim Yar Khan is in the middle of Pakistan and if any development or creative project is introduced here, it will benefit the whole country. He said that there is a need to form a team which would identify the problems of the future scenarios and come up with suggestions for their solution. Head of Physics Department Dr. Bilal Tahir, Director Student Affairs Muhammad Aslam Khan, Dr. Jallat Khan, Dr. Farhan Chughtai, Dr. Abdul Rashid, Dr. Ahmed Sohaib, Mr. Shoaib Aziz and others were also present on the occasion. -PR

[illegible]

پسحی بات

روزنامہ

09 فروری 2022ء

ملک نئی ٹیکنالوجی کے استعمال کے لئے صنعتی اشتراک کی شدید ضرورت ہے

دائیں چائسلر پروفیسر
ڈاکٹر محمد سلیمان طاہر

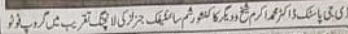
خواجہ فرید یونیورسٹی آف انجینئرنگ اینڈ انفارمیشن ٹیکنالوجی میں شعبہ فرنس کے زیر اہتمام سٹاف کی ٹریننگ کا اہتمام
ورکشاپ میں شعبہ تعلیم اور صنعتوں کے درمیان موجود فاصلے کو کم کرنے سے متعلق توجہ دیر پیش کی گئیں

رحیم یار خان (سٹاف رپورٹر) خواجہ فرید یونیورسٹی آف انجینئرنگ اینڈ انفارمیشن ٹیکنالوجی میں شعبہ فرنس کے زیر اہتمام سٹاف کی ٹریننگ کا اہتمام کیا گیا۔ ورکشاپ میں شعبہ تعلیم اور صنعتوں کے درمیان موجود فاصلے کو کم کرنے سے متعلق توجہ دیر پیش کی گئیں اور حقیقی، ایجادات اور کاروباری راہ میں حائل رکاوٹوں کو دور کرنے کا طریقہ کار بتایا گیا۔ ترقیاتی ورکشاپ میں وائس چائسلر پروفیسر ڈاکٹر محمد سلیمان طاہر، ڈی جی پانک پروفیسر ڈاکٹر محمد اسلم شیخ، ڈی جی ڈائریکٹر پانک محمد صفین اور پروفیسر ڈاکٹر ذیشان بھٹری نے حصہ لیا۔ ورکشاپ میں مہراں یونیورسٹی جام شورو کے شعبہ ٹیکنالوجی انجینئرنگ کے چیئر مین نے بطور ریفرنس لائن شرکت کی۔ اس دوران انہوں نے تعلیم اور فی صلاحیتوں کے حصول کی اہمیت پر روشنی ڈالی۔ ان کا کہنا تھا کہ ملک میں نئی ٹیکنالوجی متعارف کروانے اور صنعتوں سے اشتراک کی ضرورت ہے۔ انہوں نے کہا کہ زبان کا مسئلہ، سست روی، ٹیکنالوجی کی منتقلی کا خوف اور لاگت سے متعلق غلط انداز سے ناکامی کی بڑی وجوہات ہیں جن میں بہتری لانے کی ضرورت ہے۔ انہوں نے پریزینٹیشن کے ذریعے شرکا کو اپنے پراجیکٹس تیار کرنے اور مارکیٹ میں متعارف کرانے کا طریقہ کار بتایا اور اس کی راہ میں حائل رکاوٹوں کو دور کرنے کیلئے تجاویز دیں۔ دوران ورکشاپ پروفیسر ڈاکٹر محمد سلیمان طاہر کا کہنا تھا کہ ایک ایسا ماڈل قائم کرنے کی ضرورت ہے جس سے کامیاب تاجروں اور طلبہ کے درمیان



رحیم یار خان: وائس چائسلر پروفیسر ڈاکٹر محمد سلیمان طاہر ترقیاتی ورکشاپ کے شرکا سے خطاب کر رہے ہیں

21-2-2022



پاکستان مالی مسائل کا شکار ہے لیکن اس کے باوجود تحقیقی اور تعلیمی اداروں کو بھاری فنڈ میا کیے جاتے ہیں۔ بدقسمتی سے ان کا موثر استعمال نہیں ہوتا جس سے بحیثیت مجموعی ملک کو نقصان اٹھانا پڑتا ہے، ڈی جی اسٹاک

72

73 2

21-3-2022

پاکستان مالی مسائل کا شکار ہے لیکن اس کے باوجود تحقیقی اور تعلیمی اداروں کو بھاری فٹڈ میا کے جاتے ہیں

22  

1

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DAILY SOORAT-E-HAI

فیصل آباد : ملازمین کے مسائل پر غور کیا گیا
لاہور : 116 گھنٹہ بلیک باؤٹ کا آغاز
اسلام آباد : 1472 آئی ٹی ٹی 10/2 سالہ آئی



فیصل آباد میں کنسٹرکشن ورکرسز کی لائیکنگ تقریب کا انعقاد

علم پر مبنی معیشت کے فروغ کیلئے تحقیق پر ضائع ہونے والے اخراجات کو بچانے کیلئے پانک کا ڈیجیٹل آرکیو پروگرام کلیدی کردار ادا کرے گا۔
ملی مسائل کے باوجود تعلیمی اداروں کو بھاری فنڈز مہیا کئے جاتے ہیں، بد قسمتی سے ان فنڈز کا میٹر استعمال نہیں ہوتا۔ ڈاکٹر اکرم شیخ
فیصل آباد (سٹاف رپورٹر) علم پر مبنی معیشت کی بنیاد ٹیکنالوجی کے انفرامیشن سٹر (پانک) کا استعمال ہے۔ پروفیسر ڈاکٹر محمد اکرم شیخ نے آج کنسٹرکشن
کے فروغ کیلئے تحقیق پر ضائع ہونے والے ڈیجیٹل آرکیو پروگرام کلیدی کردار ادا کرے گا۔ سائنٹفک جرنلز آف پاکستان کی لائیکنگ تقریب
اخراجات کو بچانے کیلئے پاکستان سائنٹفک اینڈ یہ بات ڈائریکٹر جرنل (ڈی جی) پانک سے خطاب کرتے (بانی صفحہ اندرونی نمبر 65)

65 بقیہ

ہوئے گی۔ انہوں نے کہا کہ پاکستان ملی
مسائل کا حصار ہے لیکن اس کے باوجود تحقیقی اور تعلیمی
اداروں کو بھاری فنڈز مہیا کیے جاتے ہیں۔ بد قسمتی سے
ان کا میٹر استعمال نہیں ہوتا اور ایک وقت ایک ہی
موضوع پر کئی کئی جگہ تحقیق کی جاتی ہے جس سے بجٹ
مجموع ملک کو نقصان اٹھانا پڑتا ہے۔ انہوں نے کہا کہ
اس منصوبے کے تحت ملک بھر کے تحقیقی جریڈوں میں
شائع ہونے والے مضامین کو یکجا کیا جائے گا جس سے
دوبارہ تحقیق کے عمل روکنے میں مدد ملے گی۔ انہوں
نے پانک کے بارے میں بھی مختصر تعارف پیش کیا اور
بتایا کہ سادہ ملک میں تحقیق کا رول کو مطلوبہ معلومات
تک رسائی دینے کیلئے کلیدی کردار ادا کر رہا ہے اور اس
نئے منصوبے سے اس کام کو مزید آگے بڑھانے میں
مدد ملے گی۔ انہوں نے کہا کہ اس منصوبے کے ذریعے
سائنسی موضوعات پر تحقیقات کرنے والوں کیلئے آسانی
پیدا ہوگی۔ تقریب سے پاکستان سائنس فاؤنڈیشن کے
چیرمین ڈاکٹر شاہد محمود بیگ، ریکٹرو ڈی یو ٹی آر آف
لاہور پروفیسر ڈاکٹر محمد اشرف، وائس چانسلر خواجہ فرید
یو ٹی آر آف انجینئرنگ اینڈ انفارمیشن ٹیکنالوجی
پروفیسر ڈاکٹر سلیمان طاہر، ایگزیکٹو ڈائریکٹر ایس ٹی
آئی پانک ڈاکٹر مریم امجد، پراجیکٹ مینجر سیف اللہ
عظیم، ڈی ڈی ڈائریکٹر فیصل آباد سائنس سنٹر محمد حسین اور
فیصل آباد جیو آر آف کامرس اینڈ انڈسٹری کی آر اینڈ
ڈی جی کے چیرمین احمد حسن نے بھی خطاب کیا۔

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Engr Prof Dr Athar Mahboob, Vice Chancellor the Islamia University of Bahawalpur, Prof Dr Rubina Bhatti, Dean Faculty of Social Sciences and others are participating in workshop of Pakistan Scientific and Technological Information.

BAHAWALPUR

A Two-Day Seminar and Training Workshop on "PASTIC Developed Tools: Roadmap for Open Science and Training Workshop on PASTIC Koha Cloud" successfully organized by the Department of Library & Information Science, the Islamia University of Bahawalpur (IUB) with the collaboration of Pakistan Scientific & Technological Information Centre (PASTIC), Islamabad on 24-25 March 2022 at Sir Sadiq Muhammad Khan Library, Baghdad ul Jadeed Campus.

Eng. Prof. Dr. Athar Mahboob (T.I.) Vice Chancellor IUB, was the Chief Guest of opening ceremony, and Prof. Dr. Akram Sheikh, Director General, PASTIC was Guest of Honor. Prof. Dr. Rubina Bhatti, Dean Faculty of Social Science, welcomed the guests and participants, in her opening address and highlighted the transformation and achievements of the Islamia University of Bahawalpur and importance of PASTIC efforts for resource sharing.

جہان پاکستان

ہفتہ 7 رمضان المبارک 1443ھ 9 اپریل 2022ء



وفاقی اردو یونیورسٹی شعبہ خرد حیاتیات اور پاکستان ہلال احمر سندھ اور پاکستان سائنٹیفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر کے اشتراک سے ہونیوالی تربیتی ورکشاپ سے پروفیسر ڈاکٹر روبینہ مشتاق، ڈاکٹر شاہانہ عروج کاظمی، ڈاکٹر رضوانہ واصف، ڈاکٹر سعدیہ غلیل، سیمانا زمدینی دیگر خطاب کر رہے ہیں

پاکستان میں حادثات معمول کی بات ہیں، ڈاکٹر روبینہ

فرسٹ ایڈ کی تربیت کو طلباء و طالبات کے لازمی قرار دیا جائے، ڈاکٹر سعدیہ

اردو یونیورسٹی، ہلال احمر، پاکستان سائنٹیفک کے اشتراک سے تربیتی ورکشاپ

نسل ایک اہم کردار ادا کر سکتی ہے۔ مقررین نے خطاب میں تربیت کی اہمیت کو اجاگر کیا اور تربیت حاصل کرنے والے طلباء و طالبات کو معاشرہ میں فعال کردار انجام دینے پر زور دیا۔ انہوں نے اس بات پر بھی زور دیا کہ جس طرح باغی میں ایسی تربیت درمگاہوں میں لازمی ہوا کرتی تھی اب بھی ان کو جامعات کے طلباء و طالبات کیلئے لازمی قرار دیا جائے۔ شرکاء نے ڈاکٹر سعدیہ غلیل کی طلباء کی تربیت کیلئے کاوشوں کو سراہا۔ ڈاکٹر سعدیہ غلیل نے وزیر تعلیم اور صدر پاکستان سے درخواست کی وہ فرسٹ ایڈ کی تربیت کو یونیورسٹی کیلئے طلباء و طالبات کے لازمی قرار دیں (بقیہ صفحہ 6 پر)

کراچی (اسٹاف رپورٹر) وفاقی اردو یونیورسٹی شعبہ خرد حیاتیات، پاکستان ہلال احمر سندھ اور پاکستان سائنٹیفک اینڈ ٹیکنالوجیکل انفارمیشن سینٹر کے اشتراک سے فوری ابتدائی طبی امداد تربیتی ورکشاپ کا افتتاح کیا گیا جس کا آغاز تلاوت قرآن پاک اور نعت رسول مقبول سے ہوا۔ تقریب سے رجسٹرار جامعد اردو پروفیسر ڈاکٹر روبینہ مشتاق، کوآرڈینیٹر

ڈاکٹر روبینہ

اور اسکو ڈگری کی لازمی شرط رکھا جائے تاکہ پاکستان میں ہونے والے حادثات اور دہائی حالات میں ہمارے پاس ایک کثیر تعداد تربیت یافتہ نوجوان لوگوں کی موجود ہو۔ تربیت کے دوران طلباء کو ڈاکٹر سیہ محمد، ہدیان احمد اور مسرت فاطمہ نے طلباء کو ابتدائی طبی امداد کے حوالے سے معلومات فراہم کیں اور عملی مظاہرے کے ذریعے بتایا کہ مختلف حادثات میں زخمیوں کو فوری طور پر طبی امداد کیمران کی جان کیسے بچائی جاسکتی ہے۔ طلباء کو حادثات میں زخمیوں کی نوعیت اور اولین تربیتی کے حوالے سے بھی آگاہی فراہم کی گئی۔ ایف، ایچ، ڈی، ایف، ایف کے کالے، چیلنے، بائیس میں کیچیں اور قیام اور چھنگ کے متعلق کوئی جانے والی فوری طبی امداد کی تربیت دی گئی۔ تقریب کے اختتام پر مہمانوں کو اعزازی شیلڈ اور آرگنائزیشن سرٹیفکیٹ تقسیم کیے گئے۔

روزنامہ 92 نیوز کراچی، ہفتہ، 9 اپریل، 2022ء

کراچی لاہور اور پٹنہ کی اسلام آباد، پشاور کوئٹہ، ملتان، فیصل آباد اور سرگودھا سے اشاعت کے لیے منظور شدہ

Roznama
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روزنامہ 92

کراچی

محمد حیدر المصطفیٰ

طلبا و طالبات کیلئے فرسٹ ایڈ کی تربیت لازمی ہے، مقررین

جامعہ اردو شعبہ خرد حیاتیات میں فوری ابتدائی طبی امداد تربیتی ورکشاپ

کراچی (نمائندہ 92 نیوز) وفاقی اردو یونیورسٹی شعبہ خرد حیاتیات، پاکستان ہلال احمر سندھ اور پاکستان سائنٹیفک کے اشتراک سے فوری ابتدائی طبی امداد تربیتی ورکشاپ کا اہتمام کیا گیا جس کا آغاز تلاوت قرآن پاک اور نعت رسول مقبول ﷺ سے ہوا۔ تقریب سے رجسٹرار جامعہ اردو پروفیسر ڈاکٹر روبینہ مشتاق، کوآرڈینیٹر پاکستان ہلال احمر سندھ ڈاکٹر رضوانہ واصف، صدر شعبہ ارضیات جامعہ اردو ڈاکٹر سیما ناز صدیقی، پانسک کی فشین طارق، ڈاکٹر شہانہ عروج کاظمی اور چیف آرگنائزر ڈاکٹر سعدیہ خلیل نے خطاب کیا۔ پروفیسر ڈاکٹر روبینہ مشتاق نے کہا کہ پاکستان

جہاں میں حادثات بہت معمول کی بات ہیں اس تربیت کے ذریعے نوجوان نسل ایک اہم کردار ادا کر سکتی ہے۔ مقررین نے خطاب میں تربیت کی اہمیت کو اجاگر کیا اور تربیت حاصل کرنیوالے طلباء و طالبات کو معاشرہ میں فعال کردار انجام دینے پر زور دیا۔ انہوں نے اس بات پر بھی زور دیا کہ جسطرح ماضی میں ایسی تربیت درس گاہوں میں لازمی ہوا کرتی تھی اب بھی ان کو جامعات کے طلباء و طالبات کیلئے لازمی قرار دیا جائے۔ شرکائے ڈاکٹر سعدیہ خلیل کی طلباء کی تربیت کیلئے کاوشوں کو سراہا۔ اس موقع پر ڈاکٹر سعدیہ خلیل نے بھی خطاب کیا۔



روزنامہ ایکسپریس، کراچی۔ پیر، 11 اپریل، 2022ء



وفاقی اردو یونیورسٹی، ہلال احمر اور پاکستان سائنٹیفک کے تحت ورکشاپ
سے ڈاکٹر روبینہ، ڈاکٹر شاہانہ دیگر خطاب کر رہے ہیں

وفاقی جامعہ اردو میں فوری ابتدائی طبی امداد کی تربیتی ورکشاپ

کراچی (پ ر) وفاقی اردو یونیورسٹی شعبہ خرد
حیاتیات، پاکستان ہلال احمر سندھ اور پاکستان
سائنٹیفک کے اشتراک سے ”فوری ابتدائی طبی امداد“
تربیتی ورکشاپ کا اہتمام کیا گیا تقریب سے رجسٹرار
جامعہ اردو پروفیسر ڈاکٹر روبینہ مشتاق، کوآرڈینیٹر
پاکستان ہلال احمر سندھ ڈاکٹر رضوانہ واصف، صدر شعبہ
ارضیات جامعہ اردو ڈاکٹر سیما ناز صدیقی، پاکستان کی
اعلیٰ ترین طارق، وائس چانسلر صوفی یونیورسٹی ڈاکٹر شاہانہ
عروج کاکھی اور چیف آرگنائزر ڈاکٹر سعدیہ غلیل نے

خطاب کیا۔ رجسٹرار پروفیسر ڈاکٹر روبینہ مشتاق نے کہا
کہ پاکستان میں حادثات، بہت معمول کی بات ہیں اس
تربیت کے ذریعے نوجوان نسل ایک اہم کردار ادا کر سکتی
ہے۔ مقررین نے خطاب میں تربیت کی اہمیت کو اجاگر
کیا اور تربیت حاصل کرنے والے طلباء و طالبات کو
معاشرہ میں فعال کردار انجام دینے پر زور دیا۔ انہوں
نے اس بات پر بھی زور دیا کہ جسطرح ماشی میں ایسی
تربیت درگاہوں میں لازمی ہوا کرتی تھی اب بھی ان کو
جامعات کے طلباء و طالبات کیلئے لازمی قرار دیا جائے۔

ہاتھ نہیں دیتے۔ آپ اضافہ کس چیز
ہلے سے عوام مہنگائی اور بے
چکے ہیں۔ اوپر سے بجلی اور گیس
نے کا سلسلہ تیزی کے ساتھ
نی، بیرونی وزگاری اور بجلی اور گیس کی
سے دہتی مریض بن چکے ہیں۔
کوئی غرض نہیں کیونکہ جو بھی
اپنے آپ اخراجات پورے کر
ہے۔ مزے کی بات تو یہ ہے کہ
رہیں آتی ہیں تو وہ کہتی ہے کہ ہم

ہری پور یونیورسٹی اور پاکستان انسٹیٹیوٹ آف پریونیوٹو سائنسز کے مشترکہ موضوع پر سیمینار

مقررین نے نوجوان نسل میں کاروباری صلاحیتوں کے فروغ اور ملک کی اقتصادی ترقی میں ان کے کردار پر لیکچرز دیے

ہری پور (یورورپورٹ) سیمینار کا انعقاد شعبہ انفارمیشن سائنسز (PASTIC) نے مشترکہ طور پر کیا کیمسٹری سائنٹیفک کلب (BSC) نے یونیورسٹی
حیاتیات اور پاکستان سائنٹیفک اینڈ ٹیکنالوجی ایمرنگ بائیولوجسٹ سوسائٹی (EBS) اور بائیو کی ڈاکٹر شمیمہ ارشد اور ڈاکٹر (بقیہ نمبر 51)



ہری پور یونیورسٹی اور پاکستان انسٹیٹیوٹ آف پریونیوٹو سائنسز کے مشترکہ موضوع پر سیمینار کے بعد شرکاء کا گروپ فوٹو

غزالہ یاسمین ملک (PASTIC) کی سربراہی
میں سیمینار کی سرگرمیوں کا اہتمام کیا۔ پروفیسر ڈاکٹر
محمد اکرم مہمان خصوصی تھے سفیر اختر اعوان سی ای او
عمار گرانڈنگ مل، قاصد احمد مشروم پرائیویٹ لمیٹڈ
حطار اور کامران خان، ڈیپارٹمنٹ آف مینجمنٹ
سائنسز، یونیورسٹی آف ہری پور نے نوجوان نسل میں
کاروباری صلاحیتوں کے فروغ اور ملک کی اقتصادی
ترقی میں ان کے کردار پر لیکچرز پیش کیے آخر میں
یونیورسٹی کے وائس چانسلر پروفیسر ڈاکٹر شفیق الرحمان
نے تمام شرکاء کا تہدیل سے شکریہ ادا کیا۔

Daily "KARSAZ" Sargodha

روزنامہ کارساز

ایڈیٹر: بابر زید

0301-6704833

سرگودھا پاکستان

اسد بلوچ

بروز منگل 28 جون 2022ء 28 ذیقعد 1443ء

پاکستان سائنس فاؤنڈیشن اور پاک سب سینٹر کوئٹہ کے جانب موبائل vision2025 موبائل ٹیکنالوجی سائنسی نمائش کی گئی

کوئٹہ (خاندہ کارساز) پاکستان سائنس فاؤنڈیشن اور پاک سب سینٹر کوئٹہ کے جانب موبائل vision2025 موبائل ٹیکنالوجی سائنسی نمائش کیا گیا۔ انجمن اور اساتذہ نے بڑھ چڑھ حصہ لیا۔ وزیر تعلیم سیال اور ایم صفدر اقبال صاحب محسن ایڈو صاحب نے انجمن کو مفید معلوم دی یہ بات اخبار نویسوں سے بات چیت کرتے عبدالخالق سیال نے کہا کہ یہ پروگرام ہر ضلع بلوچستان میں کراتے رہیں گے۔



1.3 PMNH PHOTO GALLERY



Geological Section from Barah valley and Khaplu Pegmatites



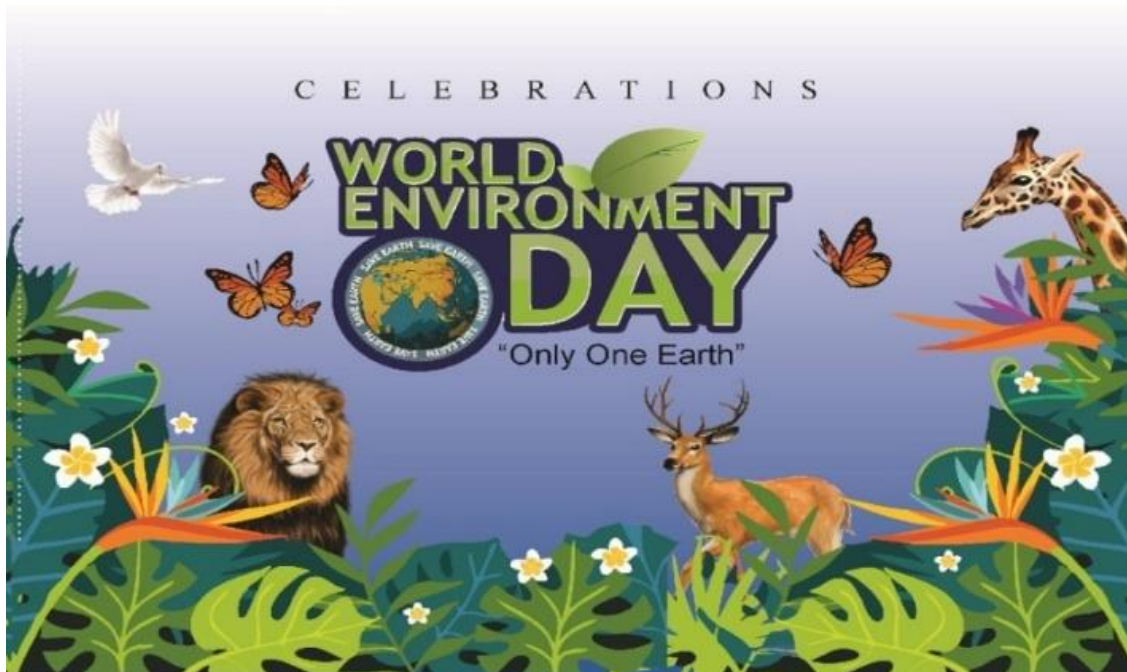
PMNH Scientists are Examining Meta sedimentary rocks.



A Photo of Meta sedimentary rocks Serpentine body.



A view of Rock Garden at PMNH



Pakistan Museum of Natural History Celebrated “World Environment Day” on 7th June, 2022.



A view of Photogallery Showing the Skeleton of Elephant and Zebra at PMNH



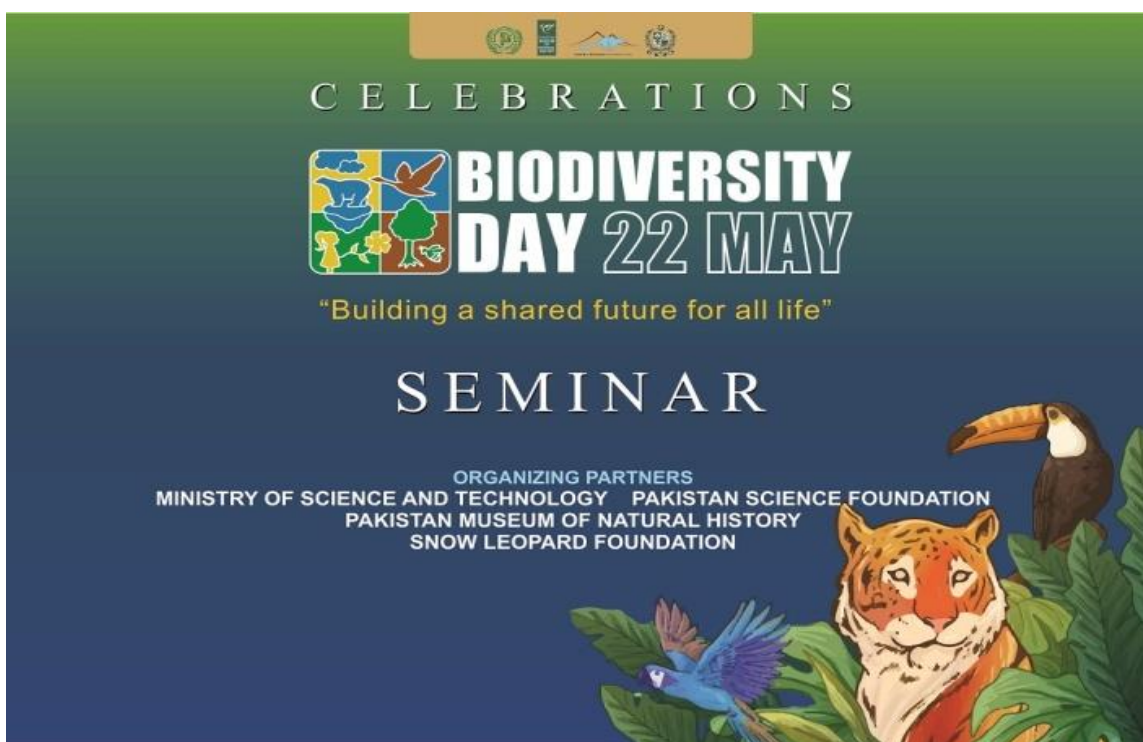
Chairman PSF Prof. Dr. Shahid Mahmood Baig, Addressing the Audience on the World Environment Day event at PMNH Celebration in PMNH DG, PMNH and DG, PASTIC are sitting with him



Chairman PSF Prof. Dr. Shahid Mahmood Baig, Distributing the Shields at the Worlds Environment Day 2022.



Session of the Panel Discussion during the Celebration of Biodiversity Day 2022 at PMNH



PMNH Celebrated Biodiversity Day on 22 May 2022.



Participants during the Seminar on Biodiversity in the PMNH Auditorium.



Chairman PSF Prof. Dr. Shahid Mahmood Baig, along with DG. PMNH Dr. Lal Shah visiting the Students working on their art work during the World Environment Day 2022 at PMNH



A group photo of Italian Delegation During their visit to PMNH



Chairman, PSF is giving Special Counseling Award to a physically challenged Child in PMNH in an Art Competition



Stuffed Rhinosaur and Elephant Displayed at PMNH Dino Gallery.



Newly Established Exhibit of National Symbols of Pakistan in PMNH



A View of Extension in the Climate Change Diorama in PMNH



A View of Green Energy Tools in the Extension in the Climate Change Diorama in PMNH

V. FINANCIAL STATEMENTS

**PAKISTAN SCIENCE FOUNDATION
ISLAMABAD**

SUMMARY

**SUMMARIZED BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2021-22 & BUDGET / REVISED ALLOCATION, ACTUAL EXPENDITURE OF 2022-23 CURRENT
EXPENDITURE (NON-DEVELOPMENT) UPTO 30.9.2022 UNDER BUDGET IB-3368 PAKISTAN SCIENCE FOUNDATION (PSF).**

Object Code.	Heads/Classification	Budget Position & Actual Expenditure <u>2021-22</u>					Revised Budget & Actual Expenditure <u>2021-22</u>				
		Budget Allocation 2020-21	Revised Budget Allocation After Re-appropriation <u>2020-21</u>	% age of Allocation	Actual Expenditure 2021-22	% age of Expenditure	Budget Allocation 2022-23	Revised Budget Allocation After Re-appropriation <u>2022-23</u>	% age of Allocation	Actual Expenditure 2022-23 <u>(30.9.2022)</u>	% age of Expenditure
1	2	3	4	5	6	7	8	9	10	11	12
	TOTAL BUDGET ALLOCATION	308.000 (M)	342.498 (M)		342.498 (M)		280.288 (M)	280.288 (M)		66.665 (M)	
A01	EMPLOYEE RELATED EXPENSES (A + B)	146,151,000	171,113,000	50.0%	171,113,000	100.0%	190,000,000	190,000,000	44.2%	44,932,881	23.6%
A011-1	A). Pay (a + b)	75,984,000	96,844,000	0.282758	96,844,000	100.0%	95,637,000	113,337,000	26.3%	29,170,775	25.7%
A01101	a). Pay of Officers	50,404,000	68,264,000	19.9%	68,264,000	100.0%	65,137,000	76,137,000	17.7%	19,412,545	25.5%
A01151	b). Pay of other Staff	25,580,000	28,580,000	8.34%	28,580,000	100.0%	30,500,000	37,200,000	8.65%	9,758,230	26.2%
A012	B). Allowances (c + d)	70,167,000	74,269,000	21.68%	74,269,000	100.0%	94,363,000	76,663,000	17.8%	15,762,106	20.6%
A012-1	c). Regular Allowances	55,767,000	61,219,000	17.87%	61,219,000	100.0%	78,363,000	60,663,000	14.1%	13,926,994	23.0%
A012-2	d). Other Allowances	14,400,000	13,050,000	3.81%	13,050,000	100.0%	16,000,000	16,000,000	3.72%	1,835,112	11.5%
A02	PROJECT PRE-INVESTMENT ANALYSIS (STATUTORY FUNCTIONS) (a + b)	88,000,000	84,240,000	24.60%	84,240,000	100.0%	-	150,000,000	34.9%	-	0.0%
A02201	a). Grant for Research & Institution Support	77,650,000	74,486,854	21.7%	74,486,854	100.0%	-	133,000,000	30.9%		0.0%
A02201	b). Science Promotion Activities	6,600,000	8,103,009	2.37%	8,103,009	100.0%	-	15,000,000	3.49%		0.0%
	c). Planning & Development Section	3,750,000	1,650,137	0.48%	1,650,137	100.0%	-	2,000,000	0.46%		0.0%
A03	OPERATING EXPENSES	35,999,000	56,985,000	16.6%	56,984,972	100.0%	56,937,000	57,818,400	13.4%	16,026,349	27.7%
A04	EMPLOYEES RETIREMENT BENEFITS	25,000,000	25,000,000	7.3%	25,000,000	100.0%	20,000,000	20,000,000	4.65%	4,771,586	23.9%
A05	GRANTS SUBSIDIZE & LOAN ADVANCES/OTHERS	7,000,000	-	0.00%	-	0.00%	600,000	900,000	0.21%	42,000	0.00%
A06	TRANSFERS	1,200,000	1,550,000	0.45%	1,550,000	100.0%	2,000,000	1,800,000	0.42%	72,176	4.0%
A09	EXPENDITURE ON ACQUIRING OF PHYSICAL ASSETS	2,950,000	1,310,000	0.38%	1,310,000	0.0%	8,414,000	6,731,200	1.56%	-	0.0%
A13	REPAIR & MAINTENANCE	1,700,000	2,300,000	0.67%	2,300,000	100.0%	2,337,000	3,038,400	0.71%	820,130	27.0%
	Grand Total :-	308,000,000	342,498,000		342,497,972	100.0%	280,288,000	430,288,000	100%	66,665,122	15.5%

An allocation of Rs. 2.00 million during the F.Y. 2021-22 from PSF budget IB-3368 from original

→ budget head of account A-02 Research & Survey was re appropriated by the MoST to different organization's budget

Re-appropriated of **Rs.34.498 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 Benifits and A-09 Expenditure on Accuring of Physical Assets

PAKISTAN SCIENCE FOUNDATION
ISLAMABAD

STATEMENT SHOWING HEAD WISE BUDGET/ REVISED ALLOCATION, ACTUAL EXPENDITURE 2021-22 & BUDGET GRANT/BUDGET ESTIMATES 2022-23 AS PER NIS PROPOSED FOR CURRENT EXPENDITURE (NON-DEVELOPMENT) UNDER BUDGET IB-3368

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure <u>2021-22</u>	Budget Grant As Per NIS <u>2022-23</u>	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A01	<u>EMPLOYEE RELATED</u>	146,151,000	171,113,000	171,113,000	190,000,000	190,000,000	44,932,881
A011-1	A). Pay (a + b)	75,984,000	96,844,000	96,844,000	95,637,000	113,337,000	29,170,775
A01101	a). Pay of Officer	50,404,000	68,264,000	68,264,000	65,137,000	76,137,000	19,412,545
A01101	Basic Pay of Officer	50,300,000	68,160,000	68,160,000	65,000,000	76,000,000	19,382,964
A01103	Special Pay	72,000	72,000	72,000	72,000	72,000	21,907
A01105	Qualification Pay	32,000	32,000	32,000	65,000	65,000	7,674
A011-2	b). Pay of other Staff	25,580,000	28,580,000	28,580,000	30,500,000	37,200,000	9,758,230
A01151	Basic Pay of Staff	25,580,000	28,580,000	28,580,000	30,500,000	37,200,000	9,758,230
A01153	Special Pay	-		-	-	-	
A012	B). <u>ALLOWANCES</u>(c + d)	70,167,000	74,269,000	74,269,000	94,363,000	76,663,000	15,762,106
A012-1	c). Regular Allowances	55,767,000	61,219,000	61,219,000	78,363,000	60,663,000	13,926,994
A01201	Senior Post Allowance	43,000	43,000	43,000	165,000	165,000	7,500
A01202	House Rent Allowance	2,350,000	2,350,000	2,350,000	3,000,000	3,000,000	1,188,094
A01203	Conveyance Allowance	6,232,000	6,232,000	6,232,000	7,000,000	7,000,000	1,677,539
A01216	Qualification Allowance	986,000	986,000	986,000	1,200,000	1,200,000	200,000
A01217	Medical Allowance	3,760,000	3,760,000	3,760,000	3,800,000	3,800,000	927691

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A01222	Hardship Allowance	386,000	386,000	386,000	386,000	386,000	-
A01224	Entertainment Allowance	50,000	50,000	50,000	110,000	110,000	22,696
A01226	Computer Allowance	20,000	20,000	20,000	50,000	50,000	16,746
A01228	Orderly Allowance	486,000	486,000	486,000	1,758,000	1,758,000	105,000
A01236	Deputation Allowance	144,000	144,000	144,000	144,000	144,000	36,000
A0120D	Integrated Allowance	218,000	218,000	218,000	300,000	300,000	80,700
A0121J	Transport Monetization	1,152,000	1,152,000	1,152,000	1,900,000	1,900,000	287,730
A0121Q	Audit & Accounts Allowance	-	-	-	50,000	50,000	
A0122M	Adhoc Relief Allowance-2016	5,000,000	5,000,000	5,000,000	5,000,000	-	-
A0122Y	Adhoc Relief Allowance-2017	7,000,000	7,000,000	7,000,000	7,000,000	-	-
A0123G	Adhoc Relief Allowance 10% 2018	7,000,000	7,000,000	7,000,000	7,000,000	-	-
A0123P	Adhoc Relief 10% (2019)	5,600,000	5,600,000	5,600,000	6,000,000	-	-
A01241	Utilities	240,000	240,000	240,000	300,000	300,000	63,600
A0124C	Disparity Reduction Allowance 25% 2021	15,100,000	15,100,000	15,100,000	15,500,000	15,500,000	3,979,064
A0124F	Adhoc Relief Allowance 10% 2021		5,452,000	5,452,000	6,700,000	-	-
A0124N	Desparity Reduction Allowance-2022				11,000,000	12,500,000	2,766,576
A0124R	Adhoc Relief Allowance 15% 2022					12,500,000	2,568,058

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A012-2	d). Other Allowances	14,400,000	13,050,000	13,050,000	16,000,000	16,000,000	1,835,112
A01271	Over Time Allowance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	210,600
A01273	Honorarium	6,400,000	6,050,000	6,050,000	8,000,000	8,000,000	-
A01274	Medical charges	7,000,000	6,000,000	6,000,000	7,000,000	7,000,000	1,624,512
A01278	Leave Salary	-		-	-	-	
A02	<u>PROJECT PRE-INVESTMENT ANALYSIS</u>	88,000,000	84,240,000	84,240,000	150,000,000	-	-
A022	Research, Surveys and Exploratory operations	88,000,000	84,240,000	84,240,000	150,000,000	-	-
A02201	a) Grant for Research & Institution Support	74,000,000	70,425,277	-	125,000,000		
i)	Biotech			7,057,500			
ii)	Math & Computer Sciences.			80,434			
iii)	Physical Sciences.			10,294,207			
iv)	Chemical Sciences.			14,437,540			
v)	Biological Sciences.			4,659,579			
vi)	Earth Sciences.			1,959,599			
vii)	Environmental Sciences.			1,467,703			

viii)	Engineering Sciences			13,892,348			
ix)	Agricultural Sciences			251,083			
x)	Medical Sciences.			14,775,338			

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
xi)	Institutional Support.			-			
xii)	Evaluation Fee			468,000			
xiii)	Board/Committee Meetings.			1,081,946			
(xiv)	Utilization of Results Research & Pilot Plant Study			-			
xv)	Information, documentation Publication & Library Material, Subscription to International Organization & UNESCO Coupons	150,000		-	200,000		
xvi)	Scientists Pool/Senior Scientist Emertues	-		-			
xvii)	Scientific Societies & Professional Bodies	-		-	2,000,000		
xviii)	Science Conferences Seminar, Workshop & Symposia	2,000,000	4,021,577	4,021,577	5,000,000		
xix)	Awards Prizes & Fellowships.	-	-	-			
xx	Special Scientific Survey & Collection of Statistics	-	40,000	40,000	100,000		

xxi	International Liasion	1,200,000	-	-	200,000		
xxii	Inovations & Inventions	300,000	-	-	500,000		
	Sub-Total (a)	77,650,000	74,486,854	74,486,854	133,000,000	-	

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A02201	b) Science Promotion Activities						
i)	Science Popularization Activities	3,000,000	2,837,507	2,837,507	3,000,000		
ii)	Science Centre,Herberia Planetaria	600,000	226,274	226,274	1,000,000		
iii)	Science Fair	-	-	-	5,000,000		
iv)	Science Caravan.	3,000,000	5,039,228	5,039,228	6,000,000		
	Sub-Total (b)	6,600,000	8,103,009	8,103,009	15,000,000	-	
	c) Planning & Development Section						
i)	Exchange of Visits of Scientists & Technologists	3,750,000	1,650,137	1,650,137	2,000,000		
	Sub-Total (c)	3,750,000	1,650,137	1,650,137	2,000,000	-	-

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A03	<u>OPERATING EXPENSES</u>	35,999,000	56,585,000	56,584,972	56,937,000	57,818,400	16,026,349
A032	Communication	2,095,000	2,231,000	2,231,000	2,524,000	2,524,000	461,305
A03201	Postage & Telegraph	95,000	231,000	231,000	280,000	280,000	-
A03202	Telephone & Trunk Call	2,000,000	2,000,000	2,000,000	2,244,000	2,244,000	461,305
A033	Utilities Charges	2,330,000	3,711,539	3,711,539	3,786,000	4,286,000	1,197,880
A03301	Gas Charges	280,000	480,000	480,000	467,000	467,000	62,080
A03302	Water Charges	100,000	381,539	381,539	140,000	140,000	-
A03303	Electricity Charges	1,950,000	2,850,000	2,850,000	3,179,000	3,679,000	1,135,800
A034	Occupancy Cost	26,799,000	44,917,000	44,916,972	43,383,000	43,383,000	13,273,883
A03403	Rent for Residential Building	26,700,000	44,550,000	44,550,000	43,290,000	43,290,000	13,273,883
A03407	Rates & Taxes	99,000	367,000	366,972	93,000	93,000	-
A037	Consultancy and Contractual Work	-	400,000	400,000	-	-	
A03770	Others	-	400,000	400,000	-	-	
A038	Travel & Transportation	3,340,000	4,158,461	4,158,461	5,002,000	5,302,000	683,984
A03805	Traveling Allowance	800,000	518,461	518,461	748,000	748,000	95,887
A03807	Petrol, Oil & Lubricant Charges	2,400,000	3,300,000	3,300,000	3,927,000	4,227,000	522,697

A03808	Conveyance Charges	140,000	340,000	340,000	327,000	327,000	65,400
A039	General	1,435,000	1,567,000	1,567,000	2,242,000	2,323,400	409,297
A03901	Office Stationery	470,000	470,000	470,000	561,000	561,000	112,200

Object Code.	Heads/Classification	Budget Allocation As Per NIS	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A03902	Printing Publication	95,000	95,000	95,000	187,000	187,000	35,080
A03905	Newspapers	95,000	95,000	95,000	93,000	74,400	-
A03906	Uniform & Liveries	100,000	100,000	100,000	187,000	187,000	37,400
A03907	Advertisement Charges & Publicity	200,000	432,000	432,000	280,000	280,000	-
A03917	Law charges	100,000	-	-	93,000	93,000	-
A03970	Others/Misc. Expenses	375,000	375,000	375,000	654,000	754,000	213,563
A03990	Light Refreshment during official meeting				187,000	187,000	11,054
A04	<u>EMPLOYEES RETIREMENT BENEFITS</u>	25,000,000	25,000,000	25,000,000	20,000,000	20,000,000	4,771,586
A04104	Pension Contribution	23,000,000	23,000,000	23,000,000	18,000,000	18,000,000	4,271,587
A04106	Reimbursement of Medical charges Pensioners	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	499,999

A05	GRANTS, SUBSIDIES & WRITE-OFF <u>LOANS/ADVANCES/OTHERS.</u>	7,000,000	-	-	600,000	900,000	42,000
A052	Grants Domestics	7,000,000	-	-	600,000	900,000	42,000
A05216	Financial Assistance to Families of Civil Servants who expire during service/ After retirement	7,000,000	-	-	600,000	900,000	42,000
A06	<u>TRANSFERS</u>	1,200,000	1,550,000	1,550,000	2,000,000	1,800,000	72,176
A063	Entertainment & Gifts	-	-	-	-	-	-
A06301	Entertainment & Gifts	-	-	-	-	-	-
A064	Other Transfer Payments	1,200,000	1,550,000	1,550,000	2,000,000	1,800,000	72,176
A06470	Others (CPF Contribution & SWF)	1,200,000	1,550,000	1,550,000	2,000,000	1,800,000	72,176

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A09	<u>EXPENDITURE ON PHYSICAL ASSETS</u>	2,950,000	1,310,000	1,310,000	8,414,000	6,731,200	-
A091	<u>Land and Building</u>	-	-	-	-	-	-
A09101	<u>Land and Building</u>	-		-	-	-	-
A092	Computer Equipment	500,000	500,000	500,000	561,000	448,800	-

A09201	Hardware						
A09202	Software	-		-	-	-	
A09203	I.T Equipment	500,000	500,000	500,000	561,000	448,800	-
A095	Transportation.	2,000,000	-	-	2,150,000	1,720,000	-
A09501	Transport	2,000,000	-	-	2,150,000	1,720,000	-
A096	Plant & Machinery	250,000	250,000	250,000	5,049,000	4,039,200	-
A09601	Plant & Machinery	250,000	250,000	250,000	5,049,000	4,039,200	-
A097	Furniture & Fixture.	200,000	560,000	560,000	654,000	523,200	-

Object Code.	Heads/Classification	Budget Allocation As Per NIS 2021-22	Revised Allocation After Re-appropriation/ S.Grant/ Surrendered 2021-22	Actual Expenditure 2021-22	Budget Grant As Per NIS 2022-23	Revised Budget Allocation 2022-23	Progressive Expenditure upto 30.9.2022
1	2	3	4	5	6		
A13	<u>REPAIR & MAINTENANCE</u>	1,700,000	2,300,000	2,300,000	2,337,000	3,038,400	820,130
A130	Transport	810,000	810,000	810,000	757,000	757,000	110,966
A13001	Transport	810,000	810,000	810,000	757,000	757,000	110,966
A131	Machinery & Equipment	290,000	390,000	390,000	365,000	645,000	292,419

A13101	Machinery & Equipment	290,000	390,000	390,000	365,000	645,000	292,419
A132	Furniture & Fixture.	100,000	100,000	100,000	93,000	213,000	138,600
A13201	Furniture & Fixture	100,000	100,000	100,000	93,000	213,000	138,600
A133	Building & Structure	500,000	1,000,000	1,000,000	1,122,000	1,423,400	278,145
A13301	Office Building	500,000	1,000,000	1,000,000	1,122,000	1,423,400	278,145
A13370	Other Repair	-	-	-	-	-	
	GRAND TOTAL :-	308,000,000	342,498,000	342,497,972	430,288,000	280,288,000	66,665,122

PAKISTAN MUSEUM OF NATURAL HISTORY

S U M M A R Y

SUMMARIZED BUDGET ALLOCATION / REVISED ALLOCATION AND ACTUAL EXPENDITURE OF 2021-22 & UNDER BUDGET IB-3366 PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH).

			Budget Position & Actual Expenditure <u>2021-22</u>		
Code No.	Heads/Classification		Budget Allocation <u>2021-22</u>	Revised Budget Allocation 2021-22 (After Re-appropriation of Funds/Surrendered/ Budgetary Cut	Actual Expenditure <u>2021-22</u>
1	2		3	4	6
	TOTAL BUDGET ALLOCATION		177.650 (M)	178.685 (M)	178.679 (M)
A01	Employee Related Expenses		106,287,000	110,240,000	110,235,611
A011-1	Pay		53,000,000	57,326,000	57,326,000
A01101	Pay of Officers		37,000,000	39,481,000	39,481,000
A01151	Pay of other Staff		16,000,000	17,845,000	17,845,000
A012	Allowances		53,287,000	52,914,000	52,909,611
A012-1	Regular Allowances		42,037,000	43,264,000	43,259,611
A012-2	Other Allowances		11,250,000	9,650,000	9,650,000
A02	Project Pre-investment Analysis		10,000,000	9,000,000	9,000,000
A03	Operating Expenses		25,938,000	31,020,000	31,019,037

A04	Employees Retirement Benefits	25,000,000	25,000,000	25,000,000
A05	Grants Subsidieze & Loan Advances/Others	7,000,000	-	-
A06	Transfers	950,000	950,000	950,000
A09	Expenditure on Acquiring of Physiscal Assets	400,000	400,000	400,000
A13	Repair & Maintenance	2,075,000	2,075,000	2,074,108
-	Grand Total :-	177,650,000	178,685,000	178,678,756

An amount of Rs.5.035 granted additional funds under the head of accounts A03-Operating Expenses during the Financial Year 2021-22

An amount of Rs.3.00 million re-appropriated by Ministry of Science & Technology under the head of accounts A05-Grants Subsidies and writeoff Loans/Advances/Others during the Financial Year 2021-22

An amount of Rs.1.00 million re-appropriated by Ministry of Science & Technology under the head of accounts A02-Research & Survey during the Financial Year 2021-22.

An amount of Rs.178.679 million was incurred against Revised Budget Allocation Rs.178.685 million during the Financial Year 2021-22 and Rs.0.06 million surrendered.

PASTIC FINANCIAL STATEMENT (Rs.)

Head of Account	Description	Budget Allocation 2021-22	Expenditure in June, 2022	Progressive Exp up to 30th June, 2022
A01	Employees Related Expenditure	124,393,000	11,111,285	124,393,000
A011	Pay	65,473,000	3,693,540	65,473,000
A011-1	Pay of Officers	38,228,000	1,305,688	38,228,000
A01101	Basic Pay of Officers	38,228,000	1,305,688	38,228,000
A011-2	Pay of Other Staff	27,245,000	2,387,852	27,245,000
A01151	Basic Pay of Other Staff	27,245,000	2,387,852	27,245,000
A012	Allowances	58,920,000	7,417,745	58,920,000
A012-1	Regular Allowances	47,841,000	6,856,340	47,841,000
A01201	Senior Post Allowance	43,000	4,550	43,000
A01202	House Rent Allowance	1,066,000	121,969	1,066,000
A01203	Conveyance Allowance	5,226,000	541,662	5,226,000
A01216	Qualification Allowance	654,000	55,000	654,000
A01217	Medical Allowance (Frozen)	3,083,000	269,724	3,083,000
A01224	Entertainment Allowance.	64,000	5,710	64,000
A01226	Computer Allowance	288,000	72,000	288,000
A01228	Orderly Allowance	515,000	53,000	515,000
A0120D	Integrated Allowance	204,000	19,390	204,000
A0122M	Ad hoc Relief Allow. 10% (2016)(Frozen)	3,998,000	342,542	3,998,000
A0122Y	Ad hoc Allowance, (2017)	5,779,000	496,494	5,779,000
A01236	Deputation Allowance	80,000	19,854	80,000
A0123G	Ad hoc Relief Allowance, (2018)	5,779,000	496,494	5,779,000
A0123P	Ad hoc Relief Allowance, (2019)	4,262,000	367,144	4,262,000
A0124C	Disparity Reduction Allowance	14,000,000	1,190,807	14,000,000
A0124N	Disparity Reduction Allowance, 2022	2,800,000	2,800,000	2,800,000
A012-2	Other Allowances (Excluding T.A)	11,079,000	561,405	11,079,000
A01271	Overtime Allowance	700,000	128,620	700,000
A01273	Honorarium	5,379,000	0	5,379,000
A01274	Medical Charges	5,000,000	432,785	5,000,000
A02	Project Pre-investment Analysis	5,000,000	2,955,373	5,000,000
A022	Statutory/PASTIC FUNCTIONS	5,000,000	2,955,373	5,000,000
A02201	Information Technology Support Services	3,191,800	2,567,604	3,191,800
A02201	Technology Information Service	571,122	128,537	571,122
A02201	Training Workshops/Seminars	944,228	74,942	944,228
A02201	PASTIC Publications	292,850	184,290	292,850
A02201	International Liaison	-	-	-
A03	Operating Expenses	48,189,000	13,470,074	48,172,194
A032	Communication	1,300,000	162,201	1,300,000
A03201	Postage Stamps	100,000	4,848	100,000

Head of Account	Description	Budget Allocation 2021-22	Expenditure in June, 2022	Progressive Exp up to 30 th June, 2022
A03202	Telephone and Trunk Calls	1,200,000	157,353	1,200,000
A033	Utilities Charges	2,718,000	922,219	2,718,000
A03301	Gas Charges	18,000	7,200	18,000
A03302	Water Charges	100,000	9,869	100,000
A03303	Electricity Charges	2,600,000	905,150	2,600,000
A034	Occupancy Cost	38,706,000	10,626,980	38,706,000
A03402	Rent for Office Building	106,000	26,500	106,000
A03403	Rent for Residential Building	38,600,000	10,600,480	38,600,000
A038	Travel & Transportation	3,020,000	698,614	3,020,000
A03805	Travelling Allowances	772,000	147,488	772,000
A03807	P.O.L	2,248,000	551,126	2,248,000
A039	General	2,445,000	1,060,060	2,428,194
A03901	Stationery	500,000	149,588	500,000
A03905	Newspaper, Periodicals & Books/Unforeseen	100,000	41,155	100,000
A03906	Uniform & Protection Cloth	50,000	32,004	50,000
A03907	Advertisement & Publicity	570,000	447,160	553,194
A03917	Law Charges	300,000	50,000	300,000
A03970	Other	850,000	340,153	850,000
A03990	Light Refreshment During Meeting	75,000	0	75,000
A04	Employees' Retirement Benefits	26,832,500	2,874,901	26,832,500
A041	Pension	26,832,500	2,874,901	26,832,500
A04106	Reimbursement of Medical Charges to Pensioners)	1,100,000	142,401	1,100,000
A04104	Other Pension (All Pension Liabilities)	25,732,500	2,732,500	25,732,500
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	1,900,000	754,016	1,900,000
A064	Other Transfer Payment	1,900,000	754,016	1,900,000
A06470	Others	1,900,000	754,016	1,900,000
A09	Expenditure on acquiring of Physical Assets	725,500	193,606	725,500
A095	Transport	125,500	-	125,500
A09501	Transport	125,500	-	125,500
A096	Plant & Machinery	400,000	127,000	400,000
A09601	Plant & Machinery	400,000	127,000	400,000
A097	Furniture & Fixtures	200,000	66,606	200,000

Head of Account	Description	Budget Allocation 2021-22	Expenditure in June, 2022	Progressive Exp up to 30th June, 2022
A09701	Furniture & Fixtures	200,000	66,606	200,000
A013	Repair & Maintenance	2,360,000	357,698	2,360,000
A130	Transport	900,000	239,076	900,000
A13001	Transport	900,000	239,076	900,000
A131	Machinery & Equipment	400,000	103,323	400,000
A13101	Machinery & Equipment	400,000	103,323	400,000
A132	Furniture & Fixture	60,000	15,299	60,000
A13201	Furniture & Fixture	60,000	15,299	60,000
A133	Building & Structure	1,000,000	-	1,000,000
A13301	Office Building	1,000,000	-	1,000,000
Total		209,400,000	31,716,953	209,383,194

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 NEW PROJECTS APPROVED BY PSF EXECUTIVE COMMITTEE
DURING 2021-22**

S. #	Project Title & No.	P.I. Name, Designation & Address	Total Cost (in Rs.)
1.	PSF/Res/P-GCUL/Agr (500) Replacement of Fish Meal with Pistia Stratiotes and Lemna Minor in Feed of Carps for Sustainable Food Security	Prof. Dr. Amtul Bari Tabinda Sustainable Development Study Center Government College University Lahore	2,030,616
2.	PSF/Res/S-KU/Bio (676) Assemblage of Marine Polychaete Worms in Mangrove Forests along Coastal Areas of Sindh	Dr. Muhammad Uzair Khan Taxonomist Marine Reference Collection and Resource Centre University of Karachi Karachi	1,010,335
3.	PSF/Res/AJK-PU/Bio (675) Development of a Recombinant Epsilon Toxoid Vaccine against Enterotoxaemia	Dr. Shahzad Akbar Khan Associate Professor Department of Pathobiology Faculty of Veterinary & Animal Sciences, University of Poonch Rawalakot	7,377,200
4.	PSF/Res/C-PMNH/Bio (681) Birds/Wildlife Aircrafts Strike Hazards and Prevention	Dr. Khalid Mahmood Director Zoological Sciences Division Pakistan Museum of Natural History Islamabad	4,326,600
5.	PSF/Res/P-PCSIR/Chem (606) UF and MF Membranes Fabrication Technology Development for Water Purification	Dr. Muhammad Hammad Khan Senior Scientific Officer Centre for Environmental Protection Studies PCSIR Laboratories Complex Lahore	4,966,740
6.	PSF/Res/C-CUI/Chem (607) Fabrication of Electrochemical Nanobiosensor	Dr. Sana Sabahat Assistant Professor Department of Chemistry COMSATS University Islamabad Islamabad Campus	5,385,000

7.	PSF/Res/S-ICCBS/Chem (610) Fragnomics-based Lead Optimization of Novel Immuno-suppressive Agents	Prof. Dr. Zaheer Ul-Haq Dr. Panjwani Centre for Molecular Medicine and Drug Research International Center for Chemical and Biological Sciences University of Karachi Karachi	6,392,600
8.	PSF/Res/S-ICCBS/Chem (609) Investigating Interaction of Hydrophobic Gentamicin with Polymeric Nanomaterials to form a Drug Delivery System for <i>Brucellosis</i>	Dr. Syed Tarique Moin Assistant Professor H.E.J. Research Institute of Chemistry International Centre for Chemical and Biological Sciences University of Karachi Karachi	2,741,800
9.	PSF/Res/S-ICCBS/Chem (601) Mass Spectrometric Analysis of Plant Pathogen for High-throughput and Sensitive Detection	Prof. Dr. Syed Ghulam Musharraf H.E.J. Research Institute of Chemistry International Center for Chemical and Biological Sciences University of Karachi Karachi	2,295,000
10.	PSF/Res/S-ICCBS/Chem (598) Anti-obesity Effects of Medicinal Plants Extracts, Natural and Synthetic Compounds- A Strategy to Control the Epidemic of Metabolic Disorders	Prof. Dr. M. Iqbal Choudhary Director International Center for Chemical and Biological Sciences University of Karachi Karachi	1,861,500
11.	PSF/Res/KPK-AWKU/Chem (611) Preparation of an Innovative and Effective Pozzolana to Reduce the Cost of Portland Cement and Emission of Greenhouse Gases	Dr. Noor-ul-Amin Associate Professor Department of Chemistry Abdul Wali Khan University Mardan	3,211,790
12.	PSF/Res/P-UE/Chem (612) Synthesis and Photovoltaic Applications of Novel Porphyrins and Metalloporphyrins	Dr. Muhammad Yaseen Assistant Professor Department of Chemistry University of Education, Lahore Faisalabad Campus	841,500

13.	PSF/Res/C-QAU/Chem (616) Ordered Mesoporous Silica MCM-41 Derivatives: Control Synthesis, Characterization and Environmental Applications	Dr. Ali Haider Assistant Professor Department of Chemistry Quaid-i-Azam University Islamabad	7,860,000
14.	PSF/Res/P-PU/Biotech (239) Gene Discovery for Skeletal Dysplasia, Protein Localization and <i>in-vitro</i> Variant Pathogenic Analyses	Prof. Dr. Sadaf Naz School of Biological Sciences University of Punjab Lahore	2,331,720
15.	PSF/Res/C-QU/Biotech (241) Generation of Zebrafish Models for BCR-ABL-Induced Leukemogenesis and Development of Fast and Robust Real-time Assay for its Diagnosis and Mutation Detection based to Pakistani Population	Prof. Dr. Amir Ali Abbasi Chairperson National Centre for Bio Informatics Quaid-i-Azam University Islamabad	8,452,000
16.	PSF/Res/P-NIBGE/Biotech (240) Elucidation of the Genetic Basis of Congenital Heart Defects in Pakistani Population	Dr. Naveed Altaf Malik Principal Scientist/Incharge Human Molecular Genetics Laboratory Health Biotechnology Division NIBGE Faisalabad	8,825,000
17.	PSF/Res/P-PCSIR/Biotech (242) Bio-process Development of Colors Pigments from Eco-friendly Microbes for Industrial Use	Dr. Sania Mazhar Senior Scientific Officer Department of Food & Biotechnology PCSIR Labs Complex Lahore	1,965,434
18.	PSF/Res/C-NILOP/Envr (150) Portable LIBS Sensor for On-Line Monitoring of Air Pollution	Dr. Sami-ul-Haq Principal Scientist National Institute of Laser and Optonics Islamabad	1,999,000

19.	PSF/Res/C-CUI/Envr (151) Biodegradation and Microbiological Mechanisms of Electronic Waste Pollutants in Pakistani Soils	Dr. Muhammad Zaffar Hashmi Assistant Professor Department of Meteorology COMSATS University Islamabad	5,300,000
20.	PSF/Res/C-NUST/Med (521) Development of Biodegradable Sutures for Surgical Incisions and Wounds	Dr. Muhammad Shoaib Butt Assistant Professor Department of Material Engineering, School of Chemical and Material Engineering National University of Science and Technology Islamabad	1,765,652
21.	PSF/Res/S-AKU/Med (525) Identification of Serum miRNA as a Potential cost-effective Biomarker of GBM (Glioblastoma)	Prof. Dr. S. Ather Enam Chair Department of Surgery The Aga Khan University Karachi	2,245,800
22.	PSF/Res/S-AKU/Med (524) Role of prostacyclin analogue in curbing type2 diabetes mellitus pathogenesis	Dr. Muhammad Zuhair Yusuf Assistant Professor Department of Biological and Biomedical Sciences The Aga Khan University Karachi	1,987,234
23.	PSF/Res/KPK-KUST/Med (523) Improvement and Upgradation of Pakistan Genetic Mutation Database (PGMD): a Step Towards Effectiveness	Dr. Saad Ullah Khan Assistant Professor Department of Biotechnology and Genetic Engineering Kohat University of Science & Technology Kohat	2,113,800
24.	PSF/Res/P-UHS/Med (518) Calcification in the Herniated Lumbar Intervertebral Discs and its Relationship with Vertebral Endplate Changes on MRI	Dr. Uruj Zehra Head Department of Anatomy University of Health Sciences Lahore	995,800

25.	PSF/Res/P-CUI/Med (520) Fabrication of RNA Nanoparticles for the Regression of <i>MYCN/TERT</i> Overexpressing Human Cancers	Dr. Hafiza Fakhra Ikram Assistant Professor Interdisciplinary Research Center in Biomedical Materials COMSATS University Islamabad, Lahore Campus	4,150,288
26.	PSF/Res/KPK-KUST/Med (500) Preparation and Investigation of Cream Containing Antibiotics and Silver Nanoparticle for Treatment of Burns	Dr. Saeed Khan Associate Professor Department of Pharmacy Kohat University of Science & Technology Kohat	1,188,300
27.	PSF/Res/P-UHS/Med (510) Role of Indoleamine 2,3-dioxygenase (IDO) in Glucocorticoid-Resistant Asthma Patients and Effect of Thiazolyl and Thiazolidinonyl Tetrahydronaphthalene Derivatives through Modulation of IDO Activity on Acute Lung Remodelling	Dr. Muhammad Shahzad Associate Professor Department of Pharmacology University of Health Sciences Lahore	1,916,580

ANNEXURE-III**LIST OF PROJECTS RECOMMENDED BY VARIOUS TECHNICAL
COMMITTEES DURING 2021-2022**

S. #	Project Title & No.	P.I. Name, Designation & Address
1.	PSF/Res/P-UoL/Agr (501) Isolation, Molecular Characterization and Optimization of Methanotrophs and Xerotolerants from Drylands of Punjab, Pakistan and their Role in the Growth of Wheat Plant	Dr. Saba Shamim Assistant Professor Institute of Molecular Biology and Biotechnology (IMBB) The University of Lahore Lahore
2.	PSF/Res/P-UMT/Agr (502) Whey Proteins as an Encapsulating Material for Stabilizing Polyphenols in Water-in-oil Emulsions	Dr. Rao Sanaullah Khan Assistant Professor School of Food and Agricultural Sciences University of Management and Technology Lahore
3.	PSF/Res/KPK-PU/ Earth (102) Vulnerability Assessment of Swat, Dir and Chitral with respect to Earthquakes of PAMIR-Hindu Kush Region	Dr. Khaista Rehman Associate Professor National Centre of Excellence in Geology University of Peshawar Peshawar
4.	PSF/Res/S-AKU/Med (538) Treatment of Epilepsy and Associated Memory Loss with Herbal Extracts and their Mechanisms of Action	Dr. Fazal Manzoor Arain Assistant Professor Department of Biological and Biomedical Sciences The Aga Khan University Karachi
5.	PSF/Res/C-PIEAS/Phy (218) Controlled Synthesis of Drug Encapsulated Metallopolymer Nanocomposites using Microfluidic Platform for Targeted Cancer Therapy	Dr. Shazia Bashir Associate Professor Department of Physics and Applied Mathematics Pakistan Institute of Engineering and Applied Sciences (PIEAS) Islamabad

Detail of Monitoring and Evaluation of On-Going Projects during 2021-22**A. Non Development Budget****a. Semi Annual Technical Reports**

S #	Project No.	Project Title	Report
1.	PSF/Res/C-NESCOM/Agr (497)	Wild Olive (<i>Olea cuspedata</i>) utilization as Root Stock for Oil Plants through Different Topworking Techniques	3 rd semi annual
2.	PSF/Res/C-IBGE/Med (509)	Exploring Predictive biomarker for Aplastic anemia: An appropriate tool for diagnosis and Treatment	2 nd semi annual
3.	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.	2 nd semi annual
4.	PSF/Res/P-AMC/Med (519)	Genomic Landscape of Myelodysplastic Syndrome Patients in Pakistan	2 nd semi annual
5.	PSF/Res/P-LCWU/Phys (214)	To Investigate the Various Instabilities as Energy Source in Quantum and Classical Plasmas	1 st semi annual

b. First Annual Technical Reports

S.#	Project No.	Project title
1.	PSF/Res/C-QU/Med (516)	Identification of Molecular Determinants of Breast Cancer in Pakistan
2.	PSF/Res/C-IBGE/Med (509)	Exploring Predictive biomarker for Aplastic anemia: An appropriate tool for diagnosis and Treatment

c. Second Annual Technical Reports

S.#	Project No.	Project title
1.	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
2.	PSF/Res/KPK-PU/Earth (96)	Shale Gas Potential of the Kohat Sub-basin, Indus Basin, Pakistan
3.	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.

d. Final Technical Reports

S.#	Project No.	Project Title
1.	PSF/Res/KPK-PU/Bio (661)	Molecular Characterization of Clostridium perfringens and development of Toxoid Vaccine
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/P-CUI/Engg (124)	Synthesis of Chemically Modified Polymeric Membranes for Biogas Purification and Natural Gas Sweetening
4.	PSF/Res//P-GCU/Med (485)	Bioassay Guided Screening and Purification of Medicinal Plant against Hepatitis C Virus

5.	PSF/Res/KPK-IBMS/Med (493)	The Role of Circulating Tumor DNA in Monitoring Treatment Response in Patients with Breast Cancer
6.	PSF/Res/KPK-AWKU/Med (459)	Development of Coumarin Based Compounds for U2OS Bone Cancerous Cell Treatment
7.	PSF/Res/CP/S-AKU/Med (488)	Analysis of Population-Specific Epitope and Drug-resistance Mutations in HIV-1 in Pakistan
8.	PSF/Res/P-UHS/Med (492)	Biochemical and Molecular Analysis of Oculocutaneous Albinism in Families from Pakistan
9.	PSF/Res/P-IUB/Med (481)	Development of Optimized Dry Injectable Product of Docetaxel via Freeze Drying Method to Enhance the Solubility and Stability

Scientific Publications Produced Through PSF Completed Projects
During 2021-22

S.No.	Project No.	Publication
1.	PSF/Res/P-AU/Bio (352)	<ul style="list-style-type: none"> • Shaheen S, A Khan, MZ Khan, I. Hussain and MS Khan. Expression of eaeA, STX1 and STX2 genes from enteropathogenic or enterohemorrhagic - 8. coli recovered from buffalo milk, beef and buffalo neonatal calf feces. Pakistan Journal of Zoology Suppl. Ser. 9: 257-260 • Shaheen S, A Khan, M.Z. Khan, I Hussain and, MZ Ahmad, Prevalence of enteropathogenic E coli in food commodities and fecal samples of buffalo and human neonates. Pakistan Journal of Zoology Suppl. Ser. 9:813-817 • Shaheen, S., A Khan, M. Z. Khan, I. Hussain and M. Z. Ahmad,,2009. prevalence of enteropathogenic E coli in food commodities and fecal samples of buffalo and human neonates. Proceedings of the 6th Asian Buffalo Congress, October 27-30, Lahore,Pakistan, pp: 13 • Shaheen, S., A Khan, M. z. Khan, I. Hussain and M. S. Khan, 2009. Expression of eaeA, STX1 and STX2 genes from enteropathogenic or enterohemorrhagic <i>E. coli</i> recovered from buffalo milk, beef and buffalo neonatal calf feces. proceedings of the 6th Asian Buffalo congress, October 27 -30, Lahore, Pakistan, pp : 279
2.	PSF/Res/KPK-IBMS/Med (487)	<ul style="list-style-type: none"> • Manuscript ‘Iron deficiency/overload in beta thalassaemia trait’ Journal of Pakistan Medical Association.

3.	PSF/Res/S-ICCBS/Med (431)	<ul style="list-style-type: none"> • Uddin, R., Masood, F., Azam, SS., Wadood, A. Identification of putative non-host essential genes and novel drug targets against <i>Acinetobacter baumannii</i> by in silico comparative genome analysis, <i>Microbial Pathogenesis</i>, 128, p. 28-35 • Masood, F., Khan, W., Uddin, R., Computational-based Identification and Analysis of Globally Expressed Differential Genes in High-grade Serous Ovarian Carcinoma Cell Lines, <i>Computational Biology and Chemistry</i>, 88, 107333 • A Database Development of the Unique Metabolic Pathways of the Infectious Pathogens, presented in the form of eposter in the American Society for Microbiology (ASM) Microbes June 18 – 22, Chicago • DUMP: A Database of Unique Metabolic Pathways, presented as poster in 7th International Symposium-Cum-Training Course on Molecular Medicine and Drug Research (MMDR-7) Karachi, Pakistan, November 4 – 7.

ANNEXURE-VI

List of Research Publications Produced from NSLP Funded Projects During 2021-22

Sr. No.	Project No	Publications
1.	PSF/NSLP/P-CIIT (664)	Khalid, S., Majeed, M., Ullah, M. I., Shahid, M., Riasat, A. R., Abbas, T. & Farooq, A. Effect of storage conditions and packaging material on postharvest quality attributes of strawberry. <i>Journal of Horticulture and Postharvest Research</i> , 3(2), 195-208.
2.	PSF/NSLP/S-KU(692)	Zehra, N., Ali, T.M. and Hasnain, A., 2020. Comparative study on citric acid modified instant starches (alcoholic alkaline treated) isolated from white sorghum and corn grains. <i>International journal of biological macromolecules</i> , 150, pp.1331-1341.
3.	PSF/NSLP/S-KU(692)	Zehra, N., Ali, T.M. and Hasnain, A., 2021. Combined effects of hydroxypropylation and alcoholic alkaline treatment on structural, functional and rheological characteristics of sorghum and corn starches. <i>International Journal of Biological Macromolecules</i> , 174, pp.22-31.
4.	PSF/NSLP/S-KU(692)	Zehra, N., Mohsin Ali, T., Mustafa, G. and Hasnain, A., 2022. Characterization of Citric Acid Treated Partially Cold-Water Swellable Sorghum and Corn Starch Extrudates; A Green Approach. <i>Starch-Stärke</i> , 74(9-10), p.2100291.
5.	PSF/NSLP/P-UVAS (697)	Atif <i>et al.</i> "Strategies for prevention and control of anaplasmosis: at human-animal interface" submitted in <i>Pakistan Journal of Agricultural Sciences</i> No. 9849. Impact factor (0.748)
6.	PSF/NSLP/P-UVAS (697)	Atif <i>et al.</i> review paper manuscript ID: vetsci-1357362, submitted in "Veterinary Sciences" submitted on August 11, 2021, entitled "Epidemiology, diagnosis and control of canine cyclic thrombocytopenia and granulocytic anaplasmosis: emerging diseases of veterinary and public health significance". Impact factor (2.304)
7.	PSF/NSLP/KP-AWKUM(827)	Nawab, J., Din, Z.U., Ahmad, R. et al. Occurrence, distribution, and pollution indices of potentially toxic elements within the bed sediments of the riverine system in Pakistan. <i>Environ Sci Pollut Res</i> 28, 54986–55002 (2021). https://doi.org/10.1007/s11356-021-14783-9

8.	PSF/NSLP/KP-AWKUM(827)	Sardar, S.W., Rehman, S.A.U., Nawab, J. et al. Quantification of potentially toxic elements in degraded mining soils and medicinal plants: a case study of Indus Kohistan region Northern Pakistan. Environ Earth Sci 80, 641 (2021). https://doi.org/10.1007/s12665-021-09927-6
9.	PSF/NSLP/KP-AWKUM(827)	Nawab, J., Din, Z.U., Faisal, S., Khan, S., Ali, A., Rahman, Z., Alam, M., Khan, A.Z., Khan, M.A., Khan, K. and Khan, A., 2021. Farmlands degradation with conventional agricultural practices and human health risk assessment: A case-study of Punjab Province, Pakistan. Land Degradation & Development, 32(16), pp.4546-4561.
10.	PSF/NSLP/P-UVAS (747)	Influence of hen egg white lysozyme N-acetylmuramide glycan hydrolase on the antimicrobial activity and textural characteristics of high-moisture Mozzarella cheese. Iqra Muqadas Saleem, Nabila Gulzar, Muhammad Nadeem, Aysha Sameen, Saima Rafiq, Sadia Rehman. J Food Process Preserv. 2021;45:e1557, DOI: 10.1111/jfpp.15573.
11.	PSF/NSLP/P-UVAS (747)	Iqra Muqadas Saleem ¹ , Nabila Gulzar ^{1*} , Saima Rafiq ² , Ayesha Sameen ³ , Ishtiaque Ahmad ¹ , Mubashrah Munir ⁴ , Hafiz Adeel Nazish ¹ Exploring the Antioxidant Potential of Hen Egg White Lysozyme N-acetylmuramide Glycan Hydrolase in Full Fat Mozzarella Cheese. Emirates journal of Food and Agriculture

Research Projects Recommended by the PSF-NSLP Technical Committee**During 2021-22**

Sr. #.	Project Title and No.	Name, Designation & Address of PI
1.	Effects of industrial treatments on biochemical and biodiversity of camel milk and dairy products and processing constraints NSLP/B-LUAWMS(779)	Muhammad Asif Arain Assistant Professor Animal Products Technology, Lasbela University of Agriculture Water and Marine Sciences Balochistan
2.	Ameliorative potential of Mannan-oligosaccharides (MOS) and diatomaceous earth (DAE) against mycotoxins and coccidiosis in commercial poultry birds: A multi-benefit approach NSLP/P-BZU(829)	Dr. Muhammad Irfan Anwar Associate Professor Department of Pathobiology Bahauddin Zakariya University Multan
3.	Piloting and commercialization of the indigenous probiotic for food and feed applications NSLP/C-QU(882)	Dr. Muhammad Imran Assistant Professor Department of microbiology, Faculty of biological sciences Quaid-i-Azam University Islamabad.
4.	Molecular Characterization of local isolates of <i>Mycoplasma gallisepticum</i> for the development of improved diagnostics, treatment and efficient vaccine NSLP/KP-UAP(891)	Prof. Dr. Umar Siddique Professor Department of Animal Health, Faculty of Animal Husbandry And Veterinary Sciences University of Agriculture Peshawar.
5.	Nutraceutical Characterization and Storage Stability Assessment of Indigenous Guava (<i>Psidium guajava</i> L.) Cultivars in response to different post-harvest interventions NSLP/P-AAU(893)	Dr. Kashif Sarfraz Abbasi Institute of Food & Nutritional Sciences, PMAS-Arid Agriculture University Rawalpindi.
6.	Evaluation of arsenic free groundwater zones in arsenic effected areas of Sindh and Punjab. NSLP/PCRWR (896)	Dr. Hifza Rasheed Director (Water Quality) PCRWR H-8/1 Islamabad.
7.	Developing a climate resilient sustainable agricultural system through improved and healthier soil-plant-microbes synergism NSLP/KP-UAP (903)	Prof. Dr. Iqbal Munir Director, Institute of Biotechnology and Genetic Engineering, the University of Agriculture Peshawar.
8.	Sustainable Approach for Effective Control of Peach Stone Replant Disorders	Mr. Shahid Akbar Khalil Principal Scientist, NIFA Peshawar.

	NSLP/KP-NIFA(904)	
9.	Surveillance and Pathobiological Investigations Against Contagious Ecthyma Virus Leading to Development of Local ORF Vaccine NSLP/P-UVAS (833)	Dr. Muti-ur-Rehman Khan Associate Professor Department of Pathology The University of Veterinary and Animal Sciences Lahore
10.	Breeding high yielding tomato hybrids resilient to diseases and drought PSF/NSLP/P-NIAB(853)	Dr. Muhammad Yussouf Saleem Deputy Chief Scientist/Professor NIAB Faisalabad.
11.	Determination of Weed crop competition time and economic threshold of weeds in major crops PSF/NSLP/P-UAF(873)	Dr. Rizwan Maqbool Department of Agronomy The University of Agriculture Faisalabad.
12.	Isolation, preparation, formulation and application of novel nematocidal compound of (Chloro – Trifloromethyl) Phenyl piperidine for the control of plant parasitic nematodes PSF/NSLP/S-KU (902)	Dr. Tabassum Ara Khanum National Nematological Research Centre, University of Karachi Karachi.
13.	Treatment of Mastitis by nanoparticles and egg yolk antibodies in cattle and buffaloes PSF/NSLP/CP/P-UAF(908)	Prof. Dr. M. Tariq Javed Department of Pathology University of Agriculture Faisalabad.
14.	Fertility Determination of Cryopreserved Achai Cattle Spermatozoa by Using Crocin and Salvianolic Acid in Extender PSF/NSLP/CP/KP-UAP(910)	Dr. Zia-u-Rehman Lecturer College of Veterinary Sciences, The University of Agriculture, Peshawar.
15.	Devising and Validating Pen-side Hematological Tests as an Enhanced Approach to the Diagnosis of Anemia in Cholistani Livestock (Camels and Cattle) PSF/NSLP/CP/P-IUB (931)	DR. UMER FAROOQ Associate Professor Department of Physiology Faculty of Veterinary & Animal Sciences, The Islamia University of Bahawalpur
16.	Management studies of noxious weed (<i>Asphodelus tenuifolius</i> -Wild onion) in chickpea growing areas of District Karak, Khyber Pakhtunkhwa, Pakistan PSF/NSLP/KP-UAP(932)	Dr. Imtiaz Khan Associate Professor Department of Weed Science, The University of Agriculture-Peshawar
17.	Development of low phytate maize through CRISPR/Cas genome editing PSF/NSLP/P-UAF(877)	Dr. Aftab Ahmad Assistant Professor Center for Advanced Studies in Agriculture and Food Security The University of Agriculture Faisalabad.
18.	Precision dairy farming using digital technology PSF/NSLP/P-AAU(796)	Dr. Muhammad Moaen-ud-Din Associate Prof, Faculty of Veterinary and Animal Science, PMAS-Arid Agriculture

		University Rawalpindi.
19.	Low Cost Green Synthesis of Selenium Nanoparticles (Senps) and its Impact on Egg and Meat-Type Birds PSF/NSLP/KP-UAP(909)	Dr. Rifat Ullah Khan Department of Animal Health, The University of Agriculture Peshawar
20.	Development of local toxin binder for the prevention and control of mycotoxicosis in poultry PSF/NSLP/KP-UAP(912)	Dr. Muhammad Mobashar Assistant Professor, Department of Animal Nutrition, Faculty of Animal Husbandry and Veterinary Sciences, The University of Agriculture Peshawar
21.	Adaptation of Fine Grain Rice to Multiple adversities stress, Heat, and Drought, under Changing Climate Scenario PSF/NSLP/P-NIAB(916)	Dr. Zia-ul-Qamar Principal Scientist NIAB, Jhang Road, Faisalabad
22.	Exploring the In-vitro and In-vivo antibacterial role of Herbal Medicine (6-Gingerol) to Treat Mastitis in small ruminants PSF/NSLP/KP-UAP(918)	Dr. Arshad Zahoor Lecturer, College of Veterinary Sciences The University of Agriculture Peshawar
23.	Development of Forecasting Model for Early Warning System of Leaf and Yellow Rust Diseases in Wheat PSF/NSLP/P-NIAB(925)	Dr. Kamran Saleem Senior Scientist, Plant Protection Division, NIAB, Jhang Road Faisalabad
24.	Molecular detection of Mycoplasma bovis induced mortality in calves PSF/NSLP/P-IUB(929)	Dr. Khalid Mehmood Assistant Professor Department of Clinical Medicine and Surgery, The Islamia University of Bahawalpur
25.	Luteinizing hormone beta and Luteinizing hormone receptor, follicle stimulating hormone beta and follicle stimulating hormone receptor gene polymorphism associated with semen quality traits in Nili-Ravi buffalo bulls PSF/NSLP/P-UVAS (793)	Dr. Sadia Nawaz Assistant Professor, Institute of Biochemistry & Biotechnology, University of Veterinary and Animal Sciences Lahore
26.	Treatment of Abattoir Sludge for the Control of Parasitic Infection and Efficient Usage as Organic Fertilizer PSF/NSLP/P-UVAS (813)	Dr. Hafiz Muhammad Rizwan Assistant Professor, College of Veterinary and Animal Sciences, sub campus UVAS Narowal
27.	Isolation of novel selective enzyme inhibitors from <i>Pistacia integerrima</i> galls for Development of Enzymes Inhibitory drug PSF/NSLP/KP-UoS (892)	Dr. Abdur Rauf Assistant Professor, Department of Chemistry University of Swabi
28.	Molecular Identification and Biopolymeric Encapsulation of Lactic	Dr. Asma Sohail Associate Professor,

	Acid Bacteria PSF/NSLP/P-AAUR (913)	Institute of Food & Nutritional Sciences, Arid Agriculture University Rawalpindi
29.	Development of high yielding, disease resistant and herbicide tolerant lentil genotypes through conventional and marker assisted breeding approaches PSF/NSLP/P-NIAB (919)	Dr. Muhammad Jawad Asghar Principal Scientist NIAB Faisalabad
30.	Assessment of silver and zinc oxide nanoparticles for the management of a bacterial and fungal disease of rice PSF/NSLP/P-NIAB(927)	Dr. Sumaira Yousaf Principal Scientist NIBGE Faisalabad.
31.	Application of Thermal Imaging Technique to Monitor the Reproductive Cycle and Early Pregnancy in Nili-Ravi Buffaloes PSF/NSLP/P-IUB (940)	Dr. Musadiq Idris Assistant Professor, Faculty of Veterinary & Animal Sciences, The Islamia University of Bahawalpur
32.	Phenotyping by using image sensors and image processing techniques for measurement of crop parameters for crop modeling PSF/NSLP/P-NIAB (928)	Dr. Naeem Ahmad Pr. Scientist Technical Services Division, NIAB, Jhang Road, Faisalabad.
33.	CRISPR-Cas9 based precise excision of TaHyPRP1 domain(s) to generate salt stress tolerance in wheat PSF/NSLP/P-NIBGE (960)	Dr. Nasir Ahmad Saeed Deputy Chief Scientist (DCS), Agricultural Biotechnology Division, NIBGE Faisalabad
34.	Development of local variants based infectious bronchitis (IB) and Newcastle disease virus (NDV) vaccines for the control of major threat to local Poultry Industry PSF/NSLP/CP/KP-UAP (1130) PSF/NSLP/KP-UAP (945)	Prof. Dr. Sar Zamin Khan Faculty of Animal Husbandry and Veterinary Science, The University of Agriculture Peshawar
35.	Microbially triggered clay mineral as an accelerant for biogas production from organic waste: An innovative strategy for biodegradation of digestate as a bio-fertilizer PSF/NSLP/CP/KP-UOH(1133) PSF/NSLP/KP-UOH(947)	Dr. Ayaz Mehmood Assistant Professor Department of Soil & Climate Sciences The University of Haripur
36.	Pilot Scale Production of Efficacious Anti-Tick Vaccine and Vaccination Trials Against High-Risk Ticks Prevalent in Pakistan PSF/NSLP/CP/KP-AWKUM (1188) PSF/NSLP/KP-AWKUM (983)	Dr. Abid Ali Associate Professor, Department of Zoology Abdul Wali Khan University Mardan
37.	Selenium (Se) Status of Soils in Punjab and Production of Se Bio-Fortified Wheat to Combat Se Deficiency in Humans PSF/NSLP/CP/P-NIAB (1211) PSF/NSLP/P-NIAB (995)	Dr. Muhammad Imran, Senior Scientist, Soil & Environmental Sciences Division Faisalabad

38.	Improvement of Soil Water Conservation through Integrated Nutrient Management under Cereal Crops in Balochistan PSF/NSLP/CP/B-BACQ (1213) PSF/NSLP/B-BACQ (996)	Dr. Muhammad Sharif Assistant Professor/HoD Department of Soil Sciences, Balochistan Agriculture College Quetta
39.	Efficacy of Clay Mineral Sorbents for Toxic Elements and Antibiotics Removal from Industrial Effluents PSF/NSLP/CP/KP-UOP (1214) PSF/NSLP/KP-UOP (997)	Dr. Shah Rukh Assistant Professor National Centre of Excellence in Geology, University of Peshawar
40.	Enhancing and Improving Taxol Production and its Analogues in Cell Suspension Cultures of Taxus Baccata PSF/NSLP/CP/KP-KUST (1219) PSF/NSLP/KP-KUST (1001)	Dr. Imran Ali Associate Professor Department of Botany Kohat University of Science and Technology Kohat
41.	Exploring the metagenome of Hudiera drain for potential Bioremediation and to determine antibiotic resistant genes along with multidrug-resistant pathogenic bacteria PSF/CRP/Consrn-726 PSF/NSLP/P- FCC(1030)	Dr. Kauser Abdulla Malik Professor, School of Life Sciences Forman Christian College Ferozepur Road, Lahore School of Life Sciences

ANNEXURE-VIII**List of Progress Reports of PSF-NSLP Funded Projects Received During 2020-21****A. Semiannual Reports**

Sr. No.	Project No.	Project Title	Reports
1.	NSLP/P-UAF(783)	Development, evaluation and commercialization of potato culls and processing wastes as concentrate source in animal feed for cost effective feed formulation	1 st
2.	PSF/NSLP/KP-VRI(759)	Development of Loop Mediated Isothermal Amplification (LAMP) for detection of important tick-borne hemoparasitic diseases of bovines	1 st
3.	PSF/NSLP/KP-NIFA (724)	Breeding Heat Tolerant and High Yielding Chickpea (<i>Cicer arietinum</i>) Genotypes	1 st
4.	PSF/NSLP/KP-UAP(768)	Development of a phyto-protease and its comparative assessment with different commercial proteases used in poultry feed production	1 st
5.	NSLP/C-CIIT(820)	Development of probiotic formulation to mitigate mycotoxicity and fortify the growth potential of livestock feed	1 st
6.	NSLP/KP-AWKUM(827)	Large Scale Reclamation of Farm Land Using Innovative Bio-solid Fertilizer from Different Agro-waste, Sewage Slurry and Microbes	1 st
7.	PSF/NSLP/P-UoL(757)	Diversity of Rhizobacteria Associated with Chickpea and Cluster Bean Growing in Marginal Land	1 st
8.	PSF/NSLP/P-AAU(790)	Preparation and Evaluation of bovine serum and chicken egg derived immunoglobulins for the treatment of <i>staphylococcus aureus</i> mastitis in cattle and buffaloes	1 st

9.	PSF/NSLP/P-UVAS(840)	Assessment of water conservation strategies for cooling dairy animals during summer	1 st
10	NSLP/P-BARI(843)	Establishment of Vermiculture and Vermi-Composting Production Units and Technology Transfer to the Farmers	1 st
11	NSLP/CP/KP-UOH(1051) PSF/NSLP/KP-UoH (907)	Development, Formulation and Patenting of Mycorrhizal Fungi Based Biofertilizer	1 st
12	NSLP/P-UAF(845)	Development and Characterization of Biodegradable Food Packaging Films from Indigenous Agricultural Residues	1 st
13	PSF/NSLP/S-KU(692)	Preparation of Industrially Important Instant Starches (Cold Water Swell-able) and its Application in Food Products	2 nd
14	PSF/NSLP/P-UVAS(701)	Isolation, Molecular Characterization of Pathogenic Bacteria and Development of Fish Vaccine for Culturable Fish Species of Pakistan	2 nd
15	PSF/NSLP/KP-CIIT(666)	Improvement of Carotenoid Contents and Herbicide Tolerance in Transgenic Potato for Commercial Cultivation	2 nd
16	PSF/NSLP/C-QU (706)	Functional Analysis of Rice NAC Transcriptional Factor in Transgenic Wheat against Various Stresses	2 nd
17	PSF/NSLP/KP-UAP (709)	Optimization of Environmental and Nutritional Standards for Mass Production of Mealworm Meal Under Tropical Environment of Pakistan	2 nd
18	PSF/NSLP/P-GCUF(710)	A Comparative Assessment of Allopathic Drugs and Selected Medicinal Plants Potential against Infertility using Animals Model	2 nd
19	PSF/NSLP/P-BZU(713)	Formulation, Fabrication and Characterization of Self Assembling Bioreducible Chitosan Based Nanoparticles for Biomedical Applications	2 nd
20	PSF/NSLP/C-CIIT (743)	Phage Based Biocontrol of Bacterial Wilt Disease in Tomato and Chillies for Sustainable Production	2 nd
21	PSF/NSLP/P-CIIT (664)	Evaluating the Potential of Zero Energy Cool Chambers (ZEEC) for Horticultural Crops	

22	PSF/NSLP/P-UAF (670)	Spectrochemical Studies of Pollutants in Soil, Water and Vegetation Using Laser Induced Breakdown Spectroscopy	3 rd
23	PSF/NSLP/KP-UoS (737)	A Rapid Method for the Isolation of Bioactive Phytochemicals from <i>Parthenium Hysterophorus</i> for New Pharmaceutical Products Development	3 rd
24	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 rd
25	PSF/NSLP/P-UVAS (697)	Evaluation of Biological and Trans-Placental Potentials of Tick-Borne Diseases in Cattle	3 rd
26	PSF/NSLP/KP-AWKUM (646)	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i>	3 rd
27	PSF/NSLP/P-UCP(712)	Optimization, Validation and Multiplexing of 11 ChrX MiniSTRs in Pakistani Population	3 rd
28	PSF/NSLP/P-UVAS (689)	Use of Indigenous Fruit Extracts as Nutraceuticals and Their Therapeutic Efficacy Against <i>Clostridium perfringens</i> in Broiler Chicken	3 rd
29	PSF/NSLP/KP-NIFA (705)	Pilot scale production and popularization of compost tea as organic fertilizer nutrient source	3 rd
30	PSF/Res/P-AU/Bio (352)	Molecular Epidemiology and Immunohistochemistry of Enteropathogenic <i>Escherichia coli</i> (EPEC) in Bovine and Human Neonates.	3 rd
31	PSF/Res/C-PMNH/Earth (74)	Geology & Economic Resources of Jurassic to Early Cretaceous Rocks of Upper Indus Basin Pakistan	3 rd
32	PSF/NSLP/KP-NIFA (656)	Commercialization of Existing Technology of Mushroom and Popularization of Oyster and Milky Mushrooms as Cottage Industry for Economic Uplift of Landless Communities of KPK, Balochistan & Upper Punjab	3 rd
33	PSF/NSLP/B-BU(714)	Develop Web-accessible Documented and Illustrated Information on Plants of	3 rd

		Balochistan	
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B: First Annual Technical Reports

Sr. No.	Project No.	Project Title
1.	NSLP/P-UAF(783)	Development, evaluation and commercialization of potato culls and processing wastes as concentrate source in animal feed for cost effective feed formulation
2.	PSF/NSLP/KP-VRI(759)	Development of Loop Mediated Isothermal Amplification (LAMP) for detection of important tick-borne hemoparasitic diseases of bovines
3.	PSF/NSLP/KP-NIFA (724)	Breeding Heat Tolerant and High Yielding Chickpea (<i>Cicer arietinum</i>) Genotypes
4.	PSF/NSLP/KP-UAP(768)	Development of a phyto-protease and its comparative assessment with different commercial proteases used in poultry feed production
5.	NSLP/C-CIIT(820)	Development of probiotic formulation to mitigate mycotoxicity and fortify the growth potential of livestock feed
6.	NSLP/KP-AWKUM(827)	Large Scale Reclamation of Farm Land Using Innovative Bio-solid Fertilizer from Different Agro-waste, Sewage Slurry and Microbes
7.	PSF/NSLP/P-UoL(757)	Diversity of Rhizobacteria Associated with Chickpea and Cluster Bean Growing in Marginal Land
8.	PSF/NSLP/P-AAU(790)	Preparation and Evaluation of bovine serum and chicken egg derived immunoglobulins for the treatment of <i>staphylococcus aureus</i> mastitis in cattle and buffaloes
9.	PSF/NSLP/P-UVAS(840)	Assessment of water conservation strategies for cooling dairy animals during summer

C: Second Annual Technical Reports

Sr. No.	Project No.	Project Title
1.	PSF/NSLP/S-KU(692)	Preparation of Industrially Important Instant Starches (Cold Water Swell-able) and its Application in Food

		Products
2.	PSF/NSLP/P-UVAS(701)	Isolation, Molecular Characterization of Pathogenic Bacteria and Development of Fish Vaccine for Culturable Fish Species of Pakistan
3.	PSF/NSLP/KP-CIIT(666)	Improvement of Carotenoid Contents and Herbicide Tolerance in Transgenic Potato for Commercial Cultivation
4.	PSF/NSLP/C-QU (706)	Functional Analysis of Rice NAC Transcriptional Factor in Transgenic Wheat against Various Stresses
5.	PSF/NSLP/KP-UAP (709)	Optimization of Environmental and Nutritional Standards for Mass Production of Mealworm Meal Under Tropical Environment of Pakistan
6.	PSF/NSLP/P-GCUF(710)	A Comparative Assessment of Allopathic Drugs and Selected Medicinal Plants Potential against Infertility using Animals Model
7.	PSF/NSLP/P-BZU(713)	Formulation, Fabrication and Characterization of Self Assembling Bioreducible Chitosan Based Nanoparticles for Biomedical Applications
8.	PSF/NSLP/C-CIIT (743)	Phage Based Biocontrol of Bacterial Wilt Disease in Tomato and Chillies for Sustainable Production

D: Final Technical Reports

Sr. No.	Project No.	Project Title
1.	PSF/NSLP/P-CIIT (664)	Evaluating the Potential of Zero Energy Cool Chambers (ZEEC) for Horticultural Crops
2.	PSF/NSLP/P-UAF (670)	Spectrochemical Studies of Pollutants in Soil, Water and Vegetation Using Laser Induced Breakdown Spectroscopy
3.	PSF/NSLP/KP-UoS (737)	A Rapid Method for the Isolation of Bioactive Phytochemicals from <i>Parthenium Hysterophorus</i> for New Pharmaceutical Products Development
4.	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
5.	PSF/NSLP/P-UVAS (697)	Evaluation of Biological and Trans-Placental Potentials of Tick-Borne Diseases in Cattle
6.	PSF/NSLP/KP-AWKUM (646)	Improvement in anti-tick vaccine efficacy against Pakistani strain <i>Rhipicephalus (Boophilus) microplus</i>

7.	PSF/NSLP/P-UCP(712)	Optimization, Validation and Multiplexing of 11 ChrX MiniSTRs in Pakistani Population
8.	PSF/NSLP/P-UVAS (689)	Use of Indigenous Fruit Extracts as Nutraceuticals and Their Therapeutic Efficacy Against Clostridium perfringens in Broiler Chicken
9.	PSF/NSLP/KP-NIFA (705)	Pilot scale production and popularization of compost tea as organic fertilizer nutrient source
10.	PSF/NSLP/KP-NIFA (656)	Commercialization of Existing Technology of Mushroom and Popularization of Oyster and Milky Mushrooms as Cottage Industry for Economic Uplift of Landless Communities of KPK, Balochistan & Upper Punjab
11.	PSF/NSLP/B-BU(714)	Develop Web-accessible Documented and Illustrated Information on Plants of Balochistan

ANNEXURE-IX**List of on-going Research Projects under R&D-Industry Programme**

Sr. #	Project No. & Title	Name and designation of P.I	Funds released during 2021-22
1.	PSF/ILP/P-PCSIR/ Chem (053) Development of Technology for the Synthesis of Pharmaceutical Raw Materials	Dr. Muhammad Naeem Senior Scientific Officer Applied Chemistry Research Centre Pakistan Council of Scientific & Industrial Research (PCSIR) Laboratory Complex Lahore	---
2.	PSF/ILP/S-PCSIR/ Chem (065) Easy Maintainable Leather with Upgraded Properties through Advanced Nanomaterials	Dr. Hafiz Rub Nawaz Director Leather Research Center. PCSIR, D-102, SITE Karachi	---
3.	PSF/ILP/KPK-GIKI / Engg (073) Design, Manufacturing and Installation of Gravitational Water Vortex Turbine at Mardan, KPK	Dr. Taqi Ahmad Cheema Associate Professor Faculty of Mechanical Engineering Ghulam Ishaq Khan Institute of Engineering Sciences & Technology Swabi	---
4.	PSF/ILP/C-KRL/ Engg (075) Indigenous Development of Alumina Ceramic Faucets	Dr. Muhammad Shuaib Incharge Ceramic Center Metallurgy Division, Dr. A. Q. Khan Research Laboratory Kahutal Rawalpindi	---
5.	PSF/ILP/C-QU/ Biotech (078) Development of Microbial based Feed Supplement and Evaluation of its Efficiency on Growth, Production and Health of Dairy Cattle	Dr. Muhammad Imran Assistant Professor Quaid-i-Azam University Islamabad	---
6.	PSF/ILP/S-MUET/ Engg (081) Development of Water-Proof Breathable Nanofibers Membranes for Raincoat Application	Dr. Zeeshan Khatri Associate Professor Mehran University of Engineering & Technology	---

		Jamshoro	
7.	PSF/ILP/P-PCSIR/ Envr (083) Development of Indigenous Technology to Produce High Energy from RDF Gasifier for Zero Waste	Dr. Muhammad Khalid Iqbal Senior Scientific Officer CEPS, Pakistan Council of Scientific & Industrial Research Lahore	---
8.	PSF/ILP/P-HIT/ Engg (085) Design Improvement of High Torque Low-Speed Diesel Engine: Phase-I	Brig. Dr. Waheed Ul Haq Managing Director (Advance Research) Development & Information Centre (ARDIC) HIT Taxila	---
9.	PSF/ILP/C-CIIT/ Biotech (086) Production and Commercialization of DNA Purification Kit	Dr. Muhammad Saeed Associate Professor Department of Biosciences COMSATS University Islamabad	Rs. 955,000/-
10.	PSF/ILP/C-NUST/ SCME/Engg (089) Development and Commercialization of High Bond Strength, Synthetic Rubber Adhesive for High-Tech Applications in Local Industry	Prof. Dr. Muhammad Shahid School of Chemical & Materials Engineering (SCME) National University of Sciences & Technology (NUST) Islamabad	Rs.237,737/-
11.	Project No. PSF/ILP/C-CUI/Biotech (090) Commercialization of PCR Diagnostic Kits for diagnosis of Banana Pathogens	Dr. Muhammad Zeeshan Hayder Associate Professor Department of Biosciences COMSATS University Islamabad	---

ANNEXURE-X**LIST OF EQUIPMENT TO BE INSTALLED IN FABLABS**

#	Equipment	Specification	Unit
1	3D Printer	Original Prusa i3 MK3S+ 3D printer with 2 Spring Sheet Build Plates	2
2	LASER Cutter Machine	4060 RECI 100W CO2 Laser Engraving Machine with Up Down/HoneyComb with CW-5200 Chiller	1
3	Design Computers	COMPLETE Computers in all respects, with Minimum specifications: 8th Gen Core i5 or higher 250GB SSD Drive 1Tb HDD 8GB of RAM Graphics Card Large WideScreen 24" or higher LED Monitor Keyboard / Mouse / Speaker / WebCam / HeadPhone All relevant Cables to be included Online UPS	5
4	Large Screen	LED 55inch or higher with all manners of connectivity (VGA+Aux, HDMI, USB, WiFi) + High Definition WebCam, Conference Microphone + Handheld Wireless MicroPhone Set + Speaker Set, CCTV camera IP connectivity	1
5	Soldering Iron	Soldering Iron	10
6	UPS with battery	Complete, latest	1
7	All in One Printer, Scanner, Copier	HP Officejet 7612 Wide Format All-in-One (G1X85A)/ HP LaserJet Pro MFP M521DW A8P80A	1
8	Furniture and fixtures/ flooring	Tables, Chairs, Workstations, Covers and Electrical Fixtures of Machines, flooring, coloring/painting, fabrication other than brick and mortars	-
9	Miscellaneous Items, Overheads/Unforeseen	Electrical Lab Equipment, Adjustable Power Supply, 30V 10A,	5
10		High resolution/digital microscope /Confocal digital microscope	2x

		<ul style="list-style-type: none"> • PCR machine • Reagents/ chemicals 	
11		Electrical Lab Equipment, Digital Multimeter with temperature probe, rugged rubber body	10
12		Tool Set (Plier, Cutter, Screw Drivers, Cutting Pad, Glue Gun, Measuring Tape, Hammer, Saw, Wire Stripper, Digital Vernier Caliper, Allen Keys Set) with Tool Box	10
13		Safety Gloves and Goggles	100
14		Raspberry Pi 4 4GB Desktop Kit including Micro HDMI to Standard HDMI Male Cable for Pi 4, 2meter Pi Case Full Sized, Keyboard and Mouse 5V 3A USB C Adapter and Pi 4 compatible USB C Cable 32GB Class 10 SD Card + Raspberry Pi 4 Sense Hat + 22inch refurbished HDMI LED Monitor with built-in speakers (Rs. 10,000) + Misc. Pi Accessories / Cables / Components	20
15		Robotics Kit + Accessories, mBot/equivalent	10
16		Electronic Component Sets and Kits for Classroom LEDs, Capacitors, Transistors, Resistors PACKs, etc Sensor Modules Arduino Modules IoT Modules Wires, different types Cells / Batteries / Adapters Breadboard, VeroBoard + Storage Bins + Mechanical Components (Nuts / Bolts Sets, Cable Ties, etc)	5
17		CONSUMABLE ITEM: 3D Printer Filament ABS, various colors, 1.75mm or as per 3D printer, 1KG Roll / Spool / each	5
18		CONSUMABLE ITEM: 3D Printer Filament PLA, various colors, 1.75mm or as per 3D printer, 1KG Roll / Spool / each	25

19		CONSUMABLE ITEM: LASER Cutter 3mm MDF Wood Sheets, cut to size as per LASER Cutter Dimensions, 50pcs pack	50
20		CONSUMABLE ITEM: LASER Cutter 5mm MDF Wood Sheets, cut to size as per LASER Cutter Dimensions, 50pcs pack	10
		<p>FabLab Resources/Design Lab</p> <ul style="list-style-type: none"> • iMac workstations • HP DesignJet T520 plotter • MightyLam 2700 HC 27" roll laminator • MakerBot Replicator 2 • MakerBot Replicator 2X (2) • Orion SeeMeCNC • Airwolf HD2X <p>Electronics Workbench</p> <ul style="list-style-type: none"> • Soldering station • Digital oscilloscope • Function generator <p>Workshop Tools</p> <ul style="list-style-type: none"> • Table saw • Band saw • Mitre saw • Drill press • Belt sander • Bench grinder • Orbital sander • Cordless drill • Impact driver • Pneumatic nailer • Pneumatic stapler • Selected Software: • SketchUp 3D modeling • Blender 3D modeling • Arduino integrated development environment • GIMP graphics software • VCarvePro CNC design software • Roland Cut Studio vinyl cutting design software • Corel Draw graphics software <p>Kits</p> <p>Kits pertaining to IBSE on environment, biotechnology, climate change, robotics, space, health, energy, security, aeronautics, automobiles, waste management, materials, architecture, construction, artificial</p>	

		<p>intelligence, Lego kits, smart cities, smart agriculture, water, resistors, capacitors, chokes, diodes, transistors, regulators, LEDs, clickers and related items, photo-detectors, loudspeakers and microphones, thermistors, op-amps, microcontrollers, resonators, buttons and switches, magnets, headers, jacks and plugs, ribbon cable and connectors, test clips, heat shrink tubing, solder/desolder, battery connections, batteries, motors, transducers, bell wire, magnet wire, blank PCB substrate and Tactile Assisted Design Kits, Hands on making tools, Vinyl Rolls and other miscellaneous items. In addition, each STEM school will also provide grant for Biology/Biochemistry related kits like, analysis of over-the-counter drugs, Alcohol Fermentations, Protein concentration, chemical testing, discover life in soil, genetics hands-on kit or any material /parts /kits/ activities by STEM students and teachers.</p>	
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ANNEXURE-XI**LIST OF EXHIBITIONS OF SCIENCE CARAVANS, DURING 2021-22****Federal Unit**

Sr. #	Exhibition /Place	Date	No. of Days	No. of Schools	No. of Students
1.	Science Caravan Exhibition on the occasion of Islamabad Science Festival at PNCA, Islamabad	13.02.2021	1	6	450
2.	Science Caravan Exhibition on the occasion Mother Language Literature Festival of Islamabad Science Festival at PNCA, Islamabad	22.02.2021	1	7	730
3.	Science Caravan Exhibition at the School of Fazaia Intermediate School & College, Lahore	04.10.2021 to 10.10.2021	7	1	1680
4.	Science Caravan Exhibition Murree College of Commerce	28.11.2021 to 04.12.2021	7	7	879
5.	Science Caravan Exhibition at Academy of Letters	18.02.2022 to 20.02.2022	3	1	1500
6.	FG Public School Double Shift Morga Rawalpindi	23.02.2022 to 24.02.2022	2	1	1000
7.	Al- Habib School and College Tarriqabad Muzaffarabad	22.05.2022 to 28.05.2022	6	6	1230
8.	Govt. Graduate College for Women, Zafar Ul Haq Road Rawalpindi	11.06.2022 to 12.06.2022	2	1	500
9.	The Spirit School Soan Garden Campus, Islamabad	05.06.2022 to 09.06.2022	5	5	1100
Total			34	35	9069

Peshawar Unit

Sr. #	Exhibition Place	Date	No. of Days	No. of School s	No. of Stud ents
1.	GHSS-Bagra Buner	29.08.2021 to 05.09.2021	07	11	1814
2.	19th Popular Science Lecture at Buner	04.09.2021	01	01	110
3.	GHSS-Hazar Khawani Peshawar	11.10.2021 to 13.10.2021	3	01	629
4.	GHS-1 Charsadda	01.11.2021 to 06.11.2021	05	07	2196
5.	20th Popular Science Lecture and Competitions at Charsadda	6th November, 2021	01	02	380
6.	Mansehra P.S & C Mansehra	09.11.2021 to 14.11.2021	04	06	1426
7.	21st Popular Science Lecture at Mansehra	10th November, 2021	01	01	524
8.	“WSDPD” at Mansehra	10/13-11.2021	01	07	500
9.	Iqra Darul Atfal Academy	23.11.2021 to 24.11.2021	02	01	578
10.	GHS-3 Bannu	24.01.2022 to 29.01.2022	05	07	1951
11.	22nd Popular Science Lecture in GHS-3 Bannu	27th January, 2022	01	02	490
12.	Pak-German Model School Duranpur Peshawar	22.02.2022 to 24.02.2022	03	04	916
13.	GHSS- Nurar Bannu	23.05.2022 to 27.05.2022	05	09	1125
Total			39	59	1263 9

Multan Unit

Sr. #	Exhibition /Place	Date	No. of Days	No. of Schools	No. of Students
1.	Multan City Worker Welfare H/S School	15-17 Feb 2022	03	01	620
2.	Multan City Popular Science Lecture on Water Challenges in the region	17-02-2022	01	01	50
3.	Multan City Govt. (Shuda-e-APS Memorial) Girls Higher Secondary School, Multan	22-24 Feb 2022	03	01	825
4.	Garrison School System, Toba Tek Singh	27-02-2022 to 04-03-2022	06	12	1470
5.	Govt. Boys Comprehensive High School Muzaffargarh. Govt. Girls Higher Secondary School Khurshid Abad. Muzaffar Garh	14-18 March 2022	05	05	1437
6.	Govt. Boys High School, No.1 Dera Ghazi Khan. Govt. Girls High School, No.1 Dera Ghazi Khan. Govt. Girls High School, Mulla Quaid Shah Qadeem DG Khan	28-03-2022 to 01-04-2022	05	04	2160
7.	Workers welfare higher secondary School (Girls) Multan	12.04.2022 to 14.04.2022	03	01	880
8.	Govt. Model Higher Secondary School Boys Vehari and Govt. Girls High School 41WB Daniwal, Vehari.	23-27 May 2022	05	04	1680
Total			31	29	9122

Faisalabad Unit

Sr. #	Exhibition /Place	Date	No. of Days	No. of Scho ols	No. of Studen ts
1.	G,H.S Tehsil Ahmad Pur Sial District Jhang	14-06-2021 to 19-06-2021	06	02	1200
2.	G.H.S Tehsil Sahiwal District Sargodha	21-06-2021 to 26-06-2021	06	04	1000
3.	G.H .S Tehsil Malakwal District Mandi Bahauddian	25-10-2021 to 30-10-2021	06	06	1200
4.	G.H.S Tehsil Jaranwala District Faisalabad	08-11-2021 to 13-11-2021	06	04	1200
5.	G.H.S Tehsil Shakar Garh District Narowal	22-11-2021 to 27-11-2021	06	11	1200
6.	G.H.S Tehsil Mankera District Bhakkar	13-12-2021 to 18-12-2021	06	05	1,120
7.	G.H.S Tehsil Kharian District Gujrat	10-01-2022 to 15-01-2022	06	10	1520
8.	G.M.C.H.S Tehsil Gojra District T.T.Singh	24-01-2022 to 29-01-2022	06	07	1414
9.	G. H. S Tehsil Zafarwal District Narowal	07-02-2022 to 12-02-2022	06	07	1724
10.	Garrison School System District Jhang	20-02-2022 to 25-02-2022	06	09	1440
11.	G. H. S Tehsil Kallur kot District Bhakkar	28-02-2022 to 05-03-2022	06	04	1210
12.	Aspire College Sialkot	21-03-2022 to 26-03-2022	06	28	1428

13.	Young Scholar School System	23-05-20022 to 28-05- 2022	06	16	2,500
Total			78	113	18,156

Tandojam Unit

Sr. #	Exhibition /Place	Date	No. of Days	No. of Scho ols	No. of Studen ts
1.	Science Caravan Exhibition arranged at Govt. (Boys & Girls) Schools of Nangar Parkar District Tharparkar	25-10-2021 To 30-10-2021	06	07	1210
2.	Science Caravan Exhibition arranged at Govt. Boys High School No. 1 Tando Jam District Hyderabad	08-11-2021 to 09-11-2021	2	01	800
3.	Celebration of world Science Day 2021 (Model Competition)	10-11-2021	1	04	2000
4.	Science Caravan Exhibition arranged at Govt. Girls High School Tando Jam Farm District Hyderabad	11-11-2021 To 13-11-2021	3	01	450
5.	PSF Science Caravan Tandojam participated at Science & Art Exhibition at Public School Hyderabad	28-01-2022 To 29-01-2022	2	40	2000
6.	Science Caravan Sindh Unit-II Participated in Sindh Science Festival at NED University of Engineering and Technology Karachi.	10-02-2022 to 11-02-2022	02	40	7000
Total			16	93	13460

Sukkur Unit

Sr. #	Exhibition /Place	Date	No. of Days	No. of Schools	No. of Students
1.	GBHS Double Section and GGHSS old sukkur	27/09/2021 to 08/10/2021	11	10	2780
2.	GBHSS Khuhra District Khairpur Mirs	20/26/2021 to 26/10/2021	06	09	2150
3.	GBHSSPhulji District Dadu	20/26/2021 to 26/10/2021	06	09	2150
4.	World Science day for Peace and Development celebrated at GBHSS Phulji District Dadu	10/11/2021	01	03	150
5.	Govt Boys High School Ghotki	10/01/2022 to 18/01/2022	08	10	1850
6.	Govt. boys DC high Ghotki	10.01.2022 to 18.01.2022	08	10	2850
7.	Govt. Boys high School Rato dero	14.02.2022 to 19.02.2022	5	5	2500
8.	Govt. Girls high School Rato dero	07.03.2022 to 12.03.2022	5	5	2000
9.	Science Caravan Echibition at Boys High School Adilpur District Ghotki	11.04.2022 to 16.04.2022	05	07	1800
Total			55	68	18230

Quetta Unit

LIST OF EXHIBITIONS OF SCIENCE CARAVAN, UNIT QUETTA 2021-22					
Sr. #	Exhibition /Place	Date	No. of Days	No. of Schools	No. of Students
1.	Popular Science Lecture	16-8-2021	01	01	50
2.	Science Fair Qurtaba School	23-10-2021	01	01	300
3.	Science Exhibition Quetta	04-11-2021	01	01	200
4.	World Science Day	10-11- 2021	01	01	50
5.	Student of GGHS CGS Quetta Visit STFS Lab Bus / Mueseum of GSP	11-11-2021	01	01	100
6.	Science Exhibition Sibbi	16-11-2021 to 20-11-2021	05	11	850
7.	Science Exhibition Jaffarabad	10-01-2022 to 15-01-2022	06	12	2890
8.	GSP Quetta	16-03-2022	1	01	50
9.	GSP Quetta	21-03-2022	1	01	80
10.	Science Exhibition Quetta	17-05-2022	01	01	220
11.	Popular Science Lecture	25-05-2022	01	01	80
12.	Science Exhibition Distt Khuzdar	06-06-2022 to 12-06-2022	07	12	2400
13.	Science Exhibition Quetta	23-06-2022	01	01	180
14.	Science Exhibition Quetta	28-09-2022	01	01	250
Total			29	46	7700

ANNEXURE-XII**Scientific Conferences/ Seminars/ Symposia/ Workshops Funded****Financial Support to Scientific Societies in Pakistan (Phase-II) During 2021-22**

Sr. No	Topic	Nature of the Event
1.	General Guidance on Addressing Non-Communicable disease in the COVID-19 response	Seminar
2.	Media Education for Non-Communicable Diseases	Workshop
3.	Prevention of Cardiovascular & Coronary Artery Diseases	Conference
4.	International Conference on Climate Change: Impacts and Responses	Conference
5.	World Water Day 2022-Conservation of Water, Recycling and Reuse	Seminar
6.	Advances in Nuclear Medicines	Seminar
7.	Afforestation of Global Deserts for sustainable Future of Earth Environments	Seminar
8.	Application of Nuclear Techniques in the Development of Agriculture Sector in Pakistan	Seminar
9.	7 th International Conference of Pakistan Phytopathological Society	Conference
10.	Emerging Health Issues in Pakistan	Conference
11.	5 th International Conference on Bioscience	Conference
12.	Membranes	Symposium
13.	Artificial Intelligence	Symposium
14.	Resilient Supply Chain	Symposium
15.	Knowledge Creation and Knowledge Management Strategies	Workshop
16.	Competitive advantage for Pakistan through Engineering & Technology R&D	Workshop
17.	Soft Skill for Engineering	Workshop
18.	How Engineering should Manage Career in 21 st Century	Workshop
19.	Prevention of Thalassaemia	Symposium
20.	National Weed Science Conference	Conference
21.	19 th International Congress of Soil Science “ Soil Health and Sustainable Development Goals”	Conference
22.	19 th International Conference on Statistical Sciences	Conference
23.	Role of Mathematics in the Development of Science and Technology	Seminar
24.	Quality Improvements of Indigenous Products, Chamber of Commerce, Sialkot	Seminar

List of Journal Funded During 2021-22**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 Journal of Weed Science	Weed Science Society of Pakistan
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.	Journal of Islamic Countries Society of Statistical Sciences	Islamic Society of Statistical Sciences
10.	International Journal of Economic and Environmental Geology	Society of Economic Geologists & Mineral Technologists (SEGMITE)
11.	Biologia	The Biological Society of Pakistan

