

**STATUS AND CONTINUATION OF  
CURRICULUM AND INSTRUCTIONAL MATERIALS REFORM  
PED FINAL REPORT**

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According to the Program Summary for the Primary Education Development Program for Pakistan (1989), the provincial plan to improve primary education had two main objectives. One of these was to improve the quality and efficiency of education. To address this objective the following was required:

To ensure that the major elements of the instructional program (curriculum, instructional materials, teachers training, supervision, and administration) were analyzed and re-designed so that each contributes directly to achieving the learning outcomes intended by educators.

To show that when test results indicate that outcomes are not achieved at a satisfactory level, the elements are reanalyzed to determine where the problems lay. The elements containing the problems were then to be modified to correct the problems, and the modifications tested until there was objective evidence that they worked as intended.

To achieve the above objectives, the following activities were proposed:

1. Training new teachers and the backlog of untrained teachers through an improved PTC program.
2. Providing training courses to teachers, supervisors, learning coordinators, and headteachers in teaching methods proven to be effective in pupil learning in Pakistan primary schools.
3. Improving teachers' content knowledge and their skills in the languages of instructions.
4. Training trainers (Bureau of Curriculum) in effective teaching methods.
5. Improving textbook quality and durability.
6. Providing teachers with annotated editions of pupils textbooks that provided easy to follow, explicit teaching directions for each lesson.
7. Providing each classroom with an adequate supply of teacher support materials, such as alphabet cards, number cards and number lines, illustrations of science processes, and similar items.
8. Providing supplementary reading, math, and science learning materials for pupils.

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9. Developing an achievement testing plan.

10. Providing extensive training opportunities for educators to improve primary education through study tours, short and long term training abroad, and in-country short term training courses, seminars, and workshops.

11. Providing both long- and short-term technical assistance to improve teacher training programs, curriculum and instructional materials (including textbooks, annotated editions for teachers, teacher support materials, and supplementary learning materials for children).

To address the above objectives a long-term technical advisor was hired for each province. NWFP achieved continuity within the tenure of the program by retaining the same technical advisor. However, due to the change of TA within Balochistan halfway into the program, continuity was difficult to achieve until the last two years.

Since the nature of the provinces and the duration of the TAs were unique to each province, this report will describe a case study of change within each province and will focus on activities unique to each. A listing of federal and provincial achievements will illustrate how similar results were attained utilizing two different methods of startup and follow-through.

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## **CASE STUDY OF NWFP INSTRUCTIONAL MATERIALS DEVELOPMENT, IMPLEMENTATION AND SUPPORT UNDER PED**

### **BACKGROUND**

The PED Program put the implementation of an effective instructional system at the core of quality reform. Central to this system was the development of improved instructional materials for classroom use. This development was expected to be a step by step process that included:

- identification of the conditions of teaching/learning in NWFP classrooms where materials would be placed
- development of teaching/learning materials that met the conditions of NWFP, fit Pakistan's curriculum objectives, and were educationally sound
- field-testing materials in experimental schools to ensure they met the objectives set for them, and modifying them until they did

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-creation of integrated training, supervision and assessment systems to support the use of materials in the schools

## **GATHERING BASIC INFORMATION**

In 1991 in NWFP, the first "solution-oriented" studies were conducted to prepare for development of an improved primary program. From initial visits to schools it was clear that two major conditions contributed to the poor quality of instruction. The first was the existence of a large class of kindergarten children who were neither officially recognized with resources nor provided materials specifically directed at their age level. The second condition was the predominance of multi-grade schools in NWFP that made it difficult for teachers to teach with materials and methods designed primarily for single class situations. It had also been clearly documented in BRIDGES studies of 1989 that supervisors were not providing the necessary support for teachers, nor adequately monitoring teaching/learning in the classrooms. If an improved instructional system were to be implemented in NWFP it would require a district supervisory staff trained to support teachers and feedback information to improve new programs and materials. This supervisory staff would also be key in providing grassroots information that ultimately could be used in the districts for planning better use of supervisory time, teacher inservice training, and the allocation of teachers and classroom resources. Thus in addition to gathering information about conditions in schools for program developers, it seemed appropriate to use the classroom studies to train district staff in skills they would need to implement an effective instructional system.

The Kachi and multi-class studies were conducted in September 1991 using male and female Assistant Sub-divisional Officers (ASDEOs) from every district of NWFP. The ASDEOs were trained to fill out classroom proforma based on ones previously used for BRIDGES studies. It was the first time most of the ASDEOs had spent time in classrooms observing rather than "inspecting" the education program. The data were collected in the space of a week in approximately 64 schools (in each study) selected randomly within 10 kilometers from the Sub-divisional Officer's (SDEO) office.

There were a number of study findings relating to instructional materials development (described in more detail in the reports of the studies). Among the findings were that no instructional materials were specifically designed for the Kachi children and it was customary for instruction to consist of the memorization and recitation of alphabets and numbers. Other resources were also not officially provided to these classes though the students constituted roughly a quarter of the primary enrollment and consumed about a quarter of the teachers' efforts. The Kachi class was usually the largest class in a school with enrollments of commonly 50 to 100 students. The classes rarely had any instructional aids other than a blackboard. Efforts to improve instruction in this class and the other early primary classes would affect learning for the bulk of the children enrolled in primary schools.

The multi-grade study suggested further constraints to the teaching environment. Teacher-dependent materials made it difficult to assign independent work to students, causing teachers to fall back on memorization as an easy way to deal with the problem. The teachers were also not knowledgeable in the subject content matter as evidenced in their low graduation (division) scores and the numerous

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mistakes observed in classes. Multi-classes showed large variations in the numbers and ages of students and, like the Kachi classes, were deficient in instructional aids, materials and classroom facilities. Supervision was infrequent and not usually related to instructional support. It was concluded that the education program could be improved in both types of classes with instructional materials that addressed the most important needs of these classrooms, specifically, improving student skills, and making the materials both user-friendly and less teacher-dependent.

### **ESTABLISHMENT OF AN INSTRUCTIONAL MATERIALS CELL**

In October 1991, an Instructional Materials Development Cell (IMDC) was established in the Directorate of Primary Education in Peshawar. The staff was recruited from promising young primary school teachers with high (BA, BSc, or higher) academic qualifications and at least 5 years teaching experience at the primary level. Out of 50 candidates who appeared at a preliminary workshop to test their suitability, 13 became subject specialists and researchers for the Cell. Primary school teachers were chosen because they were familiar with conditions in the classrooms, and with students and teachers in the field. The aim of the Cell was to develop instructional materials and the associated teachers' guides for the main academic subjects--math, science, Urdu and Pashto in Kachi through Class Five.

### **PREPARING INSTRUCTIONAL MATERIALS**

In 1991 the staff began writing the Kachi materials. Under the supervision of a curriculum specialist provided by PED, they were trained to write the materials following Pakistani curriculum objectives which, in the case of the Kachi materials, were beginning first grade objectives, and to write them according to general education criteria related to scope, sequence, conceptual complexity and the developmental level of children. Evaluation sections were distributed throughout the books to assist the teachers in knowing how well the children were absorbing the intended skills. Attractive illustrations were prepared for the materials showing local details and containing a balance between pictures of male and female figures. A decision was taken to produce the books in black and white, except for lesson units on color, in order to keep the cost of the books low while still adding considerably more pages than previous books. When the Kachi textbooks in Urdu, Pashto, and math/science were completed they were checked for accuracy by experts in the subject matter. The Kachi books were then produced in experimental editions, with languages books divided into two volumes for the full school year and the math/science book in one volume.

Accompanying the textbook and also written by the IMDC staff was a teachers' guide with simple but complete instructions on exactly how to teach each lesson. The lesson format used in the guides was based on a six step process, found in a 1989/90 BRIDGES study in Pakistan to be associated with higher student achievement: review, focusing on a topic, clear presentation with examples, guided practice, independent practice and homework (except at the kindergarten level). Teachers were trained in this format and knew they could expect it with every lesson. Providing these detailed teaching instructions was intended to help teachers move away from an instruction based primarily on memorization.

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## INTRODUCING THE MATERIALS AND BUILDING SUPPORT SYSTEMS

When the Kachi textbooks and guides were ready for experimental trial, field-testing began. In the first trial of 248 schools in 3 districts, the IMDC staff spent about a week in each district training the teachers and supervisors (male and female ASDEOs and LCs) in how to use the student textbooks and teachers' guides. The training consisted of helping them understand the "effective teaching practices" method used in each lesson of the teachers' guide, explaining the main concepts that were included in the students' books, and giving them practice in enough lessons to feel comfortable with the method format. In their initial use of the new materials, each teacher was assigned a single Kachi subject, math/science, Urdu or Pashto.

**Efficient teacher training.** With over 20,000 teachers in NWFP, one concern of the developers was to find ways to introduce new materials in as cost-effective way as possible. The task was especially difficult because the methods for teaching subject content were very different from previous methods of instruction. The single format lesson with detailed instructions for teachers was one means by which training was simplified. With this format a minimal teacher training could be reduced to learning the single format. Another problem was the small size of the IMDC staff who could not train all the teachers in all the districts. An experiment was therefore conducted in the first cycle of the evaluation to determine whether district staff might be trained to introduce new materials as effectively as the IMDC developers. In a paired school design, some teachers and their supervisors were trained for three days by IMDC staff in the use of the new materials. The supervisors in turn trained a new teacher in a school near that of the already trained teacher. Later the achievement scores of the students of both kinds of teacher were compared to see if the difference in training program made a difference in student learning. It did not, and thereafter the IMDC felt justified in relying more heavily on the supervisors when new materials were introduced in later cycles and in more districts.

**Supervisor role.** In the training, supervisors and teachers were organized in a chain of accountability for student learning. The teacher taught the students, the LC supervised and supported the teacher, the ASDEO was responsible for training the teacher and supervising the work of the LCs and the sub-divisional officer (SDEO) assumed overall responsibility for the sub-district or tehsil. Supervisors were assigned a schedule for visiting the experimental schools on a weekly basis to fill in observation proforma about the use of the new materials. The visits provided a structured opportunity for supportive interaction between supervisors and teachers--an important training objective, while the proforma provided field information about the materials, as well as evidence that supervisors' visits took place. Supervisors who proved to be effective, as evidenced in student results and the support they gave to teachers, were designated master trainers to introduce materials in new tehsils or districts, and to train their own teachers in new materials. After one or two field-testing cycles in their districts under the supervision of IMDC staff, these master trainers were called to Peshawar for training in the next cycles of new materials and asked to train other supervisors and teachers in their districts. Pakki (first grade) and English materials were introduced through the master trainers in this way. IMDC continued to test a sample of classes in each district to see if the materials were being introduced and supported properly.

**Standards for the materials.** The IMDC staff set general objectives and standards for the materials. The three main objectives were: 1) to adequately teach the skills required by the curriculum 2), to interest the children, and 3) to be used easily by teachers. The standards set for the materials included, for skills--that more than half of the classes in each district would get 75% or more average scores and each schooling context, urban, rural, girls, boys, large classes, small classes, multi-classes and single-classes would produce essentially the same results so that no environment would be disadvantaged by using the new materials. The objectives of student interest and the ease of teacher use also met standards determined by observing student engagement during the use of the materials and by interviewing teachers. The materials consistently met very high standards for student interest and teacher suitability which suggests either that the materials were very well received or that the indicators were not discriminating enough. With a few exceptions, that were mostly corrected with teacher retraining, the materials also met the high achievement standards for student skill levels.

**Testing and feedback.** Six weeks after the training and at periodic intervals thereafter, the IMDC staff returned to test the students in experimental schools. The tests constructed by IMDC staff consisted of items similar to those in evaluation sections of the new materials. If the teacher followed the teacher guide and taught the lessons as indicated, the children could accomplish the test easily. It became immediately clear during the testing whether the children had been taught the new materials or not. If all the students of a class appeared to have difficulty on the test (and other classes had high scores), then the teacher would go again for retraining by the master trainers. If many children had difficulty with certain test items, these parts of the books and teachers' guides were reviewed and improved by IMDC staff. In initial stages of the evaluation information from achievement tests, student engagement proforma, interview forms and supervisor observation forms were entered into computers, analyzed and fed back to the IMDC developers who modified not only the materials but also their training programs. The results were also produced as tables containing supervisors' names, schools' names, teachers' names and students' results in the form of a class average. The class average constituted a performance score for supervisors and teachers that was fed back to them and discussed.

When the materials reached final draft form after field testing they were reviewed by a committee from the Curriculum Wing in Islamabad, who approved them with minor changes for full dissemination to all of NWFP. The IMDC staff revised the materials in line with the Committee's recommendations and they are now waiting publication by the Textbook Board.

## **FIELD TESTING PHASES**

The field testing process described above was repeated with twice yearly introductions of materials in new and old districts. There were three phases initially for each set of materials: experimental, pilot and extension. (At present there are only two, the "intensive" phase where new introductions of materials are made and the "extensive" phase where materials are extended to the rest of the districts).

**Experimental phase.** In the first "experimental" phase beginning in April 1992, Kachi textbooks and teachers' guides were introduced in the three districts, Bannu, Swat and Chitral, that expressed strong

interest in trying the materials. Chitral served as a special case because the closure of roads from September to June prevents easy contact with Peshawar during the winter months. It was decided to see if supervisors and district officers, after one IMDC training session in the summer, could introduce the materials on their own, without the continuous monitoring by the IMDC staff (the following summer the IMDC staff again visited Chitral for testing). Altogether the materials were tested in 248 classes, including subsets of urban and rural, male and female, multi-class and single class schools: Math/science (127 classes), Urdu (82) and Pashto (39). With the exception of a few classes the materials produced student achievement results above the standard during this phase. These experimental classes continued to receive materials in sequence (with Volume 2 of Urdu and Pashto to complete the Kachi books, followed by Pakki materials). Teachers began with one subject and then were cross-trained in another subject in subsequent introductions of materials. Classes which started with Pashto in Kachi class were also eventually given the Urdu Kachi materials during their Pakki year, at which time, transference from Pashto hastened the process of learning Urdu.

**Pilot phase.** In the second "pilot" phase starting in September 1992 the same Kachi materials were introduced in four new districts--Mardan, Kohat, Dir and Mansehra. The total new classes were 239: math/science (118), Urdu (53) and Pashto (68). Again in April 1993, materials were introduced in an additional four pilot districts--Peshawar, DIKhan, Nowshera, Abbottabad, and Karak in 187 new classes. As in the experimental phases, once the materials were introduced, they were provided to the districts in sequence and teachers were cross-trained in new subject matters, including also Urdu if the teacher started first in Pashto. The IMDC came regularly to train teachers and supervisors, to test students and, increasingly over time, to train supervisors to take over more of the testing.

**Extension phase.** In the third or "extension" phase, Kachi materials were introduced to offshoot districts by the master trainers from their parent districts with minimal involvement of the IMDC. Thus in November 1992, materials were introduced into 20 math and 20 Urdu classrooms of Lakki district by Bannu staff and into 16 math/science and 18 Pashto classrooms of Buner by Swat supervisors. The extension phase continued in the next cycle with cross-training in new subjects and introductions of the materials for the first time in new districts: Swabi by Mardan supervisors, and Tank by Bannu supervisors.

This extension phase completed the introduction of materials to all the districts except Charsadda, which is under the Pak-German project, and Malakand which was the UNICEF experimental district. Eventually Malakand asked for the math materials and were trained by the IMDC in this subject only. Each district is currently involved in an on-going process of using the new materials, feeding back information and being held accountable for student learning. Because the IMDC worked with SDEOs in most tehsils within the districts,<sup>1</sup> this has meant that as tehsils have been upgraded to districts, as was the case when Battigram split off from Mansehra, the IMDC materials and training have already reached the new districts.

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<sup>1</sup> An exception was the district of Dir where due to a lack of supervisors, IMDC was unable to set up the support system needed for the materials in any but the district capital.

**Future field testing.** Field testing has now taken place in more than 750 schools in NWFP (576 boys' and 182 girls' schools). The large number of schools was a consequence of efforts to build the skills of a broad range of district staff to support the new materials. The large numbers however put enormous pressure on the IMDC, and in February 1994 a plan was devised to bring the testing better in line with the future scope and capacities of the IMDC. In the next rounds of materials' introductions, the 750 schools will be divided into two groups, a small sample of 8 schools in each of 8 districts, to be intensively followed by IMDC staff, and the rest given new materials and training but with monitoring turned over completely to supervisors in the local districts. Student achievement data will be brought by the supervisors to EMIS-trained district computer operators to enter and prepare tables of class scores (teacher performance scores) for the supervisors. A workshop will be held in the Center in late June 1994 for the SDEOs and the ASDEOs to help them analyze their scores and plan teacher retraining, supervisory visits, and perhaps the reassignments of teachers. At that time they will receive training in a new testing/monitoring handbook that has been prepared by the IMDC/CBB staff.

By dividing the sample, the plan recognizes two rationales for field use of the materials--to improve the materials and their associated training, and to build strong support for the materials by holding teachers and supervisors accountable for student learning. The smaller sample will provide information for the IMDC to improve materials, while the larger sample will start a process of continuous monitoring to make the primary education system as a whole perform better.

## **PRESENT STATUS OF CLASSROOM MATERIALS**

By April 1994 the IMDC had completed and tested Kachi and Pakki materials and had completed the development of Class Two materials. Before the end of the PED TA the Class Two materials will be in the field and Class Three materials will be prepared for testing. By going into the field themselves the developers have been able to see at first hand how their materials were being used and where they needed to be modified. Initial testing validated the approach used in the materials and made it possible to concentrate on refinements in later cycles.

The IMDC materials are presently sparking a great deal of interest in the Federal Curriculum Wing in Islamabad where there have been suggestions that the IMDC materials be used in Federal schools. Similarly Islamabad is looking into revising the PTC curriculum to, among other changes, add practical training of the kind that will support teachers use of innovative materials like those developed by the IMDC.

## **EXPANDING AND SPECIALIZING THE FUNCTIONS OF THE IMDC**

In the lengthy process of developing and field testing the new instructional materials, the IMDC soon began to outgrow the capacity of the 12 (one dropped out) member staff to carry on all the activities. Up until this time IMDC staff had served as developers, trainers, researchers, and testers. For short periods during school holidays, the staff was augmented by teachers and supervisors who, because of



outstanding performance in their districts, had been invited to visit Peshawar and assist the IMDC staff in writing training units for teachers. These temporary staff members proved useful but a more sustained effort needed to be made to establish a teacher support unit within the IMDC.

To cope with the demands for teacher support programs and to develop a new English program (see below), the IMDC invited the Curriculum Bureau to open a branch office (CBB) on its premises in June of 1993. Four positions were approved for the CBB. With these new positions, it was possible for the staff to develop specialized skills that until then had been covered by many staff members. Of the new CBB staff, one now specializes in English program development, one in materials-specific teacher training, one in testing and one in evaluation. At the same time two members of the IMDC staff were trained to become the core of an evaluation unit charged with supervising, coding, entering and analyzing data brought from the field.

## **INCREASING TEACHER COMPETENCY**

It had become apparent during the field testing that the new materials might produce even better results if teachers received training in classroom methods, management techniques and subject concepts needed to teach at the primary level. Therefore the superior teachers and supervisors invited to spend their school holidays in the IMDC were given a set of the management problems that had been observed in the classrooms and were asked along with one CBB staff member to build inservice and preservice training units to help teachers solve these problems. The problems included such issues as how to seat large numbers of children to improve the conditions of instruction, how to use simple audio-visual materials, how to teach young children beginning math and languages, how to teach effectively in multi-class situations, etc. The teachers and supervisors also assisted the regular staff in developing teacher support materials that included alphabet and number friezes and plastic blocks<sup>2</sup> for younger children, topographical maps, a school library consisting of 150 reading passages organized into 3 learning levels, and supplementary math materials for classes 1 through 5. These materials all have accompanying instructions to help a teacher use them in normal classroom instruction.

About this time, also, the results of a study of teacher subject content knowledge conducted as part of PED revealed glaring deficiencies in teacher understanding of primary subjects. To correct this deficiency, the CBB staff, assisted by the visiting ASDEOs, prepared teacher training units in beginning math/science and beginning reading based on the IMDC Kachi materials, separate units on math concepts found in the rest of the primary curriculum, and units on Urdu and Pashto language development including reading, writing, speaking and comprehension. As the interactive radio program (IRI) described below developed, a unit on English as a second language was also prepared.

**General subject content and methods training.** These subject content units were introduced into the GCETS in November 1993. In the beginning of the school year, the entering PTC students in the

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<sup>2</sup> The plastic blocks were developed independently by one of these superior teachers, and IMDC helped in producing them on a large scale.

18 working GCETs were given a pre-test in the basic primary subjects--math, science, Urdu and Pashto. At the end of the test their instructors were trained in IMDC/CBB subject content units and primary instructional materials and were asked to incorporate them in their teaching during the PTC course. The new math and language units were based on the revised curriculum objectives in language developed, with PED assistance, in the Curriculum Wing of the Ministry of Education in Islamabad.

The PTC pretest scores reinforced the results from earlier tests of teachers' and students' content knowledge that math and science were especially weak. In follow-up visits to the GCETs in February 1994 to motivate instructors to use the subject materials, CBB personnel presented the pre-test scores to instructors and principals, discussed with them how they were using the units and administered a short quiz to the students in math and science to demonstrate some of the weak areas. A third visit in the spring of 1994 which was timed to precede the student practice teaching period provided training for the GCET instructors in the new classroom management units and IMDC supplementary reading and math materials, blocks and friezes for primary classes that were designed to keep children busy while teachers work with other groups or classes. The training was attended by ASDEOs and LCs from the local area who would eventually be training teachers in these new support materials.

In June of 1994 the CBB staff again visited the GCETs to administer a posttest to the same students to see if their content knowledge scores had improved by the end of the year of PTC training. The results will be communicated to the GCETs instructors in a workshop in fall 1994 to prepare them to take over the pre and post testing of students.

## **ENGLISH (IRI) PROGRAM**

In the fall of 1992, the Minister of Education asked PED to develop an English language program for the primary level. Soon thereafter in November, a small field study was conducted in 11 classes of 5 schools of the Peshawar area using an Interactive Radio Program designed for Kenya and rerecorded using Pakistani voices (a decision made by the Pakistanis). The purpose of the study was to test the suitability of using an Interactive Radio Instruction Program in NWFP. The study indicated that changes needed to be made before the IRI program could be successfully adapted for use in Pakistan. Most significant in terms of developing the program were three points, that music would have to be removed, that the program could not assume English competency in primary school teachers, and that the radio lessons were more effective when used with older primary children.

As a result of this trial, it was decided to produce three levels of English, for Classes Three, Four, and Five. Each level would include radio lessons, student workbooks and teachers' guides. A complete level would consist of 120 lessons, one 20 minute lesson per day with 10 minutes of workbook time for reading and writing practice after the radio lesson. The lessons were to be broadcast by Radio Pakistan on days when schools with varying holiday schedules were all open simultaneously. The teachers' guide would translate the new vocabulary and word structures for each lesson into Urdu and prepare the teacher for any actions she or he might need to take before or during the lesson. In addition an alphabet and numbers workbook for Class 2 was developed to prepare children for reading and writing before they were formally introduced to the three levels of the radio program.

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The IRI work in the IMDC was supervised by the Curriculum Bureau Branch staff: one prepared the scripts based on a revised set of curriculum objectives while another prepared the teachers' guides and supervised the development of workbooks by IMDC staff. The lessons were prerecorded in the studios of Radio Pakistan with the help of two producers especially assigned to the job. The staff of the broadcasting station were trained under the supervision of an expert provided by PED. The lessons were recorded on cassettes, sets of which were provided to schools in areas where reception was bad.

When the 30 lessons were ready in draft, they were tried again in a small group of schools in the Peshawar area, and again revised over the summer holidays. Among the revisions recommended during this trial were even greater simplification of teachers' instructions in the radio lesson, an easier to understand teachers' guide, and an improved workbook. A set of 10 15 minute IRI training programs for teachers covering the first 30 student lessons were also developed and recorded.

When Level One was finally finished, the program was introduced to a larger sample of 300 schools in all the districts and many of the sub-districts of NWFP. Each school received a radio, two sets of batteries, the teachers' guide, student workbooks, and sometimes cassettes of the lessons when radio reception was poor. Master trainers were given training in Peshawar and asked to train supervisors and experimental teachers in their districts. IMDC staff administered achievement tests twice yearly in the same way that IMDC materials were tested. To simplify this procedure IRI was introduced in a subset of IMDC experimental schools.

Radio Pakistan began broadcasting the daily lessons in mid-September 1993. Student lessons were timed to coincide with the end of the school break so the teacher's program could be broadcast before the lesson and during the break. Thus, the teacher program was broadcast at 10:45 for 15 minutes; there was 5 minutes of news and the IRI lesson began at 11:05 and continued until 11:25 after which there was a 10 minute workbook practice organized by the teacher.

The program was well received in the schools as well as among education officials both at the provincial and federal levels. The results of the first testing have also been high in most schools. The Federal Curriculum Wing is now talking about writing new English curriculum based on the IRI lessons and possibly extending the program to all of Pakistan. If Pakistan Broadcasting Corporation in Islamabad broadcasts the programs to the whole country, this will help resolve the problem of poor reception in some areas of NWFP because of the stronger capacities of the federal radio facilities.

By the time the PED Program is finished, three levels of English will be completed. In September 1994 Levels One and Two will be broadcast, the first level to all schools in NWFP and the second level for use by the 300 experimental schools who have completed Level One.

## **TESTING CELL**

The IMDC/CBB has helped the National Education Assessment Program (NEAP) develop test items for Urdu and Pashtu in Classes Three and Five, and has provided a location and logistic support in the

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form of testers, coders, and data entry persons for the annual achievement testing.

## **WORKSHOPS**

Many of the IMDC's activities have started with a workshop to develop the skills of those who were to be participating in the activity. The Center expects each workshop to contribute to the objective of implementing a more effective instructional program and most have some follow-up activity to ensure the impact. Among the workshops in which the PED consultants and IMDC staff have participated are the following:

**Curriculum writers.** Volunteers were recruited from BA and BSc primary school teachers with five years teaching experience. They came together to analyze the national curriculum and derive instructional objectives for Classes Kachi through Three of the primary level. From these volunteers, the ones with the best potential were recruited to form the IMDC staff.

**Curriculum objectives.** With the IMDC of Balochistan, and at the request of the Curriculum Wing Islamabad, the NWFP IMDC has developed improved instructional objectives derived from existing national objectives for subjects in Kachi, Pakki, Class Two through Class Five. This is the first time instructional objectives have existed for the Kachi class.

**Annotated teachers' guides.** A workshop was given for the Textbook Board in how to develop teachers' editions of student textbooks. Attending were also other donors, specifically the Pak-Germans, who assisted in training the participants.

**Formative evaluation.** A workshop in the formative evaluation of Textbook Board materials was given to TB, IMDC and UNICEF PCRCP staff from the Curriculum Bureau.

**Testing.** A workshop was given in the Curriculum Wing to launch the NEAP testing program. A second workshop was held in NWFP to train the Provincial Curriculum Bureau and share materials.

**Supplementary materials development.** In cooperation with the Textbook Board, writers prepared supplementary reading materials for primary classes.

## **SUMMARY**

In less than 3 years, an IMDC with the associated CBB has been established and the staff trained in the skills required to put in place a quality primary program for NWFP. To summarize, the major accomplishments of the IMDC and the CBB include:

- o instructional materials for Kachi, Pakki, Second and Third classes including student texts, teachers' guides, and instructional aids,

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- o supplementary teacher support materials in reading and math, for classroom use
- o preservice and inservice teacher training units in practical classroom management and subject content skills,
- o materials-specific training of teachers and supervisors in 21 districts and 750 schools,
- o assessment and monitoring systems to ensure continuous improvement of materials and the accountability of responsible staff
- o development of a 3 year interactive radio program

The IMDC and CBB functions have been integrated to focus all efforts on improving student learning. It will be important to continue this supportive link between the components of materials' development, assessment, supervision and training. IMDC's policy has been that innovations are tentative until they have been tested under real conditions in limited experiments, or until new programs appear that fit the requirements of the education system better. The IMDC is now equipped to handle most of the R, D and E functions that are implied by this approach. However, the IMDC is still a fragile institution, requiring dedicated leadership, certain policy changes, more staff, and guaranteed access to resources before its position and functions will be secure within the Directorate of Primary Education.

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## **BALUCHISTAN INSTRUCTIONAL MATERIALS DEVELOPMENT AND TRAINING CELL**

### **A CASE STUDY**

Under the funding of PED, work on instructional materials development began in Baluchistan on a very modest scale. It began with assumptions being made by project personnel and some provincial government officials that were later revised. These assumptions being:

1. Textbooks could only be written by the existing cadre of authors and could only be produced under the existing structure of the Baluchistan Textbook Board. Any efforts to reform the textbooks would need to be initiated by the federal government.
2. Only materials that were in addition to the existing textbooks could be developed for use in the schools.
3. Curriculum for Kindergarten (Kachi) level education did not and would not exist. Therefore, any textbooks produced for Kachi would not be recognized as part of the educational system

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and could not be paid for out of recurrent funds.

As a result of these assumptions, early efforts designed to meet program goals in instructional materials development were limited to a few research studies and the development of classroom support materials. The first support materials produced for trial in the primary schools were jointly funded by UNICEF and USAID. These were in the form of flash card sets for the teaching of auditory and object recognition skills to Kachi level children. Sets included picture and alphabet cards, student workbooks, teachers guides and bingo games. The sets were produced in limited numbers and were introduced on a pilot basis throughout Balochistan.

Research studies on school and teacher characteristics and causes of dropout at Kachi resulted in the identification of various characteristics and situations that were unique to the primary schools throughout Balochistan. These were:

1. Majority of schools are single teacher, multi-grade.
2. Active involvement of pupils in learning is often very restricted.
3. There is a considerable age-spread in students who are attending the schools.
4. The largest percentage of students in primary schools are Kachi level.
5. Large numbers of teachers are untrained.
6. Textbooks are the only medium used to support teacher lectures in the classroom.
7. The effective textbook life in the classroom is very short, approximately three-four months.

In early 1992, Balochistan government officials were brought together to discuss the needs and constraints for future instructional materials development for Balochistan based on the earlier identified situations. These meetings were attended by the Chairman Balochistan Textbook Board, Director Bureau of Curriculum & Development, Additional Director Primary Education and select Deputy Directors and Assistant Directors. The meetings were chaired and facilitated by the Technical Advisor for Curriculum and Instructional Materials Development, PED. During these meetings, past projects and efforts that focused on the development of supplementary materials were reviewed. These included a review of the Learning Modules prepared by the World Bank PEP-II project and the primary level teaching kits. These discussions always ended with the realization that supplementary materials provided to the primary schools in Balochistan were not being used. In fact, most teachers felt no obligation whatsoever to use these materials in their teaching preparation or in their daily teaching activities. Even in those schools where teachers had been fully trained in the use of the modules or kits, they were not being utilized.

The conclusion after many meetings was that if Balochistan wanted and needed to see change in

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teacher and student behavior, they would have to change the textbooks. They also needed to continue efforts in the development of Kachi level materials and continue lobbying for the recognition of Kachi as an official primary level class. The obstacle to this resolve was that no existing government organization had components that focused solely on primary education instructional material issues. Both the Bureau of Curriculum and the Balochistan Textbook Board are responsible for training and book development from Class I through teacher training, with proportionally little time being devoted to primary level issues. Staffing and funding in those organizations was simply not available to focus on the instructional material needs of primary education.

## **ESTABLISHMENT OF BIMDTC**

It was proposed and accepted that a separate organization attached to the Directorate of Primary Education should be established with the sole responsibility of developing and producing primary level instructional materials, thereby serving as a service organization to both the Bureau of Curriculum and the Balochistan Textbook Board. The Balochistan Instructional Materials Development and Training Cell (BIMDTC) was established to meet those needs.

BIMDTC officially began its operations in August 1992 with four people who served as the "core" staff for the Cell. The guiding rule behind any operations to be undertaken by the Cell was that everything that was developed must be tested in the classroom by both teachers and students, revised accordingly, tested again, revised again, and then produced in final form for distribution to schools. This would form the basis for the instructional development design system that is operational today.

In addition, BIMDTC would serve as the mechanism through which studies to support decision making with regard to instructional materials for primary education would be made. The operations of BIMDTC were to start with limited focus so as to determine the capabilities and directions of its future activities.

## **MOTHER TONGUE LANGUAGE POLICY**

In 1989 the Government of Balochistan exercised their provincial right to dictate the language of instruction used in its primary schools throughout Balochistan by implementing a draft bill "to prescribe measures for the use of mother tongue as medium of instruction." Until 1990, all textbooks for primary school education in Balochistan were produced in the Urdu language. In order to implement the policy with regard to the proposed Balochistan Mother Tongue Use Act it was necessary to have textbooks published in each of the designated mother tongue languages (Pashto, Balochi, Brahvi), in addition to Urdu. It was decided that the texts for primary education would be available to the schools according to the following schedule: 1990 - Kachi Class, 1991 - Class I, 1992 - Class II, 1993 - Class III, 1994 - Class IV, and 1995 - Class V.

A number of serious problems were inherent in this policy and the Minister of Education was repeatedly asked to review and ultimately rescind the policy. A meeting of all District Education Officers was called to discuss this issue in preparation of a report for the Secretary of Education,

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Balochistan to present to the Minister of Education. That meeting was facilitated by BIMDTC staff and Technical Advisor.

The meeting of the DEOs and subsequent surveys in select villages revealed that, in fact, the majority of the teachers in Balochistan could not read and write in a language other than Urdu and parents preferred that their children be taught in Urdu so as to make them more competitive in the workplace and for further education. The reality was that books were being supplied by the government to the schools in Pashto, Brahvi, and Balochi and the parents and teachers were going into the market and purchasing books in Urdu.

The message sent forward to the Minister of Education was that teaching children in their mother tongue language was, in some cases, a desirable approach to teaching/learning. However, this is only true when the teachers are able to read and write in that language and when parents view the situation as valuable to the life-long success of their child.

On 8 November 1992, the Secretary of Education, Balochistan issued a statement that by unanimous decision of the Provincial Cabinet "the local languages shall be adopted as optional..." In addition, a directive was sent to the Balochistan Textbook Board to take immediate action to come into compliance with this Cabinet decision. As of January 1993, all instructional materials (including all textbooks) developed and produced for the Province of Balochistan will be in Urdu, the national language of Pakistan.

## **PRE-LITERACY MATERIALS**

The first materials development activity of BIMDTC was to test, revise and produce a set of pre-literacy materials in Urdu based on the flash card kits earlier produced on a pilot basis. Training and testing was carried out in ten schools in District Loralai (7 boys schools and 3 girls schools). In addition, the materials were made available to the teachers undergoing training in the Accelerated Teacher Training Program and in District Sibi (where other materials training for a federal program was taking place). Feedback was collected on the effectiveness of these materials and the materials were revised accordingly. During the revision stage, six schools in District Quetta (3 boys and 3 girls schools) were used to test any changes that were made in the materials.

Concurrently, BIMDTC was becoming equipped with complete desktop publishing computer capabilities. Initially, the equipment included two Machintosh IIsi computers with two-page black & white monitors, two graphic scanners, two laser printers, and a complete compliment of word processing, page layout, and graphics software, including Urdu word processing capabilities. The BIMDTC staff received extensive training on the equipment and in the techniques and practices of layout and design.

After the final testing of the pre-literacy materials, the BIMDTC staff used their newly developed skills in desktop publishing to produce all of the materials to pre-press quality. This included the designing of new formats, creating of new illustrations, and the use of the Urdu software to create the

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Urdu characters and the text for the teachers guides. The result was a tested, revised and produced set of Urdu auditory recognition materials to be used as introductory literacy materials. These materials include a set of 108 flash cards, a set of 24 bingo game cards with 216 game pieces, and two pamphlets that guide the teacher on the use of these materials. To date, 8000 sets have been produced and distributed to schools throughout Balochistan where teachers have been trained through the Accelerated Teacher Training Program. Another 8000 sets are in the production process.

The work on flash card kits helped BIMDTC, the Bureau of Curriculum & Extension, and the Balochistan Textbook Board to realize that the process of developing, testing, revising, testing, revising, and production could be achieved with locally trained staff and was essential to the development process. In addition, this activity served as a training period for the BIMDTC staff so that they could effectively assess their capabilities and limitations as a development and desktop publishing environment.

## **TEXTBOOK REFORM**

Throughout this time, the government officials and technical advisor continued to meet on a regular basis to determine what approach to take for instructional materials development in Balochistan. Given the situations and characteristics revealed in studies and field visitations it became increasingly more apparent that a complete textbook reform for primary level subjects in Balochistan was necessary.

A reform proposal and schedule was presented by the Government of Balochistan to the Joint Education Advisor (JEA), Curriculum Wing Islamabad at a meeting held in Quetta on 13 January 1993. This reform proposal was created as a joint venture by the Directorate of Primary Education, the Bureau of Curriculum & Extension, and the Balochistan Textbook Board. The focus of the meeting was to determine what, if any, policy obstacles existed at the federal or provincial level that might prevent the proposed reform efforts from being accepted at an operation and implementation level.

The JEA responded by stating that no policy obstacle exists that would prevent this type of reform from taking place. However, he did state that the rules set forth by the Federal Supervision of Curricula, Textbooks Maintenance of Standards of Education Act, 1976 would need to be adhered to. In particular, he noted that the three basic guidelines were:

1. National curriculum objectives and course proportions and balances as set forth by the Federal Ministry of Education should be adhered to.
2. Any reform must fit within the curriculum framework of the Federal Ministry of Education.
3. Any reform must adhere to the major policies of the Government of Pakistan, its religious, economic and social values.

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In addition, it was noted that:

- o There should be an initial phase within Balochistan's textbook reform to include a complete review of the Federal Curriculum I-V.
- o A homogeneous grouping of districts should take place before pilot schools are selected so as to keep the number of selected schools manageable and to assure an equitable representation of cultural, ethnic, and geographical characteristics of Balochistan.
- o Writing teams should be used, in a workshop environment, for the development of the new textbooks.
- o Textbook development work already undertaken by the Balochistan Textbook Board, the Primary Education Curriculum Reform Project (PECRP funded by UNICEF), and work done in other provinces should be used as reference materials in the development process of the new materials. There should be no obligation on the part of the writing teams to incorporate anything but the most appropriate portions of those materials.

The textbook reform schedule adopted and approved as a result of this meeting was:

1993 Review of Federal Curriculum  
Writing & Development of Class I & II Materials

1994 Pilot Testing of Class I & II Materials  
Writing & Development of Class III Materials

1995 Revising & Editing of Class I & II Materials  
Pilot Testing of Class III Materials  
Writing & Development of Class IV & V Materials

1996 Implementation of Class I & II Materials  
Revising & Editing of Class III Materials  
Pilot Testing of Class IV & V Materials

1997 Implementation of Class III Materials  
Revision & Editing of Class IV & V Materials

1998 Implementation of Class IV & V Materials

Also approved at that time were the types of items that would be developed during the reform. These include student-centered textbooks, teachers guides, and supplementary materials. Student-centered textbooks were defined as books that include activities and lessons for students to perform and can be easily adaptable to both student-directed or teacher-directed learning. Teachers guides should be

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designed to assist the teacher in organizing, managing and teaching. They should be written simultaneously with the textbooks and one guide should be prepared for each textbook. Supplementary materials should be provided as additional reading and activities for the students. They should be based on the new textbooks and should be referenced in the same. It is anticipated that a majority of these supplementary materials might be purchased from existing materials available in the market.

## **FEDERAL CURRICULUM REVIEW**

At the request of the Joint Education Advisor (JEA), Federal Curriculum Wing, and as reflected in the approved schedule for reform, Balochistan conducted a review of the existing curriculum documents produced for primary level education.

This review resulted in seven recommendations and a draft curriculum document (Kachi - Class V), signed by all provincial officials involved in the review, being presented to the JEA for consideration. The recommendations were as follows:

1. Curriculum for all subjects should be incorporated into ONE Federal Curriculum Document. The document should be prepared in both Urdu and English.
2. Contents of such a document should include national curriculum goals, definitions for all general terminology used in the document, and subject curriculum for classes K-V.
3. Each subject curriculum should include aims of the subject, general learning objectives, and specific learning objectives by unit, by class.
4. Kachi should be recognized as a class level and specific learning objectives should be included for Kachi in mathematics and language.
5. Specific learning objectives for Class I, II, & III Science, Social Studies, Urdu and Islamiat should be included in each individual curriculum and not consolidated under a subject call Integrated. The Integrated books should be written to incorporate all of these objectives.

The recommendations, along with the draft document, were then presented by the JEA to a select group of government officials representing all four of the provinces in Pakistan. The result was acceptance of all recommendations and the development of a Revised Draft Curriculum Document for Primary Education (Kachi - Class V). The revised document was then reviewed by a number of Federal Curriculum Officers. It is currently in the process of final revisions and will be submitted to the Federal Minister of Education in 1994 for approval. Balochistan was instructed to use the revised draft document as the basis for their textbook reform efforts.

The acceptance of the recommendations and the Draft Curriculum Document resulted in a slight

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change in the textbook reform schedule for Balochistan. In 1993 materials for Kachi and Class I would be prepared. In 1994 materials for Class II & III would be prepared and after that the schedule would be as originally proposed.

## **THE BOOK DEVELOPMENT PROCESS**

The textbook reform efforts for the primary level textbooks in Balochistan officially began on 1 April 1993. This marked the beginning of a new way of developing, writing, testing, and producing student textbooks and teachers guides.

Nine primary school teachers were attached to BIMDTC to work along with the two BIMDTC subject specialist, to form the first two writing teams. One writing team was responsible for the development and writing of mathematic textbooks and teachers guides for Kachi and Class I. The other team was responsible for the development and writing of an Urdu textbook and teachers guide for Kachi and an Integrated textbook and teachers guide for Class I.

All materials were written and tested in a workshop environment. The new materials are unique for Balochistan in that they are highly student-centered and provide a variety of activities for the students to perform, either with their teacher or on their own. Every lesson, activity, story, etc. developed by the writing teams went through the same development process:

- oAfter initial development of a new idea, lesson, or activity, the writing team member taught that lesson to the other members of the team.
- oWriting team members critiqued the lesson and made suggestions for change and modification.
- oThe writing team member revised the lesson accordingly and re-presented it to the group.
- oOnce the lesson was approved, it was ready for informal testing in a classroom environment.
- oThe lesson was taught by the writer to a group of Kachi or Class I children. The other members of the team and the teacher observed and provided suggestions for revision.
- oThe lesson was revised accordingly and teachers guide pages were developed to accompany the lesson.
- oThe revised lesson and teachers guide were taken to another primary school for testing. The teacher was given the teachers guide pages and asked to teach the lesson while the writing team members observed.
- oThe lesson and teachers guide pages were revised according to the feedback and the lesson was checked once more by the entire writing team.

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oThe lesson was finally ready to be included in the textbook.

Involving students, teachers, and writing team members in the testing process helped to assure that the materials being written were, in fact, practical and workable in an actual classroom setting. The writing teams were trained to write materials that adhered to the federal curriculum objectives of Pakistan and to write them according to sound educational practices. This included training in the awareness and development of scope and sequence and content building from simple to complex, all within the knowledge of the developmental level of the child. Writing teams were also trained in strategies and techniques to incorporate gender awareness, health and sanitation issues, and environmental concerns into the content of the textbooks and teachers guides through both words and illustrations.

An illustrator was employed to work directly with the writing teams. Every illustration used in the new materials is original and localized to the Balochistan context. Over 500 illustrations have been created for use in the Kachi and Class I textbooks. For the first time, cartoons are being used to attract attention of the student and to add an element of "fun" to the learning process. A complete set of the illustrations has been compiled into "Clip Art" books and distributed to each of the curriculum/instructional materials development centers in Pakistan. The illustrations can be used as they are (photocopied, sized and pasted-up) or a digitized image can be supplied by BIMDTC so that others can access the illustrations through their desktop publishing environment.

After all newly written materials were tested and revised and illustrations were created, the text and illustrations were entered into the computer. Complete formatted pages were proof read by the writing teams and by select subject specialists from the Bureau of Curriculum & Extension. Revisions were made and camera-ready copies were prepared for submission to a printer for production of pilot test copies. Two textbooks for Kachi and two textbooks for Class I, with accompanying teachers guides, have been prepared to this stage.

## **PRINTING PROCUREMENT**

With the preparation of all prepress materials being prepared by BIMDTC it also became necessary to alter the way in which local publishers are utilized for the production of textbooks and teachers guides. The current practice of the Balochistan Textbook Board is to hire publishers to prepare typeset manuscript, provide illustrations, format all book pages, and print the books. A pre-determined percentage of the Board's printing needs is distributed among publishers who are operational in Balochistan and who have been pre-qualified by the Board. Pre-qualification is based on the number of years in operation, the type of equipment, and the number of employees, not on the quality of materials produced. No competitive bidding process is utilized by the Textbook Board and no publisher is required to provide printed samples prior to qualifying or prior to being hired.

Through the development and production of pilot materials, BIMDTC is helping to establish and test new printing procurement procedures that will be adopted by the Balochistan Textbook Board for

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production of all future primary level textbooks. A sample tender notice has been prepared to serve as the template for all tender notices regarding the hiring of printing services. This tender notice will be made available for local competitive bidding (nation-wide) and will not be limited to only pre-qualified publishers within Balochistan.

Sample bidding documents have also been developed. These include proforma to be completed by all bidding publishers requiring them to provide information regarding their capabilities and the paper and binding specifications to be used on the document to be printed. On the due date set by the tender notice, all bidders will be required to submit printed samples of their work using prepress materials provided by BIMDTC. Bidders must also submit proposed workplans, time schedules, and per unit breakdown of all costs.

All information submitted as per the bidding documents are compiled into a comparative statement. Publishers not submitting all required information and samples will be immediately eliminated from the bidding process. Publishers submitting a complete compliment of information and samples will be compared on the basis of quality, cost, and time.

It is anticipated that the efforts put into revising printing procurement procedures will force improved quality of textbooks produced for the primary schools in Balochistan. New bidding practices will help to reward those publishers committed to a quality product and help improve the overall standard of printing and publishing within the province.

## **PILOT TESTING**

A formal pilot test of the newly developed materials is taking place in 1994. This testing involves Kachi and Class I students, teachers and supervisors in 90 schools throughout Balochistan. The schools are a representative sample of the gender, cultural, ethnic, and geographical characteristics of Balochistan.

The pilot testing is being conducted with the aim of trying out the newly developed materials in "real time" so that the merits and demerits of the materials are determined. More specifically, the pilot testing is designed to:

1. Assess the effectiveness of newly developed instructional materials with regard to federal curriculum objectives.
2. Assess the effectiveness of the teachers guides with regard to ease of use and appropriateness to teaching.
3. Identify flaws in the content and activity sequence of the materials.
4. Ascertain and describe the opinions of teachers and supervisors towards the reform.

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5. Identify the administrative and social problems associated with the implementation of the new materials.

6. Provide suggestions to modify/improve the new materials prior to provincial implementation.

In order to foster linkages with other educational institutions, the Directorate of Primary Education has contracted the Department of Education, University of Balochistan to serve as the monitoring agent for the pilot test activities. Faculty members with subject area and evaluation specialties have worked closely with the BIMDTC Deputy Director and the writing team members to develop a complete set of instruments to be used during pilot testing. These instruments include classroom observation forms, supervisor, teacher, and parent interview proforma, and criterion referenced achievement tests.

The pilot testing of Kachi and Class I materials will continue throughout 1994. Results of the pilot test will be analyzed and provided to BIMDTC for revision of the textbooks and teachers guides accordingly.

BIMDTC personnel play an active role in the pilot testing activities. As mentioned above, they assist in the development of all achievement tests and observation/interview proforma. In addition, they are responsible for the training of all supervisors and teachers in the use of the new materials in the classroom. During the pilot testing, the type and duration of teacher training required to effectively use the new materials in the classroom will be tested. Teachers from thirty of the pilot schools will be given inservice training on the new materials for the maximum number of days allowed by the government (usually 10 days). Teachers from thirty of the pilot schools will be given inservice training on the new materials for half of the maximum days allowed by the government and teachers from the remaining thirty schools will be given only a brief one-day orientation to the new materials. Analyzed information from all proforma and tests will be compared, to the amount of training received by the teacher, to determine a scheme for teacher training on all newly developed textbooks and teachers guides in the future.

## **FORMALIZING THE ORGANIZATION**

In August 1993, after the instructional cell had been in operation on an ad hoc basis for nearly one year, it was time to formalize the organization and to see that it was firmly attached to the Directorate of Primary Education. The Director of Primary Education, the Director of the Bureau of Curriculum & Extension, and the Chairman of the Balochistan Textbook Board worked along with the technical advisor and program associate to determine the best organizational structure.

It was determined that BIMDTC should continue as a part of the Directorate of Primary Education and that it should be staffed by personnel from the Bureau of Curriculum & Instruction and the primary level teaching cadre. It was also determined that the staff should be organized in such a way that the core group could be configured to facilitate the needs of four writing teams. With this in mind, the organizational chart for BIMDTC is as follows:

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-insert organizational chart-

Figure 6.1 Organizational Chart of BIMDTC

Nine of the line personnel are subject specialists from the Bureau of Curriculum & Extension and five are primary level teachers. All fourteen are trained in the various aspects of materials development, testing, and implementation. When writing teams are convened for the writing of new books each team will have one evaluation specialist, one writing team coordinator, one desktop publishing specialist, and one illustrator assigned to work with them.

The fourteen line personnel and the writing teams are organized, supervised and facilitated by the Deputy Director and Assistant Director for Instructional Materials. Job descriptions have been developed for each of the BIMDTC positions.

### **COORDINATION OF DONOR SUPPORT**

UNICEF had been funding The Primary Education Curriculum Reform Project (PECRP) since early 1989. This was a project initiated at the federal level to allow each province to do some experimental development work in producing Integrated textbooks that would be localized to select provincial districts. In Balochistan, this work was being done for District Sibi. When UNICEF began funding PECRP in Balochistan there was not a Directorate of Primary Education and the province, as a whole, had not made a commitment to an overall textbook reform project for primary level classes.

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With the establishment of the Directorate of Primary Education came the commitment to coordinate all donor initiatives for primary education in Balochistan. UNICEF was also realizing the need to support overall provincial efforts in education rather than projects designed for only one or two districts. These two factors were the impetus behind merging PECRP personnel and efforts into the larger textbook reform activities.

As of October 1993, PECRP in Balochistan no longer existed. The Deputy Director of that project became the new Deputy Director Instructional Materials under the Director of Primary Education, Balochistan. It was agreed that this position would be a permanent part of the Directorate of Primary Education and on the recurrent budget for the Directorate by July 1994. In addition, the two vehicles purchased for PECRP by UNICEF were handed over to the Directorate of Primary Education for use by BIMDTC. UNICEF now has only one project document to support curriculum and instructional materials development in Balochistan. The document is titled Textbook Reform Project and is a component part of the overall reform being undertaken by the province. UNICEF's contribution to the reform is on an average of \$60,000.00 per year for three years, 1993 through 1995.

### **ADDITIONAL ACTIVITIES**

It is increasingly difficult to provide a chronicle of BIMDTC activities. They are ever overlapping and diverse. A few areas of development and influence that do not neatly fall into the chronological flow are described below.

**Multi-Grade Classroom Design.** Both USAID and the World Bank have been supporting efforts for the construction of multi-grade classrooms throughout Balochistan. A simple field test was conducted to determine the appropriate configuration and size of a multi-grade classroom to meet the unique characteristics of the majority of the primary schools in Balochistan. The result is a new design for the construction of all future multi-grade classrooms in Balochistan.

**Personnel Training.** Although most training is on-going and takes place within BIMDTC, some exceptions have taken place. All BIMDTC writing team members have traveled to Peshawar to learn about NWFP IMDC operations. This was in an effort to strengthen the exposure and knowledge of the Balochistan staff members.

From mid-September through mid-December 1993 seven persons attended a three-month training program in Desktop Publishing for Textbooks and Instructional Materials. The participants were comprised of two men and five women, three of which were representing the Balochistan Textbook Board and four representing BIMDTC. The training took place at a small publishing company in Denton, Texas whose sole emphasis is on desktop publishing techniques for educational materials. The participants received training in both computer hardware and software, as well as design and development of textbooks and other instructional materials.

**Balochistan Education Testing Cell.** In order to accommodate the requests of the newly established National Education Assessment Program (NEAP), Balochistan is implementing some

activities on a pilot basis. A former Bureau of Curriculum & Extension senior subject specialist has been hired to prepare and conduct teacher and student testing in Math, Science, and Urdu on a pilot basis. The results of the testing will be submitted to NEAP for analysis. It is hoped that the analyzed results of this testing will provide appropriate information for future decision making with regard to teacher training and textbook development needs. The results of this pilot study will be used to determine the need and feasibility of a permanent Education Testing Cell within Balochistan's Bureau of Curriculum & Extension.

**Reference Library.** Within BIMDTC a reference library is being developed. The library consists of sets of primary level textbooks from each of the provinces in Pakistan, primary level textbooks and teachers guides from other countries, encyclopedias and miscellaneous reference books. Currently the collection is small, but it is growing every day.

In addition, an extensive set of supplementary readers in Urdu have been collected from throughout Pakistan. A local consultant was hired to identify the content areas of primary education that could possibly be supported by supplementary readers. These areas were identified by subject, by grade level. Books available in Urdu within Pakistan were then matched against the content list and evaluated with regard to their language level and appropriateness. A complete summary report along with samples of each of the books is now available for use by BIMDTC writing teams.

## **SUMMARY**

In two years, an Instructional Materials Development and Training Cell has been established as a significant component of the Directorate of Primary Education in Balochistan. To summarize, the major accomplishments of BIMDTC, to date, include:

- oNew instructional materials for Kachi and Class I including student texts, teachers guides and instructional aids.
- oOrganizational structure to provide for the continued development of textbooks and support materials utilizing the writing team/workshop approach to instructional materials development.
- oOperational desktop publishing facility with trained personnel capable of producing quality and attractive prepress materials.
- oSystem of instructional materials development in place which includes development, testing, revising, testing, and revising prior to production and implementation.
- oNew printing procurement procedures in place to assure for local competitive bidding based on quality of product.

The accomplishment have been significant. However, these accomplishment do not assure

sustainability. Sustainability will only come after continued financial and technical support for these and future efforts. Support must come at all levels, from the continued recruitment of good, committed writing team members to the commitment on the part of upper management to produce the necessary policy changes and financial commitments to make continued work of BIMDTC possible.

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## ACCOMPLISHMENTS

**Federal Level, Ministry of Education.** The nature of USAID/PED as a program, as opposed to a project, put the technical assistance as advisory components within the provincial government structures. As a result, their contribution at the Federal Level was as an integral part of the government systems and not as outside project personnel. This unique position has been instrumental in bringing about the following reforms:

- 1. Curriculum Documents.** Collected, reviewed and analyzed existing primary level curriculum documents and produced one common primary level curriculum document with salient features throughout. In the process, changing subject objectives into behavioral terms so that performance outcomes were measurable.
- 2. Delineation of Federal & Provincial Responsibilities.** The new curriculum document helped to establish that the federal ministry was responsible for outcome based objectives while the provinces were responsible for content and methodology of delivery to interpret those outcomes.
- 3. Recognition of Kindergarten (Kachi).** Within the new primary level curriculum document objectives have been specified for beginning language and mathematics. This corresponds with the objectives that are appropriate for the Kindergarten (Kachi) level. Moreover, this added official legitimacy to textbook development for Kachi classes in the two provinces.
- 4. Establishment of English.** PED has been instrumental in the development of the program and objectives for the teaching of English in the primary schools. A complete interactive radio instruction program for class III - V has been developed and tested throughout NWFP and will be available for dissemination throughout Pakistan.
- 5. National Education Assessment Program (NEAP).** Through provincial initiatives in the development of test items in language, math, and science for classes III & V, the Federal Curriculum Wing established a national testing program. Each province will have a testing cell to establish performance levels of students and teachers based upon federal level objectives and provincial level textbooks. These performance outcomes will serve as indicators for future teacher training and curriculum needs of the province.

**6. Illustration Resource File.** Through the efforts of an illustrator, an extensive collection of original, localized illustrations have been produced. This collection is cataloged and available for use by all instructional curriculum development centers throughout Pakistan. It is the beginning of an illustration pool made up of original artwork for primary level textbooks from throughout Pakistan.

### **Provincial Level.**

**1. Establishment of Instructional Materials Development Cells.** Within each Directorate of Primary Education there are now operational instructional materials development cells staffed with government officials. The officials are trained in the development of a variety of instructional materials development and testing procedures.

**2. Organizational linkages.** The two key organizations concerned with primary education, the Directorate of Primary Education and the Bureau of Curriculum & Extension, are working cooperatively through the structure of the instructional cells. Therefore, decision making becomes a shared responsibility among the users, developers and producers.

**3. Instructional Materials Development Process.** Development, training, field testing, revising and production are now institutionalized processes.

**4. The Role of the Textbook Boards.** Through the newly developed process of instructional materials development, the role of the textbook boards in each of the provinces has been challenged. It has become a concern of the Federal Curriculum Wing to look at new ways and new organizations to produce textbooks and other instructional materials.

**5. Student Focused Materials.** The newly developed textbooks actively engage student in learning through guided practice, independent exercises and a variety of activity oriented learning.

**6. Development of Appropriate Supplementary Materials.** Annotated teachers guides, tied directly to the student textbooks, student readers, wall charts and educational games have been designed to supplement the textbooks.

**7. Effective Teaching Methods.** Within the textbooks and teacher guides the effective teaching practices have been imbedded. This includes concept and skill development from simple to complex, patterned learning, and guided practice. Materials take into consideration the developmental age of the child. Examples and illustrations are drawn from the local environment. Issues such as gender equity and environmental issues are addressed.

**8. Material Specific Teacher Training.** The development of the new materials requires that teachers be trained in their use. Much of the generic teaching skills will be incorporated in teachers guides and will be reinforced through training.

9. **Training for Instructional Supervision.** A redefining of the role of field supervisors has come about through the introduction of the new materials in the classroom. Their job is now one of instructional supervision as opposed to that of inspection. The teachers guides serve as a supervisory framework for their school visits.
10. **Criterion Referenced Testing.** Curriculum based objectives formed the basis of test items developed for the areas of language, math, and science. These tests are used to assess student performance toward attaining desirable outcomes.
11. **Use of Feedback.** Instruments were developed to gather information from the field that could be used in the revision of textbooks and teachers guides to meet the needs of the users; students, supervisors, and teachers.
12. **In-House Desktop Publishing Facilities.** One fully operational desktop publishing facility has been utilized and staff trained to design, format, and produce quality pre-press materials.
13. **Capacity Building.** On the job training on a day-to-day basis is an on-going activity within the Instructional Materials Development Cells.
14. **Out of Country Training.** Relevant training programs in other countries have been provided to reinforce the knowledge and skills of government officials directly involved in the instructional materials development process.
15. **Cooperation Among Provinces.** Collaboration between the two provinces and among all four provinces have been undertaken by lateral exchange and federal level workshops.

## CONSTRAINTS

The following constraints presented obstacles in the overall program efforts:

1. The original program was extremely comprehensive and designed to be accomplished in a ten year time frame. Initiating change, institutionalizing programs and sustaining efforts were difficult to accomplish when the time frame was altered to four years.
2. There has been a high percentage of turn over in long term technical assistance which negatively affected continuity within program areas.
3. Early misconceptions about what was possible at the provincial level led to delays in startup.
4. Overall PED objectives and initiatives were not adequately communicated to the lower levels of the provincial educational systems; teachers, supervisors, etc.

5. A personnel system within the provincial governments whereby officials are promoted on longevity rather than merit. Therefore, making it difficult to readily identify motivated and committed individuals that can bring about change.
6. Practices related to teachers and supervisors concerning leaves, transfers, recruitment, and distribution which affect the quality of the program.

## **LESSONS LEARNED**

1. Working within the existing government structure is essential. Working as a program rather than a project has placed the technical assistance directly in the offices of the government which facilitates coordination and cooperation. However, progress is often delayed by lengthy bureaucratic procedures.
2. When change is introduced at the grass roots level it is embraced because it facilitates learning and makes teaching much more manageable for the teachers. However, it is only when the change is institutionalized from a top down management system that it can be sustainable.
3. The decision making process needs to be decentralized within the overall educational system so that it can be responsive to the needs of the users.
4. Change is neither rational nor systematic. Planners must take into consideration that it is extremely difficult to plan exactly when and how change will take hold.
5. Development program implementors must realize that for any change to take root it must be owned by the users. Therefore, they must be willing to relinquish the credit given for change.

## **RECOMMENDATIONS**

Even in light of all of the significant accomplishment that both provinces have been able to make, in a relatively short time span, the entire IMDC system is still quite fragile. It is felt that the following are required actions to sustain the efforts of curriculum and instructional materials reform in both NWFP and Balochistan:

1. Support for the IMDCs should be continued irrespective of publishing policies. The IMDCs work as research and development units within the Directorates of Primary Education. They have access to schools and work closely with teachers in the field. It is the only organization solely concerned with primary education instructional materials issues, with no vested interest.
2. Financial support must be allocated as part of the recurrent budget so that development, training, production, field testing, and revision can continue to be on-going activities of the IMDCs.
3. Retain the integrity of the staffing structure of the IMDCs to continue to include young primary

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school teachers and subject specialists from the Bureau of Curriculum and Extension.

4. The cycle of development, training, field testing and revising should continue before the adoption and full scale dissemination of classroom materials. This implies that no instructional materials will ever become a part of the school system without prior testing in the school environment.
5. A career ladder is needed within the Directorate of Primary Education whereby good people are not lost to the Secondary Section. There must be a mechanism for promotion within the Primary cadre.
6. The desktop publishing capabilities that are in place in Balochistan's IMDC must be replicated in NWFP. This capacity allows for IMDC staff to have control over the layout and design of the newly developed materials, which are integral parts of the development process which enhance both teaching and learning.
7. A testing cell must be established within the IMDCs that is responsible for testing the achievement of students and feeds back information to the materials developers about children's performance at all levels so that rationale decisions about change might be made.
8. Continue to train and support the supervisory staff so that they are better able to monitor and assist in the teaching/learning process. This can be achieved through establishing lines of accountability across the system.
9. Establish linkages among the schools, supervisors, and the training institutions so that pre-service and in-service training lead to effective instruction in the classroom.
10. Continue cooperation and coordination between provinces so that people share experiences and learn from each other.