

ANNUAL REPORT

2003-2004



Pakistan Science Foundation

PAKISTAN SCIENCE FOUNDATION

**ANNUAL REPORT
2003-2004**

**PAKISTAN SCIENCE FOUNDATION
CONSTITUTION AVENUE
ISLAMABAD**

LETTER OF TRANSMITTAL

Dear Mr. Secretary,

I have the honour to enclose herewith the Annual Report of the Pakistan Science Foundation for the fiscal year 2003-2004, alongwith its audited accounts, as adopted by PSF Board of Trustees for submission to the National Assembly as required by the Pakistan Science Foundation Act No. III of 1973.

With regards

Yours Sincerely

Dr. Farid A. Malik
Chairman
Pakistan Science Foundation
Islamabad

Secretary
Ministry of Science and Technology
Government of Pakistan
Islamabad

PAKISTAN SCIENCE FOUNDATION

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Approval for re-constitution is awaited from Government of Pakistan.

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LIST OF ABBREVIATIONS

Provinces

AJK	Azad Jammu and Kashmir
B	Balochistan
C	Centre
F	Frontier (NWFP)
P	Punjab
S	Sindh

Sponsoring Institutions

AKU	The Aga Khan University, Karachi
ARIQ	Agriculture Research Institute, Quetta
P-AU	Agricultural University, Faisalabad
BU	Balochistan University, Quetta
BZU	Bahauddin Zakaria University, Multan
CEMB	Centre of Excellence in Molecular Biology, Lahore
CEME	College of Electrical and Mechanical Engineering, Rawalpindi
CEWRE	Centre of Excellence in Water Resources Engineering, Lahore
GCU	Government College University, Lahore
GU	Gomal University, D.I. Khan
KU	Karachi University, Karachi
NARC	National Agricultural Research Centre, Islamabad
NIBGE	National Institute for Biotechnology and Genetic Engineering, Faisalabad
NSFC	National Science Foundation of China
PMNH	Pakistan Museum of Natural History, Islamabad
PINSTECH	Pakistan Institute of Nuclear Science and Technology, Islamabad
F-PU	Peshawar University, Peshawar
P-PU	Punjab University, Lahore
QAU	Quaid-i-Azam University, Islamabad
SALU	Shah Abdul Latif University, Khairpur, Sindh
SIUT	Sindh Institute of Urology & Transplantation, Karachi
SU	Sindh University, Jamshoro
PCCC	Pakistan Central Cotton Committee, Sakrand
UAA/UAAR	University of Arid Agriculture, Rawalpindi

Disciplines

Agr	Agricultural Sciences
Bio	Biological Sciences
Biotech	Biotechnology
Chem	Chemical Sciences
Comp	Computer Sciences
Earth	Earth Sciences
Eng	Engineering Sciences
Envr	Environmental Sciences
Med	Medical Sciences
Phys	Physical Sciences

PLANNING & DEVELOPMENT

During the report period, Development funds amounting to Rs. 45.662 million were received as the total allocation for the following five development projects.

1. Financial Support to Scientific Societies in Pakistan

During the year under report an amount of Rs. 7.00 million was paid to 20 Scientific Societies

2. Participation of Scientists and Technologists in International Conferences, Seminars and Workshops

During the report period, 149 travel grant requests were received, out of which 108 were approved by the Foundation at a total cost of Rs.7.707 million. However, only 82 scientists could avail the grants, the remaining could not attend their conferences due to visa restrictions/non-availability of flights. Funds amounting to Rs.5.4 million were released in this regard.

3. Funding of Scientific and Technological Research in Universities and other R&D Organizations.

During the period, 32 new projects, were approved for funding by the Foundation at an estimated cost of Rs. 15.50 million. Further, 55 semi annual and 1st annual reports of the ongoing projects were received and were processed accordingly.

4. Career Development of Young Scientists.

During the report period, one new research project was approved for funding by the Foundation. An amount of Rs. 1.30 million was released for 20 on going projects. 15 semi annual and 1st annual reports of the ongoing projects were received and were processed accordingly.

5. Popularization of Science in Rural areas

During the year 2003-2004, An amount of Rs.16.212 million was released and fully utilized during the report period. Necessary items & equipment for the project were purchased through tenders

PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Pakistan Museum of Natural History scientists and researchers remained engaged in the collection, curation and preservation of natural history specimens and research on flora, fauna and geology of Pakistan. Fieldwork was carried out in various localities of Sindh, Punjab, NWFP, Northern Areas and AJK under various projects granted by Pakistan Science Foundation and other agencies. About 3000 plant and animal specimens were preserved, identified and catalogued. Research was conducted on various aspects of natural history of the country, which resulted in the production of many research articles. During this period, 13 research articles and several abstracts were published in national and international journals.

Two development projects “Biodiversity of Pakistan: Databases and Global Networking” and “Virtual Orientation Gallery” have been completed. 23,800 students, general public and foreigners visited PMNH Display Galleries. Revised PC-1 Phase III for the completion of PMNH building has been approved by Ministry of Science & Technology. Four research projects funded by Pakistan Science Foundation are on going, 4 more are approved for funding and 5 others were submitted for approval to PSF and Ministry of Science & Technology. PMNH officers provided guidance and supervision to M/o Environment, Fatima Jinnah Women University, Rawalpindi, WWF, IUCN, UAAR, QAU, Karachi University, Hamdard University, Azad Kashmir University, Hazara University, Malakand University, Balochistan University, Forestry Department NWFP and Punjab. Examined Ph D and M. Phil students at Quaid-I-Azam University, Islamabad and Fatima Jinnah Women University, Rawalpindi. Several University students were guided in their research work. Two PMNH officers Dr. I. U. Cheema of Earth Sciences Division and Dr. Muhammad Ibrar Shinwari of Botanical Sciences Division earned their Ph.D. degrees from Punjab University and Quaid-i-Azam University, Islamabad respectively.

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE (PASTIC)

PASTIC is one of the organs of PSF, established to undertake extensive activities related to science and technology. Its main objective is to collect, organize, classify and disseminate information in all disciplines of Science and Technology to the scientific community of Pakistan. With its National Centre at Islamabad and six sub-Centres at Karachi, Lahore, Quetta, Peshawar, Faisalabad and Muzaffarabad, PASTIC develops inter-library cooperation for sharing resources, establishes and maintains links with international/regional information networks/agencies. It trains information specialists in modern information handling and management techniques.

PASTIC Documentation Section has succeeded to start a new Digital Documentation Supply Service (DDSS) through which the time of supply of the order has been reduced to only 2 hour instead of 12 days. During 2003-04, more than 2546 requests for supply of articles were received, against which 1927 were honored. 15475 references from International Bibliographic Databases on CD ROM were supplied to 801 researchers/users on S&T topics. Besides this, bibliographic information service and resources of PASTIC Sub-Centres, were strengthened by supplying databases on CD-ROM.

PASTIC publishes "Pakistan Science Abstracts" on regular basis. During the report period, Vol. 41, No. 1-4 was processed and published. Reference information of about 300 Scientific Periodicals of Pakistan was published in "Directory of Scientific Periodicals" and also launched on PASTIC website. Union Catalogue of the Scientific Periodicals in libraries of Pakistan Volume-I was published and also launched on PASTIC website and now it is accessible to users on Internet. Under Reprographic Services of PASTIC, about 21,14,293 impressions, 3777 pages and 19,9,597 copies were printed and produced by the Reprography Unit against 116 jobs received from 10 organizations.

International liaison is the prominent activity of PASTIC as it is the National Focal Point for International/Regional Information Networks, like SAARC Documentation Center, WHO/CEHANET and UNEP/INFOTERRA. The PASTIC also acts as coordinating/collaborating body for UNDP/TIPS, UNESCO/ASTINFO etc. During the year 2003-2004, information/data from these organizations was collected and disseminated to various institutions and professionals. In addition, WIN/ISIS (English Version) was provided to seventy two organizations and Arabic Version to one organization. Also number of trainings was provided on WIN/ISIS Package to librarians from different organizations at Islamabad.

A development project entitled "Establishment of National Science and Technology Database/Information Network at PASTIC" is under execution. PASTIC LAN environment has been shifted to centralized server based environment for advance sharing/network facilities and licensed software for both server and client side has been installed.

PASTIC library is in progress towards digitization so that it will become the National Resource Centre for all type of scientific and Technological Information. PASTIC library added to its collection some 770 issues of various S&T periodicals, 55 documents and 88 books. The subscription of 6 databases has been renewed. TIPS organized a computer exhibition EPTI 2004 from 5-6 June, at Faisalabad. Eighth Edition of White Meat Journal and 4th Edition of Baroon-e-Mulk Tijarat, 2004 was published during the report period. An initiative has been for implementation of ISO 9000 in PASTIC. Public Service Section of PASTIC was ISO Certified during this period. Documentation for the ISO-certification of the remaining section, which includes, Library and Publication services, Reprographic Services and Technology Information service has been done. Lectures and trainings were arranged for PSF/PASTIC & PMNH Officers on Management topics, ISO Certification and Quality Management.

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 having a bearing on the socio-economic needs of the country. 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 applied 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 economy of the country.
- 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) 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/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 given in the chapters that follow.

CHAPTER - 1

ACTIVITIES & PROGRAMMES

The activities and programmes undertaken by the Foundation for the performance of its statutory functions can be broadly divided into the following four categories:

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

The first activity is carried out through Pakistan Scientific and Technological Information Centre (PASTIC), a subsidiary organization of PSF. While other functions i.e., research support and science popularization etc., are performed by the Science Wing of the Foundation. Functions of the Science Wing of PSF are further subdivided as under.

(I) Research Support Section is performing the following activities:

1. Research Support
 - a) Grants for Research Projects
 - b) 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. Planning and Development Program

(II) Science Popularization Section, which carries out science popularization activities including Science Caravans, Science Clubs, Science Fairs and holding Popular Science Lectures, Workshops, Conferences and Symposia.

In addition to PASTIC, the other subsidiary organization of PSF is the Pakistan Museum of Natural History (PMNH), 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.

The progress of the work carried out by the Science Wing of the Foundation, PMNH and PASTIC during the year 2003-2004 is summarized in the following pages.

PAKISTAN SCIENCE FOUNDATION (PSF)

I. RESEARCH SUPPORT

During the year under report, the Foundation carried out a number of programmes for the promotion of basic and applied research in universities and other institutions on scientific problems relevant to the socio-economic development of the country. These programmes include:

- (a) Grants to research projects submitted by individuals or groups of scientists in the universities and research institutions throughout the country.
- (b) Institutional support to scientific institutions for provision of equipment, literature, staff training facilities etc. to build institutional capability for conducting research.
- (c) Support for participation in regional and international research programmes.
- (d) Travel grants to scientists to present their research results in international conferences around the world.

a) Grants for Research Support.

Research support is the principal programme of the Pakistan Science Foundation for the promotion of basic and applied research, having relevance to the socio-economic needs of the country. Under this programme, research proposals are received on a structured format and processed for funding by the Foundation. The criteria for funding of research projects by the Foundation are; competence of the scientific personnel to carry out research, institutional capabilities i.e. availability of basic equipment and laboratory facilities, scientific merit of the proposed research projects and likelihood of completion of the proposed research within the stipulated time. Each proposal, after getting review report from expert in the particular field, is placed before the relevant Technical Committee for technical evaluation and recommendations regarding provision of funds under various heads of expenditure proposed by the researchers. The proposal, if recommended by the Technical Committee, is then submitted to PSF Executive Committee for final approval.

During the report period, total of 231 proposals remained under consideration of the Foundation. Out of those, 113 projects were under process requesting funds totaling Rs. 101.933 million in the fields of Agriculture, Biology, Biotechnology, Chemistry, Computer, Earth Sciences, Engineering, Environment Sciences, Medical Sciences and Physics. While 118 proposals at various stages remained on going.

Out of the reviewed projects, during the year, 26 succeeded in getting the approval of the Foundation at a total cost of Rs. 19.347 million, list of the approved projects is at Annexure-II.

b) Institutional Support

Pakistan Science Foundation assists the universities and research institutions by providing them Institutional Support Grants for the purchase of equipment, chemical, literature etc. for research workers, who for one reason or another are unable to obtain the from their own institutions. This is meant to strengthen the research capabilities of these institutions to enable them to conduct research directed towards the solutions of the problems of national importance. During the report period, grants amounting to Rs.1.737 million were sanctioned to the following institutions for purchase of equipment.

<u>S. No.</u>	<u>Institution</u>	<u>Purpose</u>	<u>Amount (Rs.)</u>
1	Pakistan Museum of Natural History	Purchase of Grinding Mill	4,04,640/-
2	Dept. of Biological Sciences, QAU, Islamabad	Purchase of Thermo-cycler and Trans-illuminator	400,000/-
3	CEAC, University of Sindh Jamshoro	Purchase of spare parts of HPLC and Amino Acid Analyzer	2,25,000/-
4	Institute of Chemical & Engineering Technology, University of the Punjab Lahore.	Repair, maintenance and calibration of science equipment	50,000/-
5	Hydrocarbon Development Institute, Islamabad.	Purchase of Hydrogen Generator and Accessories for Gas Chromatography	5,58,200/-

2. RESEARCH MONITORING AND EVALUATION

The Foundation evaluates the technical progress as well as financial position of on-going projects continuously till the completion of the projects. During the report period, 61 semi-annual, 1st annual, 2nd annual reports were received and their progress evaluated as per procedure laid by the Foundation.

a) On-Going Projects

During the year, 61 reports (semi-annual, 1st annual and 2nd annual) were received. The PSF relevant staff scrutinized the semi-annual reports, whereas the annual 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 on-going

projects are released only if their interim progress at the end of each project year is satisfactory. An amount of Rs.3.268 million was released on account of due installments of ongoing and newly approved projects. A list of the semi-annual and annual reports is given in Annexure-III.

b) Completed Projects

Final Technical Reports of 7 (seven) research projects were received during the year under report. The subject experts evaluated these reports and were subsequently submitted along with their evaluation reports to the relevant PSF Technical Committees for consideration and adoption. A list of the completed projects followed by their summaries is given below.

i) List of Completed projects

S. No.	Projects No.	Project Title
1.	P-UAAR/Agr (234)	Dynamics of Microbial Biomass C, N and P in Rain fed Soils under Wheat and Maize Production.
2.	S-KU/Chem. (342)	Influence of Long Chain Branching and High Molecular Weight Components on Elongational and Shear Properties of Polyolefin.
3.	S-KU/Chem. (348)	Extra pyramidal and Monoaminergic Effects of Neuroleptics: Modulation by L-Tryptophan and L-Valine.
4.	P-AU/Chem. (353)	Pilot Production of Barium and Strontium Pigments from Indigenous Barite and Celestite Minerals.
5.	S-KU/Chem. (363)	Purification, Characterization and applied studies of Protein antibiotics from indigenous Staphylococci.
6.	C-QU/Chem. (370)	Synthesis and Characterization of some liquid Crystalline Molecules
7.	F-PU/Earth (68)	Updating and compilation of the Stratigraphic of Pakistan

ii) Brief Summaries of Completed Projects.

Project No:	P-UAAR/Agr (234)
Project Title:	Dynamics of Microbial Biomass C, N and P in Rain fed Soils under Wheat and Maize Production
Duration:	2-Years
Date of initiation:	01.06.1999
Date of completion:	30.05.2001
Location of Scheme:	Department of Soil Science, University of Arid Agriculture, Rawalpindi.
Principal Investigator:	Dr. Khalid Saifullah Khan
Total expenditure:	Rs. 2,20,613/-
Main objectives:	<ul style="list-style-type: none">• To assess the inherent microbial C, biomass N and biomass P in soil.• Dynamics of microbial biomass C, Biomass N and Biomass P at different time intervals of wheat and maize growth.• Dynamics of N and P mineralized at different growth stages of wheat and maize.• N and P mineralized as an index of nutrient supplying power of soil.• N and P mineralized in relation to microbial biomass and N and Biomass P in soil.• N and P mineralized in relation to organic matter content in soil.

Summary of work done:

The study was conducted to assess the size of inherent microbial biomass in rain fed soil of Potohar and the dynamics of microbial biomass, and N and P availability in rain fed soils at different stages of wheat and maize growth. The soils belonging to 11 dominant soil series in the region were collected from their relevant agricultural fields, and analyzed for physical and chemical properties such as texture, EC, pH, organic C, total N, nitrate-N and available P. Microbial biomass C, biomass N and biomass P in the soils were estimated by chloroform fumigation-extraction methods. Results shows that soils varied widely in their physico-chemical properties and microbial biomass parameters. The microbial biomass C in the soils ranged from 61.3, to 199.7 ug g⁻¹ soil.

The biomass N ranged from 5.2 to 23.1 ug g⁻¹ soil, and the biomass P varied from 1.9 to 6.7 ug g⁻¹ soil. A strong positive correlation existed among the biomass C, biomass N, biomass P, nitrate-N and available P in the soils, which indicated that biomass C, biomass N and biomass P are important indices of soil fertility assessment and sustainability.

Further, two greenhouse experiments were conducted in order to estimate dynamics of microbial biomass C, Biomass N and biomass P in four selected rain fed soils (Chakwal, Gulinana, Balkassar & Tirmall) at different stages of wheat and maize growth. The first greenhouse experiment was conducted during October 1999 to May 2000 using wheat as the test crop. Results reveal that application of NPK, FYM and WS caused significant increase in the soil microbial biomass. The maximum increase was observed in WS application, followed by FYM, and the minimum was recorded in NPK. Microbial biomass (biomass N & biomass P) increased consistently in all the soils after treatment application up to three leaf stage. Thereafter, it increased to its maximum at the heading stage, and finally declined drastically at the harvesting stage. Addition of NPK, FYM and WS caused a significant increase in nitrate-N and available P in all the soils. In soils receiving FYM and WS, a sharp decline in nitrate-N and available P occurred at the three leaf stage, followed by a slight increase at the tillering stage. Thereafter, a marked decline was noted at the heading stage, and finally a slight rise was observed at the harvesting stage. In NPK treated soils, a marked and consistent decline in soil nitrate and available P was evident throughout the wheat growth. All the treatment (NPK, FYM & WS) showed a prompting effect on growth and yield parameters of wheat. However, the effect of NPK application was more prominent.

The second greenhouse experiments revealed that application of NPK, FYM and WS showed a significant increase in the soil microbial biomass. The maximum increase was observed in case of WS application, followed by FYM and the minimum was recorded in NPK. Microbial biomass (biomass C biomass N & biomass P) increased consistently in all the soils after treatment application up to 30 days after the sowing (30 DAS) of maize. A slight decline occurred at 60 DAS and thereafter, it increased to get stabilized at 90 and 120 DAS. Addition of NPK FYM and WS caused a significant increase in nitrate-N and available P in all the soils. The maximum increase was observed in case of NPK, followed by the FYM, while minimum was recorded in WS. In soils amended with FYM and WS, a sharp decline in nitrate-N and available P occurred at 30 DAS, followed by a slight increase at 60 DAS and got stable at 90 DAS. In control and NPK treated soils, a marked and consistent decline in soil nitrate and available P was evident at all the stages of maize growth. All the treatments (NPK < FYM & WS) showed a positive effect on the growth and yield parameters of maize. However, the addition of NPK resulted in maximum increases in plant height, number of cobs plant⁻¹, number of grains cob⁻¹, 100-grain weight, and grain and straw yields of maize.

In two more greenhouse experiments which were conducted to evaluate the integrated effect of organic materials (FYM & WS) and chemical fertilizers on microbial biomass, and growth and yield of wheat and maize crops revealed that microbial biomass C, N, P, nitrate-N and available P in the tested soils increased significantly by the

application of various treatments. However, the combined application of organic materials (WS & FYM) with chemical fertilizer (1/2 NPK) promoted the microbial biomass and available nutrients (NO₃ N & available P) in soils much higher than the inorganic fertilizers (NPK) alone. The split application of NPK proved better than its addition as a single dose with or without organic amendments. For the effect of various treatments on growth and yield of wheat and maize, the application of FYM + 1/2NPK Split proved the best in promoting the various growth and yield parameters of both the crops, and was much superior to WS and inorganic fertilizer treatments.

Project No: S-KU/Chem. (342)

Project Title: Influence of Long Chain Branching and High Molecular Weight Components on Elongational and Shear Properties of Polyolefin.

Duration: 3-years

Date of initiation: 1-11-1999

Date of completion: 31-10-2002

Location of Scheme: University of Karachi, Karachi

Principal Investigator: Prof. Dr. Riaz Ahmad

Total expenditure: Rs.3,80,916/-

Main objectives: This project addresses the problem of long chain branching and the presence of high molecular weight components during extensional flow. The validity of constitutive equations with separable memory kernel remains an unsolved problem. The use of separable kernel in predicting certain processing problems such as die swell, despite various attempts and some progress, remains to be completely justified. At the same time the level of empiricism associated with the use of damping functions of shear flows into extensional flows requires improvement so that the influence of chain branching and spectrum broadening can be applied to a broader range of polymers.

Summary of work done:

The proposed study was designed to identify the influence of long chain branching and the presence of high molecular weight components during extensional and

shear flow of Polyolefins. Three types of Polyolefins including linear and linear-low density Polyethylenes were studied.

In the first year the shear flow testing of five grades of polyethylene of commercial grade was carried out. Die swell characterization was carried out and the influence of molecular weight was detected.

In the second year the flow birefringence and capillary pressure drop measurements were set up. The optical cell was connected to the screw extruder, optical bench was constructed and the flow of polarized light through the molten polymer through the slit die was successfully established. Flow birefringence measurements were carried out and photographs of the stress contours were taken. Application of the stress optical rule to the centerline streamline of the slit die revealed remarkable differences between three LPDEs which were selected to encompass both low, medium and high molecular weight Polyethylenes with broad molecular weight distributions and varying long chain branching.

Numerical schemes for the prediction of principal stress differences were developed with a power law velocity profile and linear viscoelastic spectrum and amping function obtained from shear flow experiments. A preliminary comparison of the experimental and numerical principal stress differences reveals that applicability of three non-linear and linear viscoelastic constitutive models.

In the third year capillary pressure drop/extrudate swell measurements, Theometric characterization and flow birefringence measurements were carried out on three LDPEs with low to high molecular weight distributions and two m-LLDPEs with controlled long chain branching. The flow was modeled for shear flow and the combined and separate effect of molecular weight and level of branching was evaluated.

Project No:	S-KU/CHEM (348)
Project Title:	Extrapyramidal and Monoaminergic Effects of Neuroleptics: Modulation by L-Tryptophan and L-Valine
Duration:	3-Years
Date of initiation:	01-6-2000
Date of completion:	31-5-2003
Location of Scheme:	Department of Biochemistry, University of Karachi, Karachi.
Principal Investigator:	Prof. Dr. Darakhshan J Haleem
Total expenditure:	Rs.4,32,184/-
Main objectives:	<ul style="list-style-type: none">• To study extra pyramidal effects of neuroleptic drugs and their relationship with brain monoamines.

- To study effects of dietary supplementations on serotonin metabolism.

Summary of work done:

A goal of current neuroleptic research is to develop antipsychotic compounds with low incidence of Extrapyramidal side effects (EPS). These include acute Parkinsonian like effects and late appearing tardive dyskinesia. Clozapine, the first of the atypical antipsychotic effective in treatment resistant schizophrenia is reported to produce smaller EPS than typical Neuroleptics such as haloperidol. In general fewer incidences of EPS have been reported in patients treated with the atypical than typical Neuroleptics. In the present project research strategies have been developed to investigate the role of serotonin in the precipitation of EPS. Trial has been made to see whether the increases serotonin by the administration of Tryptophan and also possible decreases of serotonin by the administration Valine could have a potential beneficial effects on the elicitation of EPS.

In the first part of the present study cataleptogenic effects of typical (haloperidol and chlorpromazine) and atypical (clozapine and risperidone) Neuroleptics are monitored. The results show that atypical neuroleptic clozapine is cataleptogenic only at high doses. Haloperidol was more cataleptogenic than chlorpromazine. Risperidone was also cataleptogenic at the doses used. Smaller cataleptogenic potential of clozapine, risperidone as well as the typical neuroleptic chlorpromazine was associated with a decrease in serotonin (5-hydroxytryptamine; 5-HT) metabolism particularly in the striatum. The results suggested that an increase in dopamine/serotonin metabolite ratio particularly in the striatum of clozapine than haloperidol injected animals may be involved in the ability of clozapine to exhibit extra beneficial therapeutic profile and ability to produce smaller catalepsy.

In the next part of the study haloperidol administered for five weeks followed by a withdrawal period of one week was found to produce dyskinetic movement and this was associated with mildly greater decrease of dopamine metabolism in haloperidol withdrawal than repeated haloperidol treated rats. In view of a role of 5-HT_{1A} receptors in the elicitation of hyperactivity syndrome pre and postsynaptic responses to 5-HT_{1A} agonist were monitored after single and repeated administration of haloperidol. The results showed that a supersensitive dopaminergic control of motor activity may be involved in the dyskinetic movements observed after haloperidol withdrawal.

In the last part of the study it was found that administration of Valine or tryptophan along with haloperidol did not alter akinetic or cataleptogenic effects of haloperidol. Following haloperidol withdrawal home cage activity increased in Tryptophan injected animals. Cataleptogenic effects were also much smaller in these rats. This was associated with an increase in serotonin and a decrease in dopamine turnover in the striatum of tryptophan than saline or Valine injected animals.

In conclusion the results suggested that atypical Neuroleptics produce smaller acute cataleptogenic effects because activity of these drugs towards somatodendritic serotonin receptors decreases the inhibitor control of serotonin over activity. Long term administration of a typical neuroleptic such as haloperidol increases the efficacy of presynaptic feed back control over 5-HT metabolism. A greater decrease of inhibitor control of serotonin over activity may be involved in the elicitation of tardive dyskinesia. Administration of Tryptophan as it increases the formation of serotonin is not effective in the modulation of acute parkinsonian like effects. On the other hand long-term administration of Tryptophan was found to oppose the effects of haloperidole particularly on activity. The results suggest that Tryptophan supplementaion may also help prevent late appearing tardive dyskinesias. On the other hand I 5-HT-1A agonists acting selectively at somatodendritic receptors may help to prevent both acute and late appearing EPS.

Project No:	P-AU/CHEM (353)
Project Title:	Pilot Production of Barium and Strontium Pigments from Indigenous Barite and Celestite Minerals.
Duration:	3-years
Date of initiation:	01-12-2000
Date of completion:	31-11-2003
Location of Scheme:	University of Agriculture, Faisalabad.
Principal Investigator:	Prof. Dr. Riaz Ahmad
Total expenditure:	Rs.4,00,154/-
Main objectives:	<ul style="list-style-type: none">• To develop simple methods for utilization of indigenous minerals and industrial rocks.• To enable local population to establish small-scale chemical units at cottage industry scale for production of calcium and barium based salts and pigments by utilizing locally available Barite and Celestite minerals.

Summary of work done:

Eight samples of barite and two samples of Celestite collected from various reserves, subjected to proximate analysis for determination of the best samples for further studies. Celestite sample (having 84.5% metal sulphate) collected from Thano Bola Khan (Hyderabad division) was converted to strontium sulphide in 96.34% yield at 1200°C with reduction time of 60 minutes and ore: coke ratio of 75% excess of the stoicheometric amount of coke. At pilot scale the yield was 64.29% under these reduction conditions.

Barium sulphide was obtained in 93.18% yield when barite with 92.25% metal sulphate content (collected from Bankhri, Balochistan) was reduced at 1100° C with reaction time of 60 minutes and ore: coke ratio of 75%. At pilot scale the yield was 77.19%. Salts like sulphide, sulphate, carbonate, chloride and chromate of strontium and barium were prepared in more than 90% yield from the reduction (black ash) of the respective ores. Purity of these salts was found to be more than 95%. Preliminary trails made for evaluating the prepared strontium chromate (as anticorrosive) and barium sulphate (as antiefflorescent) showed promising results.

Six pigments were prepared using barium/strontium chloride and three different dye intermediate. For equality evaluation of the prepared pigments, their relative tones, washing, dry cleaning and rubbing fastness was compared with the pigments available in the market. Finally cost estimates for production of black as have been given.

Project No:	S-KU/CHEM (363)
Project Title:	Purification, Characterization and applied studies of Protein Antibiotics from indigenous Staphylococci.
Duration:	3-Years
Date of initiation:	01-02-2001
Date of completion:	31-5-2004 (4-months extension)
Location of Scheme:	University of Karachi, Karachi.
Principal Investigator:	Dr. Sheikh Ajaz Rasool
Total expenditure:	Rs.5,22,901/-
Main objectives:	<ul style="list-style-type: none">• To extract and purify the bacteriocin from a representative mega producer using gel filtration, reversed phase high performance liquid chromatographic techniques, etc.• To study the purified versions for their bioactivity against wide range of bacteria including both grams positive and gram-negative.• To study the bioactivity against mycobacteria and fungi followed by pharmaceologial studies and genetic activities.

Summary of work done:

Production of antagonistic substances is highly important factor in microbial ecology. Among many different substance known to play role in bacterial interactions, Bacteriocins are the most specific and efficient antagonists. Bacteriocins or bacteriocin like inhibitory substances produced by staphylococcus spp were studied in more than 350 clinical staphylococcal isolates. 7% of the isolates exhibited bacteriocin like antagonistic activity. Initial characterization (both physical and chemical) was taken into account for six staphylococcal isolates i.e. AB150, AB177, AB188, AB201, AB202 and AB308. Staphylococcus aureus AB201 was selected for detail study. The bacteriocin like inhibitory substance produced by Staphylococcus aureus AB201 was designated as staphylococcin Bac201. It was inhibitory to both Gram-positive and Gram-negative bacteria. Among Gram-positive bacteria it was active against Neisseria meningitides and Acinetobacter calcoaceticus. It was partially purified to 80% saturation by ammonium sulfate precipitaion, gel filtration and reversed phase high performance liquid chromatography (Vydac C4). The native Bac201 was sized at approximately 170-Kda as determined by GF HPLC. The purification of Bac201 resulted in 466-fold increase in specific activity and recovery of 0.94% of total antibacterial activity. The proteolytic enzymes rapidly inactivated the antagonistic activity of the partially purified material, whereas glycolytic and lipolytic enzymes had no effects. It remained stable in the presence of mild organic solvents, and could be stored at -20°C without loss of activity, stable at 60°C and 80°C for 30 min, 100°C for 20 minutes and autoclaving temperature (121°C for 15 minutes), and exhibited activity within a wide range of pH (2.5-10). The amino acid composition revealed a general resemblance with other reported high molecular mass Bacteriocins and predominance of glycine (39%), proline (13%) and alanine (8%) residue. Further results showed that Bac201 against has bactericidal effects on sensitive cells and all either cell lysis or opparent loss of membrane permeability. The MIC of staphylococcin Bac201 against all the dermatophytes except E. floccusum was in the range 20µg/mL. Mycelial plugs taken from the zones of inhibition were found to revive their growth after re-incubation into fresh media. These results suggest that the staphylococcin Bac201 was “fungistatic” as well action. Staphylococcin Bac201 was found to be effective against 15 out of 30 strains and the range of MIC was found to be 0.5 to 0.031mg/mL. The antigenicity profile studies of staphylococcin Bac201 revealed that staphylococcin 201 is antigenically (immunogenically) poor (with reference to rabbit immune system) and the antibody titre was also not found to be much significant as no precipitation was observed in Ouchterlony technique and ring precipitation test. Staphylococcin Bac201 was tested for its mutagenic potential in the Ames Salmonella screening system and in Pseudomonas aeruginosa PAO286 system (met, trp). The-studies revealed that staphylococcin Bac201 has no tendency for reversion mutations on his (auxotrophy) __ his+ (prototrophy) marker in Salmonella typhimurium tester strains TA98 and TA100 compared with their spontaneous reversions. Staphylococcin Bac201 therefore, found not to possess genetic activity. The pharmacological studies of Staphylococcin Bac201 does not show any toxic/side effects on experimental animals indicating that his product is safe and could be used as chemotherapeutic agent.

Project No: C-QU/CHEM (370)

Project Title: Synthesis and Characterization of some liquid Crystalline Molecules.

Duration: 2-Years

Date of initiation: 01-6-2001

Date of completion: 31-8-2003 (3-months extension)

Location of Scheme: Quaid-I-Azam University, Islamabad.

Principal Investigator: Prof. Dr. Mrs. Naeema Khan

Total expenditure: Rs.6,17,685/-

Main objectives:

- Synthesis, characterization and study of liquid crystalline properties of some of some Imines and esters. The project is likely to lead to the preparation and characterization of indigenous liquid crystal molecules for local use in electro-optical devices and thus save foreign exchange for the country.
- Training of research students at M. Phil and Ph.D levels and establish chemistry laboratories at Quaid-I-Azam University at an advanced level.
- The synthesized compounds will be characterized by FT-IR, UV and mass spectroscopic techniques. The presence of liquid crystalline state will be studied with the help of hot stage microscopy X-rays diffraction and thermal analysis.

Summary of work done:

The objective of the project is synthesis and characterization of some liquid crystalline molecules. In the first year of the project some Schiff bases, Schiff base esters and benzimidazoles were synthesized and their liquid crystalline behavior was studied. In the second year synthesis of p-alkoxy benzamides was planned. The synthesis strategy involved synthesis of tosylates long chain alcohols followed by their condensation with 4-hydroxy benzoic acid esters to form the p-alkoxy benzoic acids. Finally these acids were condensed with phenyl ethyl amine, p-hexyloxy aniline and 2-Aminopyridine to form the corresponding amides. These molecules may show nematic or smectic phases

depending upon their structural ordering. All these compounds were characterized partially by their physical properties. The present report describes the formation of p-alkoxy benzamides, their characterization by IR, NMR and Mass spectroscopy and determination of the liquid crystalline phases with the help of DSC and hot-stage optical polarized microscope.

Project No:	F-PU/Earth (68)
Project Title:	Updating and Compilation of the Stratigraphy of Pakistan
Duration:	2-years
Date of initiation:	01.12.1998
Date of completion:	30.11.2000
Location of Scheme:	Department of Geology, University of Peshawar, Peshawar.
Principal Investigator:	Mr. Ali Hamza Kazmi
Total expenditure:	Rs.2,45,499/-
Main objectives:	<ul style="list-style-type: none">• Collect all relevant, up-to-date stratigraphic information and data.• Analyze, synthesize, correlate and interpret all available Stratigraphic data.• Geological fieldwork to examine key/problematic Stratigraphic sections.• As part of the data-base detailed cards/sheets will be prepared incorporating available information for each lithostratigraphic, biostatigraphic and chronostratigraphic units, magnetic and metamorphic sequences, tectonostratigraphic units as well as major tectonic features.• Rationalize the naming of Stratigraphic, megamorphic and tectonic features in accordance with the Stratigraphic Code of Pakistan.• Publication of “Historical Geology and Stratigraphy of Pakistan”.

Summary of Work Done:

In recent years there has been a substantial increase in geological research in many regions of Pakistan, largely due to extensive international collaboration. Most of this work has been published in international and national journals, and there has always been a need to systematically compile this widely scattered information for the use of geoscientists working in Pakistan. Unfortunately a number of these studies have not followed the Stratigraphic Code of Pakistan while naming the Stratigraphic units and now multiple formation names have been coined for the same unit. Some authors have also created confusion between lithostratigraphic and biostratigraphic names. A tremendous amount of data has been published and a large part of it has yet to be synthesized, correlated and interpreted on a regional scale. No effort has been made to put together the litho-bio and chronostratigraphy or to provide a consolidated account of the geological history of the country.

The main purpose of the project was to carry out a thorough review of all existing Stratigraphic data, supplement it with field checks and then recast this information to conform with the Stratigraphic Code of Pakistan as much as possible. The major significance and contribution of this work is that it contains a brief review and synopsis of the latest work on the stratigraphy of various localities and integrated this information to build on the updated picture of the Stratigraphy of Pakistan. This updated and revised overview has been presented in the form of three major Stratigraphic correlation charts, one each for the Proterozoic, Paleozoic and Cenozoic Eras.

iii) Scientific Publications Produced through PSF Supported Projects.

An important achievement of the Foundation is the research publications resulting from the research conducted under PSF funded projects. During the report period nine research papers were published in National and International journals or presented in National/International Conferences/Symposia. A list of these papers is placed at Annexure-IV.

iv) Higher Degrees Earned through PSF Supported Projects.

One of the major goals of the Foundation is the training of scientific manpower in the country. This in turn would result in strengthening of R&D infrastructure of various scientific organizations. In order to achieve this goal, the PSF has been developing scientific manpower, through its research projects. For this purpose, Research Associates are provided in the projects, they are required to register for Ph.D or M.Phil degrees. During the report period, 03 M.Sc., 01 M.Phil degrees were awarded to research worker under PSF funded projects in the fields of Agriculture, Chemical and Environmental Sciences. List of the scholars who obtained the degree is given below:

S.No.	Project No	Name of Researcher	Degree awarded
1.	P-UAAR/Agr (230)	Mr. Muhammad Ayub	M.Sc
2.	P-UAAR/Agr (234)	Mr. Imran Latif Mr. Muhammad Akmal	M.Sc (Hon) M.Sc (Hon)
3.	C-QU/Chem.(370)	Mr. M. Qasim Malik	M.Phil

3. SUPPORT TO SCIENTIFIC SOCIETIES/LEARNED BODIES.

The promotion of Scientific Societies/Associations, Learned Bodies 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, is an important activity of the Foundation. The Foundation makes annual grants to the established learned bodies and scientific societies as partial financial assistance for the achievement of their approved objectives and publication of their respective scientific journals. Annual grants amounting to Rs.0.280 million were released to the following Scientific Journals during the year 2003-2004. The Scientific Societies were also awarded grants from Development funds and are reported later in the report.

<u>Sr.No.</u>	Scientific Journal	Amount of Grant (Rs.)
1.	Mehran University Research Journal of Engineering & Technology.	35,000/-
2.	Pakistan Veterinary Journal.	35,000/-
3.	Pakistan Oral & Dental Journal.	35,000/-
4.	Pakistan Journal of Pharmaceutical Sciences.	35,000/-
5.	Pakistan Journal of Agriculture Agricultural Engineering and Veterinary Sciences.	35,000/-
6.	Pakistan Journal of Arid Agriculture.	35,000/-
7.	Journal Geographic.	35,000/-
8.	Pakistan Journal of Hydrocarbon Research (PJHR).	35,000/-
	Total.	2,80,000/-

4. Funding for Conferences/ Seminars/ Symposia/ Workshop Etc.

To enable scientists to share their knowledge and research experience with each other, the Foundation provides partial financial assistance to Scientific Societies/Universities and R&D organizations for organizing Science Conferences, Seminars, Symposia and Workshops etc. This is a continuing activity of the Foundation and during the report year, grants amounting to Rs. Rs.0.581 million were released to various organizations for holding national/international conferences, seminars, symposia and /or workshop etc. (Annexure-V)

5. Awards & Fellowships

The Foundation as a partial effort towards the training of high-level manpower in the country provides fellowships to talented students for completing their M.Phil/Ph.D studies. During the report period an amount of Rs.1, 08,000/- was released to the following Research fellows;

S. No.	Name & Address of Applicant	Amount Released (Rs.)
1.	Ms. Fahmeeda Akhtar Soomro Center of Advanced Studies in Biotechnology, University of Sindh, Jamshoro.	60,000/-
2.	Ms. Sadia Saeed Department of Microbiology, University of Karachi, Karachi.	30,000/-
3.	Ms. Rahat Javaid, Department of Chemistry, University of Engg. & Technology, Lahore.	18,000/-
	Total:	1,08,000/-

II. SCIENCE POPULARIZATION SECTION

Popularization of Science is one of the statutory functions of Pakistan Science Foundation. The Foundation is engaged in various science popularization activities at national level with the aim of increasing awareness of science education in the society. In order to achieve this objective the Foundation has initiated a number of programs including science exhibition, fairs, science film shows, popular science lectures and science quiz competitions, science essay & poster contests, establishing of science centers/corners, strengthening of laboratories of high schools etc. The programmes undertaken during the year under report are briefly highlighted below.

1. SCIENCE CARAVANS (MOBILE SCIENCE EXHIBITION)

Science Caravan is a Mobile Science Exhibition that has been designed to increase public awareness about science and to motivate the younger generation of the country towards study of science. Through Mobile Science Exhibition, the people living in rural/backward areas of the country are exposed to some of the most fascinating scientific and technical developments of the modern world. All narrations are in national language, and are accompanied by simple illustrations. At present five Science Caravan Units are operating one each in Balochistan, Sindh, NWFP, Punjab and Federal Areas. However, under a development project four more Units have been added bringing the total to nine. The number will further be enhanced to 15 in phases. These Caravan units continued their activities throughout the report period & organized the following science exhibitions in schools within their jurisdiction. In all, 33 exhibitions and film shows were arranged around the country where 461 schools participated and 88,590 students benefited. The details are given below.

DETAIL OF SCIENCE EXHIBITIONS

Federal Unit

Exhibition Sites	Dates of Exhibition	No of schools	No of students
Tehsil Gojra, Distt. T.T. Singh.	6.7.2003 to 14.7.2003	15	2250
University of Muzaffarabad.	5.8.2003 to 8.8.2003	11	1700
PCSIR Golden Jubilee Industrial Fair, 2003 at Lahore.	26.9.2003 to 24.10.2003	Dignities & General Public	
Kashmir Cultural Festival at AJK University New Campus, Muzaffarabad.	15.12.2003 to 21.12.2003	Dignities & General Public	
Pakistan National School System, Rawalpindi.	7.3.2004	1	450

PCSIR "Image Pakistan Fair 2004" at Karachi.	16.3.2004 to 11.4.2004	Dignities & General Public	
Modernage Public School and College Abbottabad.	12.4.2004 to 27.4.2004	2	2500
City School F-7, Junior Branch, Islamabad.	16.5.2004 to 17.5.2004	1	350
St. Mary's Cambridge School Rawalpindi.	12.5.2004 to 13.5.2004	1	450
Govt. Boys High School Fateh Jang.	17.5.2004 to 21.5.2004	1	850
Sun Rise Academic System, Islamabad.	15.5.2004	1	350
St. Patrick's School, Murree Road, Rawalpindi.	26.5.2004 to 27.5.2004	1	750
OPF Girls College, F-8/2, Islamabad.	25.5.2004	1	350
Sub total:	105 days	35 Schools	10,000 Students

SINDH UNIT

Exhibition Sites	Dates of Exhibition	No of schools	No of students
Taluka Kunri & Umer Kot Distt. Mirpurkhas.	4.9.2003 to 15.10.2003	57	8590
Taluka Garhi Yaseen and Khanpur Distt. Shikarpur.	20.10.2003 to 15.11.2003 & 4.12.2003 to 17.12.2003	42	7000
Taluka Distt. Shikarpur.	5.1.2004 to 17.1.2004	25	3500
Taluka Rohri/Kandhra Distt. Sukkur	20.1.2004 to 31.1.2004 & 6.2.2004 to 14.2.2004	20	4000
Samaro and Pithoro Distt. MirpurKhas.	7.4.2004 to 28.4.2004	15	2500

Taluka Rohri and Pano Aqil.	7.5.2004 to 31.5.2004	20	3500
Sub Total:	163 days	179 Schools	29,090 Students

PUNJAB UNIT

Exhibition Sites	Dates of Exhibition	No of schools	No of students
Layyah.	1.9.2003 to 13.9.2003	21	4200
Chichawatni.	8.12.2003 to 20.12.2003	13	2700
MD College for Women, Gojra.	24.2.2004 to 6.3.2004	15	3300
Kamalia.	13.4.2004 to 1.5.2004	20	4300
Pirmahal.	6.5.2004 to 29.5.2004	25	4500
Sub Total:	80 days	94	19000

NWFP UNIT

Exhibition Sites	Dates of Exhibition	No of schools	No of students
Anayat Killi, Bajour Agency.	26.8.2003 to 11.9.2003	26	4500
Katlang, Distt. Mardan.	29.10.2003 to 13.11.2003	26	4700
Nadir Dodon Khel (Domel) Bannu.	9.12.2003 to 24.12.2003	14	2900
Dargain Manga, Charsadda.	9.2.2004 to 17.2.2004	21	4200
Distt. Hangu.	14.4.2004 to 30.4.2004	15	3200
Distt. Dir Lower	19.5.2004 to 6.6.2004	15	3200
Sub Total:	94 days	117	22,700

BALUCHISTAN UNIT

Exhibition Sites	Dates of Exhibition	No of schools	No of students
Quetta and its surroundings.	8.12.2003 to 22.12.2003	15	3200
Reflective Learning Centre Sabeel, Quetta.	19.1.2004 to 22.1.2004	6	1100
Quetta, Mastung and its Surroundings.	12.5.2004 to 22.5.2004 & 24.5.2004 to 25.6.2004	15	3500
Sub Total:	63 Days	36	7,800
Grand Total	505 Days	461	88,590

2. BOOKS DONATED TO UNIVERSITIES/R&D ORGANIZATIONS AND FUNDED FOR PUBLICATION

PSF encourages book reading and writing on scientific concepts and thus acquires and distributes books/magazines as well as sponsors book publication. During the year, 30 copies each of the books entitled Global Warming "A Threat to Aviation", and "Subverting Disaster of New Millennium" and 50 copies of the book entitled "New Moon's Visibility & International Islamic Calendar" were procured and distributed to various universities/R&D organizations of the country. An amount of Rs.50,000/- was also released to National College of Business Administration & Economics, Lahore for the publication of "Manual on Bio-Statistics". An amount of Rs.15,000/- was released for publication of the booklet entitled "ABC of the Environment".

3. DONATION OF EQUIPMENT

PSF donates lab equipment to scientific societies and association for implementing their science promotional activities. During the year, an amount of Rs.100,000/- was provided to Pakistan Thalassaemia Welfare Society, Rawalpindi for purchasing of Computer, Printer & other office equipment to improve the functioning of the office and Thalassaemia Treatment Centre where over 800 patients are being looked after and whose complete records have to be computerized. One Multi-media Projector worth Rs.183,000/- was donated to National Museum of Science & Technology, Lahore.

4. SCIENTIFIC LITERATURE TO HIGH SCHOOLS

As a regular programme, the Foundation donates scientific books & magazines to high school particularly in rural areas. During the year 12000 copies of Monthly magazine "Global Science" were donated to 1000 high schools and hundreds of Brochures & Posters were provided to various high schools and other organizations of the country.

5. 13th INTRA & INTER BOARD SCIENCE ESSAY & POSTER COMPETITIONS

THEME: MODERN SCIENCES AND NATIONAL DEFENCE

Pakistan Science Foundation as part of its programmes for popularization of science in the country especially among high school students has been organizing Intra & Inter Board Science Essay & Poster competitions. In this regard 13th Intra & Inter Board Science Essay & Poster Competitions were organized during report period and an amount of Rs.126,000/- has been released to winner students as Prize money.

6. NATIONAL CHILDREN MOUNTAIN CONSERVATION MEET 2003

Adventure Foundation Pakistan, Islamabad organized National Children Mountain Conservation Meet 2003. The aims of the event was to promote national integration by involving youngsters from all corners of Pakistan in experience sharing activities using mountain environment, awareness among the people of mountains about the environmental issues of their area and promote environment friendly attitude among the tourists visiting mountain areas so that the growing menace of pollution in these areas could be checked and controlled. A sum of Rs.50,000/- was paid to the Adventure Foundation Pakistan, Garden Avenue, Islamabad to partially meet the expenditure of activity.

7. 14TH ALL PAKISTAN SOFTWARE COMPETITION

Dr. A.Q. Khan Research Labs (KRL) organized 14th All Pakistan Software Competition. An amount of Rs.35000/- was provided to KRL for organizing the competition. Twenty four students were awarded cash prizes out of 250 students in the competition.

8. ALL PAKISTAN IEE GIKITECH 2004

Ghulam Ishaq Khan Institute of Engineering & Technology organized "All Pakistan IEE GIKITECH 2004". Therein, Graduate and Undergraduates student are invited to submit Technical Papers from the domains of Computer Science, Electronic & Mechanical Engineering, and Material Engineering. The general aim behind conducting such an event is that the students gain an insight into the process of taking out a technical paper. Such a competition would instill in the entire student body a significant motivation to at least try and bring out technical literature, which has been lacking. An amount of Rs.20,000/- was provided to the Institute for organizing the event.

9. ESTABLISHMENT OF S & T CENTRE

Balochistan University of Information Technology and Management Sciences has initiated establishment of S&T Center and PSF contributed Rs.50,000/- to partially meet the expenditure for establishment of the Centre at Balochistan University.

10. SCIENCE QUIZ, SCIENCE MODELS & ESSAY COMPETITIONS

National Museum of Science & Technology (NMST), Lahore organized Science Quiz, Science Models and Essay Competitions for students. Thirty-eight students qualified in this competition and were awarded with cash prizes. Five teachers were also awarded cash prizes. An amount of Rs.20,000/- was provided to NMST for holding the events.

11. ALL HANDS MEETING

Pakistan Science Foundation arranges All Hands Meeting for the welfare of all PSF employees including the retired ones. The subject meeting was successfully held on 5.7.2003 where in the contributions of the staff especially the retired from PSF, PMNH and PASTIC were highlighted and appreciated by awarding them shields and certificates.

12. WORLD SCIENCE DAY FOR PEACE & DEVELOPMENT

United Nations Educational, Scientific and Cultural Organization (UNESCO) during the General Conference at its 31st session proclaimed November 10 each year as "World Science Day for Peace and Development (WSDPD)". In doing so, General Conference recognized that science is of major importance in the context of peace and development. In collaboration with S&T R Division (MOST) and UNESCO Pakistan, the Foundation organized the "World Science Day for Peace & Development" (WSDPD) on 10th November 2003 in National Library Auditorium. The purpose of the WSDPD is to renew the national, as well as the responsible use of science for the benefit of society as postulated by the World Conference on Science (Budapest 1999).

The WSDPD also aims at raising public awareness of the importance of Science and to bridge the gap between Science and Societies. **Dr. Atta-ur-Rehman**, Adviser to the Prime Minister for Science & Technology, was the chief guest of the event. **Ms. Ingeborg Breines**, Director, UNESCO Office, Islamabad was also present. Eminent Scientists like Dr. Ishfaq Ahmed, Dr. Sammar Mubarak Mand, Dr. Pervaiz Butt and Dr. Amir Muhammad delivered talks on different important topics of S & T.

13. INTERNATIONAL WORKSHOP ON "WEALTH GENERATION THROUGH RESEARCH"

A lot of research has been done in Pakistan, but rather in isolation from the Industry. In other words, the research has not been commercialized. Thus a need has been felt to generate a discussion on the aspect. PSF & NUST jointly organized an International Workshop on "Wealth Generation through Research" on 3rd December 2003 at PSF Auditorium. Dr. Atta-ur-Rehman, Adviser to the Prime Minister for Science & Technology was the Chief Guest. Dr. I.A. Shibli, European Technology Development Ltd. UK, Engr. Iqbal Ahmed Qureshi, Chief Executive, Qarshi Industries, Air Comdr. Mansoor Malik, Director General, NUST & Dr. Farid Malik, Chairman, PSF presented their papers/lectures on the subject. Scientists, Technologists and Engineers from various Universities & R&D organizations participated in the workshop. A future action plan was also chalked out; special emphasis was laid on the establishment of linkages between the researchers working in the Universities/R&D organizations and Industry.

14. 11th COMSTECH GENERAL ASSEMBLY MEETING

In connection with the 11th COMSTECH General Assembly Meeting from 25th to 27th December 2003 the Chairman, PSF was designated as Head of Conference Hall Sub Committee by the MoST. The Foundation successfully made necessary arrangements regarding the Hall Management like the Seating Plan for the delegates, Display of Banners/Projection Screens, Decoration of Hall & provision of allied facilities to the participants.

15. UNESCO PROJECT "BREAKING THE POVERTY CYCLE OF WOMEN"

UNESCO initiated in April 2002 a project entitled "BREAKING THE POVERTY CYCLE OF WOMEN" empowering adolescent girls to become the agents of social transformation in South Asia, under the "Eradication of Poverty" program. Four countries of South Asia viz., Bangladesh, India, Nepal and Pakistan were included in the project, meant for young girls of the rural areas of the countries selected. This innovative project has three salient features:

- Young girls/women (age 14-18) are considered as potential actors for social change and a decisive population group for national poverty eradication strategies.
- The project was conceived, developed and prepared since October, 2000 by a multi-sectoral group comprising staff from the education, science and communication sectors and youth communication unit of UNESCO.
- It combines action at four different levels.
- Transferring knowledge and skills, including in the field of micro finance to young girls and women.
- Sensitizing the local population in the capabilities and social contribution of young girls and women in order to create an enabling environment.
- Establishing infrastructures and structures for training and support services for the young girls and women as well as their communities.
- Providing national policy makers with data and experience gained from pilot projects.

PSF was approached by UNESCO Paris and UNESCO-Islamabad office to carry out the following assignments by signing of Fee Agreement in May 2003.

ASSIGNMENTS:

- Development/Preparation of Scientific Materials
- Workshop for Training of Learning Facilitators at Quetta.
- Organizing the 2nd Workshop of Network at Islamabad and Quetta.
- Strengthening of Science Caravan Office Quetta.

PART-1

The Foundation has prepared one Teaching Manual, one Science Kit and Science Kit Manual, Six Booklets on basic Scientific Areas, four Scientific Brochures and five Posters (500 copies each). The prepared material has been distributed to the Learning Facilitators, Learners, /IDSP staff/ other stakeholders during the training program.

PART-2

A 15-days Workshop from 16th to 30th December 2003 was organized at Quetta. Science Caravan Exhibition and Science Film & Planetarium Shows were also arranged as part of the Workshop. Eight Learning Facilitators of two Reflective Learning Centres, more than 200 Learners, IDSP Staff & local teachers/students & community women visited the workshop. Lectures on Children Psychology, Educational Psychology, Administration & Evaluation were also organized. The Consultant UNESCO, Islamabad, also visited the Workshop.

PART-3

The International WORKSHOP OF SUB-REGIONAL NETWORK OF NON-FORMAL SCIENCE EDUCATION AND POPULARIZATION OF SCIENCE was jointly organized by the Foundation (Ministry of Science & Technology), ISESCO, IDSP & UNESCO from 19th to 22nd February 2004 at PSF Auditorium, G-5, Islamabad & Quetta. H.E. Prof. Dr. Atta-ur-Rehman, Advisor to the Prime Minister, inaugurated the Workshop. In addition, **Dr. Farid A. Malik**, Chairman, PSF, **Professor Balasubramanian**, President of Sub-Regional Network, **Ms Renee Clair**, UNESCO Paris, **Ms. Ingeborg Greines**, Director, UNESCO Pakistan Office also addressed the audience during the Inaugural Session. More than 50 local & International Scientists, Educationists & Experts participated in the workshop. The delegates also visited two Reflective Learning Centres established by IDSP at Sabeel & Mominabad, Quetta.


PART-4

The Strengthening of Science Caravan Office, Quetta is underway. The Caravan Office will be used as Community Science Centre. Students & community Members may visit the Centre to witness the displayed Models/Exhibits.



BREAKING THE POVERTY CYCLE OF WOMEN

International Participants of the "2nd Workshop of the Sub-Regional Network of Non-formal Education & Popularization of Science" Visiting the Pakistan Museum on Natural History


**SECOND WORKSHOP OF THE SVB REGIONAL NETWORK
OF NON-FORMAL EDUCATION & POPULARIZATION OF SCIENCE**
BREAKING THE POVERTY CYCLE OF WOMEN
EMPOWERING ADOLESCENT GIRLS TO BECOME AGENTS OF SOCIAL TRANSFORMATION
19-22 FEBRUARY 2004, ISLAMABAD



(LEFT TO RIGHT)

Ms. Renée Clair UNESCO Paris, Dr. Farid A. Malik Chairman PSF, Prof. Dr. Atta-ur-Rahman, N.I., H.I., S.I., T.I., Advisor to the Prime Minister on Science & Technology, Ms. Ingeborg Breines, Director, UNESCO Pakistan Office at the Inaugural Session of 2nd Workshop of the Sub-Regional Network of Non-formal Education and Popularization of Science



(LEFT TO RIGHT)

Dr. Farid A. Malik Chairman PSF, Mr. Shehzad Hassan Pervaiz Secretary, Ministry of Science & Technology,
Rear Admiral Mushtaq Pro-Reactor NUST, Air Codr. Mansoor Malik Director General NUST (TIC),
during the seminar "WEALTH GENERATION THROUGH RESEARCH"



At the occasion of "ALL HANDS MEETING-Foundation Day"
Dr. Farid A. Malik Chairman PSF, presenting the Crest of the Foundation to Dr. Khalid Mahmood Khan, S.I.
(Ex-Chairman) Vice Chancellor, Arid Agriculture university, Rawalpindi

16. WORKSHOP ON “DESIGN AND ANALYSIS OF EXPERIMENTS FOR ENGINEERING, PHYSICAL SCIENCES & MANUFACTURING INDUSTRIES”:

Pakistan Science Foundation arranges series of lectures and workshops where eminent scientists and educationists express themselves for the benefit of the mixed audience comprising scientists, scholars, students and the general public as one of its mandatory functions. In this regard a workshop was organized on “Design and Analysis of Experiments for Engineering, Physical Sciences & Manufacturing Industries” on 28-4-2004 at PSF Auditorium, Islamabad. Dr. Munir Ahmed, Rector, National College of Business Administration & Economics, Lahore was the Resource Person. The officers of PSF, PMNH, PASTIC and officers of other Scientific Organization have participated in the workshop.

III INDUSTRIAL LIAISON GROUP FOR UTILIZATION OF RESEARCH RESULTS

The activities of the Industrial Liaison Group are ever increasing. Focusing on collaborative research and strong industrial linkages, ILG is bringing together researchers, end-users and the funding institution at one platform to create an environment of unified approach to solve identified industrial problems through applied research.

1. Identification of New Applied Research Projects

In addition to Seventeen Applied Research Projects identified in the year 2002-2003, following 14 projects were identified in the year 2003-2004.

1. Application of Solar Drying Technology for Apricots-Design and development of Solar Hybrid Dryer.
2. Bio-Ecology and Population Management of House Crow in Islamabad.
3. Inventory of the Faunistic Diversity in Margalla Hills National Park.
4. Lab-level production of Citric Acid by genetic modification.
5. Lab-level production of Citric Acid by traditional fermentation.
6. Production and application of Industrial Cellulases.
7. Inventory of the Flora of Margalla Hills National Park.

8. Development of mutant for Industrial production of L-lysine through fermentation of molasses.
9. Establishment of Pilot Plant for processing Green Tea.
10. Development of Indigenous ores for steel manufacturing.
11. Power generation on low heads.
12. Pharmacognosy of Medicinal Plants of Pakistan.
13. Development of Directly Reduced Iron.
14. Development of Spring Steels in Pakistan.

2. Projects Funded Under Industrial Linkages Programme:

Funds for the following 10 projects were released during the report period.

1. Disbondment of Epoxy coating and Integrity of Gas Transmission Pipeline at the total cost of Rs.3.68 Million. (PSF and SSGC have jointly funded the project on equal basis).
2. Application of Solar Drying Technology for Apricots-Design and Development of Solar Hybrid Dryer at the total cost of Rs.95,468/.
3. Establishment of sustainable Model Agriculture Farm in Basol Area, Balochistan using Wind Energy and Drip Irrigation System at the total cost of Rs.3,209,794/= (Rs.2,620,650/= have been provided by PSF while Rs.589,144/= have been provided by WWF).
4. Enhancement in the Shelf-life of Bread and Allied Products at the total cost of Rs.777,832/=.
5. Lab-level production of Citric Acid by genetic modification at the total cost of Rs.948,227/=.
6. lab-level production of Citric Acid by traditional fermentation at the total cost of Rs.905,066/=.
7. Non-chemical control of Wild Boar Population in the area of Islamabad at the total cost of Rs.886,150/=.
8. Bio-Ecology and Population Management of House Crow in Islamabad at the total cost of Rs.712,837/=.
9. Inventory of the Flora of Margalla Hills National Park at the total cost of Rs.691,239/=.

10. Inventory of the Faunistic Diversity in Margalla Hills National Park at the total cost of Rs.866,633/=.

Regular interaction took place amongst end-users, PSF and the Research Organizations to discuss the project development status. The research findings of these projects will be delivered to the specific end-users after their completion.

3. Inter-Ministerial Focus Group:

An important area of activity during this year was to establish linkage between Public Sector Capability and the Private Sector marketability. ILG has constituted an Inter-ministerial Focus Group comprising of esteemed Public Sector Organizations like Pakistan Atomic Energy Commission (PAEC), National Engineering and Scientific Commission (NESCOM), Pakistan Ordnance Factories (P.O.F), Pakistan Aeronautical Complex (PAC), Pakistan Council of Scientific and Industrial Research (PCSIR), Defence Production Division (DPD), Heavy Industries Taxila (HIT), and Kahuta Research Laboratories (KRL). A complete directory of available technologies available in the Public Sector organizations has been prepared for circulation to the private sector. Some of the important projects identified under this programme are given below.

1. Design and Development of Bi-cycle and Auto-rickshaw.
2. Development of High Tech Rubber Rings and Rubber Seals.
3. Transfer of GIS/GPS Technology.
4. Development of Variable Drive Shafts.

4. Entrepreneurship Development

Technological Entrepreneurship Development is vital for economic development. ILG has played leading role in the establishment of "Bio-Technology Entrepreneurship Development Centre" (BEDC) in order to exploit and conquer the vast potential which exists in the field of Bio-Technology. In addition to BEDC, Technological Entrepreneurship Development Centres are being established at Muzaffarabad, Quetta and Islamabad.

5. MoUs Signed

Five MoUs were signed during the year 2003-2004 for different projects. These MoUs were signed amongst the representatives of research organizations, end-users and Pakistan Science Foundation. With MoU signed for the project, "Design and Development of Bi-cycle and Auto-Rickshaw", ILG has materialized the linkage of

Public Sector Capability with Private Sector Marketability. This MoU was signed amongst SOHRAB Cycle Works, PSF and NESCOM. NESCOM is responsible for research work and design, while implementation will be done by SOHRAB.

The second MoU was signed amongst PSF, Sui Southern Gas Company Ltd and the Institute of Chemical Engineering and Technology, Punjab University for the project entitled, “Disbondment of Epoxy Coating and Integrity of Gas Transmission Pipeline”.

The third and the fourth MoUs were signed for four different projects in the field of environmental sciences and wild life management. Institutional Heads of PMNH, PSF, Capital Development Authority (CDA), and University of Agriculture, Faisalabad took part in the signing ceremony on behalf of their respective organizations. These projects have been initiated on the request of CDA to collect valuable and authentic data about Flora and Fauna of Margalla Hills and to manage the population of Wild Boar and House Crow in Islamabad area by using environment friendly non-chemical measures.

To give boost to the Agriculture Sector in Balochistan, PSF, WWF and PMNH signed an MoU for the “Establishment of Sustainable Model Agriculture Farm in Basol Area, Balochistan by using Wing Energy and Drip Irrigation System”. Dr. Farid A. Malik, Chairman PSF, Mr. Ali Habib, D.G. WWF, and Dr. Muqarrab Shah, D.G. PMNH represented their respective organizations.

6. Wealth Generation through Research

Transformation of knowledge into wealth is imperative for socio-economic development. Commercialization and application of technology is key to success. ILG in collaboration with Ministry of Science & Technology, PCSIR, NUST, PMNH, PASTIC and Islamabad Chamber of Commerce and Industry is working on different action items identified during the workshop on, “Wealth Generation Through Research” held on December 03,2003.

7. Kashmir Corn Conference

ILG has organized Kashmir Corn Conference at AJ&K University, Muzaffarabad on 23.06.2004. All the stakeholders like seed company, AJ&K Agriculture Department, food company and the local farmers were invited to discuss and exchange their points of view to make the Kashmir Corn a value added commodity. Five action items identified during this conference are also being expedited.



Director General PCRET, Chairman, PSF and representative of AKRSP showing strong commitment for Apricot Drying Project



Chairman, CDA, Mr. Kamran Lashari, Chairman PSF, Dr. Farid A. Malik and DG PMNH Dr. Muqarrab Shah shake hands on the occasion of MoU Signing ceremony for projects in the field of Environmental Sciences



Managing Director, SSGC, Munawar B. Ahmed, and Chairman, PSF, Dr. Farid A. Malik signing an MoU for the project Disbondment of Epoxy Coating and integrity of Gas Transmission Pipeline



Sitting left to right: Mirza Habil Ali (ILO, PSF), Dr. Farid A. Malik Chairman PSF, Mr. Majeed Saqib, Manager Development SOHRAB, and Syed Faisal Iftikhar (ALO, PSF) at the MoU signing ceremony for "Design and Development of Bicycle and Auto Rickshaw"

8. Coal Conference

ILG is also working on sixteen action items which were identified from the conference on Appropriate Industrial uses of Pakistani Coals held on March 31, 2003. In this conference, R&D Organizations, entrepreneurs, end-users and financing institutions were invited to formulate practical strategy to make best possible use of this important mineral resource.

9. Other Activities

- ILG visited the Apricot Drying Facility of PCSIR in Skardu, Northern Areas in relation to Apricot Drying Project.
- ILG visited the National Tea Research Institute, Shinkiari, Mansehra to explore the prospects of green and black tea.
- ILG visited NESCOM Headquarters to see Mechanical Engineering and Design facilities for Bi-cycle Design Project.
- Chairman, PSF, Dr. Farid A. Malik and DG, NESCOM Mr. Irfan Burney visited the manufacturing facilities of SOHRAB Cycle Works, Lahore in relation to Bi-cycle Project.
- ILG developed comprehensive brochures for Disbondment and Apricot projects in addition to the general brochure of the linkages programme.
- ILG also presented a concept paper on “Industry Driven Basic Research” in COMSATS.
- ILG also abridged some of the research papers relating to wealth generation through Research & University-Industry Linkages.

In the year 2003-2004, overall interaction with the Industrial Community increased to considerable extent and it is hoped that this activity will further strengthen in the future resulting in much needed socio-economic development.

IV. PLANNING AND DEVELOPMENT

The PSF Planning and Development Section has been assigned following jobs.

- i. Implementation and supervision of the on-going development projects.
- ii. Preparation of PC-Is of new development projects of PSF.

- iii. Coordination and review of the PC-Is of development of projects of PMNH and PASTIC.
- iv. Coordination with MoST, P&D Division and other relevant forums in connection with the approval of PC-Is and funding of the development projects of PSF, PMNH and PASTIC.
- v. Preparation of the annual PSDP demand of PSF, PMNH and PASTIC.
- vi. Review of the development projects solicited by the PSF Industrial Liaison Group from other organizations.
- vii. Management of the PSF Endowment Fund, created under Natural Sciences Linkages Programme.

A brief account of the performance of the Section during the year is given below.

A. On-going Projects

During the report period, work on following five on-going development projects continued.

No	Name of Project	Project Cost	(Million Rs.) Utilization during the year
1.	Financial Support to Scientific Societies in Pakistan.	39.00	7.00
2.	Participation of Scientists and Technologists in International Conferences, Seminars and Workshops.	17.00	5.40
3.	Funding of Scientific and Technological Research in Universities and other R&D Organizations.	39.00	13.05
4.	Career Development of Young Scientists and Technologists in Pakistan..	28.00	1.30
5.	Popularization of Science in Rural areas	22.212	16.212
	Total	145.212	42.962

Brief summary of the progress made under each of the above development project during the report period is as under:

1. Financial Support to Scientific Societies in Pakistan

The Pakistan Science Foundation provides grant-in-aid to some of the scientific societies and learned bodies from its non-development budget for their activities and for the publication of few scientific journals but the amount allocated for the purpose is negligibly small. In order to strengthen the role of scientific societies/learned bodies and to enable them to develop linkages with their counter part societies in the advanced countries, the development project was approved at a total cost of Rs. 39.00 million for a period of five years. Under this project financial assistance is provided to scientific societies for;

- Holding of National and International conference, seminar workshop etc. on important scientific topics.
- Publication of scientific journals and newsletters.
- Development of linkages with their counterpart societies in the advanced countries to remain updated in the contemporary Science and Technology and to draw the benefit of R&D to Pakistan industry by adopting the ways and means as done by those countries.

During the year under report an amount of Rs. 7.00 million was paid to 20 Scientific Societies as per details given below:

S. No.	Name of the Society.	Amount Released (Rs).
1.	Pakistan Thalassaemia Welfare Society.	4,10,000/-
2.	Zoological Society of Pakistan	4,80,000/-
3.	Pakistan Society of Nematologists	1,80,000/-
4.	Soil Science Society of Pakistan	5,30,000/-
5.	Pakistan Society of Biochemistry & Molecular Biology	5,10,320/-
6.	Pakistan Society for Semiconductor Science & Technology	1,30,000/-
7.	Pakistan Physiological Society	4,70,000/-
8.	Islamic Society of Statistical Sciences	2,65,000/-
9.	Pakistan Nuclear Society	2,70,000/-
10.	The Chemical Society of Pakistan	7,81,880/-
11.	Pakistan Botanical Society	4,01,468/-

12.	Pakistan Phytopathological Society	2,50,000/-
13.	Pakistan Pharmacological Society	2,00,000/-
14.	Pakistan Association for the Advancement of Science	3,70,138/-
15.	Horticultural Foundation of Pakistan	2,10,000/-
16.	National Geological Society of Pakistan	4,75,000/-
17.	Weed Science Society of Pakistan	3,25,000/-
18.	Agricultural Foundation of Pakistan	3,65,000/-
19.	Pakistan Mathematical Society	3,00,000/-
20.	Miscellaneous expenditure	76,194/-
	Total:-	70,00,000/-

2. Participation of Scientists and Technologists in International Conferences, Seminars and Workshops

One of the functions assigned to Pakistan Science Foundation under its charter is to provide financial support to scientists for presentation of their research papers in international conferences. The above project was approved at a total cost of Rs.17.00 million for a period of five years. The main objective of the project is to provide financial assistance to Pakistani scientists, technologists, doctors and engineers for their participation and presentation of research findings in international conferences, seminars & workshops.

During the report period, as many as 149 travel grant requests were received, out of which 108 requests were approved by the Foundation at a total cost of Rs.7.707 million, However, only 82 scientists could avail the grants. Funds amounting to Rs.5.4 million were utilized for the purpose. The list of scientists who succeeded in availing the PSF grants is at Annexure-VI.

3. Funding of Scientific and Technological Research in Universities and other R&D Organizations.

Funding of Scientific Research is the major function assigned to the Foundation under its charter. The Foundation provides research grants to individual or group of scientists and Technologists working in universities and other R&D Organizations for undertaking

research in all disciplines of science and technology. With the increase in the number of universities the number of projects received/approved by the Foundation has also increased during the last few years. Furthermore, the cost of equipment and research material has also enhanced. Therefore, funds provided in the annual budget of PSF for research support are not sufficient to meet the requirement.

Accordingly, the above development project was submitted to MoST which was approved at a total cost of Rs.39.00 million over a period of three years. The main objective of the project is to strengthen the research capabilities of scientists and technologists for:

- i. Undertaking basic and applied research on problems having direct relevance to the socio-economic needs of the country. Projects are funded in the subject areas pertaining to Information Technology, Biotechnology, Chemistry (Medical Chemistry, Biochemistry, Industrial Chemistry) Engineering Sciences, Agriculture Sciences, Electronics, Physics, Mathematics etc.
- ii. Procurement of specialized research equipment, chemicals and/or literature which are required by the research workers for carrying out their research projects and which they are unable to purchase due to paucity of funds.
- iii. Training of manpower for undertaking scientific research on advanced laboratory techniques through the research projects.

During the period under report, 32 new research projects were approved for funding by the Foundation at an estimated cost of Rs.15.50 million. List of new projects approved during the year 2003-2004 under this development project is at Annex-VII.

An amount of Rs.13.05 million was released on account of 1st installments of some newly sanctioned projects and due installments of on-going projects carried over from last year.

4. Career Development of Young Scientists and Technologists

Pakistan Science Foundation initiated a development project entitled "Career Development of Young Scientists and Technologists in Pakistan". The objectives of the project are (i) to utilize expertise of highly qualified S&T manpower for the development of science and technology in the country, (ii) to provide career opportunities to young scientists and technologists and to encourage them to settle within Pakistan and (iii) to arrest brain drain of highly qualified scientists and technologists from the country.

During the report period, 1 new project was approved for funding by the Foundation under this project. An amount of Rs.1.30 million was released on account of 1st installment of the new project and due installments of the on-going projects carried over from previous year. .

5. Popularization of Science in Rural Areas

The above development project, was initiated proposing the construction of four more Science Caravans, one for each province at a total cost of Rs.22.212 million, to be completed in two years.

The main objectives of the project are:

- i. To stimulate interest of students in science through the display of attractive scientific models, charts and exhibits;
- ii. To disseminate information on the achievement and accomplishments of science and portray the blessings and facilities provided by science and technology which are being enjoyed by us in our every day life;
- iii. To stimulate the interests of students in the natural science phenomena by arranging scientific film shows on topics of interest to common man;
- iv. To arrange planetarium shows to explain the astronomical concepts;
- v. To arouse interest of students for science and technology and to create in them a thirst for acquiring more knowledge;
- vi. To inculcate in the minds of students the idea of solving every day problems by application of science and technology, such as use of mechanized agriculture practices, pest management and control, problems related to hygiene and sanitation, scientific management of human and animal diseases etc.

During the year 2003-2004, an amount of Rs.16.212 million was utilized for the procurement of four Starlab planetaria, equipment, furniture, vehicles, fabrication of bodies of caravan trucks, preparation of panels and purchase of models/exhibits for the Caravan Units.

B. Preparation of New PC-Is

PC-Is of the following projects were prepared and submitted to the Ministry of Science and Technology for approval.

S.No.	Project Title	Project Cost (Million Rs.)
1.	Establishment of full text National Science & Technology Database (NSTD) and enhancement of the Services at PASTIC	37.048
2.	Establishment of Intellectual Property Services & Entrepreneur Development Center at PASTIC	24.80
3.	Establishment of Pakistan Institute of Natural Sciences	199.970

4.	Science Popularization for the Development of Science Culture in Pakistan	26.68
5.	Research Support Programme for Filing Patents and Publishing Articles (PASTIC)	39.758
6.	Development of Techniques to reduce Post Harvest Loses in Selected Medicinal Herbs of Pakistan (PMNH)	12.02
7.	Biotechnology Entrepreneurship Development Centre (BEDC)	31.295
8.	Completion of Block II and Strengthening of Research and Display Activities at PMNH	38.25
9.	Strengthening of Technological Information Services at PASTIC	27.11

C. Natural Sciences Linkages Programme –Creation of PSF Endowment Fund

An Agreement was signed in May 2002 between the Commodity Credit Corporation, United States of America and the Ministry of Finance, Government of Pakistan, for governing the sales of agriculture commodities by USA to Pakistan. Under the agreement, the Commodity Credit Corporation has provided an amount equivalent to \$10.0 million to the Government of Pakistan in local currency out of the sale proceeds of the imported agriculture commodities (Soybean). This amount is meant to fund the Natural Sciences Linkages Programme (NSLP) Endowment Fund to be created with the Pakistan Science Foundation, Ministry of Science and Technology. This programme is designed to enhance cooperation among scientists of the two countries in area of significant mutual interest and benefit relating to natural sciences as applicable to agriculture.

Based on the above agreement an MoU has been signed between the Ministry of Science and Technology and US Department of Agriculture, Foreign Agriculture Services. Under this MoU the Endowment Fund is to be created with the Pakistan Science Foundation.

The general direction, conduct and management of the Fund would be vested in the Board of Governors as approved by the ECC. The constitution of the Board is as under:

- | | | |
|---|---|-------------|
| 1 | Minister for Science & Technology | Chairman |
| 2 | Secretary, Ministry of Science & Technology | Co-Chairman |

3	Secretary, Economic Affairs Division	Member
4	Secretary, Finance Division	Member
5	Secretary, Ministry of Food & Agriculture	Member
6	Chairman, Pakistan Science Foundation	Member/Secretary
7	Chairman, Pakistan Agricultural Research Council	Member
8	Director NIAB (PAEC)	Member

During the report period, the Rules and Regulations for administration of the Fund were framed by the Foundation and approved by the Board of Governors of the Fund in its meeting held on 2nd Oct 2003 under the Chairmanship of Prof. Dr. Atta ur Rahman, Adviser to the Prime Minister on Science and Technology. The Rules and Regulations were also approved from the Controller General of Accounts, as required by the Ministry of Finance before transfer of the fund to PSF Endowment account. PSF has also opened an Endowment account with a scheduled bank. Efforts are being made for transfer of the fund amount from the Ministry of Finance to the said Endowment account of PSF.

PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

Pakistan Museum of Natural History (PMNH) is an important scientific organization carrying out environmental and biodiversity research in the country as well as promoting informal education and public awareness about our natural wealth. It is a subsidiary organization of Pakistan Science Foundation and was established in 1979 to serve national needs in the vitally important areas of research, conservation and education involving Pakistan's heritage of natural resources. The Museum is a national repository for permanent storage of plants, animals, rocks minerals and fossils of the country.

Pakistan Museum of Natural History remained engaged in the collection, curation and preservation of natural history specimens and research on flora, fauna and geology of Pakistan. The scientists of the three Divisions of PMNH viz., Botanical, Earth Sciences and Zoological Sciences Divisions carried out a number of field tours to various localities of Sindh, Punjab, NWFP, Northern Areas and AJK. About 6000 natural history specimens, comprising of plants, animals, rocks, minerals and fossils were collected bringing the total number of specimens to 2,90,000. The collected material was curated and preserved in the reference collection of PMNH. Besides samples, numerous photographs showing details of the area of study were also taken. Research was conducted on various aspects of the natural history of the country, which resulted in the production of many research articles. During this period research articles were published in national and international journals.

PMNH continued international collaboration on research with various Universities/ Research organizations of USA, France, Japan, Canada and Switzerland. Expert help was provided to agencies like IUCN, WWF, UNESCO, etc. Several University students were guided in their research work.

A division-wise account of activities during the year 2003-04 is given below.

1. BOTANICAL SCIENCES DIVISION

a) Reference Collection

The division carried out field tours to various localities of Murree & Galiat, Northern Pakistan, Azad Jammu & Kashmir, North West Frontier Province, Punjab, Sindh and Islamabad to collect Higher and Lower Plant specimens along with ecological and ethno-botanical data. A total of 2000 plant specimens comprising of flowering plants, algae and fungi were collected and added to the reference material of the PMNH.

BSD along with ZSD are carrying out three baseline studies projects on Flora and Fauna of Machiara National Park, a protected area of global significance in AJK. The studies will help in evolving strategies and plans for conservation of species and habitats.

b) Laboratory work:

Identified 1500 higher plants and 500 lower plants; poisoned and mounted.

c) Design/Display:

Information provided to Pakistan Railway about Traditional Medicinal/ Economic uses and Historical features of Trees found at Pakistan Railway Heritage Point, Golra Sharif for display to general public.

d) Technical Reports/ Development Schemes:

On going Project:

- i. Ethno botanical Studies from N. Pakistan (PSF)
- ii. Documentation of Indigenous knowledge about Medicinal Plants (PSF)

New Projects Initiated:

- “Inventory of Flora of Margalla Hills” approved for funding by Pakistan Science Foundation.

Project Proposals Submitted:

- i. Development of Post harvesting techniques of selected Medicinal Herbs (M/o S&T).
- ii. Exploration of Indigenous Mushrooms and Toadstools found in Remote Valleys of Northern Areas of Pakistan (PSF).
- iii. Studies on Algae of major rivers of Punjab (Pakistan) with special emphasis on its consumption by fishes (PSF).
- iv. Studies on the Taxonomy, Ethno-botany and Conservation Status of Economically Important Plants of Potwar Plateau, Punjab, Pakistan (PSF).

e) Extension work and service to other organizations:

PMNH officers provided guidance and supervision to M/o Environment, Fatima Jinnah Women University, Rawalpindi, WWF, IUCN, UAAR, QAU, Karachi University, Hamdard University, Azad Kashmir University, Hazara University, Malakand University, Baluchistan University, Forestry department NWFP and Punjab. Examined Ph D and M. Phil students at Quaid-I-Azam University, Islamabad.

f) Publications

- Leghari, M. K., and Muqarrab Shah (2002) Ecological Study of Algal Flora of Korang Nalla of Rawal Dam, Islamabad. *Biologia -Pakistan*. V.48 (1or 2): 65-80 (Published in June 2004).
- Leghari, M. K., and Muqarrab Shah (2003) Ecological Study of Algal Flora of Wah Garden, District Attock. *Pakistan Journal of Botany*, Department of Botany, V. 35 (5)-University of Karachi.
- Shinwari, M. I., and M. I. Shinwari (2003) A Bibliography of the Genus *Rosa*. *Hamdard Medicus*. Vol. XLVI, No.3 of Jul.- Sept. Bait-al- Hikmah at Madinat-al- Hikmah, Karachi.
- Shinwari, M. I and M. I. Shinwari (2004) Pollen Morphology of Wild Roses from Pakistan. *Hamdard Medicus*. Vol. XLVII, No.4 of Oct.-Dec. Bait al Hikmah at Madinat al Hikmah Karachi.

Published several Abstracts in national and international journals.

Accepted for Publication:

- Leghari, M. K., and Muqarrab Shah (2003) Ecological Study of Algal Flora of Bari Imam Nullah. Presented in 2nd Biological Conference at Govt. College Lahore.

2. EARTH SCIENCES DIVISION (ESD)

a) Reference Collection

A large number of geological samples such as rocks, minerals and fossils were collected. Geological field data was also obtained. The collected material was added to the reference collection of PMNH.

b) Laboratory Work:

Prepared more than 100 thin sections of rocks and carried out their petrographic studies, microphotographs of these sections were also taken. Catalogued 80 vertebrate fossils in computer, labeled 556 geological samples and 1700 fossils. Delivered in house seminar on Geological research topics.

c) Design/Display:

Pakistan Museum of Natural History (PMNH) Islamabad and National Geological Society of Pakistan (NGSP) jointly organized a 2-day "5th Pakistan Geological Congress" on 14-15 April 2004 at Islamabad.

Pakistan Museum of Natural History (PMNH) Islamabad and National Geological Society of Pakistan (NGSP) jointly organized a One Day Workshop on "Geological Materials/Aggregates of Pakistan" on 10th June 2004 at Pakistan Science Foundation, Islamabad.

d) Technical Reports/ Development Schemes:

Submitted the following project proposals for funding to various national and international agencies:

- Project feasibility report of “Pakistan Institute of Natural Sciences (PINS)” under progress.
- “Establishment of Sustainable Model Agriculture Farm in Basol Area, Balochistan using Wind Energy And Drip Irrigation System” approved for funding by Pakistan Science Foundation.

c) Extension work and service to other organizations:

A large number of student groups from various Schools and Colleges were guided through the labs and reference material of the Division.

d) Publications:

Antoine, P. O., Shah, S. M. I., Cheema, I. U., Crochet, J. Y., Francebchi, D. de., Marivaux, L., Metais, G., and J. L., Welcomme. 2004. New remains of the baluchithere *Paraceratherium bugtiense* (Pilgrim, 1910) from the Late/latest Oligocene of the Bugti hills, Balochistan, Pakistan. *Journal of Asian Earth Sciences, Amestrdam, Netherlands.* pp 1-7. Available online at www.sciencedirect.com

3. ZOOLOGICAL SCIENCES DIVISION (ZSD):

a) Reference Collection:

- ZSD along with BSD are carrying out three baseline studies projects on Flora and Fauna of Machiara National Park, a protected area of global significance in AJK. The studies will help in evolving strategies and plans for conservation of species and habitats. A total of 1000 invertebrates and vertebrates, including a large number of insects, fish, reptiles, amphibians and rodents were collected. These specimens were preserved and added to the PMNH Zoological reference collection.
- Extensive field studies carried out and valuable data have been collected pertaining to two ongoing PSF funded projects entitled “ (1) Ecology and Zoogeography of Butterfly Fauna of Moist Temperate Montane of Pakistan &(2) Ecological studies of reptilian fauna of Cholistan desert.

b) Laboratory Work:

Catalogued 1000 invertebrates and vertebrates preserved and mounted. Identified butterflies and snakes, labeled fish samples. Stuffed birds and mammals, repaired mammals and bird specimens; prepared skins of birds and mammals.

c) Display Activities:

- National Workshop was organized on “Biotechnology Entrepreneurship Development” at Pakistan Science Foundation Islamabad on March 25, 2004.
- ZSD officers attended a short course on design & analysis of expertise for Engineering, Physical Sciences and manufacturing industries” at PSF
- The officers of ZSD participated in the 24th Pakistan Congress of Zoology held at AIOU, Islamabad.

d) Technical Report/Research Proposals:

Annual Report prepared:

- Annual reports of two ongoing PSF funded projects entitled “ (1) Ecology and Zoogeography of Butterfly Fauna of Moist Temperate Montane of Pakistan (2) Ecological studies of reptilian fauna of Cholistan desert submitted.

New project initiated:

- “Bio-Ecology and Population Management of the House Crow (*Corvus splendens*) in Islamabad area” approved for funding by Pakistan Science Foundation.
- “Inventory of Faunistic Diversity in Margalla Hills National Park” approved for funding by Pakistan Science Foundation.

Project proposals submitted for funding to various donor agencies:

- Establishment of Biotechnology Entrepreneurship Development Center (M/o S&T).
- “Butterfly Garden”.

- “Establishment of network of self sustainable family fish ponds for exploitation of untapped fisheries resources in Northern areas”. (PC-1)
- “Isolation and characterization of the coagulants from the venom of vipers of Pakistan”.
- “Bio-insecticides”.
- “Venoms and Toxins”.

e) Extension work and service to other organizations:

- Provided advisory services in the Morgah Biodiversity Park Project which is being implemented in Public – Private Partnership by UNESCAP, M/O Economic Affairs and Attock Refinery Limited, Islamabad with a view to promote sustainable use of biological resources for socio-economic development of the community.
- Guided several M. Sc. and M. Phil. students of University of Arid Agriculture, Rawalpindi, and Quaid-i-Azam University, Islamabad, in their research assignments.
- Evaluated M. Phil dissertation and conducted viva-voce of a student of Quaid-i-Azam University, Islamabad.
- Guided tours to the Division were provided to various student/teacher groups of various Colleges and Universities.

f) Publications:

- Hasan, S. A. 2004. Butterfly diversity and distribution in the Moist-temperate Region of Pakistan” Presented at 24th Pakistan Congress of Zoology held at AIOU, Islamabad.
- Baig, K. J. 2004. Some preliminary studies on the Herpetofauna of Cholistan Desert. Presented at 24th Pakistan Congress of Zoology held at AIOU, Islamabad.
- Rafique, M. 2004. Studies on the fish fauna of the rivers of coastal areas of Baluchistan with special reference to its relationship with the fish fauna of Indus Drainage. Presented at 24th Pakistan Congress of Zoology held at AIOU, Islamabad.
- Ali, M. H., 2004. An overview of the extension of distribution range of Barn Owl. Presented at 24th Pakistan Congress of Zoology held at AIOU, Islamabad.
- Feroze, A. 2004. Some biochemical and pharmacological characteristics of venom from Saw-Scaled Viper (*Echis Carinatus*) of Pakistan. Presented at 24th Pakistan Congress of Zoology held at AIOU, Islamabad.

4. PUBLIC SERVICES DIVISION (PSD):

a) Design and Display:

- Dimension Stone Display open for public.
- Virtual orientation Gallery will open soon at PMNH
- PMNH gets funds for the expansion of its Display Centers.
- PMNH Design department will commercialize its design services as instructed by Chairman PSF.
- PMNH planed Natural History Documentary films on air show.
- Chairman, CDA visited Museum and expressed that it was a delightful experience.
- Hundreds of students, general public and foreigners are visiting PMNH Display Galleries very frequently and taking keen interest in it.

b) Educational Activities:

- Numerous students from various Schools and Colleges were provided guided tour of the Museum.
- Several student groups were shown films on Natural History in the audio-visual hall of the PMNH.

c) Museum Maintenance and Photography:

Necessary renovation, maintenance and repair work including carpentry, painting, illumination, lighting, etc. of the Display Halls, Galleries, various Dioramas, the Audio-visual Hall, scientific labs, administration section, museum building, etc. were carried out. Video coverage of the Inaugural Ceremony of the Display Centre was prepared. Took numerous photographs of animals, plants, rocks, etc. for display and research purposes.

d) Extension work and services rendered to other organizations:

PMNH officers provided guidance and supervision to WWF, IUCN, UAAR, QAU, Karachi University, Hamdard University, Azad Kashmir University, Hazara University, Malakand University, Baluchistan University, Forestry department NWFP and Punjab. Examined Ph D and M. Phil students at Quaid-I-Azam University, Islamabad.

Other Activities

Biodiversity Day, 2004:

Biodiversity Day celebrated on May 22, 2004 at PMNH in collaboration with Ministry of Environment, IUCN and WWF. In this connection, different educational programmes were arranged in PMNH, including film-show and lecture to create awareness among the public about the Biodiversity of Pakistan and its conservation. Interviews of scientists of PMNH were recorded for Radio and Television. Coverage of the activities of the day was published in dailies The Nation, Dawn, and Frontier Post.

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE (PASTIC)

Pakistan Scientific and Technological Information Centre (PASTIC), is the premier organization in the field of information dissemination serving thousands of researchers. It is a unit of Pakistan Science Foundation, an autonomous organization under the Ministry of Science & Technology.

PASTIC has evolved from the erstwhile Pakistan National Scientific and Technological Documentation Centre, PANSDOC, which was established in 1957 at Karachi with the assistance of UNESCO, under the Pakistan Council of Scientific and Industrial Research. In 1974 PANSDOC was transferred to Pakistan Science Foundation (PSF) and was renamed as Pakistan Scientific and Technological Information Centre (PASTIC).

The National Centre is housed in its own building situated in the Quaid-i-Azam University Campus, Islamabad. It has five Sub-Centres at Karachi, Lahore, Peshawar, Faisalabad, Quetta and Muzaffarabad. It employs about 100 persons includes Technical and Administrative Staff.

AIMS & OBJECTIVES

- ☞ To procure, process and disseminate scientific and technological information to the researchers.
- ☞ To interact with regional and international information agencies/networks.
- ☞ To develop inter-library cooperation, resource sharing at national level.
- ☞ To train information personnel in contemporary techniques and methods of information handling.
- ☞ To develop and strengthen the National Science Reference Library.
- ☞ To provide bibliographic and translation service.
- ☞ To compile Directory of S&T Periodicals of Pakistan, Union Catalogue of Scientific Periodicals in the libraries of Pakistan and Technology Information Bulletin.
- ☞ To publish an abstracting and indexing journal entitled "Pakistan Science Abstracts".

SERVICES AND ACTIVITIES

The activities undertaken during the period, July 2003 to June 2004 are briefly described below:

1. DOCUMENT PROCUREMENT AND SUPPLY SERVICE

Under the Document Procurement and Supply Service, queries were received from different R&D organizations for supply of reprints of research articles, conference papers and reports etc. which were procured either from local sources or from abroad. PASTIC Documentation Section has now started a new Digital Documentation Supply Service (DDSS) through which the time of supply of the order has been reduced to only 2 hour instead of 12 days. This service enables us to supply documents through e-mails or giving access to the clients to the domain through secure password to down load the required information. A total number of 1927 S&T documents were procured and supplied against 2546 requests received from scientists, researchers and other R&D workers.

2. BIBLIOGRAPHIC INFORMATION SERVICE

References from International databases on CD-ROM were supplied to users according to their research topics on request. 15475 references on various S&T topics were supplied to 801 researchers during year 2003-04.

For further strengthening of the bibliographic information service and resources of PASTIC Sub-Centres, 168 bibliographic information databases on CD-ROM were supplied to all PASTIC Sub-Centres, viz., Lahore, Peshawar, Faisalabad, Quetta, Muzaffarabad and Karachi so that they can easily search out the research material locally according to the needs of clients. CD-ROM database stock register was prepared from 1999 to date during this period. Literature review of 55 PSF Projects proposal was also carried out.

3. PUBLICATION SERVICE

a. PAKISTAN SCIENCE ABSTARCT

PASTIC provides abstracting and indexing service by publishing an abstracting journal entitled "Pakistan Science Abstracts" which serves as a secondary information source to give support to research and development activities in the country. The scientific information generated in Pakistan or abroad and published in Pakistani journals is documented in this secondary journal. The abstracts of research articles along with detailed author index and keyword index were published in Pakistan Science Abstracts.

Under this activity research articles were abstracted, classified, indexed, compiled, and edited. Pakistan Science Abstract 2003, Vol. 41, No. 1-4 was processed and published during this period.

b. DIRECTORY OF SCIENTIFIC AND TECHNOLOGICAL PERIODICALS OF PAKISTAN

PASTIC brings out Directory of Scientific and Technological Periodicals of Pakistan with a view to identify the scientific periodicals being published in Pakistan. This publication serves as an important reference information tool for research scholars, scientists, R&D workers, information workers and other connected with the field of scientific and technological endeavor.

Reference information about 300 Pakistani Scientific Journals being published from Pakistan was collected for publishing Directory of Scientific Periodicals of Pakistan. This acquired data was entered in a database developed for this purpose. The data was proofread, edited, processed and compiled for preparation of manuscript of proposed directory. Directory of Scientific Periodicals of Pakistan 2004 was published and also launched on PASTIC website.

c. UNION CATALOGUE

PASTIC undertakes screening and survey of the libraries of scientific institutions and universities of the country to gather information about the serial holdings collection of these libraries. The information collected from these libraries is thus standardized, computerized and published in the form of "Union Catalogue".

Union Catalogue of the Scientific Periodicals in libraries of Pakistan Volume-I was published and also launched on PASTIC website and now it is accessible to users on Internet.

4. PASTIC NATIONAL SCIENCE REFERENCE LIBRARY

PASTIC National Science Reference Library is aimed at providing reference and referral service to the users and strengthening of all the services of PASTIC especially document supply service, bibliographic information service, abstracting and indexing service, technological information service etc.

PASTIC library is in progress towards digitization. During 2003-04, 2500 data entry sheets for books were filled. 2100 data entry sheets were computerized using WIN/ISIS software and checked. Establishment of full text database of periodicals in collaboration with NUST Consultant is in progress. 570 issues of Journals were sent to NUST for scanning.

During reported period a total number of 1400 issues of library material including 770 issues of Periodicals, 55 issues of Document and 88 Books, etc., has been received and processed. Regarding Information Services of library, 1384 references articles have been supplied to 770 visitors/users during this period.

A list of 5000 full text on-line journals to be subscribed by HEC on its Educational Internet were reviewed. 113 new titles were identified.

The subscription of following databases on CD-ROM were renewed during the reported period.

1. Medline
2. Poltox
3. Life Sciences
4. Wilson Applied Science & Technology
5. Derwant Biotechnology Abstracts
6. Ulrich Directory

5. REPROGRAPHIC SERVICES

The Reprographic Section of PASTIC has facilities ranging from photocopying to offset printing. During the period July 2002 to June 2003 about 21,14,293 impressions, 3777 pages and 19,9,597 copies were printed and produced by the Reprography Unit against 116 jobs received from 10 organizations.

6. IT RELATED ACTIVITIES

A development project entitled "Establishment of National Science and Technology Database/Information Network at PASTIC" is under execution. Establishment of National Science and Technology Database/Information Network at PASTIC is underway under this project. Networking will be established with all the PASTIC Sub-Centres and other designated network members. Under this project following activities were carried out during the period under review.

- ☞ Designed database for Union Catalogue, 200 libraries data merged and finally uploaded to website: [URL:http://www.pastic.gov.pk/catalogue.html](http://www.pastic.gov.pk/catalogue.html) with advance search facility.
- ☞ PASTIC and PSF websites were shifted from COMSATS server to NTC server.
- ☞ A web based database developed for Scientific and Technological Periodicals published in Pakistan.
- ☞ A database of Expatriate Pakistani Scientists and Engineers was developed and loaded on PASTIC website at [URL:http://www.pastic.gov.pk/pastic/index.asp](http://www.pastic.gov.pk/pastic/index.asp)
- ☞ Designed, conducted and scrutinized the computer based and written tests for 140 applicants for MoST, for the post of Technical Assistant and Data Entry Operators.
- ☞ A database of Pakistani Scientist designed and successfully launched at PASTIC and PSF websites.
- ☞ Software developed for the computerization of PASTIC Store record.
- ☞ Designed and implemented database of training record of PASTIC employees.
- ☞ Local Area Network (LAN) of the PASTIC redesigned, extended and reinstalled at minimum cost.
- ☞ PASTIC LAN environment shifted to centralized server based environment for advance sharing/network facilities and installed licensed software for both server and client side.

- ☞ PASTIC WAN connectivity design with future scope and requirements was designed with the assistance of Micronet, Paknet and NTC.
- ☞ Draft Contract Agreement with M/s Gerry soft-logic for installation and implementation of PASTIC WAN connectivity project was finalized.
- ☞ Got permission from HEC regarding connectivity of PASTIC with Pakistan Educational Research Network (PERN).
- ☞ Prepared PC-IV on “Establishment of National Science and Technology Database/Information Network”

7. INTERNATIONAL LIAISON

PASTIC is the National Focal Point of International/Regional Information Centres and Networks like, SAARC Documentation Centre, WHO/CEHANET and UNEP/INFOTERRA. PASTIC is also the Coordinating / Collaborating Centre for UNDP/TIPS, UNESCO/ASTINFO and AIT/ ENSICNET. The following collaborating activities were undertaken during the report period.

a. ASTINFO/UNESCO: It is a UNESCO supported Network for the Exchange of Experience and Information in Science and Technology in Asia and the Pacific. Its aim is to build and strengthen the information infrastructure in the Member States. Under this network, PASTIC is responsible for the distribution of UNESCO developed software/packages such as CDS/ISIS and IDAMS as well as provides training on CDS/ISIS package. In view of these objectives following activities were undertaken during the reported period.

- ☞ WINISIS Package (English Version) supplied to 72 organizations and Arabic Version to one organization.
- ☞ Draft Policy Guidelines for Development and Promotion of Public Domain Information prepared by UNESCO were reviewed and comments in this regard were sent to Pakistan National Commission for UNESCO, Islamabad and UNESCO, Paris, France.

Besides this PASTIC has been designated the National Focal Point for Information for All Programme of UNESCO. The IFAP was established in 2001 to meet the challenges of the emerging global knowledge society and to provide equitable access to information in view of the role information plays in generating wealth and that participation in the global society is essential for development. Accordingly PASTIC is in the process of constituting a National Committee for IFAP, which has representatives from Information Ministry, Science & Technology, NGOs, Information & Broadcasting, Library and Information Professionals, etc.

b. BILATERAL COOPERATION: Project proposals for S&T cooperation agreement, between Pakistan & Norway, Pakistan & UNESCO, Pakistan & Egypt, Pakistan & Tunisia and Pakistan & USA were prepared under bilateral cooperation programme.

c. **SAARC DOCUMENTATION CENTRE:** SAARC Documentation Centre (SDC) is a regional centre of SAARC. It was established in 1994 to act as an effective information system of Member States that enables exchange of information in various fields. Another objective of the SDC is to develop human resources in the Member States in the area of information science, technology, management systems and services. In this regard following activities were undertaken during the report period.

- ☞ Six cases of nominations regarding short-term courses on “Information Technology for Information Management”, “Master Level AIS Course” and “Attachment Training Programme” under SAARC Documentation Centre training opportunities were processed.

8. TECHNOLOGICAL INFORMATION PROMOTION SYSTEM (TIPS):

Technological Information Promotion System based at PASTIC has been regularly publishing weekly and fortnightly bulletins in Pakistan which provides up-to-the-minute detailed information on technology and trade opportunities in the developing countries. It covers fourteen different sectors like, Electronics, Food Processing, Bio-Technology, etc., and has the largest database in the world on trade/technology information from the developing countries.

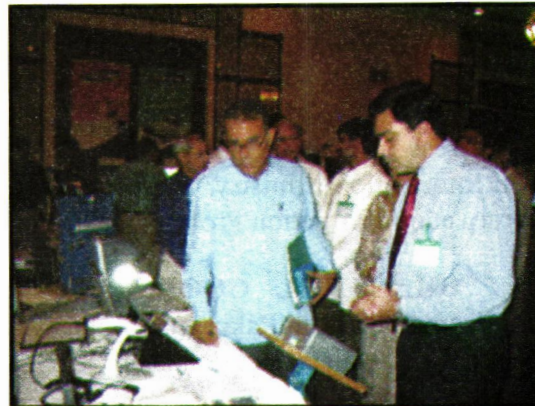
- ☞ TIPS organized a computer exhibition EPTI 2004 from 5-6 June, at Faisalabad.



Dr. Farid.A. Malik, Chairman, PSF, Ms. Nuzhat Yasmeen, Director, PASTIC, Mian Aftab Ahmad, President, Chamber of Commerce Faisalabad, Syed Jawad Hussain Shah Director, Export Promotion Bureau, and Raja Razzi-ul-Hasnain, Director In charge ,TIPS addressing the audience in exhibition.



Mian Aftab Ahmed, President, Chamber of Commerce and Industry is inaugurating the EPTI 2004 Exhibition at Faisalabad



Dr. Farid A. Malik, Chairman, Pakistan Science Foundation is visiting different companies during exhibition

TIPS PUBLICATIONS

- ☞ Eighth Edition of White Meat Journal has been published and distributed to different organizations related to White Meat Industry.
- ☞ Baroon-e-Mulk Tijarat 4th –Edition, 2004 has been published.

9. MISCELLANEOUS ACTIVITIES

PC-I SUBMITTED TO MOST

- ☞ Prepared and submitted annotated replies of the observations on PC-I entitled “Strengthening of Technological Information Services at PASTIC”.
- ☞ Prepared and submitted the summaries of the two PC-I entitled “Strengthening of Technological Information Services at PASTIC” and “Enhancement of the Documentation Services of Pakistan Scientific & Technological Information Centre (PASTIC) By the Establishment of Full Text National Science & Technology Database (NSTD)”.
- ☞ Prepared and submitted PC-I entitled “Research Support Programme for Filing Patents and Publishing Articles”.

ISO 9000 CERTIFICATION

Public Service Section of PASTIC was ISO 9001-2000 certified on 25th October, 2003. PASTIC is now preparing for ISO-certification for the remaining sections which includes Library and Publication Services, Reprographic Services and Technology Information Services. PASTIC is one of the few public sector organizations, which has obtained ISO certification.

WORLD BOOK DAY

Pakistan Science Foundation (PSF), Pakistan Scientific and Technological Information Centre (PASTIC), American Centre, Sir Syed Memorial Society and University of Azad Jammu & Kashmir jointly organized A Walk, Books Exhibition and Seminar on World Book Day on 23rd April, 2004.



Prof. Dr. Atta-ur-Rahman, Advisor to Prime Minister on S&T with children during walk and visiting exhibition of books on World Book Day.

INAUGURATION OF MUZAFFARABAD SUB-CENTRE

A new PASTIC sub-centre was established on 7th August, 2003 at Muzaffarabad. H.E. Sardar Mohammad Anwar, the President of the State of Azad Jammu and Kashmir inaugurated the centre.



Sardar Mohammad Anwar, President of the State of Azad Jammu and Kashmir inaugurating the PASTIC sub-centre, Muzaffarabad.



Dr. Farid A Malik, Chairman, Pakistan Science Foundation meeting with guests during inauguration of PASTIC sub-centre Muzaffarabad.

STONE LAYING CEREMONY OF THE PASTIC SUB-CENTRE BUILDING AT MUZAFFARABAD

Foundation stone laying ceremony of the building of PASTIC sub-centre and Pakistan Science Foundation Liaison Office at Muzaffarabad was held on 18th December, 2003. Sardar Sikandar Hayat Khan, Prime Minister of Azad Jammu and Kashmir laid the foundation stone.



H.E. Sardar Sikandar Hayat Khan, Prime Minister, Azad Jammu & Kashmir, praying after Stone Laying ceremony of the PASTIC sub-centre, Muzaffarabad.

In-House Databases Developed

- ☞ A questionnaire for the collection of holdings record and services offered by Scientific Libraries in Pakistan was designed and 111 libraries were computerized using MS Access.
- ☞ PASTIC has initiated collection of data on Dissertation from universities of the country in all disciplines of Science and Technology. The aim is to enhance the National Information Resources.
- ☞ Designed Data Entry Sheet, defined database in WIN/ISIS using MARC format for PASTIC library and computerized 2100 books record.

ORIENTATION PROGRAMME

An orientation programme was initiated for orientation of newly inducted officer/officials at PSF/PMNH/PASTIC. Under this programme orientation of all the officers/officials appointed in the PSF, PASTIC and PMNH during the period under review was carried out.

HUMAN RESOURCE DEVELOPMENT

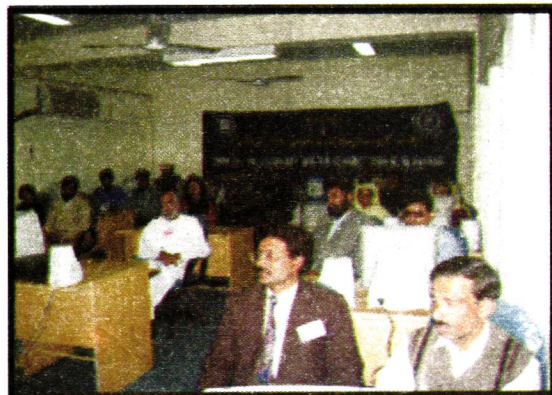
One of the important activities of PASTIC is to impart training on computer applications for Office & Library automation as well as organized workshops and seminars on diverse topics.

Training/Workshop organized for Information Professionals

- ☞ A 3rd Regional Conference on EMRO Health Sciences Virtual Library was organized by PASTIC from 1-6 September, 2003 at Karachi. Director, PASTIC and two Officers attended the conference.
- ☞ Pakistan Museum of Natural History, Pakistan Geological Society and PASTIC has organized a 2-Day International Workshop on “Geo-informatics” from 7-8 January, 2004 at Islamabad.
- ☞ Workshops on “Knowledge Management: Strategies and Tool” were organized from 24-28 February and 8-12 March, 2004 at Islamabad.

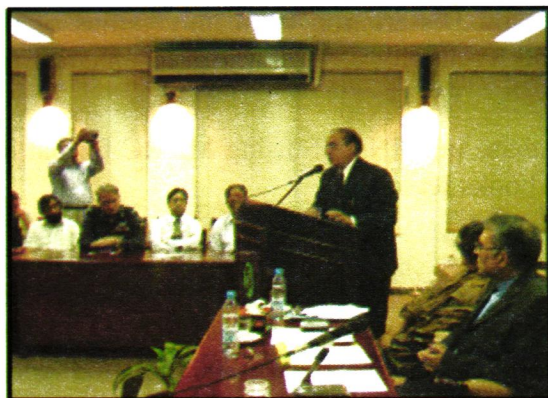


Inaugural ceremony of the “Workshop on Knowledge Management Strategies and Tools” presided by Prof. Dr. Atta-ur-Rahman. Dr. Farid A. Malik, Chairman PSF and Ms. Nuzhat Yasmeen, Director PASTIC besides him



Participants during the “Workshop on Knowledge Management Strategies and Tools”

- ☞ Training on Microsoft Office was organized for PASTIC, PSF and PMNH Officers/Staff from 19-24 April, 2004.
- ☞ A one day seminar on “Understanding Patentability Issues of Scientific Research” on 30th April 2004 at Islamabad.



Prof. Dr. Atta-ur-Rahman, Advisor to Prime Minister on S&T addressing the audience in a seminar on Understanding Patentability Issues of Scientific Research.



Dr. Sarfaraz K. Niazi, a Patent Attorney from USA is delivering a seminar on Understanding Patentability Issues of Scientific Research.

- ☞ A seminar on “Role of Patents in Fostering Innovations” was arranged on 21st May, 2004 at Karachi.



Dr. Sarfaraz K. Niazi, Patent Attorney from USA, Ms. Nuzhat Yasmeen Director PASTIC, Abdul Jabbar Chief Executive, Ms. Yasmeen Abbasi Controller, Pakistan Patent Office and Khawaja Mansoor Chairman, PIPRA in a seminar on Role of Patents in Fostering Innovations at Karachi.

- ☞ Training on Microsoft Office was organized for PASTIC, PSF and PMNH Officers/Staff from 8-10 June, 2004.
- ☞ Organized training on WIN/ISIS software on 29-31 March 2004 at Islamabad.
- ☞ Organized training on WIN/ISIS Package for PAEC Libraries from 14-16 June, 2004 at Islamabad.

Workshops Attended & Trainings Received by PASTIC Officers

- PASTIC Officers (BPS-16 and above) attended a series of workshops on Project Management at PSF.
- An Officer In-charge, Quetta attended a three day National Conference on “Biotechnology and Informatics in Pakistan” from 15-17 April, 2004 at Baluchistan University of Information Technology and Management Sciences, organized by PSF, BUTMS and HEC.
- PASTIC Sub-Centre Lahore actively participated in PCSIR Golden Jubilee Industrial Fair from 26-09-03 to 19-10-03 at Lahore organized by PCSIR.
- A staff member from PASTIC sub-centre Lahore participated in one day workshop on “Digital Library Access and Registration Work” organized by HEC, Islamabad at Punjab University on 15th May, 2004.
- An Officer from PASTIC National Centre attended training on Web-based Union Catalogue at NARC, Islamabad.
- PASTIC sub-centre Karachi actively participated in PCSIR Exhibition, “Image Pakistan 2003” held from 20-03-04 to 11-04-04 at Karachi.
- A staff member of PASTIC attended Fire training course organized by National Institute of Fire Technology, Islamabad.

CHAPTER-2

ORGANIZATION AND ADMINISTRATION

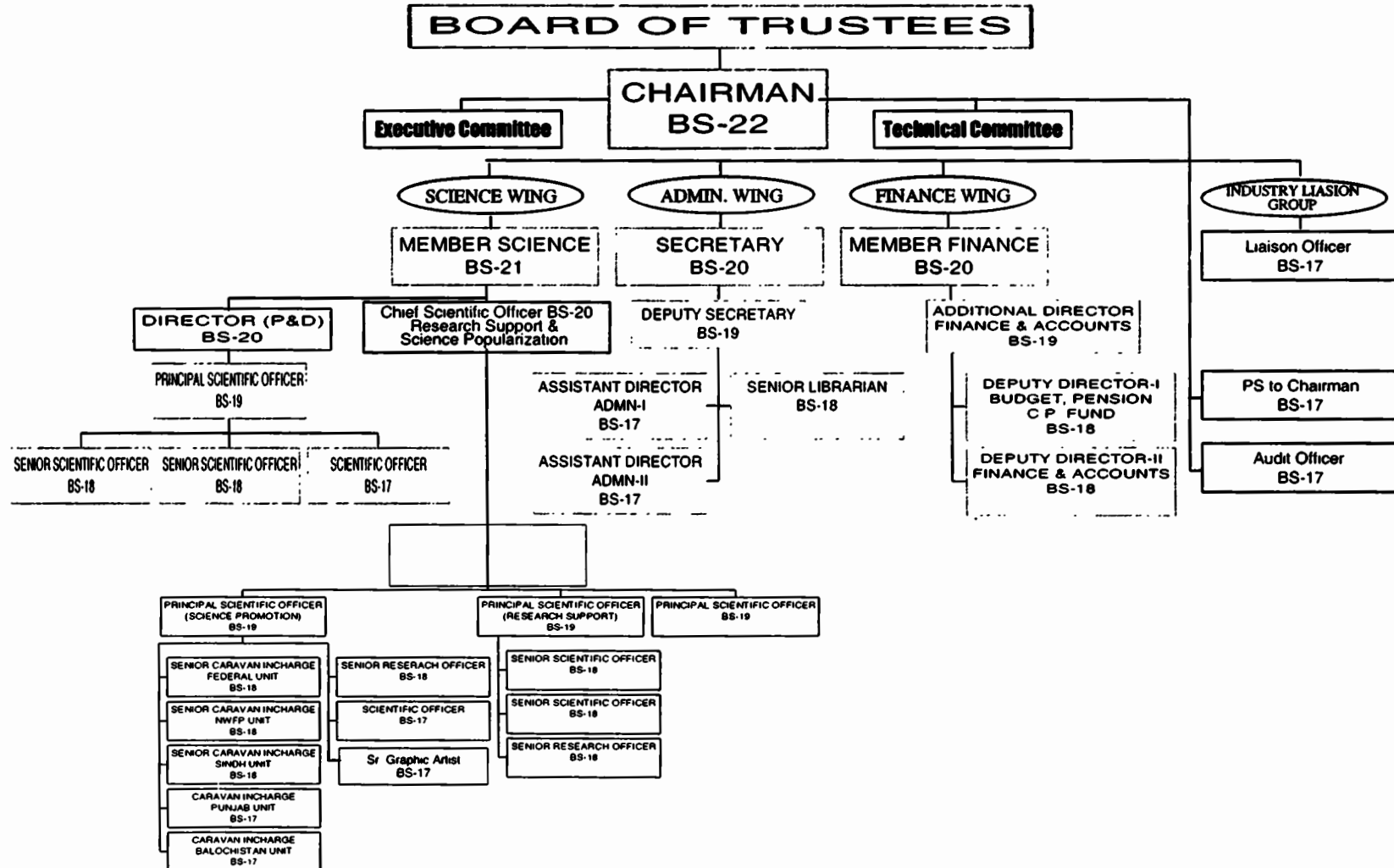
The organizational structure of the Pakistan Science Foundation, Pakistan Museum of Natural History & Pakistan Scientific & Technological Information Centre are given on the forthcoming pages. The staff position in the Foundation, PMNH and PASTIC during the report period is as under:

PAKISTAN SCIENCE FOUNDATION

S.No	Designation	Number
1	Chairman	1
2.	Member (Science)	1
3	Member (Finance)	1
4	Secretary	1
5	Chief Scientific Officer	1
6	Director (P&D)	1
7	Additional Director (F&A)	1
8	Deputy Secretary	1
9	Principal Scientific Officer	4
10	Sr. Scientific Officer	6
11	Sr. Research Officer	2
12	Sr. Librarian	1
13	Dy. Director (F&A)	2
14	Sr. Caravan Incharge	3
15	Scientific Officer	2
16	Industry Liaison Officer	1
17	Asstt. Director (Admn)	2
18	Internal Audit Officer	1
19	PS to Chairman/Member(s)	2
20	Caravan Incharge	2
21	Sr. Graphic Artist	1
22	Graphic Artist	1
23	Mechanic for Instruments	1
24	PA to Chairman	1
25	Accountant	4
26	Asstt. Research Officer	1
27	Superintendent	3
28	Sr. Driver-Cum-Mechanic	1
	Supporting staff	<u>125</u>
	Total	174

PAKISTAN SCIENCE FOUNDATION ORGANIZATIONAL CHART

2003-2004

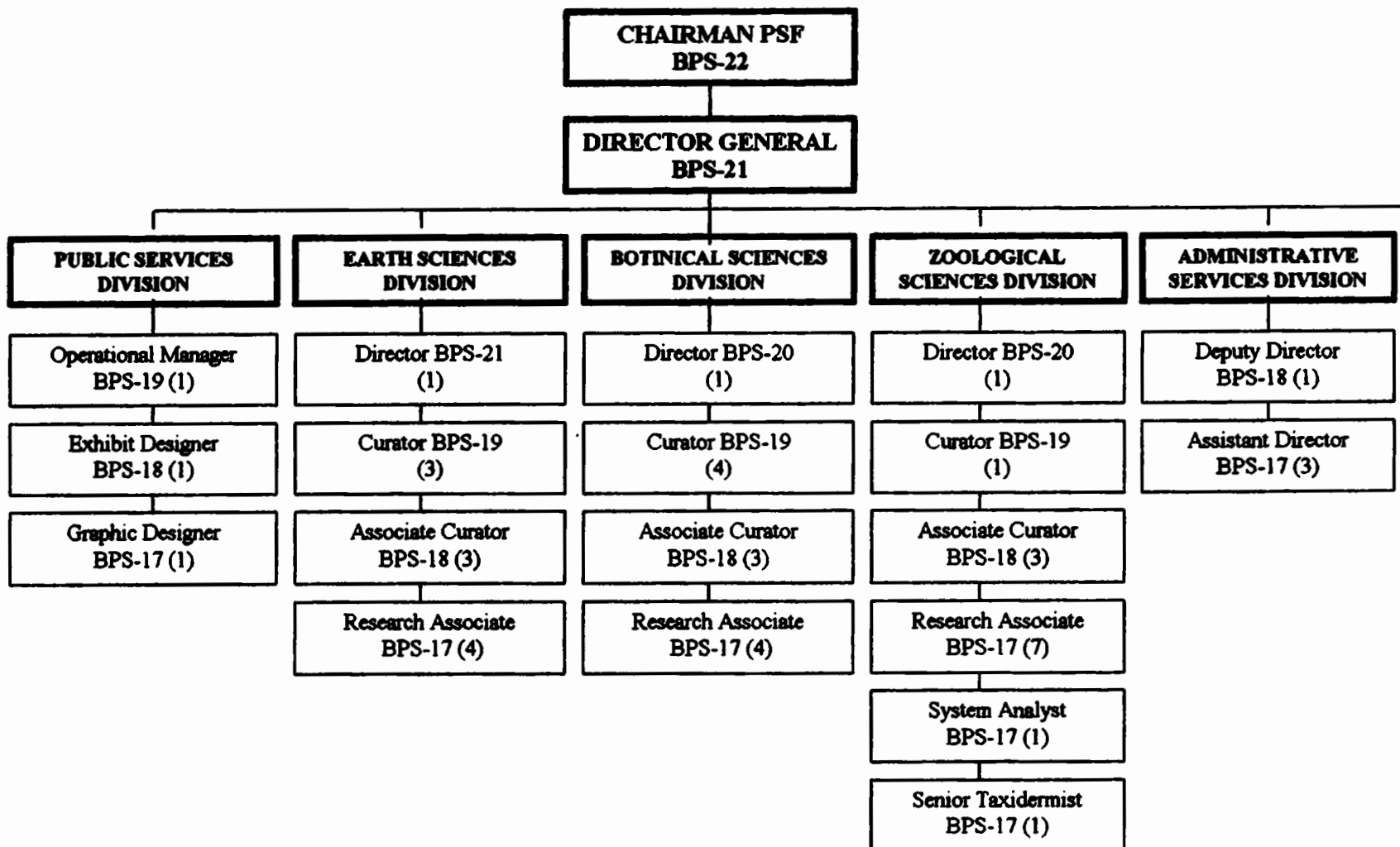


PAKISTAN MUSEUM OF NATURAL HISTORY (PMNH)

S. No.	Name of Post	Grade	No of Post
1.	Director General, PMNH	BS-21	01
2.	Director	BS-20	03
3.	Operational Manager	BS-19	01
4.	Curator	BS-19	06
5.	Associate Curator	BS-18	07
6.	Sr. Taxidermist	BS-17	01
7.	Graphic Designer	BS-17	01
8.	Research Associate	BS-17	03
9.	Assistant Director (Admin-I)	BS-17	01
10.	Assistant Director (Admin-II)	BS-17	01
11.	Assistant Director (Accounts-III)	BS-17	01
12.	Children Education Programmer	BS-16	01
13.	Associate Artist	BS-16	01
14.	Assistant Librarian	BS-16	01
15.	P.A. to the Director General	BS-16	01
16.	Accountant	BS-16	01
17.	Taxidermist	BS-16	01
18.	Supporting Staff BS-1 to BS-15		74
		G. Total	106

PAKISTAN MUSEUM OF NATURAL HISTORY

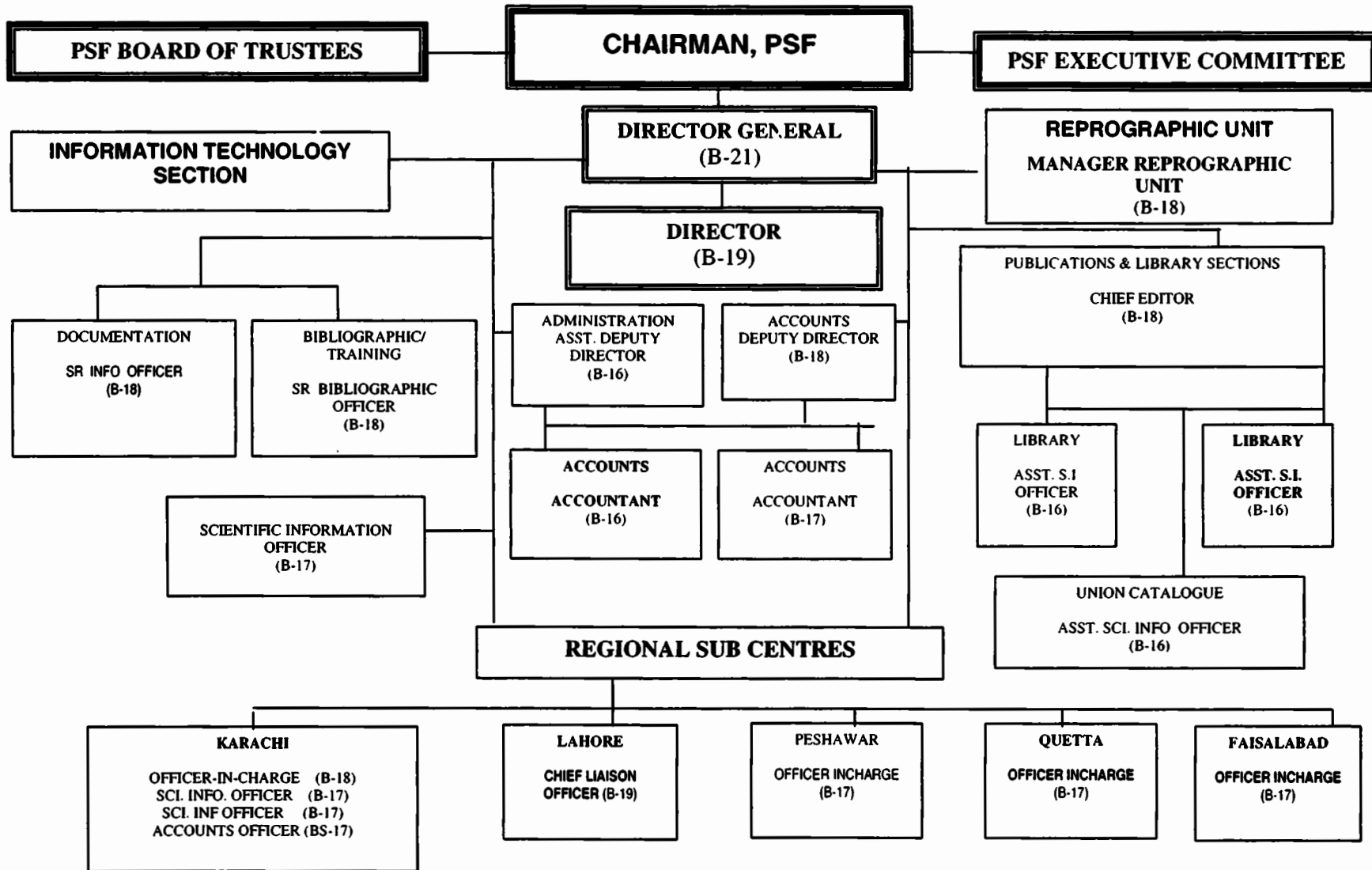
ORGANIZATIONAL CHART 2003-2004



**PAKISTAN SCIENTIFIC AND TECHNOLOGICAL
INFORMATION CENTRE (PASTIC)**

S. No	Designation	Number
1)	Director General	1
2)	Director	1
3)	Dy. Director	1
4)	Additional Director (F&A)	1
5)	Chief Liaison Officer	2
6)	Sr. Translating Officer	1
7)	Manager Reprographic Unit	1
8)	Sr. System Analyst	1
9)	Sr. Documentation Officer	1
10)	Chief Editor	1
11)	Sr. Information Officer	1
12)	Sr. Bibliographic Officer	1
13)	Sr. Librarian	1
14)	Deputy Director (Admn)	1
15)	Scientific Information Officer	5
16)	Bibliographic Officer	1
17)	Patent officer	1
18)	System Analyst	2
19)	Manager Technology Information	1
20)	Photographic Officer	1
21)	Printing Officer	1
22)	Graphic Artist	1
23)	Assistant Director(Admn)	2
24)	Liaison Officer/Officer Incharge	1
25)	Accountant	1
26)	Asstt: Accounts Officer	1
27)	P.A to Director General	1
28)	Superintendent (R.U)	1
29)	Asstt: Scientific Information Officer	3
30)	Asstt: Doc. Officer	2
31)	Asstt: Programmer	3
32)	Asstt: Manager (R. U)	1
33)	Asstt: Printing Officer	3
34)	Accountant- Cum Cashier	1
35)	Superintendent-Cum- Asstt:	1
		49
	Supporting Staff	106
	Total	155

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE



CHAPTER-3

PAKISTAN SCIENCE FOUNDATION FINANCIAL STATEMENTS JUNE 30, 2004.

AUDITORS' REPORT TO THE BOARD OF TRUSTEES


We have audited the annexed balance sheet of M/s PAKISTAN SCIENCE FOUNDATION as at June 30, 2004 and the related receipts and expenditure statement, cash flow statement and statement of changes in accumulated fund together with notes forming part thereof for the year then ended.

It is the responsibility of the management to establish and maintain a system of internal control, and prepare and present the financial statements in conformity with the approved accounting standards as applicable in Pakistan. Our responsibility is to express an opinion on these statements based on our audit.

We conducted our audit in accordance with the auditing standards as applicable in Pakistan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. An audit includes examining, on a test basis, evidence supporting the amount and disclosures in the financial statements. An audit also includes assessing the accounting policies used and significant estimates made by management, as well as, evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

In our opinion the financial statements present fairly in all material respects the financial position of the Foundation as at June 30, 2004 and of its surplus/(deficit) and cash flow for the year then ended in accordance with the approved accounting standards as applicable in Pakistan.


Islamabad ; 6th December, 2004


(ILYAS SAEED & CO.)
Chartered Accountants

**PAKISTAN SCIENCE FOUNDATION
BALANCE SHEET
AS AT JUNE 30, 2004**

GRANTS & LIABILITIES			PROPERTY & ASSETS				
NOTE	2004 RUPEES	2003 RUPEES	NOTE	2004 RUPEES	2003 RUPEES		
GENERAL FUND	3	22,722,930	23,269,703	FIXED ASSETS	7	20,424,049	20,233,268
RESEARCH SUPPORT GRANT	4	67,634,432	60,435,715	At Cost less Depreciation			
DEVELOPMENT FUND GRANTS	5	17,635,279	5,114,864	DEVELOPMENT PROJECTS	8	16,604,007	3,682,897
				At Cost less Depreciation			
CURRENT LIABILITIES	6	467,538	159,696	RESEARCH PROJECTS IN PROGRESS	4	67,634,432	60,435,715
Accrued & Other Liabilities				LONG TERM DEPOSITS	9	1,637,195	1,637,195
		<u>108,460,180</u>	<u>88,979,978</u>	CURRENT ASSETS			
				Advances, Deposits & Prepayments	10	383,694	1,117,408
				Cash & Bank Balances	11	1,776,803	1,873,495
						2,160,497	2,990,903
						<u>108,460,180</u>	<u>88,979,978</u>

Note . These financial statements should be read in conjunction with the annexed notes which form an integral part thereof


TRUSTEE _____


CHAIRMAN _____

**PAKISTAN SCIENCE FOUNDATION
RECEIPT AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED JUNE 30, 2004**

	NOTE	2004 RUPEES	2003 RUPEES
RECEIPTS			
Grant From Federal Government		45,000,000	40,150,000
Other Income		15,698	778,585
		45,015,698	40,928,585
EXPENDITURES			
Statutory Scientific Functions	12	18,657,397	18,224,301
Administrative Expensive	13	26,971,341	22,422,436
		45,628,738	40,646,737
SURPLUS / (DEFICIT) OF RECEIPTS OVER EXPENDITURE		(613,040)	281,848
PRIOR YEAR ADJUSTMENTS	14	66,267	
NET SURPLUS / (DEFICIT) OF RECEIPTS OVER EXPENDITURE		(546,773)	281,848


TRUSTEE

Islamabad December 6, 2004


Farid Malik


CHAIRMAN _____

**PAKISTAN SCIENCE FOUNDATION
CASH FLOW STATEMENT
FOR THE YEAR ENDED JUNE 30, 2004**

	2004 RUPEES	2003 RUPEES
CASH FLOW FROM OPERATING ACTIVITIES		
Surplus / (Deficit) for the year	(546,773)	281,848
Adjustment for non Cash Charges		
Depreciation - Fixed Assets	1,217,778	1,104,162
Adjustment of Bicycle	1	-
Depreciation - Development Projects	3,362,009	961,648
Surplus / (Deficit) Before Working Capital Changes	4,579,788	2,065,810
Working Capital Changes		
<i>(Increase) / Decrease In Current Assets</i>		
(Increase) in Long Term Deposits	-	(20,000)
Decrease In Advances and Prepayments	733,714	(686,125)
<i>Increase / (decrease) in current liabilities</i>	733,714	(706,125)
Increase In Accrued and Other Liabilities	307,842	(874,514)
Net Working Capital Changes	307,842	(874,514)
NET CASH FLOW FROM OPERATING ACTIVITIES	1,041,556	(1,580,639)
	5,074,572	767,019
CASH FLOW FROM INVESTING ACTIVITIES		
Purchases of Fixed Assets	(17,691,679)	(3,572,697)
NET CASH FLOW FROM INVESTING ACTIVITIES	(17,691,679)	(3,572,697)
CASH FLOW FROM FINANCING ACTIVITIES		
Development Fund Grants - Net	12,520,415	(2,978,354)
NET CASH FLOW FROM FINANCING ACTIVITIES	12,520,415	(2,978,354)
NET INCREASE / (DECREASE) IN CASH AND CASH EQUIVALENTS	(96,692)	(5,784,032)
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	1,873,495	7,657,527
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	1,776,803	1,873,495


TRUSTEE

Islamabad December 6, 2004


CHAIRMAN


**PAKISTAN SCIENCE FOUNDATION
STATEMENT OF CHANGES IN ACCUMULATED FUND
AS AT JUNE 30, 2004**

PARTICULARS	2004 RUPEES	2003 RUPEES
Balance as at July 01	23,269,703	22,987,855
Surplus / (Deficit) for the year	(546,773)	281,848
Balance as at June 30	<u>22,722,930</u>	<u>23,269,703</u>



TRUSTEE _____

Islamabad December 6, 2004



CHAIRMAN _____

PAKISTAN SCIENCE FOUNDATION
NOTES TO THE ACCOUNTS
FOR THE YEAR ENDED JUNE 30, 2004

1. **THE FOUNDATION AND ITS OPERATIONS**

Pakistan Science Foundation is a statutory organization established under Pakistan Science Foundation Act, 1973 on February 02, 1973. The main objects of its establishment are to promote and finance scientific activities having a bearing on the socio-economic needs of the country.

2. **SIGNIFICANT ACCOUNTING POLICIES**

These financial statements comply with International Accounting Standards, where applicable, in all material respects. The principal accounting policies, which have been adopted in the preparation of these financial statements, are as follows: -

2.1 **ACCOUNTING CONVENTION**

These accounts have been prepared under 'historical cost convention' and do not reflect the impact of specific price changes and the general level of prices.

2.2 **GRANTS RECEIVED**

The Grants from the Government of Pakistan have been accounted for on receipt basis.

2.3 **RESEARCH SUPPORT GRANT**

The Research Support Grant has been accounted for on payment basis.

2.4 **FIXED ASSETS**

Fixed assets have been valued at cost less accumulated depreciation except leasehold land, which is stated at cost. Depreciation on fixed assets is charged on reducing balance method. Full year's depreciation is charged on the assets acquired during the year and no depreciation is charged on the disposals. Gains and losses are taken into account currently. Maintenance and normal repairs are charged to receipt and expenditure account as and when incurred while major renewals and improvements are capitalized.

2.5 **TAXATION**

The Foundation enjoys a tax exemption. Thus, no charge of tax is provided for in the accounts for current period.

		2004 RUPEES	2003 RUPEES
3	GENERAL FUND		
	Balance As On July 01	23,269,703	22,987,855
	Surplus / (Deficit) For The Year	(546,773)	281,848
		<u>22,722,930</u>	<u>23,269,703</u>
4	RESEARCH SUPPORT GRANT		
	Balance As At July 01	60,435,715	51,376,350
	Add: Disbursements During The Year	4.1 10,021,669	12,215,837
		70,457,384	63,592,187
	Less: Projects Completed During The Year	4.2 2,822,952	3,156,472
		<u>67,634,432</u>	<u>60,435,715</u>
4.1	Disbursements During The Year		
	I. L. G.	1,129,060	-
	Biotech Sciences	884,596	180,235
	Mathematics & Computer Sciences	-	400
	Physical Sciences	1,557,457	2,128,472
	Chemical Sciences	1,181,363	2,031,731
	Biological Sciences	674,725	3,429,353
	Earth Sciences	75,799	638,651
	Environmental Sciences	352,475	294,823
	Engineering Sciences	411,414	720,799
	Agricultural Sciences	3,177,619	2,723,891
	Medical Sciences	577,161	67,482
		<u>10,021,669</u>	<u>12,215,837</u>
4.2	Projects Completed During The Year		
	Physical Sciences	-	1,088,569
	Chemical Sciences	2,356,840	792,769
	Biological Sciences	-	344,638
	Earth Sciences	245,499	-
	Environmental Sciences	-	453,641
	Agricultural Sciences	220,613	476,855
		<u>2,822,952</u>	<u>3,156,472</u>
5	DEVELOPMENT FUND GRANT		
	Opening Balance	5,114,864	8,093,218
	Add: Development Project Grants	5.1 43,458,900	12,219,200
		48,573,764	20,312,418
	Less: Development Project Functions	5.2 30,938,485	15,197,554
	Closing Balance	5.4 17,635,279	5,114,864
5.1	Development Project Grants		
	Financial Support To Scientific Societies	7,000,000	-
	Popularization of Sciences In Rural Areas	16,212,000	3,500,000
	Participation of Scientists And Technologists In Conferences	5,400,000	3,285,000
	Career Development of Young Scientists And Technologists	1,300,000	-
	Funding of Scientific Research In Universities And Other Organizations	13,050,000	4,500,000
	TDPC	-	175,000
	Core Group on Life Sciences	-	420,000
	Peer Review Work NCST Projects	450,000	198,000
	Peer Review Work PTCL Projects	46,900	141,200
		<u>43,458,900</u>	<u>12,219,200</u>

	2004 <u>RUPEES</u>	2003 <u>RUPEES</u>
5.2 Project Wise Development Expenditure		
NCST Monitoring Cell	200	989,714
Financial Support To Scientific Societies	7,000,000	3,080,078
Popularization of Sciences In Rural Areas	16,212,000	3,541,604
Participation of Scientists And Technologists In Conferences	5,400,000	3,973,611
Career Development of Young Scientists And Technologists	1,300,000	1,204,453
Funding of Scientific Research In Universities And Other Organizations	13,050,440	4,544,354
TDPC	-	134,751
Core Group on Life Sciences	112,165	363,447
Peer Review Work NCST Projects	316,480	5,357
Peer Review Work PTCL Projects	14,980	141,150
	<u>43,406,265</u>	<u>17,978,519</u>
Less: Charged To Fixed Assets	(15,829,789)	(3,742,613)
Add: Depreciation	3,362,009	961,648
5.3	<u>30,938,485</u>	<u>15,197,554</u>
5.3 Development Project Functions		
TA/DA & Evaluation Fee	4,024,910	1,346,938
Office Equipment Donation	55,800	-
Financial Support To Societies	6,923,806	3,061,880
Computer Equipment Donation	4,000	-
Grants For Research	14,011,967	5,263,952
Registration Fee	702,506	3,135,402
Postage & Stationary	134,234	255,032
Advertisement	73,881	40,578
Internet Charges	-	8,200
Utilities	10,547	61,663
Depreciation	3,362,009	961,648
Salary to Staff	235,208	51,232
Entertainment	-	8,418
Vehicle Running And Maintainance	21,408	210,944
Bank Charges	-	1,160
Miscellaneous	239,340	33,650
Amount Surrendered To FTO / Treasury	440	756,857
Living Expenses	1,051,301	-
On Site Monitoring	16,000	-
Material & Supplies Contigent Expense	71,128	-
	<u>30,938,485</u>	<u>15,197,554</u>
5.4 Reconciliation of Closing Development Fund Grant		
Closing Balance	<u>17,635,279</u>	<u>5,114,864</u>
Represented By:		
Fixed Assets (Net)	16,604,007	3,682,897
Cash At Banks	1,210,639	1,099,672
Advances	-	352,000
Payables	(121,475)	(19,705)
Prior Year Adjustment	(57,892)	-
	<u>17,635,279</u>	<u>5,114,864</u>
6 ACCRUED AND OTHER LIABILITIES		
Accrued Expenses	303,313	85,590
Audit Fee Payable	20,000	20,000
Security Deposits	22,750	26,025
Payable To Suppliers (Development Fund)	121,475	19,705
Other Liabilities	-	8,376
	<u>467,538</u>	<u>159,696</u>

7

FIXED ASSETS

PARTICULARS	COST				RATE %	DEPRECIATION				BOOK VALUE AS AT 30-06-2004
	AS AT 01-07-2003	ADDITIONS	(DELETION)	TOTAL 30-06-2004		AS AT 01-07-2003	FOR THE YEAR	ADJUSTMENT FOR DISPOSAL	ACCUMULATED AS AT 30-06-2004	
LAND - LEASEHOLD	3,713,418	-	-	3,713,418	0	-	-	-	-	3,713,418
BUILDING	19,484,540	-	-	19,484,540	5	6,558,098	646,322	-	7,204,420	12,280,120
MOTOR VEHICLES	3,706,809	-	-	3,706,809	20	3,394,619	62,438	-	3,457,057	249,752
OFFICE EQUIPMENT	3,322,841	420,895	-	3,743,736	15	2,487,820	188,387	-	2,676,207	1,067,529
SCIENCE EQUIPMENT	2,004,275	915,000	-	2,919,275	15	1,541,804	206,621	-	1,748,425	1,170,850
FURNITURE & FIXTURE	2,018,549	27,680	-	2,046,229	6	1,015,262	61,858	-	1,077,120	969,109
AIR CONDITIONERS	194,974	-	-	194,974	20	189,100	1,175	-	190,275	4,699
LIBRARY BOOKS & FILMS	1,487,686	44,985	-	1,532,671	5	513,122	50,977	-	564,099	968,572
BICYCLE	680	-	(680)	-	20	679	-	(679)	-	-
RUPEES 2004	35,933,772	1,408,560	(680)	37,341,652		15,700,504	1,217,778	(679)	16,917,603	20,424,049
RUPEES 2003	35,751,688	182,084	-	35,933,772		14,596,342	1,104,162	-	15,700,504	20,233,268

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DEVELOPMENT PROJECTS

PARTICULARS	COST				RATE %	DEPRECIATION				BOOK VALUE AS AT 30-06-2004
	AS AT 01-07-2003	ADDITIONS	(TRANSFER)/ (DELETION)	TOTAL 30-06-2004		AS AT 01-07-2003	FOR THE YEAR	ADJUSTMENT	ACCUMULATED AS AT 30-06-2004	
MOTOR VEHICLES	2,752,027	3,742,266	-	6,494,293	20	550,405	1,188,778	-	1,739,183	4,755,110
OFFICE EQUIPMENT	1,127,555	12,379,818	-	13,507,373	15	169,153	2,000,736	-	2,169,869	11,337,504
COMPUTER EQUIPMENT	944,330	-	-	944,330	33	457,434	160,676	-	618,110	326,220
FURNITURE & FIXTURE	38,252	161,035	-	199,287	6	2,295	11,820	-	14,115	185,172
RUPEES 2004	4,862,164	16,283,119	-	21,145,283		1,179,267	3,362,009	-	4,541,276	16,604,007
RUPEES 2003	659,450	4,202,714	-	4,862,164		217,619	961,648	-	1,179,267	3,682,897

		2004 RUPEES	2003 RUPEES
9	LONG TERM DEPOSITS		
	Electricity	1,472,195	1,472,195
	Gas	145,000	145,000
	Mobile Phone	20,000	20,000
		<u>1,637,195</u>	<u>1,637,195</u>
10	ADVANCES AND PREPAYMENTS		
	Advances to Staff		
	- For Vehicles	1,600	31,112
	- For House Rent	382,094	734,296
	- For Furniture	-	40,000
	Advances For Fabrication	-	312,000
		<u>383,694</u>	<u>1,117,408</u>
11	CASH AND BANK		
	Cash At Bank - Saving Accounts	499,925	692,960
	Cash At Bank - Current Accounts	63,245	66,520
	Cash At bank - PSF Development Fund Current Account	1,210,639	1,099,672
	UNESCO Coupons	2,994	14,343
		<u>1,776,803</u>	<u>1,873,495</u>
12	STATUTARY SCIENTIFIC FUNCTIONS		
	Research Support Grant	4.1 10,021,669	12,215,837
	Research Support Functions	1,834,468	543,659
	Scientific Societies & Professional Bodies	280,000	185,000
	Scientific Conferences Meetings & Seminars	581,156	795,084
	Operation of Science Caravan	3,850,782	3,595,922
	International Liaison	30,000	-
	Science Promotion Activities	1,352,934	888,799
	Utilization of Results of Research & Transfer of Technology & Pilot Plant Study	568,270	-
	Awards, Prizes & Fellowship	108,118	-
	Scientists Pool / Senior Scientists Emeritus	30,000	-
		<u>18,657,397</u>	<u>18,224,301</u>
13	ADMINISTRATIVE EXPENSES		
	Salaries & other Benefits	17,602,501	14,357,457
	Travelling	307,349	289,253
	House Rent Facility	3,534,086	2,908,628
	Ground Rent To CDA	17,944	17,944
	Electricity, Gas & Water	743,863	822,031
	Postage, Telephone & Telegram	1,034,618	918,303
	Printing & Stationery	282,400	219,887
	Vehicle Running & Maintenance	1,031,270	933,934
	Newspaper & Advertisement	301,678	379,669
	Livries & Uniforms	41,842	37,070
	Entertainment	111,682	33,407
	Repair & Maintenance of Office Equipment	133,720	59,631
	Contingent Expenses	208,733	-
	Audit Fee	20,000	20,000
	Legal Expenses	50,000	-
	Depreciation	1,217,778	1,104,162
	Maintenance of Office Building	214,209	183,575
	Staff Welfare Fund	60,000	60,000
	UNESCO Coupon Utilized	11,349	-
	Miscellaneous	46,318	77,485
		<u>26,971,341</u>	<u>22,422,436</u>

	<u>2004</u> <u>RUPEES</u>	<u>2003</u> <u>RUPEES</u>
14 PRIOR YEAR ADJUSTMENTS		
Other Liabilities	(8,376)	-
Bycycle	1	-
NCST	(1,200)	-
Core Group Of Life Sciences	(56,692)	-
	<u>(66,267)</u>	<u>-</u>
15 FINANCIAL INSTRUMENTS & RELATED DISCLOSURE		
As per schedule annexed		
16 NO. OF EMPLOYEES		
Total number of employees at the year end	<u>174</u>	<u>174</u>
17 DATE OF AUTHORISATION OF ISSUE		
These financial statements were authorised for issue on December 06, 2004 by the Board of Trustees.		
18 GENERAL		
<ul style="list-style-type: none"> - Corresponding figures for the previous year have been re-arranged, wherever necessary, for the purpose of comparison. - Figures have been rounded off to the nearest rupee. 		

15 **FINANCIAL INSTRUMENTS AND RELATED DISCLOSURE**

AMOUNT IN RS.

DESCRIPTION	INTEREST / MARK-UP BEARING			NON INTEREST / MARK-UP BEARING			TOTAL	
	Maturity up to one year	Maturity after one year	Sub Total	Maturity up to one year	Maturity after one year	Sub Total	2004	2003
FINANCIAL ASSETS								
Advances, Deposits & Prepayments	-	-	-	383,694	-	383,694	383,694	1,117,408
Cash & Bank Balances	-	-	-	1,776,803	-	1,776,803	1,776,803	1,873,495
	-	-	-	2,160,497	-	2,160,497	2,160,497	2,990,903
FINANCIAL LIABILITIES								
Expenses Payable	-	-	-	467,538	-	467,538	467,538	159,696
	-	-	-	467,538	-	467,538	467,538	159,696

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15.1 **Financial instruments and risk management**

Overall, risks arising from the Foundation's financial instruments are limited.

15.1.1 **Concentration of Credit Risk**

Credit risk represents the accounting loss that would be recognized at the reporting date if counter parties failed completely to perform as contracted. The Foundation applies credit limit to its beneficiaries and does not have significant exposure to individual beneficiaries.

15.1.2 **Interest Rate Risk**

Interest rate risk arises from the possibility that changes in interest rates will effect the value of financial instruments. The Foundation is not exposed to any Interest Rate Risk. The effective interest rates as at June 30, 2004. for the financial instruments are given in the relevant notes, if any.

15.1.3 **Foreign Exchange Risk Management**

Foreign currency risk arises mainly where receivables and payables exist due to transaction with foreign undertakings. The Foundation believes that it is not exposed to major foreign exchange risk.

15.2 **Fair Value of Financial Instruments**

The Carrying amounts of financial assets and financial liabilities approximates to their fair value.

PAKISTAN SCIENCE FOUNDATION

Statement of Development Funds Receipts & Expenditures

PAKISTAN SCIENCE FOUNDATION DEVELOPMENT FUNDS	NCST	PSTIC	CDYST	FOSTRUAC	PSRA	FSSS	TDPC	CGLS	PRNCST	PRPTCL	TOTAL
OPENING BALANCE	850,426	Nil	Nil	Nil	Nil	Nil	Nil	56,553	192,643	50	1,099,672
REFUND OF EXPENSE (Prior year adjustment)	1,200	Nil	Nil	Nil	Nil	Nil	Nil	56,692	Nil	Nil	57,892
FUNDS RECEIVED DURING THE YEAR	Nil	5,400,000	3,150,000	13,050,000	16,212,000	7,000,000	Nil	Nil	450,000	46,900	45,308,900
INTER PROJECTS TRANSFERS	Nil	Nil	(1,850,000)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	(1,850,000)
FUNDS AVAILABLE DURING THE YEAR	851,626	5,400,000	1,300,000	13,050,000	16,212,000	7,000,000	-	113,245	642,643	46,950	44,616,464
EXPENDITURE											-
TA/DA & Evaluation Fee								46,370			46,370
Salary of Scientists & Technologists									282,000		282,000
Office Equipment					12,399,523						12,399,523
Transport					3,430,266						3,430,266
Computer Equipment - Transferred				4,000							4,000
Office Equipment - Transferred								55,800			55,800
Financial Support to Societies						6,923,806					6,923,806
Grant for Research			1,212,872	12,799,095							14,011,967
Participation in Conferences											-
Travel Expenses (Abroad)		3,525,548									3,525,548
Evaluation Fee & Technical Meetings				170,992							170,992
Conference Reg. Fee		702,506									702,506
Living Expenses		1,051,301									1,051,301
Postage											-
Stationary & Postage		45,842		47,274	15,800	21,818			3,500		134,234
Advertisement					73,881						73,881
On Site Monitoring			16,000								16,000
Material, Supplies & Contigent Exp			71,128								71,128
Consultancy											-
Telephone											-
Salary to Staff					235,208						235,208
Entertainment											-
POL/Repair of Vehicles					21,408						21,408
Bank Charges											-
Advance for Expenses											-
Advance for Fabrication											-
Miscellaneous	200	74,803		28,639	25,367	54,376		9,995	30,980	14,980	239,340
Surrendered to FTO											-
Utilities						10,547					10,547
Transport											-
Total	200	5,400,000	1,300,000	13,050,000	16,212,000	7,000,000	-	112,165	316,480	14,980	43,405,825
Balance	851,426	-	-	-	-	-	-	1,080	326,163	31,970	1,210,639

PAKISTAN SCIENCE FOUNDATION ACT 1973
National Assembly of Pakistan Islamabad, the 2nd February 1974

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.** The Chairman of the Board shall be the Chairman of the Foundation and shall be appointed for a term of three years from amongst the eminent scientists of the country having experience of research and scientific administration.

7. **Term of Members of the Board.** The members of the Board, other than the ex-officio member, shall hold office for a term of three years and shall be eligible for re-appointment or re-nomination, as the case may be.

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

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 alongwith the audited accounts of the Foundation. (2) The annual report alongwith 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.

**LIST OF PROJECTS APPROVED BY THE PAKISTAN SCIENCE
FOUNDATION DURING THE YEAR 2003-2004.**

(Non Development Budget)

S.No.	Title and Number of Project	Name of P.I. and the Organization Supported	Project Cost
Agricultural Sciences			
1.	Use of Plant Growth Promoting Rhizobacteria in the Integrated Control of Bacterial Leaf Blight of Rice Caused by <i>Xanthomonas Campestris</i> PV <i>Oryzae</i> . P-AU/Agr (313)	Dr. M. Inam-ul-Haq, Assistant Professor, Department of Plant Pathology, University of Agriculture, Faisalabad.	6,66,509/-
2.	Survey, Biology & Integrated Control Measures of Citrus Slow Decline & Spreading Decline of (<i>Litchi Chinensis</i> Sonn) in Punjab. P-AU/Agr (316)	Prof. Dr. Riaz Ahmed Chohan, Department of Plant Pathology, University of Agriculture, Faisalabad.	9,04,368/-
3.	An Efficient and Economic Means of Enhancing Wheat Yield under Water Deficit Conditions: Use of Osmoprotectants. P-AU/Agr (318)	Prof. Dr. M. Ashraf, Department of Botany, University of Agriculture, Faisalabad.	5,73,929/-
4.	Potential Use of CO ₂ as Foliar Fertilizer for Wheat Yield Enhancement Under Salt Stress: Strategies for the Future. P-AU/Agr (319)	Dr. Abdul Wahid, Associate Professor, Department of Botany, University of Agriculture, Faisalabad.	5,74,270/-
5.	Establishment of Sustainable Model Agriculture Farm in Basol Area, Balochistan Using Wind Energy and Drip Irrigation System. C-PMNH/Agr (320)	Mr. Syed Shahid Hussain, Curator, E S D, PMNH, Islamabad.	26,20,650/-

Biological Sciences

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| 6. | Experimental Farming of Commercially Important Marine Shrimps, Near Mir Pur Sakro, Thatta. S-KU/Bio (341) | Dr. Zarrien Ayub,
Assistant Professor,
Center of Excellence in Marine Biology,
University of Karachi, Karachi | 6,59,460/- |
| 7. | Biology of EDIBLE CRABS, (PORTUNUS) Pelagicus and Portunus, San Guinolentus, Occurriry in the Coastal Waters, of Karachi. S-KU/Bio (342) | Prof. Dr. Javed Mustaqim,
Center of Excellence in Marine Biology, University of Karachi. | 7,08,260/- |
| 8. | Ecology and Conservation of the Canids in the Salt Range Pakistan with Focus on Indian Wolf. C-QU/Bio (351) | Dr. Tahira Ahmed,
Professor,
Department of Biological Sciences,
Quaid-I-Azam University,
Islamabad. | 3,69,515/- |
| 9. | Studying the role of Anti-oxidant enzymes in controlling programmed cell death (PCD) Triggered in plants in response of Exogenous stresses. P-NIAB/Bio (353) | Dr. Shafqat Farooq
Principal Scientific Officer,
Nuclear Institute of Agriculture & Biology (NIAB), Faisalabad. | 8,72,010/- |

Biotechnology

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| 10. | DNA Fingerprinting Approaches to Study Draught Tolerance in Cotton. P-NIBGE/Biotech/Med (43) | Dr. Mehboob-ur-Rehman,
Senior Scientific Officer,
National Institute for Biotechnology & Genetic Engineering (NIBGE),
Jhang Road, Faisalabad. | 9,37,554/- |
| 11. | Characterization of Pakistani Wheat Varieties by Micro satellite Markers. P-NIAB/Biotech/Agr(44) | Dr. Nayyer Iqbal,
Senior Scientific Officer,
Nuclear Institute for Agriculture, & Biology (NIAB), P.O. Box No.128,
Jhang Road, Faisalabad. | 9,24,180/- |
| 12. | Genetic Manipulation of <i>Aspergillus niger</i> for Enhanced Production of B-Glactosidase for Preparation of Lactose Free Milk. P-NIBGE/Biotech/Food (45) | Dr. Muhammad Ibrahim Rajoka,
Chief Scientific Officer,
National Institute for Biotechnology and Genetic Breeding (NIBGE), Jhang Road,
Faisalabad | 8,94,577/- |
| 13. | Development of Hyper Producer Cephalosporin-C Producing Strain of <i>Aceremonium chrysogonum</i> by RNA Interference Techniques. P-NIBGE/Biotech/Ind (47) | Dr. Kalsoom Akhtar,
Senior Scientific Officer,
National institute for Biotechnology & Genetic Engineering (NIBGE),
Jhang Road, Faisalabad. | 8,01,558/- |
| 14. | Cloning of Raw Starch-Digesting | Ms. Romana Tabassum, | 9,49,300/- |

	Alpha- Amylase from Bacillus S.P. and its Expression in E.Coli. P-NIBGE/Biotech/Env (48)	Principal Scientific Officer, National institute for Biotechnology & Genetic Engineering (NIBGE), Jhang Road, Faisalabad.	
15.	Detection of Y-Chromosome Micro Deletions Associated with Infertility in Different Geographic/Ethnic Groups in Pakistan. P-NIBGE/Biotech/Med (50)	Ms. Rubina Tabassum, Principal Scientific Officer, National Institute for Biotechnology & Genetic Engineering(NIBGE), Jhan Road, Faisalabad.	7,04,343/-
16.	Bacteriocin Production & its Role in Competition in Rhizobial Inoculants from A Sustainable Agriculture Perspective. P-NIBGE/Biotech/Agr (52)	Dr. Fauzia Yousuf, CSO/Head, National Institute for Biotechnology & Genetic Engineering (NIBGE), Jhang Road, Faisalabad.	7,35,801/-
17.	Genetically Engineered Resistance, Based on RNA Interference in Tomato, Against Tomato Leaf Curl Virus. P-NIBGE/Biotech/Agr (54)	Mr. Mazhar Hussain, Senior Scientific Officer, National institute for Biotechnology & Genetic Engineering (NIBGE), Jhang Road, Faisalabad.	5,82,344/-
Chemical Sciences			
18.	Removal/Recycling of Chromium from Tannery Wastes. F-PU/Chem. (374)	Prof. Dr. S. Mustafa, N.C.E. in Physical Chemistry, University of Peshawar, Peshawar.	7,42,927/-
Engineering Sciences:			
19.	Evaluation of Efficient Irrigation Methods. P-PCRWR/Engg (79)	Mr. Abdul Raof, Regional Director, PCRWR, Main Raiwind Road, LHR.	7,21,859/-
20.	Effect of Land Leveling on Land Use Intensity Water Use and Water Application Efficiencies. P-PCRWR//Engg (80)	Mr. Hafiz M. Nafees Ahmed, Research Officer PCRWR, Main Raiwind Road, Lahore.	3,78,063/-
21.	Water Management Practices for Major Crops Under Drought. P-PCRWR//Engg (81)	Mr. Ziaul Haque, PCRWR, Main Raiwind Road, Lahore.	1,42,555/-
22.	Fabrication, Testing and Standardization of Sweep Shovels for a Cultivator. P-AU/Engg (86)	Prof. Dr. Jehangir Khan Sial, Department of Structures & Environmental Engineering, University of Agriculture, Faisalabad.	9,44,887/-
23.	Design and Development of	Prof. Dr. Zahid Mahmood,	6,27,667/-

	Sugarcane Planter for Small and Medium land Holders of Pakistan. F-UET/Engg (87)	Department of Agriculture & Engineering, NWFP University of Engineering & Technology, Peshawar.	
24.	Study of Rooftop Water Harvesting and Gravity Drip Irrigation Technologies for Small Land Holders. P-PCRWR/Engg (89)	Mr. Saleem A. Sial, Director Research, PCRWR, Islamabad.	8,88,563/-
Medical Sciences			
25.	Management of Viral Hepatitis in Rural Community. C-PMRC/Med (193)	Dr. Mir Hassan Khan, Senior Research Officer, PMRC, Research Center, Khyber Medical College, Peshawar.	Rs.2,81,209/-
26.	To Evaluate the Impact of Media Health Campaign S-PMRC/Med (196)	Dr. Sultana Habib Ullah, Dow Medical College, Karachi.	Rs.1,40,658/-
	Total:		1,93,47,016/-

**MONITORING AND EVALUATION OF ON-GOING PROJECTS
DURING 2003-2004**

A. NON DEVELOPMENT PROJECTS

a. Semi-Annual Reports

S. No.	Project No.	Project Title	Reports
1.	P-AU/Agr (242)	Utilization of the Genetic Potential Existing in Sorghum Bicolor (L) Moench for the Development of Genotype Tolerance to Salinity	2 nd semi-annual
2.	C-NARC/Agr (266)	Identification, Characterization and Distribution of Phytoplasmal Disease of Potato in Pakistan.	2 nd semi-annual
3.	S-KU/Agr (269)	Use of Rhizobia in the Biological Control of Root Knot Diseases of Crop Plant.	3 rd semi-annual
4.	S-PARC/Agr (277)	Investigations of Plants Parasitic Nematodes and Pseudomonas Associated with Date-palm in Balochistan and their Management by Organic Amendments.	2 nd semi-annual
5.	S-KU/Agr (282)	Evaluation and Assessment of Germination, Stand Establishment and Yield of Soybean and Mungbean before and after Seed Storage using Osmoconditioning Techniques	2 nd semi-annual
6.	P-AU/Agr (283)	Epidemiological and Pathological Studies on Tuberculosis in Food-animals and its Association with Human.	1 st semi-annual 2 nd semi-annual
7.	S-KU/Agr (285)	Studies on the Field Efficacy of the Entomopathogenic Nematodes as Biopesticides	2 nd semi-annual
8.	P-NIAB/Agr (288)	Effect of Soil Salinity and Nitrogen Availability on Photosynthate Partitioning and Growth of Wheat.	2 nd semi-annual
9.	F-AU/Agr (295)	Weed Management in Wheat (<i>Triticum aestivum</i> L. em Thell) in NWFP.	2 nd semi-annual
10.	F-AU/Agr (299)	To Assess the Causes of Raton Crop Failure in Sugar-cane in NWFP Province.	1 st semi-annual

11.	F-AU/Agr (300)	Estimating Slope Steepness in Corporate Residue and FYM Effects on Runoff, Erosion, Soil Properties and Soil Fertility Buildup in Eroded Lands of Northern NWFP.	1 st semi-annual
12.	S-SU/Bio (338)	Taxonomy and Biology of Hierolgyphus.sp (Hemiacridinae. Acrididae. Orthoptera)	1 st semi-annual
13.	S-KU/Bio (345)	Germination Capacity of Stored Pollen of Some Economically Important Plants and their Maintenance.	1 st semi annual
14.	P-AU/Bio (347)	Development and Molecular Characterization of Gametocyte Vaccine(s), (Local isolate) Against Avian Coccidiosis.	1 st semi annual
15.	Biotech/C-NARC/ Agr (36)	Multiplication of Virus Free Banana Plants and their Field Assessment.	1 st semi annual
16.	Biotech/P-NIBGE/Med (39)	Development of Multiplex PCR for Diagnosis of <i>Salmonella typhi</i> and Detection of its Drug Resistance	1 st semi annual
17.	Biotech/P-LCW/Ind (41)	Production of Enzyme Phytase for Improving the Nutritional value of Defatted Oil Seed Cakes in Poultry Feed.	1 st semi annual
18.	Biotech/S-KU/Med (42)	Antipsychotic Drug Blood Dyscrasias and Hematological Safety.	1 st semi annual
19.	S-KU/Chem.(363)	Purification, Characterization and Applied Studies of Protein Antibiotics from Indigenous Staphylococci.	3 rd semi-annual
20.	C-QU/Chem. (373)	Enantioselective Synthesis of Carbohydrate Building Blocks and Bioactive Natural Products.	2 nd semi-annual
21.	C-QU/Chem.(376)	Synthesis and Biological Evaluation of β -Hexapeptide Analog of Neurotensin (NT-8-13)	1 st semi-annual
22.	C-PINSTECH/Earth (67)	Geological Studies of Carbonate Complexes of Northern Pakistan and their Economic Evolution in terms of Rare Metals, Rare Earth Elements, Phosphate & Uranium.	2 nd semi-annual
23.	C-PINSTECH/Earth (69)	Geo-chronological Tectonic Uplift and Cooling Histories of the Alkaline Complexes from the Peshawar Plain Alkaline Igneous Province (PAIP), Pakistan with help of Fission-track Dating Technique.	2 nd semi-annual
24.	P-AU/Env (62)	Studies on Growth Bio-energetic of Fish under Heavy Metal Toxicity.	2 nd semi annual

25.	PSF-NSFC/Phy (18)	Magnetic and Structural Studies of Nano-particles.	1 st semi-annual
26.	C-QU/Phys. (122)	The study of Super conducting properties of $Cu_{1-x} Tl_x Ba_2 Ca_2 Cu_3 O_{10-y}$ Thin Film to be used for Micro Electronic Devices.	1 st semi-annual
27.	C-QU/Phys. (127)	Laser Induced Breakdown Spectroscopy	1 st semi-annual
28.	C-QU/Phys. (128)	Investigation about Iron Related Defects Silicon	1 st semi-annual

b. First Annual Reports

1.	P-AU/Agr (242)	Utilization of the genetic potential existing in sorghum bicolor (L) Moench for the development of genotype tolerance to salinity.
2.	AJK-UCR/Agr (275)	Studies on the establishment and improvement of clovers (<i>Trifolium</i> spp.) for nitrogen availability and soil management under agro-climatic conditions of Azad Kashmir.
3.	F-AU/Agr (282)	Evaluation and assessment of germination stand establishment and yield of legume and cereals before and after seed storage using osmoconditioning techniques.
4.	P-AU/Agr (283)	Epidemiological and pathological study on tuberculosis in food animals and its association with human infection.
5.	S-KU/Agr (285)	Studies on the field efficacy of the entomopathogenic nematodes as biopesticides.
6.	P-NIAB/Agr (288)	Effect of soil salinity and nitrogen availability on photosynthate partitioning and growth of wheat.
7.	F-AU/Agr (291)	Development of sustainable rice wheat cropping system through management of legumes.
8.	C-QU/Agr (292)	Ethnobotanical studies economically important plants of Northern areas of Pakistan and their taxonomy.
9.	S-AKU/Bio (281)	Effect of Anxiety and Tolerance Development induced by Anxiolytics on Reproductive functions in the Rat.
10.	P-AU/Bio (300)	Studies on co cutter system buffalo embryos.
11.	P-NIAB/Bio (324)	Use of isoenzyme markers in chickpea breeding.

12.	C-PMNH/Earth (59)	Petrology and Economic Geology of Pegmatites of Granitic Complexes of WAT, Malakand and Hazra.
13.	S-SU/Earth (65)	Detection of Saline Intrusions in the Right Bank Sediment of Southern Sindh.
14.	AJK-Earth (70)	Biostratigraphic & Tectonic analysis of paleogene Nocus of Neatothys Ocean in Azad Jammu & Kashmir and Hazara of the Himalayas of Pakistan.
15.	P-PU/Engg (54)	Controlled Drainage for Crop Production and water quality Enhancement.
16.	P-IUB/Env (48)	Combating desertification in cholistan Desert through exploitable genetic potential of prosopis cineraria L. Druce.
17.	P-AU/Env. (62)	Studies on growth & Bio-Energetic of Fish under Heavy Metals Toxicity
18.	S-AKU/Med (185)	Role of Vitamins B6. B12 and Folate glutathione and cytokines in the development of coronary artery disease in a Pakistani population

c. Second Annual Reports

1.	P-AU/Agr (242)	Utilization of the genetic potential existing in sorghum bicolor (L) Moench for the development of genotype tolerance to salinity.
2.	C-NARC/Agr (266)	Identification, characterization and distribution of phytoplasmal disease of potato in Pakistan.
3.	F-AU/Agr (268)	Evaluation of morphological and physiological plant traits that adopt forage grasses to stresses.
4.	S-KU/Agr (269)	Use of Rhizobia in the biological control of Root Knot diseases of crop plant.
5.	AJK-UCR/Agr (275)	Studies on the establishment and improvement of clovers (<i>Triflium</i> spp.) for nitrogen availability and soil management under agro-climatic conditions of Azad Kashmir.
6.	S-PARC/Agr (277)	Investigations of plants parasitic nematodes and pseudomonas associated with date palm in Balochistan and their management by organic amendments.
7.	F-AU/Agr (282)	Evaluation and assessment of germination, stands establishment and yield of legume and cereals before and after seed storage using osmoconditioning techniques.
8.	P-NIAB/Agr (288)	Effect of soil salinity and nitrogen availability on photosynthate partitioning and growth of wheat.

9.	F-AU/Agr (296)	Integrated weed management in chickpea (<i>Cicer arietinum</i>)
10.	C-PMNH/Bio (315)	Ecological studies of the reptilian fauna of Cholistan Desert.
11.	P-NIBGE/Bio (317)	Introduction of Salinity Tolerance in Plants through the use of Halo Tolerance Conferring Genes from bacteria and Fungi: A Transgenic Plants.
12.	C-QU/Bio (323)	Identification of loci in Pakistan kindred with ectodermal dysplasia.
13.	P-NIBGE/Biotech/Agr (33)	Engineering Phage-type Chimeric Promoters to over Express Bio-functional Proteins in Rice Protospaltis to Develop Bio-Safe Transgenic Plants.
14.	Biotech/P-GC/Bio (37)	Optimization of Cultural Conditions on the Biosynthesis of Xylanase by Locally Isolated <i>Aspergillus Niger</i> .
15.	B-BU/Earth (57)	Facies Distribution Paleoenvironmental Analysis and petroleum prospects of the Foreland Basin Sediments in the Kirthar Fold Belt Balochistan

B. DEVELOPMENT PROJECTS

a. 1st Semi-Annual Reports.

S. No.	Project No.	Project Title.
1	R&D/CDYST/P-UAAR/Bio(13)	Biology and Management of Cercospora leaf Spot of Peanut (<i>Arachis hypogea L.</i>).
2.	R&D/CDYST/S-KU/Bio(22)	Study of some Imposexed Gastropod Species in the Polluted Marine Waters along the Coast of Karachi.
3.	R&D/CDYST/S-PCSIR/Bio (24)	Penaeid Shrimp Maturation in Captivity.
4.	R&D/CDYST/P-BZU/Bio(29)	Some studies on the Fascioliasis in Goat maintained around Multan.
5	R&D/P-BZU/Bio (34)	Some studies to improve litter size and meat production in sheep..
6.	R&D/PAU/Bio (49)	Exploitation of maximum productive potential spermat layer through induced moult by varying nutritional regimes.
7.	R&D/C-NARC/Bio (127)	Study on the wilt Disease (<i>Fusarium Oxysporum F.Sp. Cicri</i>) of Chickpea for Identification of Resistance.
8.	R&D/F-NIFA/Bio (147)	Biological control of maize stem borer.
9.	R&D/P-NIAB/Bio (183)	Production of Amino Acids through Fermentation Utilizing Agricultural Byproducts.
10.	R&D/S-KU/Bio (207)	Role of Serum Leptin in Primary Infertility in Females.
11	R&D/CDYST/C-NARC/Engg (10)	Research study for the Development of a vegetable stand Establishment machine.

b. 2nd Semi-Annual Reports.

S.No.	Project No.	Project Title.
1.	R&D/CDYST/P-PR/Bio(1)	Influence of Different Copper and Aluminum Levels on Feather Renewal and Production Characteristics of the layers in the Second Production Cycle.
2.	R&D/CDYST/C-NARC/Bio (4)	Identification of Drought Tolerant Chickpea Genotypes using Physiological and Agronomic Traits.
3.	R&D/CDYST/P-LPRI/Bio (6)	Preparation and Evaluation of tick Vaccine.
4.	R&D/CDYST/F-NIFA/Bio (17)	Radiation Decontamination of Poultry Feed.
5.	R&D/CDYST/C-NARC/Bio (18)	Collection, Conservation and Characterization of Vegetable Crops Biodiversity.

6.	R&D/P-AU/Bio (49)	Exploitation of maximum productive potential spert layer through induced moult by varying nutritional regimes.
7.	R&D/S-AKU/Bio (178)	Studies on Calcium Channel Blocking Activities of Indigenous Medicinal Plants.

c. 1st Annual Reports.

S.No.	Project No.	Project Title.
1.	R&D/C-NARC/Bio (1)	Assessment of Toxigenic Fungi and Mycotoxic Contamination in Stored Food Grain.
2	R&D/CDYST/P-PR1/Bio(1)	Influence of Different Copper and Aluminum Levels on Feather Renewal and Production Characteristics of the layers in the Second Production Cycle.
3	R&D/CDYST/S-KU/Bio (3)	Marine Nematodes as Pollutant Indicator
4.	R&D/CDYST/C-NARC/Bio (4)	Identification of Drought Tolerant Chickpea Genotypes using Physiological and Agronomic Traits.
5	R&D/CDYST/C-NARC/Engg(10)	Research Study for the Development of a Vegetable stand Establishment Machine.
6	R&D/CDYST/C-NARC/Bio(11)	Gene transfer technology for the induction of disease resistance in rice.
7	R&D/CDYST/C-NARC/Bio(12)	Developing Disease Resistance in Tomato through Genetic Engineering.
8.	R&D/C-NARC/Bio (18)	Collection, Conservation and Characterization of Vegetable Crops Biodiversity.
9.	R&D/P-AU/Bio (49)	Exploitation of maximum productive potential spert layer through induced moult by varying nutritional regimes.
10	R&D/S-AKU/Bio (82)	Immuno-histological & Molecular Characterization of T-Non-Hodgkin's Lymphoma and its Association with Epstein-Barr Virus.
11	R&D/AJK-UCA/Bio (124)	Improvement and Establishment of Seabuck thorn (<i>Hypophae rhammaides L.</i>) a Multipurpose plant in Mountainous regions of Azad Kashmir
12	R&D/P-AU/Bio (146)	Development of effective slow activity toxicant baits.
13	R&D/F-NIFA/Bio (147)	Biological control of maize stem borer.
14	R&D/C-PMNH/Bio (166)	Ecology and Zoo-geography of butterfly of moist-temperate montane of Pakistan

15	R&D/P-NIBGE/Biotech (168)	Development of Replicase Medicated CLCUD Cotton leaf curl disease resistance in Cotton.
16	R&D/S-AKU/Bio (178)	Studies on Calcium Channel Blocking Activities of Indigenous Medicinal Plants.
17	R&D/C-PMNH/Bio (181)	Ethno-botanical studies, taxonomy and pictorial encyclopedia of economically important plants from mountainous regions of Northern Pakistan.

**LIST OF PUBLICATIONS PRODUCED THROUGH PSF SUPPORTED
PROJECTS COMPLETED DURING 2003-2004**

- 1) Khan, K.S. and M.I. Lone (2000). Size of microbial biomass in some rain fed soils of Potohar. 8th Int. Cong. of Soil Sci. Nov. 13-16, Islamabad.
- 2) Khalique A., Ayub, M. and Shaheen, F.A. (2002). Relationship between sex pheromone trap height and codling moth catches in apple orchards. Pak. J. Entomol. 24 (2) 135-138.
- 3) Farhat Batool, Z.S. Saify, M.A. Haleem and Darakhshan J.Haleem (2000) Neurochemical and Extrapyramidal effects of a typical neuroleptic clozapine in rats. Pak.J.Pharmac. Sci., January, Vol 13, (No.1), pp.47-55.
- 4) Asma Khan, Farhat Batool and Darakhshan J. Haleem (2001). Behavioral effects of 8-OH-DPAT in single and repeated haloperidol injected rats. Pak..J.Pharmac. Sci., July, Vol 14, (No.2), pp.9-17.
- 5) Darakhshan J. Haleem, Farhat Batool, Z.S. Saify, Noor Kamil, Obaid Ali and M.A. Haleem (2002) Differences in the effects of haloperidol and clozapine on brain serotonin and dopamine metabolism and on tests related to Extrapyramidal functions in rats. Med. Sc i. Monit.8(9)BR354-BR361 (available Online).
- 6) Erum Shireen, Qurat Ul Ain, Farhat Batool, Zafar. S.Saify, and Darakhshan J.Haleem (2002) Neurochemical effects of 8-OH-DPAT in rats treated with haloperidol. Pak. J. Pharmac. Sci., January, Vol 15, (No.1), pp.71-82.
- 7) Darakhshan J. Haleem, Farhat Batool, Nadia H. Khan, Noor Kamil, Obaid Ali and M. A.Haleem(2002) Dopamine/Serotonin metabolite ratio and Extrapyramidal effects of clozapine in rats.Journal Of College Of Physicians and Surgeons Pakistan (JCPSP) Vol. 12 No.10,October 588-592.
- 8) Tayyab-Un-Nisa, Saeed.S.Hamid, Anila Yasmeen, Anwar A.Siddiqui, Aqeel Ahmad, Waseem Jafri, "Serum IFN gamma upregulates the activity of interferon alpha in chronic IICV patients."_Submitted to Journal of Pakistan Medical Association.
- 9) Tayyab-UN-Nisa, Saeed.S.Hamid, Anila Yasmeen, Anwar . A.Siddiqui, Aqeel Ahmad, Waseem Jafri, 2003 "Association between IILA type II polymorphism and response to interferon therapy in chronic IICV patients." J Pak Med Assoc_Arpil 53(4) S-6 .

ANNEXURE-V**GRANT RELEASED FOR CONFERENCES, SEMINARS, AND SYMPOSIA ETC**

S.NO.	EVENT	ORGANIZATION	AMOUNT (Rs.)
1.	International Symposium on Advanced Material, Islamabad.	KRL, Secretariat Dr. A.Q. Khan Research Labs, Kahuta, Rawalpindi.	25,000/-
2.	2 nd National Seminar on Problems of Mineral Based Industries.	Department of Mining Engineering, NWFP University of Engineering and Technology, Peshawar.	20,000/-
3.	2 nd National Conference on Non-Destructive Testing (NDT).	National Center for NDT, Islamabad.	25,000/-
4.	International Multitopic Conference.	Institute Electrical and Electronic Engineers (IEEE), Islamabad Section.	50,000/-
5.	20 th Training Course on use of Nuclear and other Advanced Techniques in Food and Agriculture Research.	Nuclear Institute for Food & Agriculture (NIFA), Peshawar.	25,000/-
6.	National Conference on Biotechnology and Informatics in Pakistan.	Center for Biotechnology and Informatics, Balochistan University of Information Technology and Management Sciences. Quetta.	50,000/-
7.	International Conference on Mathematical Models and Methods in Fluid Mechanics.	COMSATS Institute of Information Technology, Abbottabad.	150,000/-
8.	International US-Pak Workshop on Research & Development in Information Technology.	COMSATS Institute of Information Technology, Islamabad	25,000/-

9.	Workshop on Entrepreneurship, opportunities in 21 st Century.	PASTIC, National Center, Islamabad.	25,831/-
10.	One-day workshop on Funding Mechanism and Strategies for Winning Research Grants.	Balochistan University of Information Technology and Management Sciences, Quetta.	66,000/-
11.	National Conference on Biotechnology and Informatics in Pakistan.	Center for Biotechnology & Informatics, Balochistan University of Information Technology and management Sciences, Quetta.	50,000/-
12.	Biodiversity in Northern Areas of Pakistan.	Department of Biological Sciences, Quaid-i-Azam University, Islamabad.	20,000/
13.	Short term Training Programme for Scientific and Technical Staff of Sugar Industry and Progressive Farmers.	University of Agriculture, Faisalabad.	25,000/-
14.	Seminar on Wealth Generation through Research in Kashmir.	Kashmir Information Research Center (KIRC),	25,000/-
	Total:		Rs.5, 81,831/-

Annexure-VI

**List of Scientists/Technologists who succeeded in availing PSF
Travel Grant during the year 2003-2004**

Sr. No.	Name & Address of Applicant	Conference date and venue and title of Research paper.	Amount Utilized (Rs.)
1.	Prof. Dr. M. Zafar Iqbal, Semiconductor Physics Laboratory, Department of Physics, Quaid-i-Azam University, Islamabad. T.G (275)	22 nd International Conference on Defects in Semiconductor from 28 th . July to 1 st August, 2003 at Demork.	100,000
2.	Dr.(Maj) Muhammad Hanif Assist. Professor, , ASG, College of E&ME (NUST), Peshawar Road, Rawalpindi TG(277)	16th International Conference on Laser Spectroscopy Palm Cove, Australia from 13-18 July 2003. <i>“Optogalvanic measurement and MQDT analysis of auto ionizing research in Xe.”</i>	60,000
3.	Dr. Aurangzeb Hassan Associate Professor Department of Chemistry, Quaid-i-Azam University, Islamabad T.G(278)	2 nd International conference on Chemistry and its applications, 6-9 December 2003, University of Qatar, Doha. <i>“Flavonoids from leaves of Pistacia integerima”</i>	38,000
4.	Dr. Ghazala Siddiqui, Assistant Professor, Centre of Excellence in Marine Biology, University of Karachi, Karachi. T,G (279).	Asian-Pacific Aquaculture. from 22-25 September, 2003 at Bangkok, Thailand. <i>“Reproductive pattern of Oystersa Found along the Coast of Pakistan (Northern Arabian Sea)”</i>	50,000
5.	Dr. Zarrien Ayub, Assistant Profesor, Centre of Excellence in Marine Biology, University of Karachi, Karachi. T.G (280)	Asian-Pacific Aquaculture. from 22-25 September, 2003 at Bangkok, Thailand <i>“Prospects of Shrimp Culture in Pakistan”</i>	50,000/-

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| 6. | <p>Dr. Khalid Saifullah
Lecturer, Department of
Mathematics,
Quaid-i-Azam University,
Islamabad.
T.G (285)</p> | <p>14th International Congress on
Mathematical Physics (ICMP 2003)
from July 28 to August 2, 2003 at
Lisbon.
<i>“An Algorithm for the Lie Symmetries
of Tensors”.</i></p> | 100,000 |
| 7. | <p>Dr. Aziz Akbar
Professor Civil Engineering
Department, University of
Engineering And Technology,
Lahore.
T.G (286)</p> | <p>12th Asian Regional Conference on
Soil Mechanics and Geotechnical
Engineering. from 4-8 August 2003,
Meritus Mandarin, Singapore.
<i>“A Simple Full-displacement cone
Pressure meter”</i></p> | 50,000 |
| 8. | <p>Falak Nawaz
National Centre of Excellence in
Geology
University of Peshawar.
T.G(281)</p> | <p>Map Asia 2003 Conference.
13-15 October, 2003, Kuala Lumpur,
Malaysia.
<i>“Data Integration for Flood Analysis
By using GIS/RS as tools”.</i></p> | 37,000 |
| 9. | <p>Dr. Sohail Akhtar Ghauri,
Assistant Professor,
Government Polytechnic Institute,
Jehlum.
T.G (284)</p> | <p>ACS 226th National meeting ,
Division of Physical Chemistry.
7-11, Sept 2003, New York USA.
<i>“Magnetic field Effect on the Viscosity
of Ion-Solvent Interaction in Aqueous
CoCl₂ at different Temperature”.</i></p> | 100,000 |
| 10. | <p>Prof. Dr. Ghulam Qasim,
Chairman, Basic Science Deptt.,
NWFP University of Engg & Tech
Peshawar.
T.G (287)</p> | <p>Fourth International Aerospace
Congress 18-23, August 2003,
Moscow, Russia
<i>“Micro strip Patch Antennas with
Dielectric Covers”</i></p> | 100,000 |
| 11. | <p>Mr. Muhammad Ashraf Chaudry,
Head, Food Science Division ,
Nuclear Institute For Food and
Agriculture Peshawar.
T.G (288)</p> | <p>International Conference on
Dissemination and Advancement of
Industrial Radiation Processing
Technology, 07 - 12, Sept 2003
Chicago, USA.
<i>“Radiation Treatment of Minimally
Processed Carrots to Ensure Hygienic
Quality.”</i></p> | 100,000 |
| 12. | <p>Mrs. Irfana Mariam,
Lecturer in Chemistry,
Queen Mary College,
Lahore.
T.G (289)</p> | <p>International Conference on Chemical
and Bioprocess Engineering 2003, 27
-29 August 2003, at Sabah, Malaysia.
<i>“Production of Calcium
Gluconate by Aspergillus Niger in
shake flasks”</i></p> | 70,900 |

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| 13. | <p>Dr. Muhammad Abid,
Assistant Professor ,
Faculty of Mechanical
Engineering, Ghulam Ishaq Khan
Institute of Engg. Sciences and
Technology, Topi.
T.G (290)</p> | <p>Petrotech 2003-4th Middle East
Refining and Petrochemicals
Exhibition and Conference,
29th. September –1st. October 2003,
Bahrain.
<i>“Experimental setup for the
Determination of flanged Bolted Pipe
Joint’s Capacity Subjected to
Combined Loading”</i></p> | 62,370 |
| 14. | <p>Dr. Mrs. Shafqat Farooq
PSO, Nuclear Institute for
Agricultural and Biology (NIAB),
Faisalabad.
T.G (291)</p> | <p>Tenth International Wheat Genetic
Symposium (TWIGS)
31st.Aug to 6thSept 2003, Speriental
Italy.
<i>“Electrolyte leakage an salinity
susceptibility index as selection
criteria for salt tolerant wheat
(Triticum aestivum L.)</i></p> | 48,290 |
| 15. | <p>Dr. Farhan Saif
Asstt Professor, Deptt of
Electronics Quaid-i-Azam
University Islamabad.
T.G (293)</p> | <p>Problems with Moving Bounders,
15-18 October, 2003 at Prague.
<i>“Quantum revivals in nature.”</i></p> | 54,920 |
| 16. | <p>Dr. Karim Dino Jamali
PSO, Nuclear Institute of
Agriculture (NIA), Tandojam,
Sindh.
T.G (295)</p> | <p>10th International Wheat Genetics
Symposium from 01-6 Sept 2003, at
Peastum, Italy.
<i>“Exploration of Semi dwarf wheat
Triticum aestivum L. genotypes for
high yield”.</i></p> | 58,000 |
| 17. | <p>Prof.Dr.Saeed Ahmad,
Chairman Department of Civil
Engineering, UET,
Taxila.
T.G (296)</p> | <p>28th Conference on Our World in
Concrete and Structures, 28-29
August, 2003, Singàpore.
<i>“Effect of Reinforcement ratio &shear
span on shear strength of high
strength concrete”</i></p> | 62,320 |
| 18. | <p>Mr..Waqar Ahmad ,
Chief Scientific Officer,
NPD, PINSTECH, Nilore,
Islamabad.
T.G (297)</p> | <p>22nd European Conference on Surface
Science (EcoSS 22), 07-12 Sept 2003,
Praha, Prague.
<i>“The hot atom adsorption mechanism
on the phase diagram of monomer-
dimer surface catalytic reaction: A
Monte-Carlo simulation study”</i></p> | 54,920 |

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| 19. | Mr. Waqas Wakil ,
Lecturer Department of
Entomology,
University of Arid Agriculture,
Rawalpindi.
T.G (299) | IOBC WPRS (OICB SROP) Working
Group Integrated Protection of Stored
Products, 16-19 Sept, 2003,
Khusadasi, Turkey.
<i>“Effect of concentrations and
Exposure period of Phosphine Gas on
the mortality of triblium castancum
(HBST) collected from sheikhupura
district, Punjab-Pakistan</i> | 81,600 |
| 20. | Dr..Uzma Bashir,
Lady Medical Officer,
PTCL Health Centre, Model
Town, Sialkot
T.G (300) | 2nd Ortomomyxovirusts Research
Conference, 21-24 August, 2003
Dolce Hamilton Park,NJ, USA.
<i>“Influenza Infection Caused by Avian
Influenza Virus H9N2 in Humans”</i> | 94,000 |
| 21. | Dr.Tazeem Tahir Kheli ,
Associate Professor, NCE in
Geology, University of Peshawar.
T.G (302) | Map Asia 2003
13-15 October, 2003,
Kuala Lumpur, Malaysia.
<i>“A case study of the Jehlum,
Pakistan”</i> | 52,000 |
| 22. | Dr.Farooq Anwar,
Scientific Officer, Oil & Fat Res.
Section, PCSIR Labs Complex,
Karachi.
T.G (303) | 42 nd Japan Oil Chemists Society
(JOCS) Conference, Nagoya, Japan,
18-20 Sept. 2003.
<i>“Antioxidant Activity of Some Plant
Extracts for Edible Oils at Ambient
and Accelerated Condition”.</i> | 60,000 |
| 23. | Mr Shafqat Hussain Bhatti,
Executive Engineer, Irrigation
Research Institute, Irrigation
&Power Department, Lahore.
T.G (307) | International Conference and
Exhibition 3-6 Nov.2003, Dubrovnik,
Croatia.
<i>“Chianiwali Hyda lPower Station on
UpperChenab Canal-Case Study”</i> | 100,00 |
| 24. | Dr. Muhammad Nawaz,
Chairman Department of
Physiology and Pharmacology,
University of Agriculture,
Faisalabad.
T.G (311) | 34 th IUALTD World Conference on
Lung Health, 29 th . Oct – 2 nd . Nov,
2003 Paris, France.
<i>“Bioequivalence of antitubercular
fixed dose Combination and individual
drug tablets in healthy Volunteers”</i> | 88,560 |

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| 25. | Major Badar Rashid,
Officer Commanding Automobile
WKsp,
Project Management
Organization, Opposite EME
College, Peshawar Road,
Rawalpindi.
T.G (313) | 2003 STLE/ASME Joint International
Tribology Conference 27-29 October,
2003, Florida, USA.
<i>“Modeling & Simulation of
Hydrodynamic Lubrication of Rotary
Diesel Fuel Injection Pump”</i> . | 100,000 |
| 26. | Mr. Abdul Hameed,
Lecturer in Biology, Provincial
Institute of Teacher Education,
(PITE), Lahore.
T.G (314) | 5 th Asia –Pacific Conference on Algal
Biotechnology, 18-21 October, 2003
China.
<i>“Cultural Characteristics of
Chromium Resistant Cyanobacteria
Isolated from Local Environment”</i> | 76,525 |
| 27. | Ms .Kanawal Qayyum.
Clinical Psychologist, Incharge
Psychological Research Section,
Department of Psychiatry, Sir
Ganga Ram Hospital Lahore.
T.G (294) | International Conference on
Psychiatry Colombo, Sri Lanka, 17-20
Aug , 2003.
<i>“Symptom Pattern of Conversion
Disorder”</i> . | 27,320 |
| 28. | Prof. Dr. Sohail Aftab Qureshi,
Electrical Engineering
Department,
UET, Lahore.
T.G (312) | International Power Engineering
Conference IPEC-2003 from 27-29
Nov.2003 at Singapore.
i) <i>“Fast Transients Calculation in GIS
Bushings”</i>
ii) <i>“Energy Conservation using
Different Techniques and Efficient
Equipment”</i>
iii) <i>“Time Domain Reflectometry
Measurement to Determine
Characteristic Impedance of Three
Phase Medium Voltage Cables”</i> | 36,880 |
| 29. | Dr. Brohi Khan Muhammad,
Assistant Professor,
Mechanical Engineering
Department,
Mehran University of Engg. &
Technology, Jamshoro.
T.G (315) | 5 th Eastern Asia Society for
Transportation Studies (EASTS)
(International Scientific Committee).
From Oct.29 to Nove.1, 2003 in
Japan.
<i>“Introduce Strategic Environmental
Assessment (SEA) in the New Road
Network Project of Pakistan for
Proper Decision-Marking of
Policies”</i> . | 100,000 |

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| 30. | Mr. Usman Asad,
Instructor/Captain,
College of E&ME,
Peshawar Road, Rawalpindi.
T.G (318) | 2003 ASME International Mechanical
Engineering Congress and RD&D
Expo, 16-21 Nov. 2003, Washington
D.C., USA.

<i>“Hydrogen as a Fuel Supplement in a
CNG Operated Vehicle using a Simple
on Board Hydrogen Generation
System”</i> | 21,750 |
| 31. | Muhammad Khalid Alamgir
Senior Scientific Officer,
Dr. A.Q;Khan Research
Laboratories. Rawalpindi.
T.G (322) | Workshop on Plasma Physics,
10 - 15 Nov 2003, at Trieste Italy. | 45,000 |
| 32. | Ghulam Murtaza Hashmi,
Assistant Professor,
Department of Electrical
Engineering,
University of Engg. &
Technology, Lahore
T.G (323) | International Power Engineering
Conference (IPEC-2003), 27-29
Nov.2003, Singapore.
<i>“Time Domain Reflectometry
Measurements to Determine
Characteristic Impedance of Three
Phase Medium Voltage Cables”</i> | 33.234 |
| 33. | Ms. Nageen Ainuddin,
Programme Leader,
CPC, COMSTECH Secretariat, 3-
Constitution Avenue, Islamabad.
T.G (324) | International Women’s Conference on
BIEN-Technology, 13-16 Nov.2003,
Daejon, South Korea.
<i>“Women in the Age of Globalization
Challenges, Opportunities in
Information Technology”</i> | 59,800 |
| 34. | Dr. Abdul Razzaq Ghumman,
Dean, Faculty of Civil &
Environmental Engineering,
University of Engineering &
Technology, Taxila.
T.G (327) | International Conference Hydro Africa
2003, 17-19 Nov. 2003, in Tanzania.
<i>“Simulation of Ground Water Levels
using a Numerical Model (Ghazi
Barotho Hydro Power Project)”</i> | 45,245 |
| 35. | Prof. Dr. Qaiser Mushtaq,
Department of Mathematics,
Quaid-i-Azam University,
Islamabad.
T.G (329) | Southeast Asian Mathematical
Conference 2003 from 14-20
Dec2003, Kunming, China.
<i>“Subgroups of Finite Index”</i> | 67,000 |

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| 36. | Dr. Nuzhat Nauman,
Senior Demonstrator,
Rawalpindi Medical College,
Rawalpindi.
T.G (330) | International Genetics Congress,
9-11 Dec.2003, Dubai, UAE.
<i>“Genetic Epidemiologic Study of
Manic-Depressive (BIPOLLAR)
Illness”</i> | 43,150 |
| 37. | Dr. A.R. Tabrez,
National Institute of
Oceanography, St. No.47, Block-
1, Clifton, Karachi.
T.G (331) | 5 th International Conference on Asian
Marine Geology from 14-20 Jan.2004,
Thailand.
<i>“Application for Research
Productivity Allowance”</i> | 32,805 |
| 38. | Prof. Dr. M. Umar Dahot,
Director, Institute of
Biotechnology & Genetic
Engineering,
University of Sindh, Jamshoro.
T.G (332) | International Symposium on Biomass
and Biomolecular Engineering, 15-17
Dec 20.03, Shanghai, China.
<i>“Production and use of Penicillium
Expansum Single Cell Protein for
Poultry Feed”</i> | 38,590 |
| 39. | Dr. Anjum Afshan,
Senior Scientific Officer,
NORI, G-8/3, Islamabad.
T.G (333) | International Symposium on Nuclear
Oncology, 19-23 Jan 2004, Porto
Alegre, Brazil.
<i>“Study on Synthesis, Kit Formulation
and Chemical Kinetics of Dissociation
of Tc Labeled PnAO Biotin Complex”</i> | 48,304 |
| 40. | Dr. M Javed Akhtar,
Principal Scientific Officer,
NPD, PINSTECH, Nilore,
Islamabad.
T.G (334) | Second SESAME Users Meeting, 29
Nov. to 1 st Dec.2003, Isfahan, Iran.
<i>“X-ray Absorption Studies of Ceramic
Oxide Materials”</i> | 25,000. |
| 41. | Prof. S. Shahab Khushnood,
Department of Mechanical
Engineering, University of
Engg. & Technology, Taxila.
T.G (338) | 14 th International Colloquium
Tribology and Lubrication
Engineering from 13-15 Jan. 2004 at
Stuttgart, Germany.
<i>“Experimental and Finite Element
Analysis of Hydrodynamic Lubrication
of Rotary Diesel Fuel Injection Pump”</i> | 89,944 |
| 42. | Mr. Amer Aziz,
Assistant District Officer
City District Government
Lahore.
T.G (339) | 10 th International Conference Urban
Transport & Environment in 21 st
Century, 19-21 May 2004, Dresden,
Germany.
<i>“Energy and Pollution Control
Opportunities for Lahore”</i> | 78,420 |

43. Mr. M. Javed Iqbal,
Assistant Professor,
Department of Mathematics,
University of Karachi, Karachi.
T.G (340)
- National Australian Convention of
Amateur Astronomers, 9-12 April,
2004, Hobart, Tasmania, Australia.
*“Planetary Orbits Around & Spinning
Gravitating Star”*
- 90,000
44. Dr. M. Shahid Khalil,
Associate Professor,
Department of Mechanical
Engineering,
University of Engg. &
Technology, Taxila.
T.G (345)
- 33rd International Conference on
Computers and Industrial Engineering,
25-27 March, 2004, Hanvang
University, Ansan Korea.
*“Analysis and Evaluation of Modern
CAD/CAM Software”*.
- 90,000
45. Dr. Farina M. Khattak,
Assistant Professor,
Department of Poultry Production,
University of Veterinary &
Animal Sciences, Lahore.
T.G (346)
- Worlds Poultry Congress, 8-13 June,
2004, Istanbul, Convention Centre,
Turkey.
*“The Effect of Enzyme Treatment on
Caecal & Bone Marrow Cells of
Broilers Fed Diets Containing Full
Fat Rape Seed & Rape Seed Meal”*.
- 100,000
46. Dr. Arshad Iqbal,
Associate Professor,
Department of Physics,
AJK University, Muzaffarabad
T.G (347)
- The 2nd International Conference on
Structure, Processing and Properties of
Materials SPPM 2004 from 25-27
Feb. 2004 at Dhaka-1000 Bangladesh.
*“Effect of Temperature on Tensile
Behaviour of High Speed Tool Steels”*
- 54,490
47. Ms. Onaiza Maqbool,
Research Associate,
Lahore University of Management
Sciences, Opposite Sector ‘U’
DHA, Lahore.
T.G (348)
- Conference on Software Maintenance
& Re-Engineering (CSMR), 24-26
March, 2004, Finland.
*“The Weighted Combined Algorithm:
A Linkage Algorithm for Software
Clustering”*
- 100,000
48. Dr. Shahid Mansoor,
Principal Scientific Officer,
NIBGE, Faisalabad
T.G (349)
- 4th International Gemini virus
Symposium & 2nd International SS
DNA Comparative Virology
Workshop, 15-20 Feb. 2004,
University of Cape Town, South
Africa.
*“Use of RNA Interference for
Silencing of two begomovirus Genes”*
- 59,000

49. Sh. Muhammad Nawaz,
Associate Professor & Chairman,
Department of Fibre Technology,
University of Agriculture,
Faisalabad
T.G (350)
- The Textile Institute 83rd World
Conference, 23-27 May, 2004 at
TTWC Secretariat, College of Textile,
Donghua University 1882, West Yan-
an Road, Shahghai, China.
*“Determination of Endotoxin Level in
various Cotton Varieties and its
Eradication from Raw Cotton without
Deteriorating the Fibre and Yarn
Properties”*
- 63,650
50. Prof. Dr. Bashir Ahmad,
Chairman,
Department of Mathematics,
COMSATS Institute of
Information Technology, H-8/1,
Islamabad.
T.G (351)
- National Conference on General
Algebra and Discrete Mathematics,
10-13 March, 2004, University of the
Thai Chamber of Commerce,
Bangkok.
*“Fuzzy Relations and Fuzzy
Subalgebras of BCI-Algebras”.*
- 30,443
51. Syed Zafar Ilyas,
Assistant Professor,
Department of Physics,
University of Baluchistan, Quetta.
T.G (360)
- 15th World Hydrogen Energy
Conference, 27th June to 2nd July,
2004, Hydrogen Energy System
Society of Japan.
*“Study of Air Pollution in Urban Area
of Quetta, Pakistan”*
- 100,000
52. Ahsan Abdullah,
Associate Professor,
National University of Computer
and Emerging Sciences – FAST,
Rohtas Road, G-9/4,
Islamabad.
T.G (361)
- The 8th World Multi-Conference on
Systemic Cybernetics and Informatics
SCI-2004, 18-21 July, 2004, Orlando,
Florida, USA.
*1.Heuristics and Meta- heuristics for
one-way clustering of gene expression
data
2.Remote Sensing Techniques for
Supplementing Pest Scouting A Report
3Experiences in Development and use
of a Low Cost OLAP Tool for
Analyzing Agricultural Data*
- 100,000
53. Mr. Muneeb Ali,
Research Associate,
Computer Sciences Department,
Lahore University of Management
Sciences, Opposite Sector ‘U’
DHA, Lahore.
T.G (362)
- 2nd Annual Conference on
Communication Networks and
Services Research (CNSR-2004), 19-
21 May, 04, Fredericton, N.B, Canada.
*“CSN: A Network Protocol for Serving
Dynamic Queries in Large Scale
Wireless Sensor Networks”*
- 100,000

54. Mirza Jahanzaib
Assistant Prof, Department of
Mechanical Engineering
University of Engineering and
Technology, Taxila.
T.G. (363)
- FAIM 2004, 14th International
Conference on Flexible Automation &
Intelligent Manufacturing, 100,000
July 12-14, 2004 Ryerson University
Toronto Canada
*“Production Management for the
High-Tech. Products-A Manufacturing
Simulation Based Approach”*.
55. Prof. Muhammad Abid Khan,
National University of Computer
and Emerging Sciences, Peshawar
Campus, 159-160 Industrial
Estate, Jamrud Road, Peshawar.
T.G (367)
- Human Language Technologies – The
Baltic Perspective, 21-22 April, 2004 92,000
at Riga, Latvia.
*“Text and the Translation of Natural
Languages”*
56. Dr. Muhammad Sharif,
Associate Professor,
Department of Mathematics
Punjab University, Lahore.
T.G (368)
- 11th Regional Conference on
Mathematical Physic, 3-6 May,2004t 28,700
Tehran, Iran.
Kinematics Self Similar Solutions.
57. Dr. Abdul Rehman Kashif,
Assistant Professor, College of
E&ME, NUST, Peshawar Road
Rawalpindi.
T.G (369)
- 11th regional Conference on
Mathematical Physics, 3-6 May, 2004. 28,700
Tehran, Iran.
*Classification of Curvature
Collimations of Plane Symmetric.*
58. Mrs. Anjuman Arif,
Senior Scientific Officer, National
Institute for Biotechnology and
Genetic Engineering (NIBGE),
Faisalabad.
T.G (371)
- Conference on Water and Salt Stress
in Plants, 13-18 June 2004, Hong 58,575
Kong, China.
*Arabidopsis Vacuolar Pyrophosphates
gene (AVPI) induces Drought and Salt
Tolerance in Nicotiana toabacum
plants.*
59. Dr. Faiz-ul-Hasan,
Professor ,
Dept. of Metallurgical & Material
Engg, UET. Lahore.
T.G. (372)
- ICEFA-2004, Int. Conf. on Engg.
Failure Analysis-I, 12-14 July 2004, at 65,766
Elsevier, Oxford, U.K.
*Consequential Rupture of GAS
Pipeline.*

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| 60. | Mr. Shamaraz Firdous,
Senior Scientific Officer, Laser
Lab,
Department of Physics & Applied
Mathematics (DPAM),
PINSTECH, Nilore, Islamabad.
T.G (376) | International Symposium on Photonics
in Measurement, 2004 (Development
of Optics and Laser Technology), 23-
24 June, 2004, Frankfurt, Germany.
<i>Modeling of electro-optic devices for
scattering and absorption of polarized
light with Muller Matrix</i> | 44,800 |
| 61. | Ms. Ayesha Roohi,
Associate Professor,
Department of Statistics
Lahore College for Women
University, Lahore.
T.G.(364) | International Conference on
Distribution Theory order Statistics
and Inference, 16-18 June, 2004 at
University of Cantabria, Santander,
Spain
"Negative Moments and Inverse
Ascending Factorial Moments of
Logarithmic Series Distribution" | ---- |
| 62. | Prof. Dr. Zafar ullah Koreshi,
Department of Mechatronics
Engineering, Air University,
E-9, Islamabad.
T.G (378) | 12th International Conference on
Nuclear Engineering, 25-29 April,
2004, Washington DC, USA.
1) "Steady MHD Flow for Molten
Metal Coolants in Advanced Nuclear
Systems"
2)" Modeling and Simulation of
Cross-Flow Induced Vibration in a
Multispan Bundle" | 79,440 |
| 63. | Mr. Irfan Ahmed,
Deputy Manager,
Material Management, FESCO-
WAPDA, Abdullahpur,
Faisalabad.
T.G (381) | 24th International Symposium on
Forecasting, 4-7 July, 2004 at Sydney,
Australia.
"Comparison Between Akaike
Information Criterion and Akram Test
Statistic" | 43,000 |
| 64. | Dr. Muhammad Fatahullah Khan,
National Coordinator(SRRP),
Animal Sciences Institute, NARC,
Park Road, Islamabad.
T.G (382) | 8th International Conference on Goat,
4-9 July, 2004, Pretoria, South Africa.
"Prospects of Goat as Dairy Animal in
Pakistan" | 69,187/-
(Partial) |
| 65. | Dr. Muhammad Akram,
Associate Professor / Chairman,
Deptt. of Poultry Production,
University of Veterinary and
Animal Sciences, Lahore.
T.G (383) | World Poultry Congress-2004, 8-13
June, 2004, Istanbul, Turkey.
"Study to Investigate the Feasibility of
induced Moulting in Commercial Laying
Flocks". | 100,000 |

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| 66. | Mr. Yasir Ayaz,
Research Fellow,
Department of Electrical Engg.
College of E&ME, NUST,
Peshawar Road, Rawalpindi.
T.G (384) | 4th IEEE International Workshop on
Robot Motion and Control
(RoMoCo'04), 17-19 June, 2004,
Puszczykowo, Poland.
<i>"Design, Fabrication and Control of a
Tow-Legged Walking Robot"</i> | 100,000 |
| 67. | Dr. Muhammad Arif,
Associate Professor,
Department of Geology,
University of Peshawar.
T.G (387) | 32 nd . International Geological
Congress, 20-28 August, 2004,
Florence, Italy.
<i>Host rock characteristics and source
of chromium and beryllium for
emerald mineralization along the
Indus suture zone in Swat, NW
Pakistan</i> | ---- |
| 68. | Mr. Shahzad Mahmood,
Senior Scientific Officer,
Physics Research Division,
PINSTECH, Nilore, Islamabad.
T.G (388) | Workshop on Theoretical Plasma
Physics, 5-16 July, 2004,
ASICTP, Trieste, Italy.
<i>Auroral Electrostatic Structures in the
Presence of Hot Ions Precipitation
that the Workshop</i> | 62,000 |
| 69. | Dr. Naqibullah Khan,
Research Officer,
Agricultural Research Institute,
D.I. Khan.
T.G (406) | 15th International Plant Protection
Congress (IPPC), 11-16 May, 2004,
Beijing, China.
<i>i) Effect of Herbicides and Zero
Tillage on the Weed Density and
Grain Yield of Wheat and Chickpea.
ii) Cotton leaf curl virus (Cl.CV)
Incidence and its Inheritances in
Gossypium hirsutum L.</i> | 100,000 |
| 70. | Prof. Dr. Khan Bahadar Marwat,
Chairman,
Department of Weed Sciences,
NWFP Agriculture University,
Peshawar.
T.G (392) | 4th International Weed Science
Congress -Durban-2004, 20-24 June,
2004, Durban, South Africa.
<i>Effect of Herbicides and Row Spacing
on Wheat.</i> | 100,000 |
| 71. | Mr. Munawar Iqbal,
Centre for High Energy Physics,
University of Punjab, Lahore.
T.G (394) | 5 th . International Conference on Ion
Implementation and Other
Applications of Ions and Electrons,
14-17 June, 2004 Kazimierz Dolny,
Poland.
<i>"The Electron Beam Gun with
Thermionic Hairpin-Like Cathode for
Welding and Surface Modifications"</i> | 68,500 |

72. Dr. M. Zafar Iqbal,
Meritorious Professor,
Semiconductor Physics
Laboratory,
Quaid-i-Azam University,
Islamabad.
T.G (395)
- 27th International Conference on the
Physics of Semiconductors (ICPS-27), 27,296
26-30 July, 2004, Flagstaff, Arizona,
USA.
a) *Deep levels in Osmium-doped p-
type GaAs Grown by Metal-
organic Chemical Vapour
Deposition*".
b) *Deep levels in Ruthenium-doped
p-type MOCVD GaAs*"
73. Dr. Gul Hassan,
Associate Professor,
Department of Weed Science,
NWFP Agriculture University,
Peshawar.
T.G (396)
- 4th International Weed Sciences
Congress, 20-24 June, 2004, Durban, 100,000
South Africa.
*"Dormancy Breaking of Wild Oats
(Avena fatua L.) Seeds under Varying
Temperatures, GA, and KNO, Levels"*
74. Dr. Tahira Ahmed,
Deptt. of Biological Sciences,
Quaid-i-Azam University,
Islamabad..
T.G (401)
- 6th International Wildlife Ranching
Symposium, 6-9 July, 2004, Paris, 45.850.
France.
*"Sustainable use & Conservation of
Wild sheep in Pakistan"*.
75. Mr. Nimat-ullah Khattak,
Principal Geologist,
P.R.D. PINSTECH,. Nilore,
Islamabad.
T.G (403)
- 22nd International Conference on
Nuclear Tracks in Solids, 23-27 93,000
August, 2004, University de
Barcelona, Spain.
*"Emplacement Time of Jawar
Carbonatite from NW Pakistan:
Constraints from Fission-Track
Dating"*
76. Dr. Tanvir Iqbal Qayyum,
Associate Professor,
Civil Engineering Department,
University of Engineering &
Technology, , Lahore.
T.G (407)
- 11th International Conference for
Building & Construction, 17-21 10,808
June,2004, Cairo, Egypt.
*"An Apparatus to Measure the
Ultimate Stiffness of Unreinforced and
Reinforced Racecourse Tracks"*
77. Dr. Lalarukh Kamal,
Associate Professor,
Department of Mathematics,
University of Baluchistan,
Quetta.
T.G (409)
- World Renewable Energy Congress
VIII 29th. August to 3rd.Sept. 2004,
Denver, Colorado, USA.
*"Application of Artificial Neural
Networks for Prediction of Wind
Energy"*

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| 78. | Prof. Dr. Mudasir Asrar,
Department of Botany,
University of Balochistan,
Quetta.
T.G (410) | Botany 2004 Conference of American
Society for Botany, USA, 31 st . July to
5 th August, 2004, Utah, USA.
i) " <i>Allelopathic Effects of
Vincetoxicum Stockssi and Zygoj
Fabago</i> "
ii) " <i>Ethnobotanical Studies and
Screening of Medicinal Plants of
Quetta, Pakistan</i> " | 100,000 |
| 79. | Dr. Shahina Tariq,
Assistant Professor,
Institute of Earth and
Environmental Sciences, Bahria
University, Islamabad.
T.G (413) | 19 th Himalaya-Karakoram-Tibet
Workshop, 10-12 July, 2004, Niseko-
Hakkaido, Japan.
<i>"The Clay Mineralogy and
Implication for Palaeo-Environment
of Patala Formation in Salt Range,
Lesser-Himalaya, Pakistan"</i> | 100,000 |
| 80. | Dr. Allah Bakhsh Kausar,
Director,
Geosciences Laboratory,
Ministry of Petroleum and Natural
Resources, Shahzad Town, Park
Road, Islamabad.
T.G (416) | 19 th Himalaya-Karakoram-Tibet
Workshop, 10-12 July, 2004, Niseko-
Hakkaido, Japan.
<i>"Trace and Rare-Earth Distribution
Patterns of Rock Chilas and Kamila
Amphibolites, Kohistan Arc, N.
Pakistan"</i> | 17,840 |
| 81. | Dr. M. Akram Kahlowan,
Chairman,
PCRWR, House No.3&5, Street
No.17, F-6/2, Islamabad.
T.G (353) | Research Basins and the Hydrologic
Planning from 22-21 March, 2004 at
Hefei City, Anhui, China.
<i>"Groundwater Development and
Management in Indus Basin: Issues
and Challenges"</i> | 89,560 |
| 82. | Mr. M. Irfan Saeed Alrai,
Programme Manager,
Pollution Control, National
Environmental Action Plan
Support Programme, Pakistan
Environmental Protection Agency,
Ministry of Environment,
Islamabad.
T.G (325) | SALZBURG Seminar, Academic
Session 414 "Environmental Policy
and Public Dialogue", 16-23
Nov.2003 at Austria.
<i>"Environmental Policy, Practice in
Pakistan and Possibility of
Modification"</i> . | 52,220 |

R&D Projects Approved during the Year 2003-2004

S.No	Project Title & No.	Name & Address of P.I.	Duration	Total Sanctioned cost in Rs.
	<u>Agricultural Sciences</u>			
1	Cotton Plant Compensation to pest stress as affected by Plant Nutrients, Growth Regulators and Cultural Practices. R&D/S-SAU/Agr(29)	Prof. Dr. Ghulam Husain Abro, Department of Entomology, Sindh Agriculture University, Tandojam.	3 Years	6,77,545/-
2	Utilization and Improvement of Patchy Salt Affected Areas of Peshawar Valley. R&D/F-AU/Agr (170)	Dr. Muhammad Jamal Khan, Associate Professor, Department of Soil Environmental Sciences, NWFP Agriculture University, Peshawar.	One year	2,52,909/-
3	Epidemiological Investigations of Leptospirosis in Cattle and Buffaloes. R&D/P-LPRI/Agr(229)	Dr. Rashid Ahmad. Research Officer, Live stock Production Research Institute, Bahadurnagar, Okara.	One year	2,66,148/-
	<u>Biological Sciences</u>			
4	Economic Viability of Pesticide Residue and PCB,s free Fisheries Products. PSF/R&D/S-PCSIR/Chem (292)	Dr. Alia Bano, PCSIR Complex, Karachi.	2 years	315,149/-
5	The effect of Ursodeoxycholic Acid (UDCA) Therapy on in Vitro Gallbladder Smooth Muscle Contractility PSF/R&D/S-AKU/BIO (244)	Dr. Hasanain Ali Shah, Department of Medicine, The Aga Khan University, Karachi.	2 years	905,066/-
6	Studies on Proteins involved in Duodenal Iron Trafficking in Iron deficiency Anemia PSF/R&D/S-ZMU/BIO (224)	Prof. Dr. Ataur Rehman, Ziauddin Medical University, Karachi.	3 years	872,615/-

7	Preparation of Product of Economic Importance from shellfish Waste PSF/R&D/S-PCSIR/BIO (221)	Dr. Khalid Jamil, Food & Marine Resources Research Centre, PCSIR Labs Complex Karachi.	2 years	446,464/-
8	In Vitro developments of salt in Tolerance in Rice PSF/R&D/F-IBGE/Biotech (209)	Dr. Safdar Hussain Shah, NWFP Agricultural University, Peshawar.	3 years	962,084/-
9	Genetic Analysis and field evaluation of Potato Genotypes in Azad Kashmir. PSF/R&D/AJK-UAJK/Biotech (198)	Dr. Muhammad Fareed Khan. Asst. Professor, University College of Agriculture, Rawalakot.	3 years	580,870/-
10	Physiological Activities of Indigenous Reputed Anidiablgenoic Plants and their possible Mechanism of action. PSF/R&D/S-AKU/BIO (195)	Dr. Masood A. Qureshi, Department of Physiology, University of Karachi.	2 years	895,642/-
11	Relationship of Adiponectin, Leptin, IGF1, IGF11 and lipid profile to diabetes and diabetic complication i.e. Ischemic Heart disease in Pakistani females. R&D/CDYST/S-ZMU/Bio(40)	Dr. Anila Jalil, Ziauddin Medical University Karachi.	2 years	252,552/-
	<u>Chemical Sciences</u>			
12	Development of Processing Method for Pectin as Value Added Product from Citrus Peel Waste F-NIFA/Chem (138)	Mr. Muhammad Ashraf Chaudhry, Head, Food Science Division, Nuclear Institute for Food & Agriculture (NIFA), Peshawar	3-years	851,788/-
13	Synthesis, Labeling, Characterization & Biodistribution of Chemo Tactic Peptides for Inflammation Scintigraphy R&D/P-INML/Chem (157)	Mr. Muhammad Javed, Principal Scientific Officer, Institute of Nuclear Medicine & Oncology (INMOL), Wahdat Road, P.O. Box. 10068, Lahore	2-years	4,97,284/-

14	Synthesis of Variably Substituted Chalcones, Thiochalcones and Iminochalcones having Potential Industrial Applications R&D/C-QU/Chem (203)	Dr. Aurangzeb Hasan, Department of Chemistry, Quaid-I-Azam University, Islamabad	3-years	666,754/-
15	Synthesis & Structural Characterization of Bimetallic Precursor for Chemical Vapour Deposition R&D/C-QU/Chem (218)	Dr. M. Mazhar, Department of Chemistry, Quaid-I-Azam University, Islamabad	2-years	721,487/-
	<u>Environmental Sciences</u>			
16	Heavy Metal Contamination of Soil Water, Fruit and Vegetables through Sewage Water R&D/F-PU/Envr (201)	Dr. Sajida Perveen, Deptt. of Soil & Environment Sciences, NWFP, Agriculture University, Peshawar	3-years	719,600/-
17	Behavior of Pesticides in Crops. R&D/F-PU/Envr (202)	Dr. Hamidullah Shah, Department of Agricultural Chemistry, NWFP, Agricultural University, Peshawar	3-years	898,814/-