# REPORT OF

# NATIONAL WORKSHOP ON

## USAID INSTITUTIONAL EXCELLENCE PROJECT

HELD AT

HOLIDAY INN HOTEL
ISLAMABAD

ON

8th & 9th NOVEMBER 1993

SPONSORED BY

USAID/PAKISTAN

ORGANIZED BY

EDC (Pvt) Limited
Enterprise & Development Consulting

Authors: Dr. Salman A. Malik
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## ACKNOWLEDGEMENTS

On behalf of USAID, Enterprise & Development Consulting wishes to express it's gratitude to Professor Pareshan Khatak (Chairman UGC), Dr. M.H. Qazi (W.T.,UGC) and Dr. J.J.Monagle (Consultant, USAID) for extending their support and advice in conducting of the work-shop. We particularly thank Dr.A.Q.Ansari (Chairman PCSIR) who contributed significantly in the deliberations of the work-shop.

Thanks are also due to the delegates of the Research Institutions and their respective Industrial counterparts who provided the material which formed the basis of deliberations, discussions and recommendations. We gratefully acknowledge their efforts and to all we express our appreciation.

We also feel obliged to all the participants who took part in the work-shop deliberations and contributed in a professional manner.

Our special thanks are also due to Dr. Sarah Tirmizi and Ms. Amna Mir, who made significant contributions towards it's success.

To all others who helped in their own special way we would like to express our thanks.

## LIST OF ABBREVIATIONS

| | |
|---|---|
| IEP | INSTITUTIONAL EXCELLENCE PROJECT |
| IE PROJECT | INSTITUTIONAL EXCELLENCE PROJECT |
| R.I | RESEARCH INSTITUTION(s) |
| P.I | PRINCIPAL INVESTIGATOR(s) |
| CO-P.I | CO-PRINCIPAL INVESTIGATOR(s) |
| OGDC | OIL & GAS DEVELOPMENT CORPORATION OF PAKISTAN |
| PCSIR | PAKISTAN COUNCIL FOR SCIENTIFIC & INDUSTRIAL RESEARCH |
| STEDEC | SCIENTIFIC & TECHNOLOGICAL DEVELOPMENT CORPORATION OF PAKISTAN |
| UGC | UNIVERSITY GRANTS COMMISSION |
| W.T.,UGC | MEMBER WHOLE TIME UGC |



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## SUMMARY

A two days workshop was organized to provide an opportunity for a collective dialogue, and to establish/evaluate/enhance the objectives of IEP. All the research institutions involved participated through P.I. & Co-P.I. Almost all the Industrial counter-parts also participated through senior or executive level personnel. The agenda was long and consequently the working sessions were intense. The workshop commenced at 0800 hrs on both days and continued till 1700 hrs with intermittent lunch and coffee breaks. The presentations were made during the 1st sessions on both days followed by intensive sessions of discussions.

The presentations were well prepared and well delivered. Most of the speakers reported significant progress towards the stated objectives and hoped that the projects would be completed in full by/before the conference in February 1994. The discussions included progress made, problems encountered & their possible solutions, changes in the system which may stimulate/encourage R.I.-Industry cooperation and comments/observations/remarks from the Industrial counterparts.

All the participants enthusiastically supported the philosophy of R.I -Industry cooperative and applied research activity. The Industrial participants forcefully expressed hope and interest to support such applied research activities in various R.I. from their own resources provided some measures to safeguard their interests and investments may be made.

The contents/outline of the operational manual to be published later and ways and means for institutionalization/sustainability of the program were also discussed and a consensus arrived at.

The workshop ended with the resolve to participate even more enthusiastically in the one day conference to be held at Islamabad during February 1994.

## OBJECTIVES

EVALUATION

- Of the over all degree of success of the projects.
- Of enthusiasm & interest of the Industrial participants for continuing such cooperative efforts.
- Of suggestions/recommendations that may be proposed during the workshop.

CONFIDENCE BUILDING & LEARNING

- Enhancing the confidence between research institutions, industry and the IEP program by providing an opportunity of a collective dialogue.
- Learning from each others experience.

PREPARATION FOR FUTURE ACTIVITIES

- To plan and prepare for the formal conference to be held in February 1994.
- To define themes and establish a structure for presentations and discussions and a preliminary agenda.
- To define and establish an outline of the IEP manual to be published.

## PARTICIPANTS OF WORKSHOP

### RESEARCH INSTITUTIONS

National Centre of Excellence in Geology, University of Peshawar. (NCEG)

| | |
|---|---|
| Dr. M. Qasim Jan | Director & Principal Investigator |
| Dr. M. Tahir Shah | Assistant Professor & Co-Principal Investigator |
| Dr. Iftikhar Ahmed | Assistant Professor & Co-Principal Investigator |
| Mr. Mohammad Haneef | Assistant Professor |
| Mr. Mohammad Riaz | Research Associate |

Department of Chemistry, Gomal University, D.I.Khan. (GOMAL)

| | |
|---|---|
| Dr. G.A. Miana | Professor & Principal Investigator |

Department of Biological Sciences, Quaid-i-Azam University, Islamabad. (QAU)

| | |
|---|---|
| Dr. Khalida Sultana | Assistant Professor & Principal Investigator |
| Dr. A. Hameed | Assistant Professor & Principal Investigator |

Centre of Excellence in Molecular Biology, University of the Punjab, Lahore. (CEMB)

| | |
|---|---|
| Dr. S. Riazuddin | Director & Principal Investigator |
| Dr. Amin Ather | Assistant Professor & Co-Principal Investigator |
| Dr. Esther Khan | Lecturer & Co-Principal Investigator |

Department of Elect. Engg., University of Engineering & Technology, Lahore. (UET)

| | |
|---|---|
| Dr. Zubair Ahmed Khan | Professor & Principal Investigator |

HEJ Research Institute of chemistry, University of Karachi. (HEJ)

| | |
|---|---|
| Dr. Attiya Abbasi | Assistant Professor & Co-Principal Investigator |
| Dr Mohammed Iqbal Ch. | Assistant Professor & Co-Principal Investigator |



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## PARTICIPANTS OF WORKSHOP

### INDUSTRIAL COUNTERPARTS

| | | Counterparts of |
|---|---|---|
| PCSIR | | GOMAL |
| Prof. Dr. A. Q. Ansari | Chairman | |
| Dr. S. Fazal Hussian | Director General, Peshawar | |
| Dr. M.A. Saeed | Director General, Lahore | |
| Dr. Mushtaq Ahmed | Principal Scientific Officer | |
| STEDEC | | GOMAL |
| Mr. Aziz A. Khan | Managing Director | |
| OGDC | | NCEG |
| Mr. M. Khurshid Akhtar | Dy. Chief Geologist | |
| KHAWAJA GLASS CO. | | NCEG |
| Mr. M. Khawaja Tahir Jamal | Chief Engineer | |
| Mr. Sajid Bari | Assistant Chief Engineer | |
| BIOTECH LTD | | QAU |
| Mr. Aamer M. Qazi | Managing Director | |
| CIBA GIEGY | | QAU/CEMB |
| Mr. S. Sabir | Sr. Manager, Tech. & Dev. | |
| HAMDARD LABS. | | HEJ |
| Mr. A. Q. Farooqi | Chief Chemist | |
| EHSANULLAH LABS. | | HEJ |
| Dr. S. Ehsanullah | Director | |
| A.K. LABS. | | HEJ |
| Dr. A. Saeed Khan | Pathologist | |
| DESCON | | UET |
| Mr. Kamaluddin Ahmad | Advisor Product Engg. | |
| ESCORTS | | UET |
| Prof. Dr. Kazi Ain-uddin | Sr. Executive Director | |

## PRESENTATIONS

All the investigators were given an opportunity to present their work. The presentations were well prepared and well delivered. Ms. Amna Mir, Dr. J.J. Monagle and Dr. Salman A. Malik acted as comparers while Mr. Assad Bukhari and Mr. Zubair participated as organizers cum-participants.

**Presentation 1:** Bating Enzymes from Animal Sources:
made by
Dr. A. Hameed of **QAU**

The objective of this project was to provide the national leather industry with a locally prepared, cost effective, quality bating enzyme from microbial sources.

It was reported that all the lab. scale work has been completed and the procedures have been standardized. The results of lab. scale work were reported to be very promising both in terms of economic value and the quality of final product obtained.

**Presentation 2:** Bating Enzymes from Animal Sources:
made by
Dr.Attiya Abbassi of **HEJ**

The objective of this project was to provide the national leather industry with a locally prepared, cost effective, quality bating enzyme from pancreas.

It was reported that the initial work has been completed and crude/partially purified material has been obtained which still requires to be evaluated for activity and the quality of final product. Their work has been delayed due to delay in the supply of commodities & expired/deformed chemicals.

**Presentation 3:** Bioinsecticides in the Control of Insect Pests of Cotton:
made by
Dr.Khalida Sultana of **QAU**

The objective of this project was to provide a locally prepared, cost effective, broad based/broad spectrum bioinsecticide which may supplement/substitute the chemical insecticides. In addition a cost effective, quality medium for propagation of the microbes was also to be developed.

It was reported that certain microbes possessing insecticidal activity have been isolated and characterized. The results obtained so far are promising. Further work involving synergistic action of a mixture of these microbes is under way. More meaningful results may be obtained/presented during the conference in February 1994.



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**Presentation 4:** made by Ms Esther Khan of **CEMB**

Microbial Control of Insect Pests in Cotton:

The objective of this project was to provide a cost effective but potent bioinsecticide to supplement/substitute the chemical insecticides against cotton ball worm. In addition a cost effective, quality medium for propagation of the microbe was also to be developed.

It was reported that the lab. scale work has been completed. The microbe possessing acute insecticidal activity has been successfully propagated in significant quantities in a very economical medium developed at/by CEMB. Potency of the culture has been evaluated on a small scale and the results are very promising. Large scale field trials are now being planned.

**Presentation 5:** made by Dr. G. A. Miana of **GOMAL UNIV.**

Commercial Exploitation of Azadirachtin:

The objective of this project was to prepare a cost effective and potent pest repellent from neem seeds.

It was reported that the lab. scale work has been successfully completed. The active compound "Azadirachtin" has been extracted using various solvents. Some field trials have been conducted and all extracts have been found to have potency. The results with ethanol extract are promising. Arrangements for bulk extraction are being made whereafter large scale field trails may be possible.

**Presentation 6:** made by Dr. Zubair of **UET**

Un-interrupted Power Supply (UPS):

The objective of this project was to develop a cost effective and reliable UPS system using indigenous technology or basic materials/components readily available in the local market.

It was reported that the initial work has been done and assembly of such a UPS is in progress. A prototype would be completed in the near future.



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**Presentation 7:** made by Dr. Zubair of **UET**

Design & Development of an Expert Logic Controller:

The objective of this project was to develop a reliable and cost effective A.C. motor controlling system in accordance with the needs of the national industries using components readily available in the local market.

It was reported that a design for such a system has been developed and a prototype is being assembled.

**Presentation 8:** made by Dr. Zubair of **UET**

Microprocessor based Multimetering, Energy & Tariff Meter:

The objective of this project was to develop a cost effective & reliable/multimetering energy and tariff meter using components readily available in the local market.

The initial work was reported to have been completed and a prototype is being assembled. To this prototype more functions may be added as and when required.

**Presentation 9:** made by Dr. Amin Ather of **CEMB**

Hormone Receptors as Prognostic Factors in Health & Disease:

The objective of this project was to develop a cost effective and reliable assay kit for an early evaluation of cancer risk to the subject due to hormonal imbalance.

Some initial work was reported to have been completed and further work is under way. More meaningful results may be obtained/presented during the conference in February 1994.

**Presentation 10:** made by Dr.Attiya Abbassi of **HEJ**

Development and Pilot Plant Production of Medical Diagnostic Kits.

The objective of this project was to prepare cost effective and reliable assay kits for routine clinical analyses.

It was reported that some of the initial work has been completed and further work is under way. A few enzyme-based kits, used most frequently in routine clinical analyses may be prepared by/before the conference in February 1994.

**Presentation 11:** made by Dr. Iqbal Ch. of **HEJ**

Investigation of Medicinal Plants for Anti-diabetic Activity:

The objective of this project was to determine efficacy of the various anti-diabetic formulations prepared by Hamdard Labs. Pakistan and to identify the potent ingredient(s) in such formulations. In addition to verify the anti-diabetic potency of some other herbs commonly assumed to have such efficacy.

It was reported that out of five formulations commonly prescribed only two have positive potency, two have no potency and one has negative potency. It was also reported that on the basis of these results and in accordance with the recommendations of HEJ, the practitioners have been advised to prescribe only the two positive potency containing formulations. No hypoglycemic activity was reported in the isolated fractions of these two formulations. The anti-diabetic potency in other herbs was also reported to be absent in all herbs studied except one. Further work is in progress.

**Presentation 12:** made by Dr. G.A. Miana of **GOMAL**

Commercial Exploitation of Taxol Anti-Cancer Drug:

The objective of this project was to economically extract and study "Taxol" from Taxus baccata. Taxol is reported to contain anticancer activity.

It was reported that extracts from Taxus baccata leaves have been studied but no "Taxol" could be detected. Preparation for a more extensive study using leaves & other parts of the tree is under way and more meaningful results may be obtained/presented during the conference in February 1994.

**Presentation 13:** made by Dr.Iftikhar Abbasi of **NCEG**

Sedimentalogical Studies in Potential Hydrocarbon-bearing Strata:

The objective of this project was to do the initial geological studies of the area to help OGDC in their oil exploration efforts.

It was reported that the project has been successfully completed and a detailed report has already been submitted to the parties involved in the project. The OGDC representative commended the work/report of NCEG.

**Presentation 14:** made by Tahir Shah of **NCEG**

Identification & Characterization of Quality of Silica Sand Resources for Glass Making:

The objective of this project was to study & recommend alternate sites for procuring quality silica sand for the manufacture of glass.

It was reported that several known silica sand deposit sites have been studied/evaluated for quality of silica sand and initial recommendations have been made. Further work involving more extensive analyses and still more sites is under way and final recommendations would be made before/by the conference in February 1994.

**Presentation 15:** made by Dr. Qasim Jan of **NCEG**

Inclusion Studies of Sheet Glass:

The objective of this project was to study the inclusion bodies present in the glass samples and make corrective recommendations.

It was reported that the initial work has been completed and detailed analyses of the inclusions is under way. Once the final results are obtained corrective recommendations would be made.

**Presentation 16:** made by Tahir Shah of **NCEG**

Review of Analytical Processes at Khawaja Glass Company:

The objective of this project was to develop/propose cost effective but reliable and time saving alternate methods for making routine analysis in the quality control lab. at Khawaja Glass Company (KGC). In addition to make recommendations for improving the efficiency of the quality control labs. at KGC.

It was reported that such alternate methods/recommendations have been made which are being considered for implementation by KGC. Final evaluation of the work/results may only be done after these have been implemented by KGC which is expected to be in the near future.

## DISCUSSIONS

The participants enthusiastically discussed the results & progress of the projects both in terms of their economic/applied value and their promise of completion. There was a consensus that all the projects were of significant economic/applied value and that many of them may be completed before/by the conference in February 1994.

All the problems encountered during the course of these projects were also discussed. These included those which may be non-reoccurring as well as those which are likely to reoccur in future again. Some possible solutions to these problems were also discussed including suggestions/changes in the system which are likely to stimulate/encourage such cooperative applied research activities and help in institutionalization of this idea. The discussed problems and suggestions upon which consensus was developed were recorded and are presented here in a tabular form.

The Industrial participants forcefully expressed hope and interest to support such applied research activities from their own resources provided they are assured exclusive rights on results; the work is carried out in a timely manner and that they are kept informed regarding the progress of the research work on regular basis.

The contents/outline of an operational manual to be published later was also discussed and a consensus arrived at. The participants were of the view that such a manual would serve as a useful reference/information material for future activities. The outline of the manual is also presented here an annexure.

The format and a preliminary agenda of the one day conference to be held at Islamabad in February 1994 was also discussed. The delegates resolved to participate in the conference even more enthusiastically. The representatives of the R.I. assured that they would be able to present final results/more meaningful data in the conference provided the earlier discussed problems are solved expeditiously.

## LIST OF PROBLEMS

### IE Project Problems

- o Progress Reports (Frequency and Completeness) was unsatisfactory.
- o Contact with industrial counterparts/level of contacts/reports/frequency was not adequate.
- o High priority to project activities was not given by the administrators.
- o Timeliness of projects, scheduling and completion required improvement.
- o Financial Management some times caused constraint.

### USAID Problems

- o Late Delivery of commodities.
- o Slow processing of MOUs.
- o Incomplete delivery of commodities.
- o Improper packing of sensitive items.
- o Interruption of consultant service.

### USAID/University Problems

- o Slow determination of commodity specifications.
- o Misunderstanding of USAID rules/operating procedures.

### Industry Problems

- o Confidence level less than desired.
- o Intellectual Rights not assured.
- o Timeliness to be given priority.

## LIST OF SUGGESTIONS

### Research funding/management

- o Provision of funds in a timely manner by all the donor/sponsoring agencies.
- o Identification and reservation of funds for research purposes.
- o Publicity of funds available by all donor/sponsoring agencies.
- o Funding for research students should be made available.

### Incentives

- o Incentives for research productivity should be incorporated.
- o Positive merit award for research accomplishments should be incorporated.
- o Rules for consultancy should be improved/modified to encourage R.I - Industry cooperation.

### Infrastructure

- o Improved infrastructure for research activities.
- o Strong focus on external research.
- o Identification of national scientific and technological priority.
- o Maintenance of equipment (spare parts/service) to be improved.
- o Technical staff (service) to be expanded.
- o Applied education at undergraduate level to be extended.

## ACHIEVEMENTS

It emerged as a consensus view that;

The objectives set forth for the workshop were fully accomplished.

Credibility of the research institutions for carrying out applied research was established.

Alternate mechanisms for continuing such cooperative applied research activities were proposed.

A high level of participation and enthusiasm was achieved.

All participants expressed enthusiasm to continue cooperative applied research activities.

The out line of the operational manual was reviewed and discussed.

Planning for the conference was initiated and commitment by the industrial participants was obtained.

The problems encountered by both the groups of participants were evaluated.

# Annexures

## AGENDA
## INSTITUTIONAL EXCELLENCE PROJECTS (IEP) WORKSHOP

**NOVEMBER 8, 1993**

| | | |
|---|---|---|
| 07:30 to 07:50 | Arrival and Registration | |
| 08:00 to 08:15 | Welcome and opening Remarks | |

**PROJECT PRESENTATIONS** (maximum 15 min. each presentation)

| | | |
|---|---|---|
| 08:15 to 08:30 | Bating Enzymes | QAU |
| 08:30 to 08:45 | Bating Enzymes | HEJ |
| 08:45 to 09:00 | Bioinsecticides | QAU |
| 09:00 to 09:15 | Bioinsecticides | CEMB |
| 09:15 to 09:30 | Natural Insecticides | GOMAL |
| 09:30 to 09:45 | Uninterrupted Power Supply Unit (UPS) | UET |
| 09:45 to 10:00 | A.C. Motor Controller | UET |
| 10:00 to 10:15 | Multimetering, Energy & Tariff Meter | UET |
| 10:15 to 10:30 | Diagnostic Kits | CEMB |
| 10:30 to 10:45 | Diagnostic Kits | HEJ |
| 10:45 to 11:00 | Antidiabetic Compounds | HEJ |
| 11:00 to 11:15 | Anticancer Compound | GOMAL |
| 11:15 to 11:30 | Sedimentology of Kohat Basin | NCEG |
| 11:30 to 11:45 | Silica Sources | NCEG |
| 11:45 to 12:00 | Inclusions/Problems in Glass Manufacturing | NCEG |
| 12:00 to 12:15 | Improvements in Analytical Processes/ Glass Manufacturing | NCEG |
| 12:30 to 13:30 | LUNCH | |
| 13:30 to 17:00 | Discussion of interactions with industrial participants and plans for the final conference in 1994 | |

**NOVEMBER 9, 1993**

| | |
|---|---|
| 07:30 to 07:50 | Arrival and Registration |
| 08:00 to 13:30 | Organized review of projects with PI's with comments form industrial participants |
| 13:30 to 14:30 | LUNCH |
| 14:30 to 17:00 | Joint discussions of project results and procedures. Planning of conference format & procedures for conference presentations and discussions. |

## FOLLOW UP ACTIONS

PLANNING OF CONFERENCE

PREPARATION OF OPERATIONAL MANUAL

CONTINUE ASSISTANCE, MONITORING & EVALUATION.

# IEP MANUAL - OUTLINE

## I. INTRODUCTION

- o Purpose of Manual
- o Content
- o Evolutionary Character

## II. HISTORY OF INDUSTRY/UNIVERSITY R&D COOPERATION

## III. PRESENT SITUATION

- o Background on universities, faculty training/expertise
- o Background on Pakistan Council for Scientific and Industrial Research laboratories and STEDEC
- o Industrial structure, technology acquisition processes, technology improvement

## IV. ESSENTIAL COMPONENTS FOR ESTABLISHMENT OF INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH EFFORTS

- o Communication
- o Appropriate research backgrounds
- o Clear definition of problems
- o Clear delineation of skills
- o Clear outline of proposed applied research work
- o Comprehensive discussion of cooperative arrangements
  - clearly defined scope of work
  - well-defined schedule for progress and completion
  - clearly defined financial support arrangements
  - written working agreement outlining project activities
  - written agreement on royalties, profit sharing
- o Carefully prepared and complete proposal governing scope of work

## V. OPERATIONAL COMPONENTS FOR PROJECT OPERATION

- o Business development cells in each of the participating research/educational organization.
- o Central Coordinating unit at UGC with participation membership form the FPCCI representing private sector.
- o Interdisciplinary/multidisciplinary research
- o Contacts with industry
- o Research planning
- o Proposal writing
- o Financial management
  - costing of projects
  - record keeping
  - financial reporting
  - university funding
  - indirect costs
  - profit sharing/royalty agreements
  - financial incentives for university participants
- o Project scheduling and timing
- o Project reporting
- o Project completion
- o Project follow-up
- o Publications/patents