



FINAL PROJECT REPORT

**STRATEGIC TECHNICAL ASSISTANCE FOR RESULTS WITH TRAINING (START)
CONTRACT NO. EEE-I-00-01-00010-00
Project Number 391-003**

**TASK ORDER: PAKISTAN TEACHER EDUCATION AND PROFESSIONAL
DEVELOPMENT PROGRAM
(PTEPDP)**

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Submitted to:
USAID/Pakistan

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I. INTRODUCTION

A. Goals and Objectives

In July 2003, the Academy for Educational Development (AED) was awarded a three-year contract by USAID to implement the Pakistan Teacher Education and Professional Development Program (PTEPDP) under the START/IQC. Through PTEPDP, AED supported USAID/Pakistan's Education Sector Strategic Objective (#3).

The main objectives of PTEPDP were:

- To enhance the professional skills of selected Pakistani Teacher Educators in the teaching of Mathematics, Science and English as a Second Language (ESL) and in becoming effective leaders and managers; and
- To promote academic and cultural exchanges between Pakistan and US teacher educational institutions to increase the capacity of those institutions and engender good will between the people of Pakistan and the United States.

B. Background

A major problem afflicting education in Pakistan is the quality of learning and competency level of both students and teachers. Increases in access and enrollment are unsustainable without improvements in the quality of teaching and learning at the classroom level. Current data indicates that for every 100 students enrolled in government schools at grade one, only eight go on to complete grade twelve.

There are 203 teacher training institutions in Pakistan, including the University of Education (Punjab) teacher training facilities in universities, the Bureau of Curricula, Elementary Training Colleges and designated teacher training outposts in government high schools. This does not include almost 300 decentralized Teachers Resource Centers that were originally planned under the Education Sector Reform (ESR) Program in all four provinces of Pakistan. Teacher training programs are proliferating, but without standards or quality assurance.

There is a pressing need to build a cadre of resource persons strategically selected from government agencies and non-governmental organizations. These resource persons, once trained, will be available throughout the country to improve the skills of their colleagues in teacher training institutions and of teachers in governmental or non-elite private schools. Under PTEPDP, teacher educators and teachers were trained in the selected core fields of mathematics, science and the Teaching of English as a Second Language (ESL) as well as leadership for managing change. This intensive training was designed to improve teaching practices in Pakistani classrooms and to improve learning competencies and school effectiveness.

As envisioned in the PTEPDP program design and contract, the direct beneficiaries of PTEPDP were the Pakistani educators enrolled in the program (please see Annex I for a table illustrating numbers of PTEPDP trainees by region in US and in-country programs). The indirect beneficiaries include thousands of teachers and students who benefit from the new technical skill and exposure to new teaching methodologies acquired by the participants who took part in PTEPDP training activities.

Program Start-up

During the first three months of the project, AED focused on hiring staff in Pakistan to support PTEPDP's specific needs; procuring equipment, furniture and supplies; and developing administrative procedures to be used over the life of the project. As AED already had a working office in Islamabad, the initial PTEPDP set up was accomplished quickly. The AED PTEPDP Task Order Manager spent two

weeks in Islamabad to assist with start up and to help with the initial stages of program implementation.

Engaging the Ministry of Education

Although PTEPDP was to be implemented in the provinces, the Ministry of Education of the Government of Pakistan provided broad direction through USAID regarding the institutions from which the participants were to be recruited for training in the US. As the Ministry of Education (MOE) was a major stakeholder, AED held meetings early on with MOE officials and other key stakeholders to introduce the program objectives and implementation plan, and to seek their support and active engagement in the implementation of PTEPDP. AED staff presented the project to the Federal Minister of Education, the Secretary of Education, the Joint Educational Advisor and other senior MOE staff. Meetings were also held with provincial education secretaries and/or other senior officials in all provinces, as well as with the heads and other senior staff of all provincial teacher training institutions.

Identification of Beneficiary Institutions

In close collaboration with the MOE's Curriculum Wing, primary/elementary teacher training institutions were identified as the recruitment sites for the initial cadres of PTEPDP trainees. Both pre- and in-service programs were targeted, with greater emphasis placed on pre-service institutions due to their critical role in initial teacher preparation. The institutions identified by the AED team and the MOE included the Provincial Institutes of Teacher Education (PITEs), the Bureau of Curriculum Extensions (BOCE), Government Colleges for Elementary Teachers (GCETs), Government Elementary Colleges of Education (GECs), Regional Institutes of Teacher Education (RITEs), Education Colleges affiliated with the University of Education and selected Teacher Resource Centers/Outposts. In addition, private, non-elite schools with in-house teacher training facilities were selected as beneficiary institutions, as were select *madrassas* and some elementary schools in areas where teacher training colleges did not exist.

II. US PROGRAMS

A. Goals and Objectives of the US Training

The primary goals of PTEPDP's US training component were to increase the base of skilled and high performing teachers in Pakistan, and to promote cultural understanding between the US and Pakistan. The objectives of the US component were:

- To develop and sustain new skills, knowledge and attitudes within participating institutions leading to improved organization performance;
- To promote good will and cultural understanding between the Pakistani participants, their counterparts in the US, and within the larger US community where the training took place;
- To seed linkages between participating universities in the US and institutions in Pakistan;
- To ensure that participants were committed to timely completion of their program and return to their worksite, to sharing their new skills and knowledge with their colleagues, and to be available for outreach training services in Pakistan; and
- To reinforce leadership potential among the participants leading to the promotion of positive educational trends within Pakistan.

B. Partnership with US Universities

The initial US program design called for two US partner universities to participate in PTEPDP. During the initial competitive selection for these two US universities in July 2003, AED recommended, and USAID approved, the University of Montana (UMT) and George Mason University (GMU) as our two US university partners. In early 2004, USAID requested that AED identify a third US academic partner for PTEPDP. As a result of the second round of bidding, USAID approved Oregon State University (OSU) as the third US partner university. UMT, GMU and OSU then hosted groups of trainees in the US,

and UMT, GMU and OSU faculty also contributed to the in-country training programs.

C. Participant Selection Process

Criteria for Participant Selection

Upon award of the PTEPDP Task Order, AED began developing selection criteria for the teacher trainers and administrators of teacher training to take part in the US-based training programs. AED's selection process was developed in consultation with the MOE and was approved by USAID. Importantly, AED also obtained concurrence from the MOE and provincial governments for the process. The application process included the completion of a standard application form; the submission of credentials; written responses to a series of essay questions on improving teacher training; and personal interviews. In addition, basic English language proficiency requirements and medical standards were used as selection criteria. Priority was given to applicants who had not participated in training abroad within two years of the participant selection process. Participants from the underserved regions of Sindh and Balochistan were given priority, and this resulted in sending 54 participants from each these provinces to US training.

The provincial education departments extended their full support to AED in adhering to the criteria and supported the application-based competitive process rather than insisting on nominating participants. With cooperation from the provincial governments, application packets were sent to all teacher training institutions, focusing on PITES, RITES, GCETs, the Bureau of Curricula and other related institutions in all four provinces, and the Federal and Area governments, including Azad Jamu and Kashmir (AJK), the Federally Administered Tribal Area (FATA) and the Northern Areas (NA) .

The selection criteria included the following eligibility requirements:

- Age: Applicants required were to be between the ages of 30 to 50
- Educational Qualifications: Minimum of a BA/BEEd, with an MA, MSc or Med preferred.
- Experience: At least five years of experience as a teacher trainer or as an administrator of a teacher training institution, teacher professional development center, or education department of a university. This criteria was relaxed in a few cases in order to include more few female participants.
- Language Proficiency: An acceptable knowledge of the English language as determined through a standard English language proficiency test.
- Medical Exam: Potential participants were required to pass a medical examination administered by a USAID-approved doctor or hospital.

The selection process also took other important factors into consideration, including:

- Gender Balance: Efforts were undertaken to try to ensure each delegation comprised approximately equal numbers of male and female candidates. This was not always possible due to the smaller number of eligible female applicants.
- Geographic Representation: Efforts were undertaken to ensure that each delegation represented several different provinces of Pakistan, with the Sindh and Balochistan provinces as priority areas.
- Grouping by Subject: AED strove to ensure relatively homogeneous groups of educators (i.e., separate delegations for Mathematics, Science and ESL teachers) to maximize the effectiveness of the US-based training.
- Prior Participation in International Training Programs: Priority was given to individuals who had not attended training outside of Pakistan in the previous two years.

Applications received

AED's call for applications through the Joint Educational Advisor, Ministry of Education, as well as through open recruiting, was distributed to a wide range of individuals and institutions, and repeated every three months for the first two and a half years of the program. As a result, AED received approximately 750 applications, from which more than 200 applicants were selected. Ultimately, 172 were able to get visas to attend one of the nine US-based training programs conducted under PTEPDP.

MOU with the Society for the Promotion of English Language Teachers (SPELT)

As all candidates were required to take an English language proficiency test, AED sub-contracted the Society for the Promotion of English Language Teachers (SPELT), a national non-profit organization, to administer and score the English Proficiency Test (EPT) for all candidates. The EPT scores were then used as one of the selection criteria for participation in the US-based training programs and also to identify those with weak language skills. Promising candidates with weaker English skills, particularly those from Sindh and Balochistan, took part in a two- to three- week intensive ESL training prior to their US training.

D. Summary of US Programs

Originally, the PTEPDP program design included a series of six-month US training programs. However, early on in the project implementation, AED recommended to USAID that the duration be changed to four months to better coincide with the traditional US academic calendar, and to avoid conflicting with US universities' closures during holiday periods and their limited summer offerings. The shorter duration would also have allowed for more participants to take part in the training programs. USAID approved this change, which worked well for both the US and Pakistani institutions.

The US programs were tailored to the requirements of the Pakistani participants. Before each program, the US partner received biographical data on, and essays written by, each participant. AED's US university partners were also provided with copies of curricula, syllabi and text books that were used by participants in their colleges and institutes. Participants were encouraged to take additional material relevant to their training needs to their US training program. All of this information assisted the US host universities in gaining a solid understanding of the participants and their institutes. All of the US programs focused on:

1. Improving the content knowledge of the participants in mathematics, science or ESL.
2. Improving the participants' skills in using interactive, enquiry based, participatory and direct teaching methodologies with low- or no-cost materials.
3. School Visitation Programs to expose participants to US elementary and high schools to observe interactive teaching in practice. These visits allowed participants to see students as active learners rather than passive recipients of knowledge and to see how US teachers prepare their teaching material using multiple resources, in contrast to the Pakistani practice of depending on a single source text book and encouraging rote memorization.
4. Imparting new skills in student assessment and knowledge about standards-based teaching.
5. Designing and preparing instructional materials in specific subject areas (e.g., mathematics, science and ESL),
6. The use of technology in education, particularly computers and the internet. As part of this effort, the participants were provided with laptop computers during their training. The computers became the property of the participants' home institutions upon completion of their US training programs.

7. The development of linkages between the Pakistani participants and their US counterparts through participation in professional conferences such as those of the Association for Supervision and Curriculum Development (ASCD, for the Pakistani teacher administrators); Teachers of English to Speakers of Other Languages (TESOL, for ESL teachers); National Science Teachers Association (NSTA, for science teachers); and the National Council for Teachers of Mathematics (NCTM, for the mathematics teachers). Participating in these types of professional conferences provided the participants with the opportunity to expand their familiarity with other educational systems, to increase their multicultural awareness, and to expand their professional networks.
8. Promoting cultural understanding between Pakistani and US teachers, students and communities. Some of the US partner universities arranged host families for the PTEPDP participants, and local media covered the visits of the Pakistani educators. Pakistani participants narrated a story about a university bus driver who drove them daily from their dormitory to main campus at UMT. The driver, on the last day when participants were about to leave for the airport for the journey back home, became very emotional and made speech about the wonderful opportunity of interacting with them. In his speech, he said he had some concerns in the beginning about them based on media fed stereotype images but after being with them for three months, he could say that any media about Pakistanis would not change the positive image that he has formed as a result of his interaction with them.

In total, nine US programs for 172 participants were completed by AED’s three US partner universities. Table 1 below summarizes the numbers of participants trained in each subject area and at which US university.

Table 1. Participants Trained in US Programs

		George Mason University	Oregon State University	University of Montana	Grand Total
Teaching Administrators	<i>Male</i>	0	0	10	10
	<i>Female</i>	0	0	11	11
	<i>Total</i>	0	0	21	21
ESL	<i>Male</i>	3	14	12	29
	<i>Female</i>	11	6	3	20
	<i>Total</i>	14	20	15	49
Science	<i>Male</i>	0	9	33	42
	<i>Female</i>	0	4	14	18
	<i>Total</i>	0	13	47	60
Math	<i>Male</i>	29	0	0	29
	<i>Female</i>	13	0	0	13
	<i>Total</i>	42	0	0	42
All Programs	<i>Male</i>	32	23	55	110
	<i>Female</i>	24	10	28	62
	<i>Total</i>	56	33	83	172

A summary of the US programs follows:

Administrators Group (1 program)

This two-month training at UMT was conducted for 21 participants representing all four provinces of

Pakistan as well as the Federally Administered Tribal Areas (FATA). The program was developed as a result of discussions between USAID's Senior Education Officer with senior AED officials at AED/DC in summer 2003. Pakistani administrators included principals, vice-principals, and English as Second Language (ESL) master trainers. The participants in this program came from teacher training institutions in remote and poor rural areas in the provinces of Balochistan, Sindh, Punjab and the North West Frontier Province (NWFP).

The objectives of the Administrations Training Program were to expose participants to updated teacher training methodology; to provide leadership and management skills development; and to support the improvement of the quality of training for primary school teachers. The program focused on educational technology, management for change, and teacher training.

The training included English language support activities; computer skills' development; sessions on decision making; assessments; unit and lesson design; and monitoring and planning. Information on education in the US, teaching materials, and hiring information were included so that the participants not only strengthened their English language skills but also learned more about the US education system. Local school visitations were a key component. There were two distinct types of school visitations: group tours and classroom observations. The participants visited elementary, middle school and high schools. The program also included site visits to state education departments throughout Montana and meetings with civic organizations.

Another key component of the program included various forms of cultural and community engagement functions, including social gatherings designed to foster cultural understanding, and other activities to further the Pakistani's professional development. In the course of their training in Montana, participants also visited Helena, where they were greeted by the Montana Secretary of State, who personally led the participants on a tour of the State Capitol while providing an overview of the state government system.

Participants were able to join the Association for Supervision and Curriculum Development (ASCD), and a number of participants renewed their memberships on their own after the initial year.

Math Programs (2 programs)

Two math programs were conducted at GMU (September 2004 and April 2005) for 42 Pakistani teacher educators with 21 participants in each group. The programs focused on exposing the participants to updated teacher training methodologies; modern techniques and concepts in mathematics instruction; curriculum development; and assessment tools necessary to improve the quality of teacher training for primary math school teachers of Pakistan.

The program used an integrated approach that combined coursework, field visits, academic exchanges, and cross-cultural activities. The program focused on advanced mathematics for the elementary classroom, mathematics education methods, curriculum development, and leadership for school change. The training included:

- Three courses (9 credits) in Math education;
- Two workshops, one on leadership and change and one on developing a standards-based teacher education program;
- Three weeks of fieldwork, one week each in an elementary, middle and high schools,
- Introductions to professional organizations, government agencies, and conferences arranged and supervised by school and university mentors;
- The development of an action plan that participants committed to implement upon return to their institutions;

- Twice-monthly feedback meetings;
- 7.5 hours per week of English support; and
- Weekly computer training.

Each participant developed an action plan with concrete activities to implement upon returning to their home institutions, and participants were provided with the opportunity to join the National Council of Teachers' of Mathematics (NCTM), a professional membership organization in the US.

ESL Programs (3 programs)

Three ESL programs were conducted, one each at GMU, OSU and UMT. The programs focused on the direct method of teaching English as a foreign language. The purpose was to expose participants to updated teacher training methodologies; modern techniques and concepts in ESL instruction; curriculum development; and assessment tools to support improvements in teacher training.

Each course was tailored to meet the needs of the Pakistani educators, with class lectures, activities, discussions, assignments, local school visitations, and projects geared toward participant teaching contexts in Pakistan. The participants received intensive English language support weekly.

The development of action plans was an integral part of the training. Work on them began early in the semester with the introduction of the process of planning, the development of goals, objectives, methods, and implementation plans, and instruction on the concept and mechanics of formative and summative evaluation.

The participants were provided the opportunity to join Teachers of English to Speakers of Other Languages (TESOL), a professional membership organization in the US, which also included a subscription to *TESOL Quarterly*, the profession's scholarly research journal.

Science Program (3 programs)

Three science programs were conducted, two at UMT in May 2004 and April 2005, and one at OSU in September 2004.

Both UMT and OSU's science programs focused on K-12 science education. Emphasis was placed on middle school and high school level instruction. Trainees discovered how to incorporate new teaching techniques, and utilize educational technology in developing and applying these new teaching methods. The training provided participants an alternative to the traditional Pakistani education system, wherein the teacher acts as a lecturer and the students as passive recipients of lecturers. Participants were shown that students themselves can become active participants and learners in the field of science, while enjoying the process with minimal lecturing from the teacher.

The overarching goal of the science programs was to introduce the teachers to *inquiry methods* of teaching science. Instead of following the traditional inform–verify–practice instructional sequence, the programs demonstrated that following a data-to-concepts sequence will lead to better student conceptual understanding of the subject matter and enhanced cognitive development.

UMT Science Programs (2 groups)

The UMT science training had separate components, ranging from the theoretical to the applied. One component was designed to show the teachers how the theories of the psychologists Piaget and Vygotsky could be applied in curriculum design and classroom practice. Piaget's model of mental functioning provides the theoretical basis for the instructional strategy known as the *Learning Cycle*.

The participants learned how to apply an inquiry strategy to three specific content areas: chemistry, biology, and geology. Content courses were designed to be taught in a seminar style format. Each content area was accompanied by a series of experiments that were low cost/no cost designed to enrich students' knowledge of science.

UMT's chemistry content area was based on UMT's Consumer Chemistry course, a course that is taken by the majority of the elementary education majors at UMT. It is a laboratory course that teaches the students how many household items are made using basic chemical principals. The geology content area focused on physical geology. This included processes of the formation and evolution of landforms; identification and formation of minerals and rocks; and the study of earthquakes, tsunami and glacial processes. The biology content area lectures and discussions included origin, diversity, and classification of life, cell structure and function, DNA and heredity, mechanisms of evolution, species and speciation, and conservation biology. Participants expressed a desire to learn more about genetics, so special emphasis was placed on this topic. Because evolution is the cornerstone of modern biology, additional emphasis was placed on this topic as well.

Many female teacher educators struggled to reach the positions they held when they were selected for US training:

As a child, Ms. H.B.'s father struggled to support his daughter's education. He took her to school every day on his bicycle over long rough patches of land in their remote Balochistan village, often braving severe weather conditions so that his daughter could receive an education. This was his hope and gift to his daughter. Ms. H.B., now 45 years old, works as a Vice Principal in the Government College of Elementary Teacher Training. She has started taking private English language classes in her school to improve her skills and effectiveness as a master trainer and hopes to become a role model for her juniors.

Two hour Inquiry and Demonstrations Workshops, held twice each week, further enhanced participants' knowledge of the inquiry methods approach to science education. These workshops were refined and redesigned for UMT's second science program based on participant evaluations recommending more focus on methodology than content. Demonstrations were in the physical and biological sciences. These demonstrations were again all low cost or no cost experiments. Field trips were included to encourage participants to use their own local environments as educational tools.

OSU Science Program (1 group)

The OSU program also emphasized interactive teaching methodologies and active learning. The program placed great emphasis on face-to-face interaction between the Pakistani participants and their US counterparts as critical to improving understanding and appreciation of new methods in education and teacher professional development.

The participants in the OSU program completed four modules on Science Education, Educational Leadership and Change, Instructional Technology (including Internet Applications), and English Language Development. Leadership training and cross-cultural awareness were incorporated in all modules, and both technology-based and low-tech teaching tools were incorporated throughout the program. Weekly debriefing sessions were held for the entire group of trainees to assist the group in reflecting on teaching practices, tools and approaches they had observed that week and to explore how they might be best adapted to the Pakistani context.

In addition to the core modules, participants in the OSU science group attended special seminars, took part in field trips to K-12 schools and community colleges, and attended several professional events, including the annual conference of the Oregon Science Teachers Association; the regional conference of the National Science Teachers Association (NSTA); and the annual conference of the Oregon Counselor Association.

E. Challenges and Lessons Learned

Challenges

1. *Merit-based selection of participants:* The first challenge AED faced was to garner stakeholder buy-in and acceptance of an application-based recruitment process for participants, rather than using a nomination-from-education-departments process. An additional challenge was to ensure that all participants were teaching staff. Although there were attempts made by provincial education department officials to influence the participant selection, AED succeeded in convincing them of the value of merit-based selection. AED also stressed that only teacher educators, selected administrators of teacher training institutes and colleges, and some master teachers would benefit from the program to preclude the education departments from pushing other types of educators as potential program participants. Selected staff from the provincial education departments were included as part of the selection panels to select participants.
2. *Female participation in the program:* AED's goal was to have 50% female participation in the training programs, including the US training. Ultimately, approximately 35% of the US training program participants were women. There were several reasons for not achieving the 50% goal, including:
 - A low percentage of women employees in teacher training colleges;
 - Family responsibilities that prevented women from being away from home for two to three months;
 - A ban on the recruitment of teachers in Sindh and Balochistan (the provinces had not been recruiting teachers for their training institutes), which resulted in fewer women employed as teacher trainers, thereby reducing the pool from which participants could be selected;
 - Last minute drop outs of female candidates for reasons such as pregnancy or domestic pressure.
3. *Laptops:* Since the US-based training included a significant information technology (IT) component, all US participants were given laptops to use during their US training for their course work, their educational research, and for communication with their colleagues and professors. Upon returning to Pakistan, the participants were required to give their laptops to their institutions to be an institutional resource for themselves and other teachers. Many of the participants were reluctant to give the laptops to their institutions as they were concerned that they would not have access to the computers once they were turned over to the participants' institutions. AED sent a formal letter to all relevant provincial government education authorities that led to the formal acquisition of the laptops by the participants' government teacher training institutions and that stressed the importance of access to the computers by the participants and others at the institutions to support their work.
4. *Behavioral issues:* Three participants were charged with sexual misconduct while in the US, even though this subject was carefully covered in the AED's pre-departure orientation and during the host university's program orientations. This topic was carefully covered in AED's two-day pre-departure orientation. Unfortunately, complaints were filed against three participants. Two participants were charged and required to go to court. AED and our partner universities provided counseling and helped secure a lawyer for the participants, and both USAID and the participants' institutions were informed of the incidents and of the resolutions. One participant was required to pay a fine. The second participant was also required to pay a fine and to complete community service hours in Pakistan, which he did.
5. *Language skills:* Despite having passed the EPT (English Proficiency Test), many participants had weak English language skills. As a result, some participants were not able to benefit from their US program to the greatest extent. It was also a challenge for those with weak English language skills to

participate fully in activities with the wider student population and teachers at their US campus. Although AED provided intensive ESL training for two weeks prior to each US training program, as well as arranging additional English language classes for them in the US as part of their training programs, we believe the participants would have benefited from longer training (several months) to enable them to fully benefit from their visit to and study in the US.

Lessons Learned

1. *Housing:* Learning is not limited to the classroom. The exposure to, and interaction of participants with, the wider student population and faculty at the campuses provides a much richer learning experience than just the classroom program. The participants were housed as a group at each campus, which “secluded” them from other students and inhibited their interaction with the rest of student population. We recommend that participants be integrated with the general student population in residence halls to expose them to wider campus culture. This would also assist in improving their English language skills.
2. *School visitations:* During the US training, our partner universities implemented school visitation programs for the participants. The participants visited elementary and high schools to observe classes. In debriefings with returned participants, they indicated they would have benefited from more school visits, with more opportunities to talk to teachers and principals to further understand the interactive, participatory and inquiry-based teaching. We recommend an emphasis on school visits for future programs.
3. *Participant Preparation:* The Pakistani participants came to the PTEPDP program with weak backgrounds both in their respective subject areas as well as in English. A three- to four-week preparatory course prior to their departure for the US would have helped maximize the impact of the program.

F. Initial Impact and Outcomes of the US Programs

There is evidence that alumni from the US training are using student-centered and activity-based teaching methodologies. PTEPDP alumni are reducing lectures and including more interactive activities with their students. With support from their supervisors, we believe PTEPDP alumni will continue to employ their new knowledge and skills in training new teachers and in classrooms with students. A few initial outcomes include the following:

- A major achievement of the program was training of 172 teacher educators/trainers in the US. This was the first program funded by a donor or the Government of Pakistan to send this many teachers for training in the US or to any other country.
- The program modeled a merit based participant selection process, whereby participants were chosen through an open application process, including review by a panel of judges representing the program stakeholders. The Government of Pakistan supported this process, and government representatives were included on the review panels.
- All PTEPDP participants returned to their home institutions upon completion of their US training; there were no non-returnees.
- Very few participants trained in the US were transferred from their original posts; those few who were transferred continued to apply their new skills and to support teacher training in new positions.
- The PTEPDP program increased awareness among policy makers regarding the importance of teacher training and the need to improve teacher training colleges and institutes. Various donors

are also now focusing more attention on development of teacher training colleges.

- In debriefings with participants, they have indicated that they have increased their cultural understanding of the US and vice versa

III. IN-COUNTRY PROGRAMS

A. Goals and Objectives of the Program

In 2005, based on discussions between the USAID/Pakistan Education Office and the Ministry of Education of Pakistan, USAID requested a revision to the original PTEPDP scope of work. The purpose of this modification was to shift the focus of the project from US training to in-country training to increase the number of master teacher trainers taking part in the program and to strengthen the capacity of selected in-country institutions. The specific objectives of the modified scope of work were to:

- Build a cadre of master teacher trainers representing public sector teacher training colleges, and who would receive in-country training in updated program development, materials design, and teaching methodologies. The participants would be primarily from pre-service and in-service teacher training colleges and institutions.
- Increase the capacity of three primary Pakistani teacher training institutions to (a) deliver high quality training in teaching mathematics, science, and ESL, and (b) mentor second-tier institutions, particularly those in the provinces. These three primary institutions were, in turn, to be partnered with additional teacher training institutions to serve as local partners and mentors.
- Sustain linkages between teacher training institutions within Pakistan and with US universities.
- Contribute to the standardization of teacher training in the country and support the move toward the accreditation of primary school teachers as recommended during the National Conference held by PTEPDP.

In August 2005, AED signed a contract modification including the shift to in-country training, and we began the in-country programming in early 2006. While the US program sought participants from all over Pakistan, with a focus on Sindh and Balochistan, the in-country program focus was on Sindh, Balochistan and Punjab, North Western Frontier Province (NWFP), AJK, FATA, and NA. AED made these modifications to the PTEPDP program design while retaining critical components such as follow-on activities and the development of linkages between institutions in the US and Pakistan through faculty exchanges.

At the time of the revision, the Mission discussed the possibility of adding an additional \$4 million to the PTEPDP contract and extending the project through June 2007. Ultimately, USAID decided to maintain the contract funding at the original level of \$4,999,669 for the original three-year period of performance, with the project to be completed in October 2006. Given these parameters, PTEPDP trained 100 teachers through the in-country program (see Table 2 for training numbers).

B. Initiation of In-Country Program

To launch the in-country training, USAID agreed to provide assistance to three Pakistani institutions. The three partner institutes were identified by the MOE and approved by USAID. AED's partners on the US programs—GMU, OSU and UMT—continued working on PTEPDP in support of the in-country training program. The three Pakistani institutions were partnered with the US universities as follows:

1. The National University of Modern Languages (NUML): selected to deliver training in English as a Second Language and partnered with GMU;

2. The National Institute for Science Education (NISTE): selected to deliver the science training, and partnered with OSU; and
3. The Federal College of Education (FCE): selected to deliver the mathematics training and partnered with UMT.

Table 2. Participants Trained in In-country Programs

		NUML	NISTE	FCE	Grand Total
ESL	Male	25			25
	Female	7			7
	Total	32			32
Science	Male		35		35
	Female		4		4
	Total		39		39
Math	Male			25	25
	Female			4	4
	Total			29	29
All Programs	Male	25	35	25	85
	Female	7	4	4	15
	Total	32	39	87	100

The initial activities included an institutional capacity assessment of the local partner institutes by the US university partners, developing consensus among the stakeholders (US universities, local partners, MOE and USAID) through a stakeholders meeting, and the signing of MOUs between AED and the three local partners.

There were two iterations of the in-country training programs. The first series of programs was conducted from March-June 2006 with 58 master teacher trainers divided among the three institutions. The second series

was conducted from July-September 2006 with 42 participants. The selected master teacher trainers were from both pre- and in-service teacher training institutes with teacher certification programs, as well as representatives of in-service teacher training and teacher professional development programs.

Capacity Assessment

In November 2005, the key faculty from the US universities traveled to Pakistan to conduct an assessment of their local partner's capability to conduct the in-country training (please see Annexes A, B and C for the US university reports). These assessments were shared with NUML, FCE, NISTE, USAID and the MOE. The assessments indicated that FCE and NISTE lacked capacity in terms of:

- a. Faculty, who were either not available or not of a level to provide even minimally acceptable training to Pakistani teacher educators;
- b. Teaching/learning resources, including texts, curriculum based standards, library facilities with adequate reading material and journals;
- c. Technology and communications, including internet access and other communication facilities;
- d. Regular student population, in case of NISTE, that could provide an academic atmosphere for the PTEPDP trainers;
- e. Facilities for teaching practice sessions; and
- f. Ability to support logistical arrangements that had a direct affect on the participants' level of motivation (e.g., a lack of air conditioning in classrooms; transportation issues; gas leaks at one of the hostels; at times poor access to computer labs).

In regard to NUML, the assessment indicated that:

- a. NUML needs additional resources to upgrade their current collection; NUML would be well-

served by an addition of books, software and other materials on constructivism, reflective practice and the latest approaches to language teaching and teacher education. NUML needs more resources to upgrade its teacher education collection.

b. NUML needs to recruit faculty who are using current best practices in language teaching and teacher preparation.

These examples of the constraints and challenges that confronted the launching of the in-country training programs were shared with USAID, the Ministry of Education and the three local providers. A brief account of each institution's capacity follows:

The National University of Modern Languages (NUML)

NUML had faculty who were familiar with program design and had developed strong linkages with the GMU faculty earlier in the program, and the relationship was strengthened during the in-country program. In the institutional assessment report, George Mason faculty stated, *"NUML is primarily a language-training institution and the GMU College of Education focuses on teacher preparation, the two organizations are ideally suited to collaborate on the upcoming PTEPDP courses. Thus, GMU's contribution is based on best practices from the U.S.-based PTEPDP training and the approach to TEFL that Western research has demonstrated to be most effective in teaching and teacher preparation. NUML needs more resources to upgrade its teacher education collection and needs to recruit faculty members who are familiar with the latest research in language teaching and teacher preparation."*

The National Institute for Science Education (NISTE)

NISTE and FCE were similar in that they did not have the appropriate faculty to teach in the in-country program. Unfortunately, the hiring process for new faculty was lengthy and did not meet the required program deadlines. This proved to be a major challenge. To recruit the needed faculty for the program commencing in March 2006, AED had to engage their US alumni as Teacher Associates (TAs) and identify resource persons in the areas of Science, Math and English as a Second Language. Two alumni of the OSU science education program and two alumni of the UMT science education program were hired and moved from their respective provincial and federal colleges with permission from the relevant authorities to NISTE to plan and conduct the PTEPDP program under guidance of the US faculty. Three of these alumni remained to assist with the second in-country program.

In his assessment report, Dr. Michael Dalton from OSU wrote about NISTE, *"While office space has been provided for this purpose, routine office support materials and supplies were not available (electrical outlets, office furniture, computers, internet connection, telephone, pens, paper, staplers, white board, etc.) as of December 1, 2005."* Limited access to the internet affected the planning of the program as the TAs were unable to correspond with US faculty on a regular basis. Although AED had included newly recruited NISTE faculty in the first in-country program, NISTE withdrew them from the PTEPDP program and assigned them to other NISTE programs to work as instructors without their first receiving training under PTEPDP. NISTE did not take full advantage of the opportunities provided through this partnership and did not develop longer term linkages with OSU. Having their faculty withdraw early in the program hindered the development of the capacity of their own institute.

The Federal College of Education (FCE)

Although FCE offers teaching degrees or certificates in several areas of science, language studies, and Islamic studies, the college does not offer a mathematics degree. FCE had only one math teacher, and he was unwilling to be part of the training team. Given this, three alumni from GMU's and one from UMT's US programs were recruited as TAs for the first in-country program. A PTEPDP alumnus from FCE was recruited as an ESL TA to teach English to science and math participants. For the second in-country program, one TA was retained and two new additional TAs were hired.

FCE's Director also hired two math teachers on a contract basis to participate in the in-country training program. Although they were hired for a one year period, they were fully involved in the training. Dr. Hashim Saber, UMT, stated in his institutional report, *"In spite of the many challenges facing FCE, I believe that the Director can work together with the team to structure a good quality in-country training program. The training team enthusiasm and their collegiality spirit is the main strength of the program."*

Although the FCE Director supported the in-country training program, unfortunately, there were other issues that hindered the development and ultimate impact of the training, including:

- Lack of qualified math teachers;
- Lack of professional development of teachers within the college;
- Problems with electricity outages, which hindered computer usage;
- Environmental issues such as gas leaks that made the working space unsafe;
- Lack of office furniture and equipment;
- Lack of clean restrooms; and
- Limited library resources, such as current curriculum resources.

In spite of these issues, FCE benefited from PTEPDP, as at least six of their teachers received training (three on US training programs and three from the in-country training). Two PTEPDP alumni were engaged as instructors for the in-country training, which further built their capacity and increased their level of confidence. FCE now has improved human resources that can play an effective role, if provided an enabling atmosphere, in improving the various teacher education programs of the college.

C. In-Country Program Elements

Stakeholders' Dialogue

Before the launch of the in-country training program, and while the US faculty were in Pakistan to conduct the initial capability assessments, AED held a stakeholders dialogue on December 12, 2005. The agenda of the dialogue included:

- A review of PTEPDP US training and its future impact on improving teacher training;
- The launch of the in-country program with input and suggestions from the government, especially regarding provincial teacher training colleges;
- Discussion on long-range linkages between US and Pakistani teacher training colleges.

The dialogue was opened by the Joint Educational Advisor (MOE Training Wing) and concluded with remarks from the Secretary of Education. Participants included provincial representatives, other senior MOE officials and USAID's Education Officer. The participants agreed that teacher training needs should have continuous post-training support, such as updated curriculum, text books, and updated student assessments. They asked for a major expansion and extension of the program. Participants asked that AED document and share with all stakeholders the field-based evaluation, best practices and lessons learned from the institutions where there was a pool of program alumni. Many participants commented that PTEPDP had contributed substantially toward teachers' professional development and that teachers trained under this program in the US were conducting training with new approaches and techniques. The participants asked for a formal evaluation of the impact of the training.

The Secretary of Education, in his concluding remarks, acknowledged the program's contribution to developing the capacity of teacher trainers. He said that although teacher training was identified and recognized as important by the government, it remained a challenge, and Pakistan has been unable to

build the capacity of its teacher trainers to the required levels. He underscored the need to increase the number of qualified teacher trainers as only 25% of government teachers are trained, and there is a need to address this serious deficiency. The US faculty presentations included their review of US based PTEPDP participants and the capacity assessment of in-country training providers.

Working with Provincial Institutions of Training Education (PITES)

As part of the 2005 program revision, the in-country program design included partnering between the three selected federal level lead institutions (NUML, NISTE and FCE) and three provincial level institutions such as PITEs, private colleges, or provincial-level teachers colleges. The intent of the partnering was for the lead partner (NUML, NISTE or FCE) to build capacity of another institution to increase the impact of the project.

NUML, NISTE and FCE were expected to serve as mentors to their provincial partner teacher training institutions and build their provincial partners' capacity to deliver quality training programs. It was also expected that, through these partnerships, there would be opportunities for the PITEs to establish relationships with the US partners and that there would be US and Pakistani faculty exchanges that would allow for ongoing input by US institutions into the design, development, delivery, evaluation and revision of the training programs. The rationale for this component was to foster a sustainable legacy of institutional relationships that would continue after the completion of the project.

Unfortunately, relationships between the partner institutions and the PITEs were not developed due to a number of factors:

- Lack of capacity of both FCE and NISTE to act as lead institutes. Although FCE was willing to forge such relationship, the FCE Director was hired on contract for a one year period. Although a very strong leader and dynamic woman, the Director was concerned about the duration of her contract, which ultimately was not extended.
- NISTE seemed not to have understood the benefits of such relationship.
- NISTE and FCE did not have the financial or material resources necessary to build relationships with PITEs. Although PTEPDP had budgeted trips for lead institute officials to visit the provinces and AED repeatedly encouraged them to make the trips, neither institution visited the PITEs.
- The PITEs from Balochistan, NWFP and Sindh were very enthusiastic about the potential partnership with federal institutes, as for them it meant training opportunities for their instructors that would lead to improvement in in-service teacher training. However, the PITEs also lacked resources to pursue the relationship.
- When NISTE and FCE realized that US faculty would not be able to support the program due to travel restrictions, they were not sure how to move the idea of partnerships forward.
- NUML understood the academic benefits from such relationships in conjunction with their expansion of regional campuses in Sindh and Balochistan. However, they did not have staff available to institutionalize the relationship. They are committed to support teacher training in the provinces, especially in Sindh and Balochistan, where they have opened new campuses.

Video Conferencing in Place of US Faculty Travel to Pakistan

As part of the in-country program design, the intent was that the US partners would travel to Pakistan three times. The first time would be to conduct an assessment of their local partner, the second time to assist with program design, materials development and TOT, and the third to guide program delivery. During these three trips, the US partners were expected to support the development of institutional linkages with the lead and provincial partners.

As noted above, the US faculty were able to travel to Pakistan in November 2005 to conduct the

capability assessment of their assigned local partner. On this visit, the US faculty also spent two weeks planning the first in-country program. They developed training modules for faculty and for participants, identified resources required and finalized the training schedule. Upon their return to the US, they also sent resource materials to Pakistan, such as posters, educational CDs, books and equipment to enhance the program delivery.

Unfortunately, due to security concerns and travel restrictions placed by the US government on US citizen hire program staff, the Mission was not able to allow the US faculty to return. As the input from the US faculty was critical to the success of the in-country training, PTEPDP quickly explored options for integrating the US faculty into the program without their physical presence in Pakistan. After reviewing options with the Mission, AED used Digital Video Conferencing between the US and local partners. Each of the US universities had video conferencing capability. PTEPDP explored rental and purchase options in Islamabad, discussed this with USAID and agreed to rent video conferencing equipment. As the local partners did not have the needed infrastructure to handle video conferencing, the equipment was set up in the AED/Islamabad office. AED developed a schedule with a weekly time for the trainees at each of the local partners to come to the AED office for the conference with their US partner. There were technical challenges with the initial video conferences, but once these were resolved, the conferences were conducted successfully on a weekly basis between each US university and their Pakistan partner.

Faculty participating in the video conferencing sessions were: GMU with NUML: Drs. Jack Levy, Sherry Steely, Bev Shaklee, Rebecca Fox OSU with NISTE: Drs. Michael Dalton, Sue Ann Lond and George Long UMT with FCE: Dr. Hashim Sabir

Due to cost constraints, US faculty involvement with the second in-country program was limited to email contact with the key teaching faculty at their partner institutions. There was not sufficient funding for additional video conferencing.

The input of the US faculty undoubtedly added quality, innovation and support to the program. Their direct input was restricted due to travel restrictions and budgetary constraints in the second program. Nevertheless, NUML, NISTE and FCE not only benefited from the experience of sharing new knowledge and teaching methodology, but were also exposed to their professionalism, respect for time and pursuance of quality demonstrated by the US counterparts.

Participant Selection

The participant selection process for the in-country program was similar to the process used for selection of participants for the US training. An additional requirement was that candidates took a written test in their relevant subject area as part of the application process. The written test was designed by the Teacher Associates and was based on subject content taught at the Elementary Colleges. Each candidate underwent a short interview with a panel consisting of Provincial government representatives, AED staff and in some provinces, with an independent consultant.

The initial written exam also served as a pre-test to provide the PTEPDP staff with a baseline against which the impact of the program could be measured. Following their US training, each participant also completed a post-test and each institute was responsible for analyzing the results of the test.

Summary of the Content and Focus Areas of the Two In-Country Programs

The US faculty provided technical support to prepare course material and training modules. US faculty and the course instructors developed the training program over a period of three months starting with the November 2005 visit of the US faculty to Pakistan, and followed by internet and phone communication between the US and Pakistani faculty. A key objective was to provide not only content knowledge on the

subject areas, but also to develop the participants' teaching methodology. The in-country training focused on nine components:

- Enhancing subject content knowledge in math, science and ESL, in consideration of the participants' provincial syllabi;
- Educational pedagogy, teaching methodology (including learner-centered, inquiry based, interactive and direct methods), classroom management;
- Leadership and change, and how a teacher can be a leader and change agent;
- Additional English language classes for science and math participants;
- Use of IT in teaching of math, science and ESL from basic computer skills to use of internet and searching for materials in the subject areas;
- Practice teaching to improve the participants' teaching methods and allow them to demonstrate increased content knowledge and improved teaching methodology;
- Professional linkages through participation and membership in professional bodies and meetings; and
- Action plans developed as practical, realistic and applicable resources.

Other elements included in the training included:

- Visits by reputable educators to expose participants to initiatives underway to improve education in Pakistan;
- Field visits to NWFP, Lahore, museums, the International American School;
- Education forums on leadership and teachers as agents of change took place; and
- Participant maintenance of reflective journals and development of action plans.

The in-country training provided new learning opportunities that included:

- Assistance in preparing action plans with their commitment that on return to their institutes they would implement their plans. This was the first time any of the participants participated in exercises to develop practical action plans that they could use in their home institutes.
- Preparation and evaluation of lesson plans for their courses;
- Preparation of their own teaching/training materials rather than relying on a single source textbook. They also studied how to use multiple textbooks in teaching and training as opposed to only one book; and
- Curriculum based teaching and training rather than training and teaching using a single source textbook.

The ***ESL component*** of the program allowed the participants to use and practice their English listening, speaking, reading and writing skills. They assessed their writing and speaking fluency using specific guidelines and were engaged in specific language support lessons tailored to meet their needs. The English language component aimed at building the participants' confidence in use of the language both in spoken and written form. The pre/post tests and action plans clearly indicate a considerable improvement in use of the language. The major awareness that participants were able to understand was that unlike traditional ESL teaching through grammar-translation which Pakistani schools are currently practicing, a direct method of teaching was required.

The ***science and math components*** emphasized development of skills to observe, measure, use numbers, classify, question, infer, hypothesize and communicate. Emphasis was on how to develop and implement school science and math programs that encourage scientific enquiry rather than memorization of math and science lessons from textbooks.

The *information technology component* introduced participants to IT/ICT and its application, with emphasis on education, and covered basic computer concepts (working, hardware and software), use of Internet (including conducting searches for information and materials), email, and basic computer literacy (learning application software, MS office application in education setting).

The second in-country program began with the selection of candidates through a comprehensive interview and testing process. The course work was similar to that of the first in-country program with two exceptions. Due to the PTEPDP project close date and to Ramadan, the course was condensed to 10 weeks instead of 12 weeks, and—due to limited funds—the video conferencing was not included in this program. The participants in the second program covered the required course work, attended “Educational Sessions” every Friday afternoon to hear prominent speakers share their experiences, and visited museums and other educational sites. The ESL group participated in the annual SPELT conference and also attended an English-language play. As was the practice in the previous course, each participant maintained a reflective journal from which the book of reflection was developed. Practice teaching and actions plans were an integral part of the course.

The first in-country program concluded on 5 June, 2006, and certificates were awarded by the Minister of State for Education. The ceremony was also attended by the Secretary of Education, Sindh; the Joint Educational Advisor (Training) of the MOE; provincial senior representatives from Punjab, NWFP, Sindh, Balochistan, FATA and AJK; and faculty of the National University of Modern Languages (NUML), the National Institute of Science and Technical Education (NISTE), and the Federal College of Education (FCE). The faculty GMU, OSU, and UMT also addressed the in-country training participants through video clips. The second in-country training program certificate ceremony was held on 30th September. The ceremony was attended by the USAID Deputy Director and the heads of Federal institutes. At the ceremony, the participants and faculty provided feedback and suggestions regarding the training and urged continuation of the program; at a minimum with follow-on support for alumni as they implement their action plans. AED prepared two books of reflections with contributions from the participants, faculty, US counterparts and AED staff. Please see Annexes D, E and F for the US university final reports on their in-country programs.

D. Challenges

- The local partners’ capacity to conduct the in-country training program had direct implications on whether they were able to sustain linkages with the US universities. The existence of relevant faculty, access to the internet, level of institutional commitment and correspondence all played a vital role in building and strengthening linkages. Both FCE and NISTE lacked these capacities. In the case of NISTE, their understanding of the partnership and linkages that PTEPDP was promoting was not clear despite many meetings with them on these issues. They considered PTEPDP training as a subcontract, a means to generate revenue and to gain some prestige through association with an international organization. FCE was enthusiastic about the partnership, but had difficulty in overcoming basic logistical challenges. NUML was the only institute that was able to develop strong linkages with their US partner, GMU. NUML explored possible exchange programs and collaborative research with GMU. The institutional linkages established through PTEPDP continue to grow slowly. A recent example was the invitation to GMU by NUML to participate in an ELT conference held in the first week of December, 2006. Dr. Sherry Steely from GMU, who was actively involved in both the US-based and in-country training was a keynote speaker at the conference.
- The program objectives needed to be more realistic and less ambitious in the timeframe allowed for the training, particularly considering the wide range of the participants’ language skills, the subject expertise and the institutional capability of the in-country institutions. Facilitators needed

to make program changes more rapidly than they did based on assessments of their students' progress.

- The Pakistani partner institutes needed more technical and financial assistance, which was not available under PTEPDP due to the program scope, budgetary constraints, and the limited timeframe.
- The in-country program participants were not able to be involved in follow-on activities due to the program ending. It would be beneficial for the participants to be provided support during the implementation of their action plans, perhaps through the provincial governments. In addition, follow on by the government involving PTEPDP alumni in in-services courses would allow the participants to continue honing their new skills.
- The local institutions' provision of logistics and hostel facilities were not always adequate to allow the students to focus on their training program. At NISTE, for example, there were issues with the water supply and the internet DSL connection that resulted in the Teaching Associates' needing to spend classroom time to address logistics problems. We would recommend having an on-site training manager to ensure logistical support without interrupting valuable instruction time.
- A major challenge was beginning a program at NISTE and FCE, where faculty support was absent. As noted, AED assisted NISTE and FCE in recruiting PTEPDP alumni to serve as Teaching Associates for the two in-country programs.
- The restrictions on travel for US faculty proved to be a major challenge. As noted, PTEPDP used video conferencing between the US and local partners in the first in-country program to provide a means for the US faculty to mentor and coach their local partners and the program participants.
- At NUML, the diversity in participant English proficiency proved a major hurdle in teaching. Although the participants understood and appreciated the theoretical material, it was difficult for them to translate the theory in practice. Ideally, the course should have been structured to include more practice following the theoretical discussions.
- As the participants did not come from a culture that promotes reading academic material, motivating participants to do focused and intensive reading proved difficult, and they preferred to work in groups rather than individually.
- At NISTE and FCE, finding appropriate TAs who not only excelled in their subject area, but had the team spirit and personality to work well in the program was challenging. There had to be some additions made and AED had to let go of some TAs to ensure that quality and team spirit was maintained in the program.
- PTEPDP participants came from 72 districts and approximately 100 institutions in Pakistan. Maintaining contact with them and paying individual attention to support them was a challenge. AED generated a constant flow of communication with department heads, education officials and other organizations to introduce alumni in their districts as a local resource so that they could be optimally utilized for improving the quality of education in their respective areas. Correspondence, newsletters and networking workshops helped AED staff maintain both collective and individual contacts with alumni.

Some of the challenges AED faced in the in-country components were broader than we were able to address during PTEPDP implementation. For the challenges that we could address, our approach was communicative and focused on open dialogue with participants and meetings with faculty and heads of institutes. The AED Country Representative held bi-weekly meetings with participants and also occasionally visited them at lunch or dinner to discuss issues and challenges they were facing, their perceptions of their coursework, and their interactions with AED program staff. AED's Education Specialist met with faculty to discuss the participants' progress with their coursework and worked with

the faculty to develop strategies to address issues with participants who were tardy, did not take their work seriously, or were not doing their homework assignments. AED staff also held regular meetings with the heads of the partner institutions to discuss issues that were not resolved at lower levels.

E. Initial Impact and Outcomes of the In-country Programs

The in-country training provided an opportunity for alumni who excelled in their performance in the US to take on the role of Teacher Associate (TA) and design, develop and deliver the training program. The TAs have acquired the skills to develop a comprehensive training program and will be a useful resource within the government sector.

The pre/post tests, along with participants' performance and participation in class, are clear indicators of their increased knowledge. The books of reflections (the daily reflections written by participants) clearly indicated change in the attitudes and practices of these teacher educators. If US based training promoted cultural exchange and understanding, having representation from the four provinces, FATA, FANA and AJK all in one room in the in-country training enhanced respect, understanding and tolerance. The teacher educators noted differences developed as a result of their involvement in the program and were determined to bring about this metamorphosis in the students they teach back at their institutions. The action plans developed by the participants and the practice teaching sessions, which were part of the action plans, brought out the change in practice.

Follow-on activities for the in-country program were not possible due to the closure of PTEPDP, but there is strong evidence that there will be a marked difference in the teaching practices of the in-country alumni. In FATA, the visit by the PTEPDP Education Specialist clearly indicated a change in the classroom seating, interaction and language used by an alumnus of the in-country program.

IV. Performance Gap Analysis

Early in 2005, AED hired two consultants to conduct a performance gap analysis of teacher training in Pakistan. The purpose was to provide government institutions and private/non-governmental institutions an analysis of public sector teacher training institutes. The report was widely disseminated to institutions, USAID and to the MOE, and it confirmed the MOE's concern that ESL, math and science were the weakest areas in teacher training, resulting in weak programs in the in the public school system. Please see Annex G for the full report.

The consultants focused on the following areas:

- Analysis of the current state of teacher education
- Training needs of teacher educators
- Current efficiency of teacher training institutions in terms of quality of training
- Utilization of practice/model/lab schools
- Availability of equipment and resources
- Relevance of teacher training curriculum in ESL, Science and Mathematics
- Administration and financing of teacher education
- Avenues of professional development for teacher educators
- Non-training related obstacles to training and learning

The consultants visited 24 teacher education institutions and also interviewed senior government officials.

The major findings of the study were:

- There is a diversity in organization of teacher education, meaning it varies from province to

province,

- Duration of pre-service courses was short as compared with other countries in the region. The short duration of courses and lengthy syllabuses with redundant content made the teacher education irrelevant to the current needs of quality education,
- Although there were lab schools attached to teacher training colleges where teacher trainees practice what they learn during their teacher training courses, practice teaching was not given sufficient time; most of the course time was spent on theory,
- There was no monitoring and evaluation system in teacher training colleges. Even Principals would seldom observe the class of a teacher trainer. Also, a meaningful Performance Appraisal System was lacking,
- Quality control is absent from the system. The short duration of courses, the lecture and dictation methods used by teachers, and the absence of supervision contribute to a poor quality of professionally certified teachers,
- There is an overlap in functions of various institutions resulting in a waste of resources,
- The unit cost of conventional teacher education calculated on the basis of training institution's budget for 2003-2004 showed that a unit cost of teaching Primary Teacher Certificate (PTC) and Certificate in Teaching (CT) candidates ranges between 15,000-110,000 rupees, or USD 250-1,833. Most of the budget, 60% to 99%, is spent on staff salaries, leaving a maximum of 40% for non-salary items,
- The report also outlined the training needs of teacher educators.

The major recommendations were:

- Clearly define the functions and responsibilities of core teacher education institutions such as PITEs, BoCs, Directorate of Curriculum and Teacher Education (DCTE) and DSD to avoid replication and duplication of efforts and to encourage close collaboration between these institutions geared towards the improvement of both pre-service and in-service teacher education. Establish linkages between the provincial teacher education institutions particularly between the BoCs, PITEs and Universities.
- The diversity in structure of teacher education institutions needs to be addressed so it is more uniform and a cadre of teacher educators needs to be maintained. Teacher educators need to be retained and unnecessary transfers avoided.
- Incorporate state of the art content knowledge and pedagogy skills in teacher education courses.
- Produce quality textbooks and reference and supplementary materials and equip libraries with teaching materials that facilitate research and professional development.
- Given the existing condition of college buildings, facilities should be repaired or renovated.
- Introduce a regular appraisal system to assess the performance of teacher educators and introduce a system of institutional performance evaluation.
- Linkages between the provincial teacher education institutions particularly between the BoCs, PITEs and universities need to be established. Strengthen and support PITEs as apex institutions for innovation and research in teacher education.
- Improve the physical and resource environment of classrooms to encourage group work and activity based learning.

V. NATIONAL CONFERENCE ON TEACHER EDUCATION

Early on in the implementation of PTEPDP, it was noted that both policymakers and practitioners had varied understandings of ongoing teacher education practices in Pakistan. We realized that there was not a forum available at the national level where teacher educators, directors and principals, and policymakers could share their experiences with each other. There also had not been an opportunity for public sector

and private sector teacher training institutions to share experiences. Few principals of the 100 diploma/degree-awarding teacher training colleges in Pakistan had been provided an opportunity to meet with each other to share teaching practices, challenges and constraints. In particular, female principals had little or no opportunity to meet their colleagues and counterparts across provinces.

To address this situation, and as a follow-on activity under PTEPDP, AED proposed a national conference for policymakers, teacher educators, education experts, heads of teacher training colleges and institutes, and senior education officials in Islamabad. After discussion with the Mission Education Officer, Dr. Sarah Wright, and Pakistan government officials, AED organized a three-day National Conference on Teacher Education in Islamabad from December 20-22, 2004. This was the first national conference on teacher education in Pakistan and was attended by over 250 policymakers, teacher educators, education experts, heads of teacher training/education colleges in the public sector, senior federal and provincial government officials, representatives of well-known private sector teacher training institutions, NGOs, and representatives from major donors in Pakistan. In addition, three ministers and five secretaries participated in the event. Please see Annex H for the full report on the Conference.

A. Goals and Objectives of the Conference

The conference provided the participants with the opportunity to discuss issues affecting quality teacher education and training in Pakistan, a primary concern of the government, the private sector, and civil society institutions. The agenda was developed with the input of representatives of federal and provincial government agencies, experts and other sectors and centered on teacher education policies and practices; the role of teacher education institutes; issues and challenges in teacher education; and innovative practices and interventions in teacher education.

B. Recommendations and Outcomes

Major issues that emerged from the presentations and discussions included:

- The overlapping roles and functions of teacher education institutions in the public sector.
- The varying quality of teacher education programs offered by different providers—public and private, and the need for standardization and accreditation systems as well as stronger linkages between policy and its implementation.
- The rapid growth of private sector teacher education institutions with questionable quality.
- The need to forge a strong link between the content and approaches of teacher education programs and classroom performance, and to create teacher education programs that are more responsive to diverse learning situations (e.g., rural and urban environments).
- The negligible impact of training programs due to a lack of post-training opportunities, the placement of trainees, a lack of incentives, etc.
- The quality of teachers and associated issues, including their recruitment and selection policies and procedures.
- The lack of resources for teacher education and continuous in-service training and the inefficient use of available resources.
- The gap between educational opportunities available to the elite and the poor.

At the completion of the event, the conference attendees formed a set of recommended actions to improve teacher education in Pakistan. Key recommendations included:

1. Increasing allocations to education to at least 4% of GNP and gradually bringing that allocation up to 10%.

2. Channeling recommendations from the conference into the mid-term review of the 1998-2010 Education Policy to help guide reform.
3. Developing a National Accreditation Council of Teacher Education to elaborate and enforce standards in teaching.
4. Recognizing the teaching profession as a separate cadre to ensure the professional development of teachers and forming a National Council of Teacher Education modeled after other professional agencies.
5. Linking policy to practice and outcomes.
6. Revising and reforming teacher training content and methodology to reflect emerging modern trends and the needs of schools, students, and communities.
7. Providing an enabling, supportive, and collegial environment for teachers to implement pedagogical reforms in the schools.
8. Introducing a merit-based selection process to attract teacher educators with pedagogical backgrounds.
9. Creating a performance-based system for promotions and other development incentives.
10. Clearly defining the role of the various teacher training institutions to promote coordination and avoid overlapping.
11. Improving interaction between public sector institutions and private schools.
12. Ensuring donor projects are sustainable and have local ownership from their inception.

The conference brought teacher education, teacher training and teacher professional development center stage for discussions on improving educational quality. As a result of the conference, teacher training, which previously was largely a donor-driven field, has been given more serious consideration. For example, provinces are beginning to include teacher training funds in their budgets and teacher training colleges are being revamped as teacher professional development centers. The Government of Pakistan and international donors are acting on some of the recommendations from the conference; for example, UNESCO, with funding from USAID, is acting on the teacher accreditation recommendation.

VI. FATA SCHOLARSHIP PROGRAM

One new component added to the revised PTEPDP scope of work in 2005 was the Federally Administered Tribal Areas (FATA) Female Teacher's Scholarship Program. This program provided scholarships for 20 Pakistani women teachers identified by FATA's Director of Education to attend a year-long teaching program at the Government Elementary College of Education (GCET) for Women, FATA. Upon their completion of the program, the Directorate of FATA is committed to hiring the trainees as teachers in various schools to ensure longer-term tenure of teaching staff within the FATA region. AED administered the scholarships for the participants and monitored the participants' progress in their training through regular site visits. In addition, AED supported the college in its efforts to improve its educational programs through the provision of technical assistance and teaching and learning materials.

A. Goals and Objectives

In support of the Directorate of Education of the Federally Administered Tribal Areas (FATA), the goals and objectives of the FATA Female Teachers' Scholarship Program were to:

- Ensure longer-term sustainability of the teaching staff in the FATA region by developing a cadre of professionally trained female teachers;

- Strengthen the institutional capacity of the Government College of Education for Elementary Teachers (GCET), Jamrud, Khyber Agency, FATA; and
- Introduce teaching methodologies such as child-centered teaching, group work, and activity-based learning.

B. Program Description

Scholarship Program

The scholarship program was designed to meet the increasing need for female teachers in various FATA agencies. AED administered scholarships for 20 participants from September 2005 until mid-May 2006, providing tuition, board, lodging, and a monthly stipend for the students. The participants consisted of five students focusing on science and fifteen focusing on arts.

AED staff, most frequently the AED Senior Education Specialist, conducted on-going monitoring of the scholarship recipients through regular, monthly observational visits to GCE. Monitoring activities included instructional observation and feedback from teachers, students, and the principal, with recommendations for ongoing improvements. Coursework included child-centered teaching, using low-cost and no-cost materials, using an inquiry method of teaching and learning, and encouraging group work within a classroom setting. GCET conducted pre- and post-training tests of the students, ran regular classes, and maintained high standards of teaching.

A critical component of the program was to provide learning experiences to the scholarship students outside of the classroom environment. In March 2006, for example, AED organized a day-long study tour to two schools in Islamabad. The 20 students were accompanied by six faculty and visited one private and one government school to observe the school environments, classroom setting and management, teaching methodology, and students, and to draw comparisons between teaching practices at the two schools. The scholarship students contrasted interactive, child-centered, and inquiry-based teaching with more traditional approaches. The visit also included a trip to the Lok Virsa museum for an historical and cultural overview of Pakistan. AED organized a luncheon for the students with an opportunity to meet senior USAID and Ministry of Education officials.

In May 2006, the students completed their coursework and practice teaching and began preparing for the BEd examination, which was administered in August 2006 by Peshawar University (exam results are not yet available). Subject to their passing the exams successfully, the Directorate of Education will hire teachers for positions at various FATA government schools.

Institutional strengthening

The capacity of the GCET was strengthened through two primary activities: faculty and library development. In consultation with the GCET principal, AED assisted in identifying trainers and resource people in subject areas not currently available within the college. In addition to the director and principal of GCET, four PTEPDP alumni joined the faculty of the college to provide instruction for the 20 FATA scholarship students. These four teachers had been trained in the US in mathematics, science, and ESL, and equipped with the skills and knowledge of more modern pedagogical practices. Due to the content and quality of their training, they delivered a highly effective educational program.

AED also worked to improve the college's library, which lacked relevant books and other teaching and learning materials. AED purchased over 400 books, other resource materials, and many educational CDs; acquired subscriptions to daily Urdu and English language newspapers to expose students to current events; and created a new computer lab with refurbished computers, an internet network, and assorted software. The program also supported the establishment of a science center with student created displays

using low-cost or no-cost materials for lesson delivery.

C. Challenges

The scholarship required ongoing regular attendance and most of the women were able to attend regularly. However, early marriage, a low priority given to education, and family restrictions contributed to low attendance by some students. Due to the cultural traditions in FATA, organizing field visits and maintaining regular attendance by students proved to be challenging. In order to facilitate field visits, the principal of the college had to visit homes to get permission for the young women to visit schools in Islamabad.

When the students practiced for the written exams, their responses were not the long answers based on rote memory that are expected by exam administrators. Teachers worked with the students to memorize answers so that they could pass the written exam. The challenging aspect for PTEPDP was the dichotomy that existed between encouraging activity-based teaching/learning and catering to a board exam that focuses primarily on the memorization of facts.

Although there was support from the Education Director of FATA, the procurement process, rules and procedures for government approval of equipment purchases resulted in delays to the completion of the library activities. The library did, however, become functional and BEd students benefited from the upgraded resources.

D. Initial Results/Outcomes

- The library, resource room, and computer lab upgrades were completed in May 2006 and are being used by the students of the college.
- The program created an opportunity for FATA to tap into other PTEPDP initiatives such as the in-country teacher training program. For example, the resource person hired to teach education psychology successfully completed a 10-week training program at NUML and was exposed to new teaching methods. Now, the college has four alumni from the PTEPDP US-training program and one from the in-country program.
- All 20 scholarship students completed their program, which they rated highly. Perhaps the most important effect of the program was the increase in the women's confidence in their subject content knowledge, their determination to teach using more active methodologies, and their motivation and self-esteem, all of which were noted by the faculty of the college. The principal of the college commented that—over the period of the program—parents developed greater confidence and trust in the college, enabling the college to arrange exposure visits for the women to Islamabad and Peshawar. The students acknowledged that the teaching methodology used by the US-trained teachers in this program had never been used with them while they were students. They said that if they had been taught by these new methods, their previous learning experiences at school would have been better. They found the classroom environment conducive to learning and questioning.
- The scholarship program was perceived as a successful and much needed initiative for FATA and was strongly supported by the Director of Education, FATA, who is eager that to continue the program for five years as originally planned. The Director's support for the continuation of this program stems from the visible results in the quantity and quality of the 20 scholarship teachers and in the quality of education the students are receiving from PTEPDP alumni.

This project clearly indicates that success is most likely when there is strong support from MOE officials and from the FATA Education Directorate; strong leadership by institutional heads; persuasive linkages

with the community and a committed team of teachers. The students, teachers, administrators, FATA representatives from the Directorate and AED staff all conclude that this was an important and beneficial initiative to promote women's development initiatives and education in the region. Upon seeing the positive impact and multiplier effect of this program, USAID has extended its support to FATA through the provision of scholarship for 40 young women to complete their BEd over the coming year.

VII. FOLLOW ON ACTIVITIES

Follow on was another component added to the PTEPDP scope of work in the 2005. As the 2005 revision focused on adding in-country programming to PTEPDP, follow on activities for US alumni were included, in addition to the in-country training programs.

The follow-on and post-training support that AED provided to PTEPDP alumni has sustained and enhanced their motivation and commitment to improving teaching and teacher training. Through AED post-training work with the US-trained participants, these alumni have emerged as a strong cohort of teacher educators in provinces as well as in FATA, AJK and the federal area. PTEPDP participants are beginning to receive support from their institutes and departments while the Provincial Education Departments are fully cognizant of this valuable human resource and its potential to improve the quality of education. Through an array of follow-on events and activities, the trickle down effect is beginning to manifest as more teachers and educational institutions come to value and embrace the changes in knowledge, attitudes and practices that these US-trained alumni bring to Pakistan.

A. Goals and Objectives

Post-training follow-on activities provide critical support to alumni encouraging and sustaining their contributions to change and innovation and nurturing their continuing professional development. From the inception of PTEPDP, the imperative for a strategic follow-on plan was recognized. AED developed the PTEPDP follow-on plan in September 2005 and reviewed it with USAID/Pakistan. The follow-on strategy was designed not only to provide support to alumni, but also to involve government and NGOs to ensure the technical, financial, and institutional support needed to sustain the commitment, efficiency, and innovative activities of all PTEPDP-trained participants. Follow-on professional development activities have included provincial forums, exchange visits, subject-based workshops, AED site visits, networking events, creating linkages between participants and other institutions, action plans, and a small grants program, with resource material provided in the form of quarterly newsletters, alumni updates, and subject-based booklets. Key activities are described below.

B. Program Description

Provincial Forums/Workshops on Experience Sharing

AED organized provincial forums/workshops to support and encourage interaction among the returned master teacher trainers, their principals, concerned government departments, and private institutions. PTEPDP alumni and their principals attended four provincial forums: Punjab (27-28 March 2005), Sindh (26-28 April, 2005), Balochistan (25-26 May, 2005), and NWFP (July 5-6, 2005). The main objectives of the forums were to:

- Bring together key stakeholders/institutions to reinforce their coordination and support for outreach training services;
- Determine the scope and extent of on-going professional development activities by returned participants within and outside their teacher education institutions; and
- Formulate an effective monitoring and follow-on strategy to promote and share best practices across the provinces.

The provincial forums included a variety of events in which participants shared achievements and activities with their colleagues, heads of institutions, concerned government officials and AED. Participants communicated key successes, issues, and concerns to the Minister of Education (in Sindh) Secretary of Education (Sindh, Balochistan), and other senior officials, creating a forum rich for further dialogue, and providing motivation for revisiting which strategies and methodologies worked well and which did not. One of the many positive outcomes of the forums was an improved image of the returned trainees, who are now viewed by several education leaders in Pakistan as a much more valuable human resource.

As a result of participation in the forums, many positive outcomes were generated. One of these included an improved image of the returned trainers, who are now viewed by several education leaders in Pakistan as a much more valuable human resources. One principal stated, *“Before this experience sharing forum I was not aware about the importance of the AED training and participants’ action plans and their significant role in teacher education. The forum was an eye opener for me. Now I understand how a US trained teacher educator can make a difference and bring positive change. I will plan a three day workshop with the support of the trainer immediately after this forum on communicative teaching”*.

Other activities during the forums included participants revisiting their action plans and committing to the development of a personal monitoring and follow-on strategy to promote further professional development. The forums emphasized professional development activities for which AED could provide further support. Keeping in mind the needs identified by forum participants, AED shifted the focus of the follow-on strategy to address participants’ professional needs through subject-based workshops.

ESL Alumni Provincial Exchange Visit to Sindh

AED organized a provincial exchange visit of ESL alumni to Sindh on November 21-25, 2005 for selected ESL alumni from NWFP, Balochistan, Punjab and Sindh. The aim of the exchange program was to provide an opportunity for PTEPDP alumni to get out of their institutions and experience the educational system and teaching methodologies employed in similar institutions and interact with their peers from these institutions. The criteria for selection were alumni progress in terms of active participation in training, educational resource material development, networking, peer coaching, and action plan implementation. AED trained 49 participants in ESL with 12 alumni selected to participate in the exchange program.

At the beginning of their exchange, each participant was provided a learning log (daily dairy) in which to write reflections and observations. The learning logs assisted the participants in documenting and providing their perspective on various aspects of teaching and learning, material development, and the environment of institutes facilitating best practices. The comments extracted from participants’ learning logs demonstrated a growing awareness among alumni of the problems faced by teachers in other institutions, different activities alumni colleagues were undertaking, and policy and practice in various regions. The visits were aimed at helping alumni share best practices in ESL teaching across provinces and provided a platform to organize plans for innovative approaches to bring positive change.

Subject-Based Workshops

Mathematics Teaching Workshop

AED organized its first subject-based workshop on Math from September 23-25, 2005 with the coordination of Math Association of Pakistan (MAP) and Aga Khan University–Institute for Educational Development (AKU-IED). Forty-two PTEPDP math alumni participated. The workshop focused on content areas specified in the National Curriculum at the primary/elementary level. The workshop

specifically emphasized conceptual clarity and understanding various instructional techniques and methods. Participants were given a pre-workshop assignment to design lesson plans on specific math themes, with the lesson plans shared with all participants during the workshop. Math alumni also had the opportunity to join the Math Association of Pakistan-IED to share experiences, best practices, and ideas on the teaching of mathematics.

The workshop was a great success as reflected in the evaluation by the alumni. A booklet containing information on PTEPDP Math alumni and their US training, their action plans, teaching practices, and resource materials was created and shared with alumni. The workshops generated discussions and debate on math concepts and curriculum and addressed and reflected on problems and issues that commonly occur during Math teaching but are often overlooked by the teachers.

Science Teaching Workshop

The second subject workshop was held at the National Institute of Science and Technical Education on March 28 and 29, 2006 and addressed the subject of teaching science. The key purpose of the workshop was to provide a platform for the PTEPDP-trained science alumni to share experiences, discuss the impact of their US training, evaluate problems they have confronted and identify various approaches to meet these challenges, and to consider various implementation strategies, focusing on the pedagogical and content aspects of teaching and learning science.

All the participants were given a workshop folder containing material on science teaching and learning including: the agenda/concept paper of the workshop; a list of participants; updates on activities of the science alumni; lesson evaluation sheets; activities on “how I see myself as a science teacher” and science methods (observation, question, hypothesis, prediction, experiment, analysis and decision); information on famous scientists’ work; a poster on the “Learning Cycle” with supporting notes; information on the inquiry approach; the top 101 websites for science teachers and using the internet to explore science; defining essential questions; science poems and songs; and science lesson plans.

Out of 60 US-trained science alumni, a total of 49 attended the workshop. In addition, 25 participants from the in-country training program actively took part in the workshop. The participants were given a pre-workshop assignment to design a lesson plan on one of several science themes. The workshop session on lesson plans then provided science alumni an opportunity to observe and comment on the various lesson plans prepared by their colleagues and incorporate changes to maximize student learning competencies in line with the national curriculum. Lesson plans were also evaluated by experts who provided suggestions and recommendations. One participant commented: “Through lesson delivery we came to know about strategies and their specific use in teaching science.” Participants also observed a lesson on water pollution through an interesting DVD on inquiry-based science teaching in a primary classroom setting.

Towards the end of the workshop, a panel discussion created a platform for discussing and debating a critical issue affecting science teacher educators: “As science teacher educators, are we developing a culture of inquiry in our science teaching.” Panelists included selected alumni, resource persons, and a guest speaker. Speakers shared their views based on their experiences and understandings of the inquiry based approach. Participants took great interest in this highly pertinent panel discussion session.

Participants were also given the opportunity to be inducted as members of the Science Association of Pakistan (SAP). Additionally, participants shared their resource materials with AED staff and with each other to share their application of new teaching skills and materials gained from their training in the US.

AED Visits to Selected Government Teacher Training Colleges

AED staff undertook field trips to various government GCETs, PITEs and Bureaus in provinces to

monitor PTEPDP alumni activities, develop networking support and partnerships with teacher education institutions and government education departments, and facilitate and follow up on teacher education projects undertaken by PTEPDP alumni.

AED staff visited selected teacher training colleges where there were several returned PTEPDP participants as well as teacher training institutions that planned to send their teachers for future PTEPDP in-country training activities. The visits included the following institutions:

- Sindh: Elementary Colleges at Hyderabad, Karachi, Mirpurkhas, Thatta and Dadu, Nawabshah, Naushehroferoze, Sukhur, Khairpur, Bureau, PITE.
- Balochistan: Bureau, PITE, Elementary College for Women and five Government Elementary Colleges of Education (GECs) in Mastung, Kalat, Pishin, Umerabad, and Quetta, Sibi, Loralai.
- NWFP: the RITEs at Haripur, Mansehra, Abotabad and Peshawar, PITE, Bureau.
- Punjab: GCET Narowal, Lahore, Lalamusa, and Islamabad H-9, PITE, CRDC, Education University.
- AJK: CRDC and GCET at Muzaffarabad.
- FATA: GCET Jamrud (both male and female).

The team also visited laboratory schools adjacent to several of the teacher training colleges, the Provincial Institutes of Teacher Education, and the Bureau of Curriculum in all four districts. Some of these institutions were visited several times during the various field visits.

Alumni Networking Events

PTEPDP supported alumni networking for its returned teacher trainers through a variety of activities such as subject-based workshops, newsletters, exchange visits and publishing and disseminating a directory of alumni with their contact details and subjects. The directory proved a very useful tool not only for the alumni to connect with each other but also for other institutions that became aware of the alumni as potential resources for training. These activities helped to improve collaboration among different stakeholders and fostered various ways of working together to achieve common goals. Alumni networking fostered sharing the different views, ideas, information, knowledge, skills and attitudes needed to become effective teacher educators and updated colleagues, US universities and AED on the implementation and impact of the action plans.

Action Plans

Both the US and in-country training alumni produced action plans to guide and direct the application of their learning in the workplace. Through provincial forums and correspondence, alumni shared updates and refined their action plans with their supervisors and colleagues at their respective teacher training colleges. During the forums, alumni were given an opportunity to develop linkages with IED-Aga Khan University. In addition, some of the participants in Sindh and Balochistan put their action plans into practice through action research exercises with ESRA projects, a large USAID funded program focusing on the Sindh and Balochistan.

PTEPDP Newsletter

AED produced seven editions of a quarterly PTEPDP Newsletter from December 2004 through October 2006. The majority of materials contributed were authored by returned master teacher trainers and included articles and announcements on, for example, stakeholder meetings, information on the in-country teacher training program, FATA scholarship program updates, the earthquake school support initiative, the small grants program, and alumni achievements. The main purpose of the newsletter was to educate readers about teacher education issues and significant dimensions of education including methodology, lesson planning, and education indicators. The newsletter was widely disseminated among

PTEPDP alumni, teachers, heads of all teacher education institutions, government officials at the federal and provincial levels, and other education-related institutions and NGOs. The newsletter was well received by alumni as well as all important stakeholders in education in general and teacher education in particular. Annex J includes a copy of each newsletter.

Small Grants Initiative

During the PTEPDP follow-on provincial forums, participants noted that they lacked financial support for initiatives that would enable them to implement their action plans and put into practice innovative ideas at their institutes. As a result, AED decided to facilitate and support alumni initiatives through small grants.

After sending out a letter to all 172 alumni with notification of the program, AED received 10 applications for small grants. The following five projects were selected for funding by a review committee composed of three AED staff:

1. A six-day workshop at the Regional Education Extension Centre Khairpur, Sindh for 20 teachers on the subject of science through demonstration and the inquiry-based approach with use of low and no cost material.
2. A six-day training program at the Provincial Institute for Teachers Education, Quetta, Balochistan for primary school teachers on improvement in teaching/learning practices and children's competency levels through the use of dimensions of learning.
3. Two weeks of training at the Government Elementary College of Education, Hyderabad, Sindh for 20 primary school teachers to improve their skills in the subject of science, develop activity-based lesson plans and effective delivery methods; develop inquiry-based teaching approaches, and motivate teachers to develop action plans.
4. A three-day workshop at the Tammer-e Millat School Mianwali, Punjab for 30 teachers on new teaching methodologies in mathematics and science concentrating on inquiry-based teaching, learning cycles, lesson planning, problem solving, the integration of process standards, and the use of manipulatives.
5. A training lasting several weeks at the Government College for Elementary Teachers Narowal, Punjab for 60 female, pre-service/BEEd teachers for three days per week over a period of three months to develop language skills using modern ESL teaching techniques.

AED staff made visits to the training courses during August and September 2006 to monitor and support the programs and to assess the impact at the institutional level of these small initiatives. All the alumni selected for the small grants have successfully completed their training and shared their reports with AED. Alumni are optimistic that training will ultimately lead to improvements in classroom interaction and will foster effective communication among students and teachers.

C. Initial Results/Outcomes

In terms of what the training and teacher professional development under PTEPDP has achieved, an analysis of the AED staff's monitoring visits, comments from heads of teacher training colleges, other organizations which have used PTEPDP alumni, comments of PTEPDP alumni and trainees given in workshops, questionnaires, correspondence and conversations, reveals that PTEPDP teacher educators have been applying their newly acquired teaching methods. These teachers are now bringing to the classroom reasoning skills, critical thinking, questioning, group work, brainstorming, think-pair-share strategies, and resource materials such as flash cards, charts, pictures, models, games, jigsaw puzzles, and audio visual aids that they have developed themselves. Many alumni have developed additional teaching materials rather than using single source text books with a view to avoid rote learning and memorization.

Many are now using computers as part of the learning process to write and share stories and are better prepared to use Information Communication Technology. Alumni are using computers more for their MEd, BEd, CT and PTC courses as well as for institutional databases.

PTEPDP alumni note that their training under PTEPDP exposed them to modern teaching/learning trends, paradigms, and skills, and has strengthened their command of their particular content area knowledge. As a result of this training, participants are now committed to change that may indeed shift the traditional teaching paradigm towards a more transformative one by improving the standards of teacher education in Pakistan. Most of the alumni are enthusiastic but they continue to need guidance to enhance their content knowledge and pedagogical skills.

During the follow-on workshops and forums, the alumni discussed their role in bringing change to the teaching and learning process as well as to other professional development programs at their institutions. The key points gleaned from interaction with the participants are:

- Alumni have produced valuable resource materials in the form of guides, manuals, and teaching/learning aids that they are using and sharing with other teachers. The PTEPDP program team assisted alumni in sharing their work and in peer reviews of these materials to provide additional benefit to project beneficiaries. Some alumni have also compiled newspaper articles to be used as learning resources. Examples of alumni-created materials and resources include: an activity and guide book for Grade 1 in ESL under the National Commission for Human Development (NCHD) teacher education program; creation of a resource room and 16 lesson plans on teaching of English; creation of science corners in grade 3, 4, and 5; a model questionnaire to assess the level of teacher learning; and modules for filter plants of water, transfer of energy, solar system and environmental protection.
- Alumni are actively involved in teacher education programs not only at their colleges/institutes for in-service/pre-service training, but also many of them have worked or are working for other programs. For example, PTEPDP participants are now master trainers for ESRA teacher training in Sindh and Balochistan, the UNICEF Mentoring Program in Balochistan, and programs of the National Commission for Human Development (NCHD). Some alumni have conducted trainings for the Strengthening Participation Organization (SPO) and some have assisted in preparing UNESCO manuals for earthquake areas. Alumni have also prepared a syllabus and guide books for the Aga Khan University Examination Board, and have served as master trainers for GTZ training program in NWFP. Some have engaged in improving community schools in their vicinities.
- In the area of assessment, alumni have used a variety of monitoring tools to measure performance level of students and to measure teacher self-assessment. Some of the tools being used include:
 - Reflective journals and group presentations;
 - Rubric, checklist, test portfolio, and authentic assessment and self assessment exercises;
 - Daily assessments, asking questions about topics;
 - Value lines and exit cards, to write their views about the lesson;
 - Pre-test and post-test , aptitude tests and psychological tests;
 - Observation, objective tests and quizzes.

AED designed and administered an impact study form to collect data from each alumnus and received 70% of the questionnaires in return. It is evident from the responses that alumni are actively involved in providing training, developing modules, and developing materials and lesson plans at their institutes as well as with other organizations working in the field of teacher education. For example:

- A participant from PITE Quetta Balochistan organized four months of computer training

- courses on a self-help basis for three sets of female trainees from GCET, Quetta, and is continuing with a program for 40 female students from the same institution.
- An alumnus from PITE Quetta helped ESRA in its mentoring program with other alumni in Quetta City, carried out three months of a sandwich training program for UNICEF, and conducted assessment tests.
 - A participant from GCET Jamrud FATA introduced the concept of Dimensions of Learning at the institute and nearby schools of GCET FATA.
 - An alumnus from GCET Men Jamrud, FATA, organized four short courses for 56 participants during summer vacation and trained 47 students from GCET on child-centered education and school organization. A pictorial presentation produced and shared with teachers and students on low/no cost material development helped teachers in development of models and materials for the teaching.

Using new techniques and tools have helped PTEPDP alumni to resolve a number of problems they have encountered in classroom teaching. For example, in classrooms with up to 60-70 students, there is not sufficient time to teach a complete lesson when applying traditional teaching methods. Now with the use of the innovative techniques learned in the trainings, such as base grouping and other cooperative learning techniques, they have not only been able to manage the class more effectively and complete their lessons within the given time period, but they have also been able to generate more interest and encourage better learning among their students as well. In addition, many teachers state they now feel more confident and relaxed, and their students ask more questions and absorb much more information than they did previously. Teachers have taken more interest in activity-based teaching and are motivated to practice their newly acquired techniques in their classrooms more often.

An example from Sindh illustrates how PTEPDP participants' presence is seen as an important resource. The Secretary of Education for Sindh held a meeting at the Bureau of Curriculum Extension, Jamshoro, Hyderabad, in June 2006 with PTEPDP alumni. He talked to the alumni at the meeting about the kind of support needed to enable the alumni to use the skills and knowledge gained from the US training to improve the quality of teacher training in the province. Based on the teacher training human resources being developed by USAID, the Secretary Education has decided to convert some of the pre-service teacher training colleges with low enrollment into teacher professional development centers.

VIII. Multiplier Affect of PTEPDP

The PTEPDP investment in teacher educators is resulting in a significant multiplier effect as the trained educators are in turn training more teachers. The majority of the 172 US trained participants have become master teachers. These teachers are taking advantage of, and making their own, opportunities to create change by educating other teachers, developing their institutions, and influencing their students. At present, enthusiasm, energy, and commitment are high. Over time, the multiplier affect of PTEPDP may indeed prove profound with proper and continued post-support from various levels of government, the education sector, and the individual institutions.

In response to our questionnaire, AED's estimates indicate that the 172 alumni who received training in the US have transferred their new knowledge and skills to at least 35,000 teachers and trainees both in pre-and in-service training in their home institutes and through other programs. The number of beneficiaries of PTEPDP far exceeds the 172 US trained and 100 in-country trained. Table 2 presents a summary of numbers of students and colleagues PTEPDP alumni are reaching.

Table 2. Numbers of Beneficiaries

Pakistan Teacher Education and Professional Development Program at a Glance July 2003 - October 2006		
Activities	Number of Participants	Number of Beneficiaries*
Training		
US-based Training (2004-2005) NOTE: The average alumni teach 40-100 students per year. We have used the conservative figure of 40 students per year per alumni to calculate the number of beneficiaries	172	6,880
Pakistan-based Training (March - June 2006) NOTE: The average alumni teach 40-100 students per year. We have used the conservative figure of 40 students per year per alumni to calculate the number of beneficiaries	55	2,200 (expected in year 2006-07)
Pakistan-based Training (July - September 2006) NOTE: The average alumni teach 40-100 students per year. We have used the conservative figure of 40 students per year per alumni to calculate the number of beneficiaries	46	1,840 (expected in year 2006-07)
FATA Scholarship Program (2006)	20	
Other Project Activities:		
National Conference on Teacher Education (Dec. 2004)	380	
Performance Gap Analysis report, 2005	400	
Production of PTEPDP Newsletter		1,500
Development of booklets and teaching resource packs (Science, Math)	117	
Small Grants Program (2006)	8	5,800
Total	1,198	18,220

* This approximate number of beneficiaries is based on data collected during enrollment. With few exceptions, the average alumni have taught 40 - 100 students.

Post-Training Activities	Number of Participants
Post-Training Follow-up and linkages, including site visits to provinces and field trips	172
Provincial Forum, Punjab (March 2005)	40
Provincial Forum, Sindh (April 2005)	50
Provincial Forum, Balochistan (May 2005)	46
Provincial Forum, NWFP (July 2005)	30
Math Networking Workshop, Islamabad (September 2005)	42
Provincial Exchange Visit to Sindh (November 2005)	12
Stakeholders' Dialogue (December 2005)	33
Science Workshop (March 2006)	75
Study Tour for FATA scholarship holders to Islamabad (March 2006)	15
Impact study/focus group discussions	20
Total	535

Total number of participants & beneficiaries (18,220 + 535):	18,755
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In addition to the US and in-country trained participants, the FATA scholarship participants will also contribute to the multiplier affect of the project. These 20 young women, equipped with new teaching knowledge and methodology, will bring a high level of quality as well as refreshing modernity to their teaching. Each new teacher will impact 30 to 40 students in a year, enhancing their conceptual understanding and engendering a sense of enjoyment about school. Not only will these young women have an affect on their students, they will also have an impact on the schools in which they work bringing new methods and practices to other teachers and administrators in their schools. Undoubtedly, these new teachers will need ongoing support to carry out this mission of change

IX. Impact Assessment

In the last quarter of the PTEPDP project, AED hired an outside consultant to conduct an initial impact assessment of the PTEPDP project. The Mission reviewed the scope of work developed by AED and agreed to the assessment design. The objectives of the assessment were to:

- Provide an overview of the existing situation of classroom teaching methodologies in teacher training institutions in the areas of ESL, science and mathematics,
- Provide an analysis of teaching methodologies in teacher training institutions in institutions with and without PTEPDP alumni,
- Provide an analysis of changes in teachers' knowledge, attitude and practice, classroom ambience, physical environment, and management technique and student-teacher performance in teacher training institutions,
- Determine if having two or more alumni in an institution results in greater institutional change than change in institutions with only one alumnus,

- Provide an analysis of institutional change as a result of PTEPDP alumni application of their training in their home institutions.

Methodology

Data was collected from 30 Teacher Training Institutions (TTIs) across Pakistan and a total of 64 alumni were interviewed. Of these, 56 alumni were observed conducting classes, and were rated as ‘Excellent’ (14%), ‘Good’ (39%), ‘Average’ (36%), ‘Poor’ (4%), or ‘Very Poor’ (7%) based on their performance. Heads of TTIs, students, lab school teachers, and teacher trainees were interviewed where available.

As PTEPDP did not have baseline data on teaching methodologies, the consultants used the following alternatives to assess change in teaching methodology:

- Review of secondary sources (e.g. provincial forum reports, products of alumni such as books, lesson plans, training materials),
- Analysis of AED questionnaires completed by alumni,
- Analysis of alumni action plans and their implementation,
- Interviews of principals, alumni, student-teachers, teacher trainees in TTIs (including teachers attending in-country training in Islamabad), and teachers in laboratory schools,
- Observations of alumni conducting teaching/training in TTIs, and teachers teaching in laboratory schools,
- Where classes were not ongoing during field work, alumni organised training of teachers either in their TTI or in a practising/laboratory school, providing the evaluators the opportunity to observe training sessions,
- Case studies of outstanding alumni in order to obtain an in-depth understanding of the impact of the project.

Other challenges faced in conducting the assessment included:

- Classes were not in session in most of the TTIs. The consultant and his team arranged to observe special teaching sessions conducted by PTEPDP alumni and arranged in advance with the alumni,
- The security situation in Balochistan, the only province where classes were on-going, was deteriorating at the time of the impact study and the consultants were unable to travel to Balochistan to interview or observe alumni.

Conclusion and Specific Findings

As noted at the beginning of this report, the main objectives of PTEPDP were:

- To enhance the professional skills of selected Pakistani Teacher Educators in the teaching of Mathematics, Science and English as a Second Language (ESL) and in becoming effective leaders and managers; and
- To promote academic and cultural exchanges between Pakistan and US teacher educational institutions to increase the capacity of those institutions and engender good will between the people of Pakistan and the United States.

The assessment notes that the first objective was based on the following assumptions:

1. If teacher educators (including those with low motivation or base skill levels) receive knowledge, skills and exposure to the US education system they would internalize positive attitudes and the relevant knowledge and skills.
2. Teacher educators who internalize positive attitudes and the relevant knowledge and skills would be willing to transfer the acquired attitudes, knowledge and skills in their own institutions and schools.

3. Teacher educators would be able to transfer the acquired attitudes, knowledge and skills in their own institutions and schools.
4. The newly acquired knowledge and skills would be relevant and acceptable to the teachers and students in the TTIs and schools.
5. If teacher educators managed to communicate the attitudes, knowledge and skills acquired in the US in their own institutions and schools, it would lead to an improvement in the attitudes, knowledge and skills of colleagues, students, and school teachers.

In relation to these assumptions, the assessment states that:

"Assumptions 1 and 2 did prove correct to a considerable extent, the remaining assumptions only proved to be partially correct. In terms of assumption 3, there is considerable evidence that a large number of PTEPDP alumni transferred skills and knowledge acquired in the US in their institutions but, due to systemic factors, it remained limited largely to their classes rather than institution-wide transference of knowledge. However, a continued follow-up even after the project ends would facilitate this knowledge sharing by alumni. In terms of assumption 4, the knowledge they acquired in the US are relevant: doing math rather than lecturing and dictation giving in classes are both relevant and learner-centered, a shift away from the traditional teaching style. Similarly, teaching ESL through direct and cooperative learning method is always relevant to learners needs as against traditional grammar-translation method but in terms of the acceptability of new methods, alumni need supportive principals and enabling environment which is why post-training support is so important."

In relation to the second objective, the assessment notes that:

"If one considers this larger objective then the program could be described as being very successful. All the alumni that we talked to (with a few exceptions) were not only very enamored about the US education system, its people, and , but they also made great efforts to communicate their feelings about the US to a large number of people, including family, friends, their community, colleagues, students, teachers, etc. From this perspective the program strategy was brilliant. It was able to produce positive feelings about the US and its people in a group which is spread all over Pakistan, enjoys considerable social status and credibility, and is strategically positioned to spread 'the message' to people in its wide circle of influence."

The specific key findings of the study are presented below.

Findings:

1. There is considerable evidence that a number of alumni, particularly those in the 'Excellent' category, and to a lesser extent those in the 'Good' category, are using activity based teaching methods with their students.

Through observations of teaching and resource rooms/materials/lesson plans, interviews with alumni and their heads or students or laboratory school teachers, we were able to identify a significant number of alumni who were likely to be conducting learner-centered and activity based teaching or training on a routine basis.

2. There is considerable evidence that a variety of systemic factors have hindered PTEPDP alumni to use their full potential in changing teaching methods in TTIs.

The following systemic problems were identified by alumni and heads of TTIs: lack of resources, technology, equipment, internet access, materials and consumables; the length of courses; the large

number of courses and classes, short class periods, and lack of time to carry out activities; the rote-based annual examination system; the weak base of students entering TTIs; low enrolment and even lower attendance in a number of TTIs; insufficient teaching practice during teacher training and the gap between theory and practice; non-cooperative or disinterested colleagues, heads and/or education officials; and a non-conducive school environment for activity-based teaching.

3. A number of alumni have developed positive attitudes toward students and colleagues and toward teaching after seeing the positive attitudes and behaviors of US teachers.

Many alumni reported increased empathy toward their students. The positive attitudes were also reflected in the dealing of alumni with colleagues, heads and other adults. Some alumni mentioned adopting positive behaviors in their everyday life. A number of alumni displayed a greater commitment to teaching and/or training.

4. There is an increase in the knowledge and skills of a large number of alumni resulting from their USA visit.

A large number of alumni reported an improvement in their knowledge and use of computers, the internet, and related technology. Many alumni also mentioned learning and using the five Dimensions of Learning, the six Es of the learning cycle, and the inquiry method and the use of questions. A number of ESL alumni mentioned improvement in their English pronunciation. Some alumni mentioned the learning that resulted from observing teaching in American schools. The new knowledge and skills were also evident in the lessons observed during the study.

5. Where alumni were highly motivated and persistent, and where the head of the institution was also supportive, alumni were generally successful in implementing improved teaching methodologies. Unfortunately this winning combination was not very common.

Very few alumni said that they were fully able to implement their action plans. Some alumni experienced an improvement in their professional and financial status after US training. Many alumni said that they were able to implement their action plans only partially, while a large number of alumni said that they were not able to implement their action plans at all. Some alumni found it difficult to apply the methods learned in the US with their own students, or were prevented by adverse policy or management changes. Some alumni who planned to conduct in-service training faced difficulties in conducting training for colleagues or teachers, while the absence of follow-up in schools made it difficult to assess impact of training. The lack of motivation of alumni and time were also constraints in some cases.

6. There has been significant improvement in the physical environment in some of the Teacher Training Institutes, primarily due to proactive alumni with positive support of management.

Of the 30 Teacher Training Institutes sampled, five had established or significantly developed their resource rooms after the return of alumni from the US. Most of the materials were made by students, while some were made by alumni or teachers.

7. A small number of alumni are using new methods of interacting with and managing students.

The assessment reports very limited evidence of teachers using new ways of managing their students.

8. Despite the constraints, there is some evidence of impact from use of new teaching methods on student performance in Teacher Training Institutes.

A number of alumni gave examples of students using new teaching methods in their teaching practice. They included a variety of activity-based teaching-learning methods. Some alumni and heads also gave examples of improvement in student performance as a result of alumni efforts.

9. A number of alumni have been able to teach new teaching methodologies to laboratory school teachers, but the situation in most lab schools remains unchanged.

There are some good examples of alumni working closely with staff in their laboratory schools, and positive impact of such interaction in classrooms, including improved teaching-learning and physical environments. This was mainly the case where the lab school was situated on or near the Teacher Training Institute.

10. The presence of more than one alumnus in an institution does result in greater impact from the US trained alumni, but other factors such as the personal motivation of the alumni and the role of the head are also significant.

Analysis of the data from Teacher Training Institutes sampled clearly showed a relationship between the number of alumni in an institution and the impact on colleagues, students and lab school teachers. Teacher Training Institutes with two or more alumni generally had a more positive impact than those with only one alumnus. However, it was also observed that Teacher Training Institutes with more than two alumni had a low impact on the learning environment when there was a lack of personal motivation or support from institutional heads, while one Teacher Training Institute with only one alumnus had a very high impact on the learning environment due to the dedication of the alumnus and the support of the head. Personal motivation and the role of the head are critical factors.

11. There has been little change in Teacher Training Institutes on the institutional level, with positive results being confined to a few institutions with a highly supportive heads and dedicated alumni.

While heads in ten Teacher Training Institutes were described by alumni as being supportive, the assessment found only six of these Teacher Training Institutes with a significant impact on an institutional level. The institutional constraints mentioned earlier seem to have prevented any significant changes in the remaining Teacher Training Institutes and their laboratory schools

X. Recommendations for Future Activities

Based on the challenges we faced, feedback from our participants and stakeholders, and the impact assessment, there are a number of recommendations we can make for future activities that have similar objectives for improving teaching at the primary school level through improved teacher training. Several which we put forward include:

Improved teacher training is an on-going need for Pakistan: PTEPDP was a three year project that trained a core group of teacher trainers and teacher educators who will continue training new teachers with the techniques learned on PTEPDP. However, given that the Pakistan education system has over 1 million primary and secondary schools, there remains a significant need to continue teacher training to strengthen quality of teaching across the country. Lack of competent teachers who have the knowledge and understanding of modern teaching methods reinforces the existing poor quality of teaching. Even where schools are relatively better off in terms of infrastructure, funding, adequate staff and other facilities, lack of good and effective teachers has led to poor quality. We recommend continued support for teacher training with a strong focus on in-service teacher training. A majority of teachers receive in-service and refresher courses every 10 years. As a result, Pakistani school children in the majority of schools, especially those in the remote rural regions, don't benefit from new teaching methods.

Follow up and post-training support are critical for programs that provide training to teacher trainers to be successful: PTEPDP had a strong follow-up and post-training support program for the continued professional development of the US trained participants. The in-country training participants, however, did not receive follow on and post-training support as their programs ended shortly before the conclusion of the PTEPDP project. We recommend that USAID consider continuation of follow on support in some form for both the US and in-country trained PTEPDP participants to further their development as a resource group for improvement of teacher training across Pakistan. The support could be through oversight and monitoring of participants' action plans.

Supplementing programs that focus on improved teacher training with technical assistance to teacher training institutes will increase their effectiveness: In addition to follow on assistance to PTEPDP alumni, AED also recommends support for the participants' institutions, particularly for those institutions where there is a concentration of PTEPDP alumni. The PTEPDP alumni can serve as a key resource group for bringing change to teacher training institutions across Pakistan. The institutions themselves, however, need additional resources (books, IT, classroom supplies, CD/DVD, and other resource materials related to teacher education and research on teacher education) to sustain change.

It is critical to provide professional development to Heads of GCETs, PITEs, RITEs, and Elementary Colleges: Our experience indicates that for overall organizational change to take place, it is not enough to only invest in teachers or teacher educators. Support from institutional heads and government officials contributes to sustainable change. Through training of teacher educators, PTEPDP enhanced the knowledge, attitude and practices of teacher educators; however, a question remains whether an enabling environment has been created in their institutions to allow these educators to practice their new skills and use their new knowledge.

Innovative teaching practices can be suppressed if there is a lack of support from the head of the organization. AED recommends a professional development program for the head of the institutes of GCETs, PITEs, RITEs and Elementary Colleges. This program could run parallel to any future teacher educator initiative. One possible approach for this program could be to hold two-to-four month US and in-country training programs for Heads of teacher training institutes, to be conducted with technical support from US universities and in collaboration with selected Pakistani universities who have had experience in conducting leadership training, keeping the Pakistani context and needs in mind. A second approach is to incorporate PTEPDP alumni and their supervisors in future education improvement activities.

The impact assessment (described in Section IX of this report) provides a good set of recommendations as well, some which repeat AED's recommendations identified above, and others which supplement or add to those. The following is excerpted from the final impact assessment report:

“If one part of a machine is working in one direction and other part in other direction, it will not work. It is not possible in 40 minutes to explore, engage, expand, etc. Even if we give skills to students, they cannot apply them. We are forced to come back to the lecture method as it is difficult to make problems for every topic. We need to re-structure the curriculum, books and examination according to one framework, whether the Dimensions of Learning or some other.” – Alamgir, RITE(M), Mardan

The above words of an alumnus provides an excellent summary of what needs to be done if one has to make an impact on TTIs and schools in this country. The study demonstrates that there are many excellent and potentially **excellent teacher trainers** in government TTIs (particularly in the younger age group), and the project has done well to recruit a number of good (mostly younger) trainers and provide them the knowledge and skills to conduct student-centered and activity-based teaching. However, these

trainers often lack the necessary support from their heads and, in case of in-service training, by the relevant education officials to utilize their potential. While the content and quality of training of teacher educators is critical, ultimately the application of training in the classroom is primarily dependent on the **will and motivation** of the trainer and, to a lesser extent, the support provided by the **institutional head**. While resources (funds, materials) are important, dedicated teacher educators (particularly younger ones) managed to introduce interactive teaching methodologies despite these constraints. Thus it is critical to induct and train motivated teachers and heads of TTIs and train them in the use of the new teaching methodologies. Such a system will also require a different system of teacher assessment, including peer observation of classes, student feedback, self-assessment and assessment by their heads. Collegiality can be promoted through peer assessment, and practise of cooperative learning and team building principles among staff.

The study also identified other restraining systemic factors, including the overly theoretical and lengthy teacher training curriculum and textbooks, and more importantly the rote-learning based **examination system**. If the teaching-learning process in TTIs is to become learner-centered and inquiry/activity-based, radical changes will have to be brought in the curriculum, textbooks, and examination system. A semester system will have to be adopted with a balanced distribution of marks through internal (e.g. attendance, doing assignments, class participation, teaching practise, development of low-cost resources, etc.) and external assessment. A cue could be taken from the Aga Khan Examination Board, which assesses students on knowledge, comprehension and application of knowledge. Introducing such systems will not only improve training quality and value, but it may also reduce the problem of low enrollments and attendance in TTIs, particularly in Sindh. (e.g. enrollments in the GECE(W) Bahawalpur increased when students learnt about the good teaching by US alumni).

Along with such changes, **training manuals** (on the lines used in the AIOU-PTOC) based on new methods will have to be introduced in the TTIs. Implementing such a system will involve longer duration of class periods and necessary **facilities** (internet, training materials, photocopying, library period, etc.). All TTI's should have access to a nearby **laboratory school** since, as the study demonstrates, there is a greater positive impact of teacher educators on their lab schools where the schools are located on and near the college campus.

A common complaint is the **weak base** of teacher trainees. While this is a major challenge alumni have learnt in their US training how to enhance content knowledge and teaching methodology of trainees simultaneously. For this it is important that trainees/students learn the same content that they have to teach children in schools through the same methodology which they then use with children as, for example, used in some Pakistani non-formal schools (Jaffer and Salam, 2001; Jaffer et al, 2004). However, trainers must also help students to focus on specific pedagogical skills inherent in each lesson that they attend.

A related problem is the **large number** of students in classes, making it difficult for the teacher to use new teaching methods. Alumni (and other trainers) can benefit from the methods being used to teach large classes, such as those taught to instructors of RITEs through the NWFP Basic Education Improvement Program (Jaffer and Yasin, 2005).

Alumni greatly appreciated the valuable learning that they obtained through **observing children** and teachers in US schools. This is a practise which could be replicated in Pakistan at a very low cost. Since there are a large number of (mostly private) good quality schools spread all over the country, teacher educators and their trainees can visit these schools and observe the teaching-learning process. The learning from this experience can be used in training students as well as in teaching practise.

A large number of alumni rightly feel that their skills have **not been utilized** after their return from the US. A number of projects have commissioned NGOs at great cost to conduct training rather than using the alumni. It is important that various projects which work with the government and apex TTIs make use of the better alumni (as is being done in Balochistan), and teachers hired on contract are required to obtain training before starting teaching, so that enrollment in TTIs increases. The government will also have to develop a policy regarding the mushrooming commercial teacher training institutes, many of whom help students to obtain degrees without acquiring any knowledge or skills.

Our experience shows that training as a one off event is not useful. Programs need to invest more in teachers' professional development through post-training and follow on. USAID must continue working with PTEPDP alumni (both US trained and in-country) for about two years to fully groom them into a national pool of master teacher trainers through some mechanism, not necessarily through AED.

The alumni can also take a number of steps on their own to utilize their skills. For example, where more than one alumni are present in a TTI, they can develop a joint plan to improve their **laboratory school** (or a nearby teaching practise school in the absence of a lab school) together with the school teachers and management (as is being done by GECE(M) Sukkur alumni). The plan should be based on assessment of training needs (e.g. assess students, and train teachers in areas where most children are weak), and implemented on an on-going basis. Alumni can then see the impact of their training on the teachers and children, and use the learning to improve training in their own TTIs. Such a plan could also be implemented by one alumnus by involving his/her colleagues. If a government school is not available, the same could be done in a private school. If the alumni do a good job they could even create a demand for their services, particularly in the private sector.

Until the TTIs acquire internet facilities, alumni can use external **internet** facilities to maintain linkages with colleagues, US faculty, acquire teaching-learning materials, and enhance their teaching/training skills. Some colleagues are doing this quite effectively. TTIs may also be able to acquire cheap laptops (e.g. through the scheme to provide schools with \$100 laptops).

If a program is designed in the future to improve the quality of education in the country it will have to be based on a **thorough analysis** of what has worked or not worked in the Pakistani context. For example, the GTZ successfully implemented a project to improve the learning environment in NWFP schools by adopting an integrated approach of changing the curriculum, re-writing the textbooks, developing a highly skilled team of master trainers, conducting on-going training in schools easily accessible to teachers, and having a team of Learning Coordinators to provide follow-up support. The research showed high impact on pupil learning in schools (Shah, 2002).

If a project does decide to send people abroad for training, it should first run **in-country training** programs and from them choose teacher educators who are most likely to benefit from foreign training. Projects should work with institutions rather than a few staff in order to be able to produce sustained change and address the systemic problems faced by these institutions. This should be supplemented with changes in the policy environment necessary to produce impact at the school and TTI level.

It would also be useful to conduct **research** to prove that using student-centered and activity -based teaching in TTIs saves rather than increases time and produces far better teachers. This could help to overcome the attitudinal barriers towards student-centered and activity -based teaching approaches.