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INSTRUCTION AND MATERIALS

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## INSTRUCTION AND MATERIALS

### I. PROGRAM PURPOSE

The goals of the Primary Education Development (PED) Program are to improve the quality of and the efficiency of primary education in the Northwest Frontier and Baluchistan Provinces.

The objectives of the program are to increase access to and the quality of primary education, especially for females in rural areas, and to facilitate the development of policies that will promote and support these changes.

The program will fund the necessary components to achieve the quantitative and qualitative objectives. These include:

- o the provision of buildings and facilities;
- o training programs and incentives for teachers;
- o the development and distribution of instructional materials and teaching supports;
- o support for alternative educational delivery systems ;
- o improvement in the administration, supervision and management of educational resources; and
- o support for research, development, monitoring, and evaluation.

This paper is concerned with the development and distribution of improved learning materials, improvement in the quality of instruction, and the initiation of research and development activities in support of these two goals.

Its major purpose is to identify and discuss activities which will help further the development and refinement of the primary-school curriculum and materials development and production processes within the Ministry of Education (MOE).

To accomplish this purpose, it will be necessary to:

- o strengthen and build capacity in the Curriculum Wing (of the MOE), in the provincial Curriculum Bureaus, and in the Textbook Boards;
- o increase efficiencies in the materials design, production, and distribution system; and
- o initiate research, development, and evaluation activities in areas important to quality improvement in the schools.

The paper is organized into eight sections;

- o program purpose;
- o the current system for developing curriculum and text books;
- o a revised system for developing curriculum, textbooks, and instruction systems;
- o supporting new and on-going curriculum efforts;
- o the initiation of research, development, and evaluation activities;
- o other important quality issues raised during the program identification phase;
- o an action plan; and
- o a budget.

## II. THE CURRENT SYSTEM FOR DEVELOPING CURRICULUM AND TEXTBOOKS

Efforts to improve the quality of instruction in primary schools of NWFP and Baluchistan must concentrate on the three inter-related enterprises at the heart of the instructional program in the schools -- the federal level Curriculum Wing and its subsidiary organizations at the provincial level, the provincial Bureaus of Curriculum, and the Textbook Boards. They directly control or influence virtually every aspect of the primary school instructional program.

### A. Curriculum Wing and Provincial Curriculum Bureaus

The Curriculum Wing of the central Ministry of Education has ultimate responsibility for the development of curriculum and teacher training in Pakistan, grades one to twelve. It also has supervisory powers over the provincial Bureaus of Curriculum and Textbook Boards. Rather than act unilaterally, however, the Wing works closely with the provincial Bureaus in the development and revision of curricula and in the development of specifications for textbooks.

When a new or revised primary school curriculum is desired, the general procedure is for the Curriculum Wing to solicit a draft from the provincial Bureaus. Teachers and subject experts at the provincial level critique these drafts before they are sent on to the Curriculum Wing.

Upon receipt at the Curriculum Wing, officials appoint a panel of federal and provincial-level experts to review and revise the drafts. Upon completion, a revised draft is sent back to the provincial bureaus for their extensive review, comment, and local adaptation. Finally, their suggestions are returned to the Curriculum Wing for analysis by the National Committee on Curriculum, whose recommendations are then sent to the Ministry of Education for final approval.

A new director assumed office in the Curriculum Wing in mid-February 1989. He plans to add staff to the cadre of 20 professionals currently employed and to strengthen the Wing through technical assistance and training. The director also plans to re-organize the Wing in the near future. Its current organization is as in Figure 1 below.

Each of the three subject-oriented Wings are responsible for curriculum development for grades 1 through 12. A new post, Director of the grades 1-3 integrated curriculum, will work across the separate sectors, since the integrated 1-3 curriculum incorporates language, social sciences and science. Math is still treated as a separate subject in the integrated curriculum. Emphasis on integrating the early-grades curriculum may well extend through grade five if the 1-3 proves as effective in wide-spread use in the provinces as it was during its development and trial.

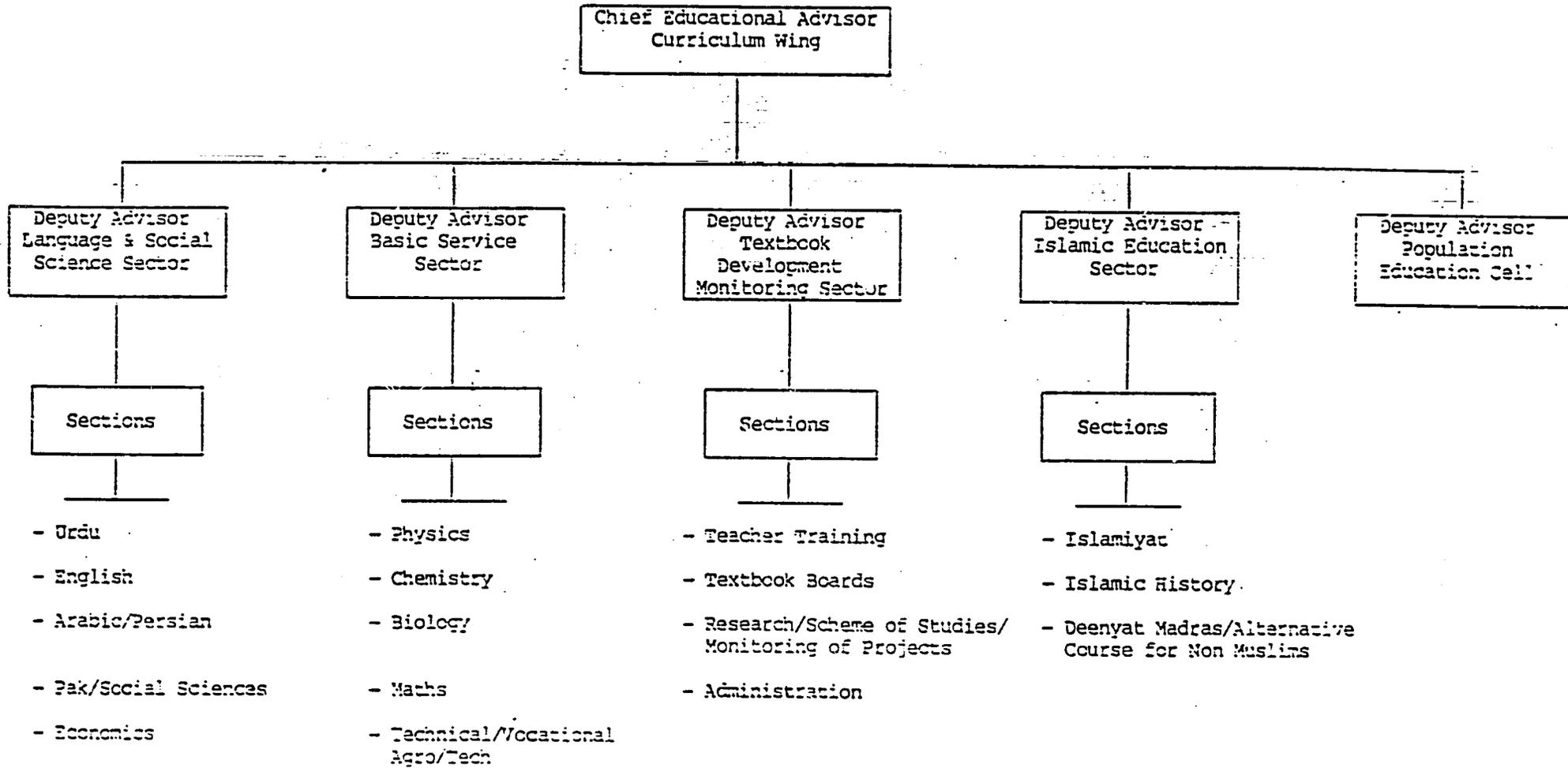
Though not responsible for testing or test development, the staff of the Wing have developed and published test item pools of selected subjects in the higher grades, 9-10 and up. They were published for use by classroom teachers, students, and educators in hopes they would "facilitate and improve the teaching-learning process in general and the examination system in particular."

In conjunction with the Bureaus, the Wing plans, decides upon, develops, and produces the curricula and the explicit instructions for the preparation of textbooks, teachers' guides, and other teaching materials and aids used in the schools. The Textbook Boards prepare and produce the textbooks. In turn, the Curriculum Bureaus are in charge of all pre-service and in-service teacher preparation. They also plan and conduct the training of supervisors and of school and district-level administrators. (See Annex 1 for the table of organization of the Baluchistan Bureau).

The National Conference on Education held in Islamabad March 28-30, 1989 recommended that a separate teacher training directorate be established. Should that come to pass, the responsibilities and the table of organization of the Bureaus will be drastically revised.

The Baluchistan Bureau is centrally located in the province within the main compound of the education department in Quetta, adjacent to the other departments with which it must deal on a

Figure 1: Ministry of Education Curriculum Wing



day-to-day basis and is therefore an integral part of the department even though technically an autonomous body. This proximity to the Textbook Board Chairman, who has an office in the Department (in his dual capacity as Board Chairman and Director of Colleges for the Department), is of particular importance.

In NWFP, however, strangely enough the Bureau is located in Abbottabad, at some distance from Peshawar where the Department of Education, MUST and the Textbook Board are located. This separation from the remainder of the Department (except for its own Extension Center in Abbottabad) isolates the Bureau from the daily life, business, and concerns of the Department and, of special concern, from the Textbook Board -- its companion body.

The Bureau is situated in a dilapidated building, totally inadequate to its needs and is greatly hampered by the lack of suitable facilities. Their request that some PED funds be used to build a Bureau headquarters has great merit and should be given the most serious consideration. It has been included in the Construction Component Working Paper. However, the placement of the new facility in Abbottabad seems highly questionable and is not recommended unless compelling evidence to the contrary is forthcoming.

#### B. Textbook Boards

After Ministry approval, the curriculum is published and its general goals, specific objectives, grade-level topic outlines, and a set of general specifications are sent to the Textbook Board in each province for the preparation of textbooks. These topic outlines are used by Textbook Board writers to guide their work. As a rule, this results in a general uniformity of content throughout the country, which federal-level officials seek. It also results in a subject-matter topic approach to learning, rather than a skills-oriented or learning activity approach to learning, which many deplore, especially for the early grades.

The Textbook Boards are responsible for translating and adapting the material they receive from the Curriculum Wing so that the textbooks the Boards produce reflect the environmental differences that exist in the four provinces. This is felt to be particularly important in the earlier grades, especially in the social studies, math, and beginning science for in these subjects writers are urged to base lessons to the degree possible on the experiences and understandings children have gained in their local social and physical environment.

In the later grades, generally after grade eight, it is not felt important that local adaptations be made. Algebra is algebra, or so the argument goes, and therefore algebra textbooks need not cater to local differences, customs, mores, or environments.

Textbook Boards do not try out their materials in schools either during textbook development or later, after text materials have been written but depend rather on the experience of the author and the opinion of experts. In Pakistan as in other countries that depend upon opinion for judging the suitability of curricula and textbooks rather than upon a rigorous and scientific process of school trials and revision before final publication, the effectiveness of the materials suffers, as does student learning. This may account for some of the extremely high dropout and poor academic performance of Pakistan's primary school students.

It is understandable that the Boards do not have the luxury of using the expensive and time-consuming lesson by lesson development/revision cycle of writing, classroom trial, revision, re-trial, and revision again until each lesson produces the learning objective(s) sought. Once that has been accomplished textbook writer must then use a similar cycle through which to write, try, revise the materials to be used in the annotated teacher's edition.

It would be feasible, however, to use the considerably less costly technique of using test editions, in which a limited number of books, usually beginning with the first in a series, are produced, tried in a sample of schools, evaluated on critical learning, organizational, and teachability variables, and revised before a final edition is published.

As a general rule the current curriculum development process requires at least two to three years from initiation to issuing specifications for textbook production. Textbook Boards are given two years notice that a change is coming and upon receiving the specifications from the Curriculum Wing are expected to take no more than an additional year to get textbooks written, edited, approved, printed, and in classrooms. Major changes in a particular curriculum have generally not occurred oftener than every ten years to date.

However, as has been noted, the time pressure and the lack of resources in the Textbook Boards to conduct in-school trials of textbooks result in the schools receiving untested products usually not accompanied by an annotated teachers' edition, manual, or guide for their use. If Boards begin using a test edition cycle for their textbooks and developing an annotated teachers' edition as recommended and as they wish to do, it will require adding at least one more year to the process -- the test/revision year, before final publication for large-scale use.

This test edition system is a logical adjunct to and an outgrowth of methods the Boards already have begun using to gather data on textbooks. Both have sent the same questionnaire to a sample of "experienced, good" teachers to get their observations, opinions, and comments on texts they have used for at least a year. These data will then be used to help shape revisions and to guide authors in the development of new texts.

Informal, somewhat sporadic feedback comes to the Boards from supervisors and from some of the Curriculum Bureau staff members, as well. Both visit schools and gather informal impressions from teachers and their own observations of whether and to what degree the textbooks are being used, how suitable they are in terms of language levels, how teachable they are, etc. These are particularly important for the Curriculum Bureau staff for they use them to design and conduct short course in-service training programs to help teachers with the problems they are encountering.

However, though these general impressions are of some help in curriculum revision and to some degree in actual textbook writing, in that some of those who acquire them also write textbooks, they can not serve as a substitute for a well-designed school data-gathering system. They are personalistic, informal impressions which seldom make their way back in any organized fashion to the Textbook Boards, who need systematically acquired data to use in guiding authors as they prepare new or revised textbooks.

For example, despite their frequent school visits none of the the Curriculum Bureau staff in either province even mentioned the serious materials problems many teachers in small rural schools face -- that of having to do multigrade teaching in a resource poor environment with textbooks designed for single-grade teaching.

Nor was any mention made of another severe instructional problem for some schools and teachers, that of teaching very large classes, sometimes as many 75 to 100 students per class. Often these same schools will have too few students in the upper primary grades, perhaps five or six, to be able to justify having another teacher for them. This usually requires an already overburdened lower grade teacher to take responsibility for these students, as well.

Few Curriculum Bureau staff have any primary school teaching experience. They are subject-matter specialists who by nature generally focus their attention on content issues when observing classes. Thus, though their observations are of use on content issues, were they more sensitive to instructional and instructional design problems in primary schools their observations would be much more helpful to the Textbook Boards.

Both Textbook Boards expressed the need for the necessary training, technical assistance, equipment, and fiscal resources to evaluate how well their products are performing, preferably both during development and after publication. Currently neither has the capability, technical skill, manpower, or fiscal resources to accomplish these important tasks in a satisfactory way themselves.

It is to their credit that each Bureau is aware of the need and is doing its best to collect the limited data it can with the resources available to it.

The Boards are not able to rely on student achievement data as a source of information on which to base textbook reform since the only data available are pass rates on grade five examinations which are limited to the one class and are neither valid nor reliable measures of how well the curriculum or its expression, the textbooks, are achieving the objectives of primary-school instruction.

Unfortunately, this lack of a mechanism or set of regularized procedures for evaluation and improvement based on objectively verifiable indicators is as true of the primary school instructional system itself as it is of the textbook and curriculum development process and will have to be rectified if systematic qualitative improvement is to be made in the primary schools.

### III. A REVISED SYSTEM FOR DEVELOPING CURRICULUM TEXTBOOKS, AND IMPROVING INSTRUCTION

It is recommended that the Curriculum Wing and Bureaus use PED funds, technical assistance, and training to revise their system for developing improved curricula, textbooks, and school instruction using more technically sophisticated and scientific procedures and methods.

Developing the system will involve the Curriculum Wing and Bureau staff in learning to operate within a systematic set of processes and procedures for establishing teaching objectives, designing instruction, assessing student performance, and taking remedial action to improve both teacher and student performance as needed. Because such a system is results-oriented and intuitively obvious, in time it can become virtually self correcting.

In order to improve the quality of the instructional program in the schools and the materials on which that depends, work will be needed on the following -- the learning objectives, the textbooks and teaching aids, annotated teachers' editions, and criterion-referenced, diagnostic, and mastery tests used as instructional tools, not for assigning marks or promotion decisions. Once these elements have been improved and tested, there remains only the problem of aligning pre- and in-service teacher training and the supervision and management of instruction with them to complete the system.

A. Action program in which the Curriculum Wing and Bureaus should be engaged.

To develop and support a revised system for developing improved curricula, textbooks, and primary-school instruction, staff of the Wing and Bureaus should work with the following components:

- o learning objectives: the development of sequenced learning objectives for each grade and subject, grades one through eight, embedded in a master curriculum matrix that also articulates each objective across the subjects;
- o instructional design: the content, task analysis, and instructional design of learning and teaching materials embodying these objectives in developmentally appropriate and validated learning and teaching materials;
- o test development the preparation of criterion-referenced tests developed directly from and reflective of the objectives;
- o materials testing: the school testing of student and teacher materials before final publication and distribution;
- o design of correlated training: the instructional systems design, testing, and conduct of pre- and in-service teacher and supervisor training programs in how to use the materials properly;
- o use of achievement testing: the regular systematic assessments of the learning objectives using the tests devised for the curricula;
- o feedback: the development of procedures for feedback of the results into a system that takes action to remedy the deficiencies discovered and measure the attainment of the remedial actions through a continuous cycle; and
- o system tuning: testing and modifying each element of the system until the desired results in student learning, teacher, and supervisor behavior are produced and sustained.

The specifics of such an improved system have not been discussed fully with either the Curriculum Wing or the Bureaus specifically. There is no reason to believe they would not embrace such a system.

In our general discussions staff of both Bureaus and the Curriculum Wing have consistently expressed the desire to acquire the technical skills and the human and fiscal resources to engage in systematic solution-oriented research and evaluation activities that lead to corrective action plans and their implementation, in essence the principal set of activities a revised system would involve.

Some Wing and Bureau staff are already familiar with major elements of such a system through having participated in developing and testing the integrated curriculum for grades 1-3, an important innovation for which they are to be congratulated. The grade 1-3 integrated curriculum was developed by a team of well-qualified teachers, and subject and curriculum experts, using a slightly less rigorous version of the lesson development/revision cycle briefly described on page 4 of this paper. It was extensively tested in schools in the Federal district and revised based on those trials.

Currently (1988-89 school year) the first-grade materials are in use in NWFP and Baluchistan provinces. Grade two will be used in the forthcoming school year. No data are available on how well the materials have been received or taught or on student effects. The UNICEF funded Primary Education Reform Project (PECRP), which will use the integrated curriculum and is the logical extension of that project, will be under way soon and will require the use of such an empirically-based and technically sophisticated curriculum and materials development system if it is to be successful. It will also present the Bureau and Wing staff who are to be engaged in the project with the opportunity to make excellent practical use of the technical assistance and training the Pakistan Primary Education Development Program (PED) will provide.

### 1. Training and Technical Assistance

The training program should consist of a complementary mix of short-term in-country training and study tours abroad for key members of the Curriculum Wing and Bureaus, supplementing the training they are already scheduled to receive from the Bristol University staff training project.

The technical assistance effort for the Curriculum Wing and Bureaus should be headed by an expert in curriculum development and instructional materials with experience in the organization and management of materials development and testing, who would be resident in Pakistan for the first five years of the program.

That person should head a team of short-term technical experts in areas such as instructional systems design, content and task analysis, criterion-referenced test development, item pool design, the design of stand-alone instructional units and other low-cost materials, and curriculum and instructional materials

evaluation through field testing in schools. Each of these experts should be expected to commit to providing technical assistance and training in country as needed during the first five years of the program.

This assistance program would help to bring about quality improvement through strengthening the Wing and the Bureaus and helping to build staff capacity in each of the three. However, care will have to be taken in the planning and execution of the PEDP training plan during the first or three or four years of the Program not to exceed the absorptive capacity of the Curriculum Wing and Bureau staffs nor duplicate the training they will receive in the Bristol project, all of which is highly relevant to the Primary Education Development Program.

The British Project, funded for a three-year period at a total of Rs.11,939,510 will provide 180 man-months of long-term M.A. scholarships to Bristol University and 90 man-months of short-term study visits. In-country technical assistance for the planned research studies will be provided with each British expert providing one month's help in "devising the basic framework for research" and a 15 day follow-on visit to finalize the research report.

During the three years of the Bristol project, which begins residential training in England in fall 1989, a total of 27 Bureau and Wing staff will receive relevant training in areas critical to quality improvement in curriculum development. Furthermore, a series of national seminars on these topics will be organized each year, each headed by an expert supplied by the British Council. Each of the Pakistanis trained in Bristol will be expected to serve as a resource person in a one or more of these national conferences.

Each year five MOE staff members, one from the Curriculum Wing and one each from the four provincial Bureaus will be enrolled in a Master's degree program at Bristol University to study either Curriculum Development, or Teacher Education, or Educational Supervision.

In addition, every year ten staff members, two from each of the Bureaus and two from the Wing will participate in short-term study visits to Bristol of three months duration. Their study will be in the following areas:

- o Principles and Approaches of Curriculum Development;
- o Management of Curriculum Change;
- o Curriculum Evaluation;
- o Preparation of Curriculum Materials; and
- o The Teaching of English as a Second Language.

In addition, six Wing/Bureau staff members will be identified at the beginning of the three-year period to engage in research. Each will be assigned a specific area for research, selected from the general areas of:

- o The Dynamics of Implementation of Curriculum Reform;
- o The Teaching of Maths and Science at Primary and Secondary Levels;
- o Implications of Teacher Attitudes in Terms of Curriculum Implementation; and
- o The Suitability of Current Primary Curriculum Reforms.

Two of these studies will begin each year, under the direction of an expert from Bristol University. In addition a modest amount of equipment and exchange literature will also be provided. (See Annex 2 for a somewhat more detailed description of the Bristol Program).

During this three-year period of the Bristol project, first priority for PED training should be given to staff of the Textbook Boards. This will provide parallel training during the critical first years of the project and help to prevent exceeding the absorptive capacity of the Wing and Bureau staff. It will also lessen the problem of having training encroach heavily on their ability to accomplish their regular work during this period.

With but few exceptions the PED training for Wing or Bureau staff should be in-country, and supplied by one or more of the technical assistance team. It should also be practical, applied, short-term and designed to complement but not duplicate the Bristol training. In the main, the PED training for Bureau and Wing staff should be concentrated on those who are or will become specialists in primary or basic education and should be thorough enough that they can in turn design and train subordinates.

Some key Bureau and Wing staff who could gain valuable information from a short study tour and who will be in position for another ten, twelve, or fifteen years will not be eligible for the Bristol Project because they will have reached age 45 by the time training begins. It may prove useful for the PEDP to make an exception in a few such cases and provide for a limited number of study tours to excellent curriculum development centers in the U.S. or Britain and to some of the less developed countries in which exciting curriculum and textbook reform projects are taking place, such as Liberia, Lesotho, or Honduras.

## 2. Staff re-orientation and staff development.

Primary education is the base upon which all further education rests and accounts for the largest enrollments in the educational system. For example, in 1987 in NWFP and Baluchistan, respectively, 78 and 82 percent of the enrolled school population were primary school students. Though in NWFP first-grade enrollment accounted for forty-six percent of primary enrollment, fifth grade accounted for only ten percent. The situation is slightly worse in Baluchistan, where fifty percent of primary enrollees were first graders but only seven percent were in fifth grade.

These figures indicate high primary school wastage rates -- unacceptably high, particularly for a country attempting to make maximal use of its resources. Inefficient primary schools waste human talent and money, both in short supply in any country.

It seems quite clear that attention commensurate to the problem -- that is, more staff time, attention, and specialization needs to be brought to bear on primary education. And particularly by Curriculum Wing and Bureau staff if these problems are to be corrected for their work lies at the heart of the primary educational system.

One approach recommended is organizational. The organizational structure of both the Curriculum Wing and the Bureaus should be re-designed to give priority to Basic or Primary Education and its improvement. This would be consistent with the creation of the new Directorates of Primary Education contemplated by the two provinces.

PED staff development training and technical assistance help should then be directed at these newly organized cells or sections. In addition, these efforts should be supported by a training and fiscal support program for the initiation and development of critical research, development, and evaluation activities, linked to existing and planned field-based primary-school curriculum, teacher education, and instructional system reform projects.

Fortunately for Pakistan, as mentioned earlier, the Curriculum Wing has already begun a systematic attack on the problems of instruction in the early grades of primary school through the development of the integrated curriculum, for grades 1-3, now to be extended and supported by UNICEF (See Annex 3 for a full description of the project).

Support for the development, research, and evaluation of this important effort can provide the mechanism through which the priority on Basic or Primary education should be expressed. If the project proves successful, all the primary schools in Pakistan can benefit, not just those in which the experiment will take place.

Currently, Bureau staff in both provinces insist that "priority is given to primary education." Yet they identify with and have a strong professional interest in their disciplines. Moreover they are rewarded professionally more for competence and knowledge in their disciplines than for their interest in and knowledge in primary education.

They are responsible for designing and conducting pre- and in-service primary school teacher training, for supervisory training, and for training faculty in the elementary teacher training schools and colleges, for school and district management training, and for many aspects of primary-school curriculum development. Some write the actual textbooks, as well.

Many are highly knowledgeable about their discipline and can make an analysis of the structure of those disciplines. Clearly such knowledge and ability is important to curriculum development and teacher training but only as one piece of the base upon which to develop curriculum, textbooks, teacher materials, and teacher training.

Primary school instructional materials and teacher training programs need to be based primarily on instructional design principles drawn from the psychology of human learning and from child development and only secondarily on the structure of the disciplines if they are to be successful.

Curriculum developers and textbook authors can make heavier use of the structure of the disciplines in preparing materials for the middle and high schools than is advisable for materials preparations for primary schools. Even then, however, curriculum scholars still feel that the structure of the disciplines should ever dominate instructional and textbook design if one has concern for ease and efficiency in learning.

A study conducted by M. Israr, (Science and Mathematics Curriculum in Pakistan Primary Schools: A Cognitive Demand Approach, Islamabad: National Institute of Psychology, 1982), illustrates the dangers of ignoring the developmental level of the children in preparing curricula and textbooks. The study shows that in both Science and Mathematics the "curriculum (was) not aligned with the cognitive levels of the children." Many of the concepts in math -- sets, the concept of zero, or of volume, introduced in grade one could not be understood by the children. Similarly, in science first-grade children were expected to understand concepts like cause and effect, "which is not possible in view of their cognitive level." Happily, the integrated grade 1-3 curriculum development project was begun to remedy these problems and seems to have succeeded, at least to some extent.

In light of these reasons, re-emphasizing the "priority" of primary education in the Wing and the Bureaus and directing short

and long-term training opportunities to the newly assigned Basic or Primary education staff will pay handsome dividends for the primary schools of the country.

These training opportunities, such as the Bristol Project, should be supplemented, as mentioned previously, by a technical assistance and staff development program to re-orient staff and allow them to develop a principal specialization and expertise in the technical disciplines needed for designing instructional materials for primary school students, teachers, and pre- and in-service teachers and supervisors.

Coordinating this staff development training closely with the needs of the UNICEF-funded Primary Education Curriculum Reform Project will help to maximize that Project's success, as well. (See also Annex 4 for a menu of training areas from which a staff development program can be tailored to fit needs).

Serious consideration should also be given to employing Learning Coordinators to serve as staff of the Curriculum Bureaus. In addition to serving the functions for which the job was originally designed, that of providing on-the-job teacher in-service training and guidance, they could also serve as data gatherers and classroom observers in field-based curriculum improvement and evaluation efforts. Many seem not to fill either roles in their current assignment as members of the supervision staff but rather serve administrative roles.

This would strengthen the Bureaus by giving them more staff engaged directly in day-to-day teacher in-service on the job training where it is needed and would help the Bureaus take a more active part in curriculum research and evaluation --- a role they seek and which must be filled if the quality of primary school instruction is to be improved.

In the NWFP, the two Bureau professional staff with current responsibility for primary education could form the nucleus of the new emphasis or cell with the addition of Learning Coordinators. A similar arrangement could be made in Baluchistan and in the Wing.

#### B. Improving instruction

As it is now, the primary-school instructional program operates without measurable objectives against which to assess progress towards educational objectives. There are little or no teacher support materials such as annotated teacher editions of textbooks for each grade and subject. The in-service teacher training program is unable to meet the demand placed on it, and the supervisory program is virtually inoperative, with ratios of 1 supervisor to 120 schools in Baluchistan and 1 to 70 schools in NWFP.

The intended primary instructional program is best exemplified in the Scheme of Studies for Elementary Classes issued by the Ministry (see next page).

The integrated curriculum, mentioned previously, has been adopted in both provinces and is in use in class 1 in the 1988-89 school year replacing the separate studies. It incorporates language, science, and Pak/social studies. It should also be noted that the curriculum evident in actuality in the classrooms of the provincial schools varies from the National Scheme of Studies. Few small rural schools teach art or physical education except sporadically if at all. The percentage of time given to the subjects varies greatly from the Scheme -- most of the first grade classes spend the largest amount of time on language, followed closely by math. In some schools these two subjects occupy 100 percent of the time in the first grade, somewhat less in the second.

The school year is given variously as 200 days or 180 days. In actuality, with holidays, vacations, school closings for harvests, festivals, or other reasons and with frequent teacher absences, officials in both provinces report informally that many children are fortunate to have 154-160 days of schooling a year. When school is in session, virtually all of the instruction is teacher-led, i.e. to teachers talk/children listen, to rote recitation, and memorization through oral repetition. (See Annex 5 for a particularly vivid compilation of classroom observations made by Andrea Rugh and other BRIDGES personnel in the course of a study of teachers' classroom instruction conducted in the 1987-88 school year.)

A particular instructional problem relates to language teaching. Language instruction is neither uniform nor well thought through in the schools of the two provinces. In the NWFP either Urdu or Pushto are used as the medium of instruction, 52 percent and 48 percent respectively. In Pushto medium schools Urdu is also taught as a subject beginning in grade 1. In Baluchistan, Urdu has been the medium of instruction, though in fact many teachers also teach in the local language, either Baluchi or Brawhie if they know the language. Either Baluchi and/or Brawhie and Pushto will now be used in Baluchistan. English is supposed to be introduced in grade 6 in both provinces though some schools start teaching the English alphabet to first graders at the same time they are trying to learn Urdu and/or Pushto. Arabic is to be offered as a subject in grade 8, though often it is introduced in grade 4.

Essentially the "realized" curriculum and teachers' instructional effectiveness basically rest on the skills they originally bring to the classroom from their preservice trainings, develop on their own or from the textbooks from which they teach. In Baluchistan matters are even more difficult, for by necessity, many classrooms are staffed by totally untrained persons.

## SCHEME OF STUDIES FOR ELEMENTARY CLASSES

Subject	Classes I & II Age 5 and 6+			Class III Age 7+			Classes IV and V Age 8+9+		
	No. of periods per week (39)	No. of hrs. per Week (26) Each period of 40 minutes	Percentage of total time	No. of periods per week (39)	No. of hrs. per Week (26) Each period of 40 minutes	Percentage of total time	No. of periods per week (39)	No. of hrs. per week (26) Each period of 40 minutes	Percentage of total time
<b>f. Languages:</b>									
a) 1st Language	12	8	30.7	6	4	15.3	6	4	15.3
b) 2nd Language	-	-	-	6	4	15.3	6	4	15.3
2. Mathematics	6	4	50.3	6	4	15.3	6	4	15.3
3. Science	5	3.2	12.3	6	4	15.3	5	3.2	12.3
4. Pak/Social Studies	-	-	-	3	2	7.69	4	2.4	9.23
5. Health and Physical Education	5	3.2	12.3	3	2	7.69	4	2.4	9.23
6. Islamiat	6	4	15.3	6	4	15.3	6	4	15.3
7. Arts	5	3.2	12.3	3	2	7.69	3	2	7.69

Explanatory Note on the allocation of time. In the week the School will function for five full days and one half day in the following manner:

(a) For 4 hours and 40 minutes divided into 7 periods on full working days and 2 hours 40 minutes divided into 4 periods on half working days.

(b) The working hours exclude time for daily assembly (10 minutes), recess (30 minutes) and ten minutes short break on full working days and only one short break of 10 minutes only on half working days

As part of the solution to this quality problem, the Wing should develop highly-structured instructional materials written to prescribed objectives and tested in the environment for which they are intended, using a process similar to that used to produce and test the integrated curriculum, grades 1-3. These materials should be accompanied by clear and explicit directions in the form of annotated teacher's editions of the textbooks.

Using these structured materials for which they have been trained and with the help of learning coordinators similarly trained and with similar materials, teachers should then produce acceptable levels of student achievement less dependent on the initial set of skills they bring to the classroom. Because designed to fit the developmental and skills levels of the student, these materials should also be easier to teach and to learn.

In fact it our understanding that the PECRP (Primary Education Curriculum Reform Project), supported by UNICEF, was designed to accomplish the goals we have proposed in the preceding paragraphs and in the section on a revised system for developing curriculum and textbooks. Had the PECRP not existed it would have been recommended that a project virtually identical to it be established. (See the next section for a fuller explanation of the PECRP and Annex 3 for the PECRP proposal).

In time, Curriculum Bureau staff and the faculties of the teacher training colleges will want to use the understandings, insights, and findings from the PECRP to design revised in-service teacher and supervisor training programs. It will be important that these programs be product specific in nature, not general or theoretical, and that they teach exactly how to use the new materials and teaching techniques and how to help others teach them.

### C. Textbook Boards

The Provincial Textbook Boards are responsible for turning the curriculum given to them by the Federal Curriculum Wing into textbooks delivered to the classroom. The manner in which they do this varies in each province. Some of the work of textbook writing, editing, layout, composition, artwork, plate-making, printing, binding, and distribution is done by the boards themselves and some of it is done by private sector contractors.

In Baluchistan the Textbook Board contracts for all services from writing to distribution, performing a contracting and monitoring function only. In North West Frontier, however, the Textbook Board has in-house facilities for editing, layout, calligraphy, and artwork, while contracting for the writing and the physical production of the books. It also handles distribution through a network of district dealers.

### 1. Organization of the Boards

The two Textbook Boards have been performing a complex task well since they were organized in 1971. But with the increase in school population, and the changes in educational requirements and in book-making technology, they both need strengthening to meet future demands. The program of assistance to the Textbook Board should begin with in-depth assessments of the strengths and weaknesses of each Board and of the political and financial imperatives that shape their operations.

Textbook Boards came into existence first as the West Pakistan Textbook Board in 1962 and then as provincial Boards in 1971, to establish control over the quality and cost of textbooks going into Pakistan's schools. Private publishers, motivated by profit and facing fierce competition, had been failing to meet standards of quality of contents and presentation and were charging too much for their inferior product.

Therefore, the first concern of the Boards was control -- control of the content of the book, the physical production of the book, and the economical distribution of the book to the student. The Boards became the defacto publishers of textbooks through control of the process. Only gradually and in some areas did they undertake some of the traditional tasks of the publisher, such as editing, layout and design, preparation of artwork, and distribution.

One important task that is not done at present by the Textbook Boards (for anyone else) is the field testing of new textbooks before they are produced for all schools. The NWFP Textbook Board officials have pointed out the great need to do this and also the resources required, particularly vehicles to get the testing teams to the sample schools that would be spread around the province.

Another serious lack in the textbook program throughout Pakistan is the total absence of teachers' guides or annotated teachers' editions of the books. This was also raised by the NWFP officials in connection with the field testing of textbooks. It is at that stage that a teacher's edition can be introduced, to get consistent presentation of the text material, and can be revised in the light of classroom experience. The development of well-conceived annotated teachers' editions would provide the best and least expensive teacher training opportunity for all the teachers of the country.

As the systems of operation of the two Textbook Boards seem to work reasonably well, though not at optimum efficiency, any serious consideration of system changes should be made only after careful study of present operations. The initial emphasis should

be on training of personnel to make this system work better, while they also learn more about how a system should work. They can then be involved in the consideration of changes at a system level.

The staffing of the two Textbook Boards differs in number, but they both have professional staff, administrative staff, accounting staff, clerical staff, and drivers, watchmen, etc. In the NWFP, the professional, administrative, and accounting staffs add up to 16 out of a total of 72 employees. It is these people that should be the focus of training.

## 2. Training

There might well be several professional or administrative staff members in each Textbook Board who would be good candidates for extensive training abroad, either academic or in a publishing house. The selection of such persons should only be done after initial on-the-job training efforts have shown both the need for and the capability of handling such training. Of more likely benefit to a number of the staff members of both Boards would be short study tours to see how publishing and printing houses work in other countries. While well-planned tours of American publishing houses and textbook printers would be a stimulating experience, more benefit might be gotten from visits to successfully developed textbook publishing and printing operations in other developing countries. And a combination of both these programs might be possible.

## 3. Technical Assistance

Specialized seminars, workshops, or short courses for professional staff -- writers, editors, artists, designers -- put on by short-term TAs, either for both Boards at once or serially in Peshawar and Quetta, provide a good way to upgrade the professional abilities of the Textbook Board staff. It is unlikely that many of the staff members have ever been given the opportunity to learn the fundamentals of the book publishing profession they have been practising. As new systems and new technology are introduced in each Textbook Board, there will be a great need for people with an understanding of the fundamentals, who can absorb the training that will have to be given in the new techniques, new equipment, and new systems.

The provision of long-term Technical Assistance at each of the Textbook Boards is the key to the upgrading of the Boards' capabilities in textbook preparation, production, and distribution. The TA, in a continuing process, will study present operations, suggest changes in systems and equipment, help plan outside training efforts, and carry on a program of on-the-job training aimed at influencing every phase of the Boards' operations.

#### 4. EMIS and word processing

A Management Information System for both provinces is planned a part of the PEDP Program. It will provide data on school populations, teachers, textbook inventories, and the other data needed for an effective educational program. The Textbook Board must have computers capable of tapping that data base and using it for their specific tasks of planning textbook production and distribution programs. These same computers can provide the word processing facilities needed by each Board and thereby improve the communications so necessary in such a Board and complex program.

Some new equipment will be needed to enable the Textbook Boards to function in an efficient manner and to make best use of the improved skills of the Boards' staffs. As the program of strengthening the capabilities of the Textbook Boards proceeds, there will be other production monitoring aids needed, such as production control boards, distribution maps and charts, files and filing cabinets. They help to shape a system as well as making the system easier to operate.

No office involved in monitoring the production of textbooks in a number of locations and the distribution of those textbooks to an even greater number of destinations can operate without adequate photocopying facilities. Orders, reports, receipts, and estimates all must be prepared and shared. Heavy duty photocopiers are a must. They can be shared with the staff concerned with preparation of the textbooks, possibly reproducing sufficient copies of a new textbook for testing prior to printing.

#### 5. Increasing system efficiencies

The Textbook Board in NWFP does some of the preparation tasks associated with textbook design, such as calligraphy and artwork. The Baluchistan Textbook Board does not, at present, but the chairman has expressed their desire to do so in future. Because both work with many different printers, it is difficult for them to standardize anything. By developing in-house capability up to the point of "camera-ready copy" that will be identical for each printer, control of quality and cost will be greatly improved.

By preparing standardized formats at each grade level, the Textbook Boards can ensure a more uniform quality of output from the several printers responsible for printing a single book. They can also, in consultation with education specialists, determine appropriate type sizes and page sizes for each grade level. To accomplish this, someone at each Textbook Board will need specialized training in typography and book design.

Presently, no primary school textbooks in the two provinces are type-set in the conventional sense, but are written by hand by contract calligraphers. When skillfully done, calligraphy in the

Arabic script used for both Urdu and Pashtu can be handsome and readable. But if it is not well done, the result is a difficult reading job for the primary student. Add to this the lack of uniformity of style from one calligrapher to another, and the problem is compounded.

With the advent of computer type-setting, page-making programs, and laser printing, which go to make up "desk-top publishing", the production of clear, uniform, and well-designed pages of type is a reality. And it is now possible to do so in Urdu and Pashtu using the Arabic script. In addition, the task of correcting errors after proofreading becomes a simple electronic chore instead of a laborious and slow re-writing of whole pages. The establishing of computer composition capability in each Textbook Board, using the proven, easy-to-learn Apple Macintosh computer and laser printer and Arabic script programs presently available in Pakistan, would speed up the whole publishing schedule, at the same time as it improved the quality of composition. It should, when fully developed, reduce preparation costs as well.

Another element in the preparation of a textbook is the artwork. Most of the primary school books produced in Pakistan have abundant four-color illustrations. These are produced primarily by free-lance artists, with detailed instructions on picture content given by someone at the Textbook Board. The educational value of much of the artwork in color is dubious, but the inclusion of color is hard to dispense with once it has become accepted by teachers, parents, and students.

It is important, therefore, that the artwork produced for textbooks be properly defined and controlled by those authoring the text. This is generally done in a publishing house by either having a staff of artists in-house working under editorial control or having a qualified art director, who is the liaison between authors. One of these two courses should be followed by the Textbook Boards and the necessary training should be given to the persons responsible. Only then can the artwork and text be properly combined to produce textbooks of suitable quality at reasonable cost.

Maps, charts, pictures, alphabet sets, supplementary readers, and other non-textbook materials are needed in a classroom to create a good learning environment. A study is needed of what is feasible to use in the classrooms of rural Pakistan, what the teachers want, and what they can handle.

The problems of production and distribution of such materials can be complex and the capability of the Textbook Boards to handle the added responsibility would have to be developed before a program of providing such material was initiated.

One of the major functions of the Textbook Boards is the control of the entire process of preparing, producing, and distributing textbooks. It is in the increasing of efficiency in each step of

the production control process that great savings of time and money and substantial improvements in quality of textbooks can be achieved. In the preparation of printing contracts, the costs of all elements are calculated. Each Textbook Board has a pricing schedule, the one for Baluchistan running to ten pages. These schedules need continual updating and revision as new equipment and new methods are introduced. This has not been done for a number of years. Accurate costing is essential if book contracts are to be equitable to printer and customer alike. Putting such estimating schedules on the computer where they are easy to use and easy to update will help accomplish this.

Textbooks for the coming year are produced in a crash program over a four-month period, from mid-October to mid-February. In NWFP last year there were 44 titles produced for grades 1-5 and the total number of copies printed was 6,175,000. Baluchistan, with a school population about one-third that of NWFP, has a similar though smaller printing program.

In both cases it would reduce costs and allow for more orderly production if the work could be scheduled over the whole year. Printers would benefit from such scheduling and should offer lower prices. Pre-Packaging for distribution could be done in the warehouses as titles were delivered. Based on the estimated costs and the schedule required for distribution to the schools, print orders are now placed with a large number of printers. To spread the work among a broad group of printers, each Textbook Board will split the press run for a single title among several printers. Thus if 100,000 copies are required, they might enter into contracts with three printers to print 30,000, 30,000, and 40,000 copies respectively. Because of the modest scale of many of the printers and the sometimes primitive hand bindery methods used, there may be justification for splitting press runs this way. But it does make for much more difficult monitoring and quality control.

This phase of the Textbook Board production system is one that needs careful study and probable modification. The major quality problems with texts in both provinces lies in the problem of securing better paper at affordable prices and in finding adequate binderies. Imported paper is of better quality, takes a better impression, particularly of color, and is stronger. Import duties, however, raise the price enough to have a noticeable effect on book prices if very much imported paper is used. Officials warn that locally produced paper while cheaper is of poorer quality, often is wetter (thereby stretching under printing and making the second registration imprecise), often wrinkles, and is more subject to tearing. Were an exemption from the import duties and other taxes made by the GOP for foreign, higher quality paper for use in textbook printing, it would be competitive with local paper and its use would rise. Consequently so would textbook quality.

The bindery issue is more complex. All but three of the grades 1-5 textbooks are less than 100 pages in length. For books of that size, wire side stapling (3 staples) is generally used, with a glued-on cover. The smaller books, virtually pamphlet-size 32 to 40 pages are saddle-stitched. In neither case will the pages open and lie flat but must be creased by hand, one cause of page breakage or tearing. There are few machine collators so virtually all these smaller texts are handgathered and collated in hundreds of small, manual binderies. Until a serious study is completed, this issue will remain unresolved.

Systems for monitoring the entire process of textbook preparation, production, and distribution can be handled on computers or on production boards, printed forms, and job envelopes. Where so many titles in so many copies are printed each year, it is important that the people monitoring production have the benefit of a well-designed monitoring system and of training in its use. As a large part of the production is done by private sector contractors, the need for a comprehensive monitoring system is obvious.

Distribution of the millions of textbooks produced each year is a daunting task in Baluchistan and NWFP. In Baluchistan, the books are now given free to the students. Of the 1,911,000 copies of primary-school textbooks printed for 1989 (the first edition) 75 percent, or 1,433,250 textbooks are provided free to rural students. The remaining 477,750 are sold to students in the urban areas. The total value (price) of the free textbooks is Rs.7,454,438 (see Annex 6 for their printing list for 1989). The free textbooks are distributed through the Textbook Board's own system of warehouses, transport, and district officers at an annual cost equal to one third the annual cost of production.

In NWFP the books are not free. Most are distributed by dealers who purchase them from the Textbook Board. The Education Management Information System (MIS) will help distribution by providing more accurate and up-to-date information about school enrollment by sex and language. The staffs of the Textbook Boards will need training, however, in using the data provided to them in planning their distribution programs. In NWFP, a central warehouse is presently used to store plain paper en-route from the paper mill to the printers and printed books en-route to district dealers and the schools.

Both provinces would like more warehouses and a more decentralized system to help cover the more remote areas more effectively. In Baluchistan, the Textbook Board is headquartered in rented space, at present a converted residence, and must move frequently when their lease expires. They have purchased land on which to build an office building and warehouse for storage of paper and finished books. They have requested that PED program funds be made available to build these facilities (see the Construction Working Paper). It is recommended that their request be given the most serious consideration. Having such a

facility would allow them to be more efficient and effective as they modernize through the help of PED technical assistance, training, and through computerizing their operations.

A careful study of the logistics of moving books from a large number of printers to warehouses and thence to the schools is needed before an accurate determination can be made of the number of warehouses needed. A year-round production schedule would also have an impact on warehousing as would any future arrangements for using imported paper, either purchased or donated.

Along with warehouses, the need for more trucks to speed the distribution in those areas where it is handled by the Textbook Boards, is frequently expressed. This also needs to be studied in the context of a complete distribution system. And again, the extending of the production schedule might lessen the strain on transport.

The monitoring of the distribution of textbooks to the schools presents different problems than the monitoring of production. The time period is even shorter, the number of units involved is greater (the number of schools), and the ultimate deadline is here - books in the students' hands when school starts. Building on the EMIS data used in planning production quantities, the distribution program can be planned and monitored by the Textbook Boards. Again, an efficient system, with trained operators, is the goal.

#### IV. SUPPORTING NEW AND ON-GOING CURRICULUM DEVELOPMENT EFFORTS

Of the on-going or planned curriculum and teaching reform projects in the two provinces funded by external donors, two should receive additional financial support from the Primary Education Development Project (PED). The first is the PECRP.

##### A. Primary Education Curriculum Reform Project (PCERP)

The PCERP lists the following as its major objectives:

1. To develop integrated learning materials with an emphasis on literacy and numeracy for primary classes one to five;
2. To reorient curriculum content to include issues on child survival and environment and to facilitate his/her preparation for lifelong learning and sustained improvement of quality of life;
3. To design the learning situations and the teaching/ learning materials in a rigorous systematic and scientific manner which will include prior and post field testing, continuous assessment, monitoring and evaluation and feed-back into the design;

4. To ensure that the new integrated curriculum is also socially, psychologically and environmentally appropriate to the learning need of children, including those with learning difficulties, those in disadvantaged situations, and particularly to girls in all these categories;
5. To design, test and implement new methodologies appropriate to the curriculum content ensuring that learning is activity-oriented and child-centered. These will subsequently be fed back into teacher education also;
6. To design and utilize new techniques for pupil assessments (including self-assessment) in the higher classes: 3-5).
7. To reorient and train teachers, DEOs, supervisors and other support staff to introduce the new curriculum and methodologies.
8. To develop, test and publish material for teachers which will be used as handbooks in support of the new curriculum;
9. To design, prepare, test and print materials for supervisors, auxiliary staff and parents in the process and procedures of the project;
10. To orient and retrain traditional supervisors to act as advisors and resource persons for primary school teachers.

Intended curriculum outcomes of the project will include a "heavy concentration on literacy and numeracy in classes 1-3. For classes 4-5 there will be a broader design...which relates to life skills -- health, sanitation, nutrition, etc. Curriculum content in the last year (class 5) will be germane to the world of work (since for many it is their last school year). A mathematics and language syllabus will be established and expressed in terms of hierarchies of behavioral objectives with literacy and numeracy skills predominating for classes 1-3, rather than content.

Textbooks and supplementary student materials, and teachers' manuals or handbooks will be developed for an integrated curriculum for all five grades, tested in classrooms, revised, tried again, revised again, and produced. In effect the project is an extension of the integrated curriculum for classes 1-3 that originated in and was conducted by the Curriculum Wing.

The PCERP will provide curriculum designers, writers and editors of teaching materials, textbooks, and other supplementary materials in the provincial Curriculum Bureaus, Textbooks Boards, and the Curriculum Wing with a rich and demanding set of experiences using a more rigorous, scientific, and technically sophisticated system for developing, testing, and producing validated learning and teaching materials.

The project will be located in 270 schools in NWFP (Abbottabad district) and 145 schools in Baluchistan (Sibi district). Four hundred fifty teachers in the two provinces will be trained each year in short, intensive sessions to teach the newly-developed and/or revised materials (300 in NWF, 150 in Baluchistan).

A very important consideration is that contrary to the planned new Girls Primary Education Project (ADB), or the previous World Bank Projects, the PCERP will be implemented within the official structure of the MOE and not through a separate Project Implementation Unit (PIU). The Curriculum Wing will have overall authority and direct control over the project, which will be implemented in the provinces through the Curriculum Bureaus.

Thus, the PECRP will not operate in isolation nor face the problem later of being an unwanted orphan when donor support ends and the time comes for adoption or abandonment. Structured as it is, if staffed by knowledgeable and trained personnel, managed, and evaluated properly, it can serve as the training and testing ground -- the central mechanism, for genuine incremental primary education reform and re-direction.

It will also be the focal point through which staff of the Curriculum Wing and the Bureaus gain added training and experience in field-based curriculum renovation, important if they are to continue upgrading the educational system.

The additional support over and above that provided by UNICEF for the PECRP should be used by the Curriculum Wings and the Bureaus to help accomplish the project's ambitious goals by supporting necessary training and such additional technical assistance as may be needed.

In particular it will be important that a small representative network of schools pilot the revised curriculum materials, textbooks, and annotated teachers' editions in the year following their first use in the experimental schools. This pilot-school network will serve as the natural-situation testing ground for designing all the necessary training, public information, and social marketing programs needed to disseminate the programs' materials, products, and newly-developed and revised techniques to the remaining schools of the two provinces, once the formative evaluation shows them to be ready.

The formative evaluation effort (including all the necessary technical assistance and training), should be funded from PEDP sources. This should also include the development, testing and production of behavioral-objectives linked test item pools for criterion-referenced, diagnostic, and mastery tests, as well.

### B. Field-Based Teacher Development Project (TDP)

The other project deserving consideration for additional funding from PED sources is the TDP, funded by the Aga Khan Foundation and operating in Gilgit and Chitral, NWFP. Permission has already been given by NWFP authorities to replicate the project in the Manshera District.

Though primarily a teacher training project, the Project focuses directly on ways to develop, foster, and manage interactive classroom learning -- a matter of great concern and interest in an educational system in which teachers rely principally on a system of teaching memorization and recall of facts as their major teaching technique.

The TDP will also develop materials -- teaching manuals in the main, but they will also incorporate learning materials, lessons, etc. in the manuals as critical portions of the methodology. Hence they should prove to be of great use to teachers and of direct benefit to students as well. The project has been favorably reviewed in one evaluation and will undergo another one in the summer of 1989.

To date program reviews and the evaluation have focussed on whether the training actually produces teachers with the desired behavior, which it seems to do. As yet the project has not benefited from evaluation or research looking at student outcomes. Given that teachers behave differently when trained in this way, do students learn more, or differently, or do more of them learn? What do they learn or how does their learning behavior differ from that of students taught by teachers who were trained in the usual way?

Because of the urgent need to revitalize the teaching force in Pakistan, research attention needs to be directed to these important questions not simply or only at how to train large masses of teachers as cheaply as possible. Serious scholarly attention and research needs to be paid to the qualitative dimensions of teaching, as well. It may well do more harm than good to continue to center every teacher education effort solely on the means to produce masses of "certified" teachers for the least cost with little regard being paid to how well they teach (i.e. to what effect) once trained.

For these reasons it is recommended that serious consideration be given to support of the TDP, provided that it be well evaluated, and that research be conducted on student outcomes and on possible ways to reduce the per participant cost. The Project may well produce desirable student behaviors and outcomes may well be found as those engaged in the project believe. If so, the MOE will want to be able to replicate those elements of the project that may be accounting for or be closely correlated with their occurrence at an affordable cost.

### C. Girl's Primary Education Project

Another project to monitor closely for ideas, for curriculum and other learning materials, as well as teacher training products and techniques, will be the new one for girls now under consideration by the GOP and the Asia Development Bank as a sector loan. Estimated project costs are 65,000.000 over a five-year period, 1989-1994. An ADB mission has just completed a draft Memorandum of Understanding describing the project and its components.

The objectives of the project are to "address specific issues of immediate concern to girl's (primary) education in the rural areas," -- low girl's participation rates and their reasons; inadequate supply of female teachers willing and able to work in rural schools; need to provide "continuous" in-service to female teachers already teaching in rural areas; inadequate teaching, support materials and poor teaching methods; and management.

The project calls for establishing a cluster system of model schools surrounded by a ring of five-room schools under their influence (in 67 rural Union Councils in Baluchistan and 146 UCs in NWFP). Additional rooms will be added to existing satellite schools to bring them up to five rooms. The model school at the center will provide teacher in-service and supervision to the cluster schools. The project will use the integrated curriculum and will use and evaluate the learning modules developed by the World Bank's PEP I and II.

This "comprehensive evaluation ... will constitute the basis for determining the form which future instructional support materials should take." Consulting services will design a strengthened format for them, a master plan, and staff training for their development. Revised teaching kits will be provided to the schools and libraries of materials will be set up in the model schools. In addition the project will fund ten research and evaluation studies, two per year for the first five years.

Twenty-four existing CETs will be upgraded and provided equipment and reference books for their libraries. The provincial Curriculum and Extension Centers will develop the instructional packages used for in-service training of the learning coordinators, headmistresses, and CET instructors. AIOU will develop and deliver distance education packages for CMS teachers. Pre-service females teacher training will consist of the Full PTC course of two years duration, complemented by practical workshops and teaching practice.

Finally, though they require no additional support, the new World Bank projects in the Punjab and Sind will also contain some innovative features it will be worthwhile to monitor for possible dissemination at a later time.

### C. Low-cost teaching materials

A large variety of designs for low-cost learning materials now exists, usually developed by those expert in instructional systems design. Short-term technical assistance in low-cost materials methodologies should be supplied to the Textbook Boards, the stable of authors, and curriculum developers in the provincial Bureaus and the national Curriculum Wing.

### D. Language teaching

The issues of language teaching in education are multiple, important and most, severe in the rural areas. Urdu is the language of national identity spoken by 36% of the urban population in Pakistan but by only 1.3% of the rural population. Over 20 languages are spoken in the country. Arabic is necessary for the Islamiat and those who wish to continue on to a university education must also learn English.

Local languages are now to be the medium of instruction, classes 1-3, in all of Pakistan as they have been in some provinces for the last few years. In NWFP textbooks for the first five classes are in Pushto and Urdu. Those who attend Pushto medium schools begin studying Urdu as a second language in grade one. Consideration should be given to starting the teaching of Urdu at a later time, since research in language learning suggests that it is easier to learn a second language if one first becomes literate in one's own mother tongue.

In developing materials for early language learning, most authorities believe it is important that a graded vocabulary be used. Some excellent work has been done on developing a graded vocabulary in Urdu which should form the basis for additional research to continue its development and test a variety of methods for using it in preparing textbooks and supplementary readers of high interest and low reading difficulty.

Once a decision is made on which local languages (Pushto, Baluchi and/or Brawhie) will be used as the medium of instruction in Baluchistan, work should start immediately on developing a graded vocabulary for them as well. Moreover, it will be of vital importance to students that appropriate language teaching techniques be developed and taught to teachers before they begin teaching in the local language. The AIOU National Institute of Pakistani Languages may be of help in this regard, particularly if their work results in a distance inservice teacher training program in language instruction techniques.

Certainly no basic research could be of more immediate value to students than a continuation of this vital work, for every Pakistani primary school child is faced with learning at least two languages. Those who wish to continue beyond fifth class will have to learn to read and write two more, no mean feat. It is

recommended that such work continue in tandem with research on language teaching methods and ways to train as many teachers in those methods as quickly and efficiently as possible. These should be funded out of PEDP sources.

There are practical management and teaching difficulties that could benefit from applied research, as well. In Baluchistan, for example, it is estimated that 90 percent of the female teachers are from the outside and do not know the local language. It may well require some artful practical research to see how either Pushto, Baluch, or Brawhie can be used as the medium of instruction in these schools unless and until teachers with a working knowledge of the local language(s) are employed to replace them.

#### E. Curriculum development, analysis, and evaluation

The provincial Bureaus should conduct practical, applied research and evaluations jointly planned under the leadership of the Curriculum Wing. High priority should be placed on research in curriculum development and analysis and on curriculum evaluation. In particular, this work should be done independently of and prior to textbook development and the trial use and evaluations made of textbooks later to see how well they are conveying the tested curricula's intents.

The analysis and development of appropriate teaching materials and instructional systems designs for Kachhi classes and for multi-grade teaching are two areas of practical importance that demand immediate attention.

#### F. Children's social and cognitive growth and development

If any program to improve the quality of school learning is to be successful in the long run, a well-planned and sustained program of applied research on children's social and cognitive growth and development and of children's learning should be funded. This need not be a large program but it should be one of high quality, practical in conception, ie with application potential, and should occur not in laboratory conditions but in the varying but in the specific physical and societal contexts that help shape children's learning in Pakistan.

#### G. Assessment systems

Mention has been made elsewhere in this and the other companion papers, (see the Social Soundness Analysis and the EMIS papers), of the need for assessing student achievement for instructional purposes and for making decisions about how and where to plan for and allocate resources so as to increase the efficiency and

effectiveness of the primary schools. Any EMI system worthy of the name will include achievement scores as one set of valued data.

The design and validation of individual tests, whether normed and standardized or criterion-referenced, and of test item pools tied to objectives that reflect learning domains is a relatively straightforward technical task for which technical assistance and training in psychometry are available. However, the decision to go forward with the development of a national program to assess student achievement at various grade levels is not a trivial decision so easily made or carried out. Careful study and research will have to be made by panels of appropriately selected scholars, researchers, Ministry officials, and important intellectuals and influentials in the country before such a decision is made and before any plans are laid.

The design and development of individual criterion-referenced tests, diagnostic tests, and lesson mastery tests used for instructional purposes need not wait on these publically-debated decisions, however, for they will have to be developed along with any new curriculum and textbooks in order that an instructional system can be designed specific to that curriculum and textbook. Hence, training and technical assistance in test and item pool research and development should begin right away if the expertise does not already exist in the country.

#### H. Interactive radio

Interactive radio has come of age both as a delivery system and independently as an instructional tool of great merit when a country is faced with the need for direct distance instruction, either because of a lack of physical facilities or teachers or both. Both the Dominican Republic and Honduras make excellent use of interactive radio for the direct instruction of primary-school children in remote rural areas.

Serious study should be made in Pakistan as to the advisability, feasibility, and development costs of an interactive radio capability in Pakistan. Such a program might be of great use in reaching scattered student populations in the more remote, difficult to serve regions of the country. The study should be preceded by a well-planned study tour to Honduras and the Dominican Republic for a small group of Pakistani educators accompanied by an American expert who could be of help in designing a program for Pakistan, should a decision to do so eventually be made.

#### VI. OTHER IMPORTANT QUALITY ISSUES

A major quality consideration is the supply of high quality textbooks, teacher support materials, teaching aids, and instruc-

tional equipment to schools. An equity issue also qualitative in nature is the provision of textbooks and school supplies to those children whose families can not afford to purchase them.

Every school in the two provinces should be provided with a minimum set of instructional materials and aids. That list should include the following items:

- o blackboards;
- o teacher tables and chairs;
- o seats for children to sit on;
- o basic charts (alphabets, number lines, maps, science models);
- o simple sports equipment, balls, jump ropes equipment for simple team sports; and
- o storage shelves for books and supplies and a locker for storage of valuable items.

Additionally, every rural school should be supplied with a minimum of two complete sets of textbooks for the grade level(s) taught, these to be available for short-term loan to children, perhaps on payment of a small deposit to cover replacement costs if the books are lost or damaged. Some study must be given as to how to set up this system, so that it doesn't become an onerous burden on the teacher, or even worse, so that teachers don't lock the materials away and not let children make use of them because they feel they will be held accountable.

Supplementary reading materials, (of high interest to children and of graded reading difficulty levels) should be provided in each school for in-school reading to give children practice, so they may further develop their reading skills, and find reading pleasurable. In line with this, serious consideration should be given to promoting the private sector publication of a children's magazine issued on at least a monthly basis, perhaps designed along the lines of the Weekly Reader used in some schools in the U.S. To encourage a publisher to undertake such a venture, the MOE might agree to purchase a guaranteed minimum number each month for distribution to schools, that number to be set at or near break even for the publisher. In time, as demand grew the MOE subsidy could then be phased out.

Elsewhere it has been recommended that teachers' editions of the texts be developed, tested, revised, and published by the Textbook Boards. These should be routinely provided to teachers. During the the first five years of the PED, their production and distribution costs should be borne in full by the PED's materials subsidy. Over the following five years, the GOP should assume these costs on a gradual basis of an additional 20% each year.

As discussed elsewhere in this paper, Baluchistan provides free textbooks to its rural school children and may extend the program to urban districts, as well. NWFP does not, though in the past the Textbook Board tried a system of providing free texts to students the schools identified as needy. The Board stopped its program, however, when it discovered that the books were never delivered to the schools but remained in the DEO's offices, presumably for lack of transport. Instead, the NWFP prides itself on making its texts as affordable as possible. In fact, a first grade textbook in NWFP costs less than a blank copy book. Even so, they agree, some families in the province find it difficult to buy textbooks for their children.

Rather than provide free textbooks to all the primary-school students in the NWFP, with the consequent recurrent cost burden that would entail for the GOP even though it might prove politically popular, we suggest that since the problem varies in severity from one community to another, the problem is best handled in the local communities of the NWFP. PED monies can be made available to local communities to augment Zakat or other locally administered funds they now have which can be used to purchase textbooks, school supplies, and uniforms for needy children.

## VII. ACTION PLAN

### Year One

- o Perform training needs assessment and prepare master training plan and staff development plan schedule for staff of
  - Curriculum Wing
  - Curriculum Bureaus
  - Textbook Boards
- o Begin research and development on graded vocabulary and teaching methods for Urdu, Pushto, and Baluchi for Brawhie (depending on which combination comes into use in Baluchistan).
- o Perform an organizational and management study of the Curriculum Wing and Bureaus for analysis of the feasibility and merit of organizing, training for, and setting up the Basic Education/Primary Education cell or section in each, and methods of increasing coordination and cooperation among them, and with the textbook boards.
- o Perform organizational and management study of how, where, and when to organize R, D & Evaluation management and coordination unit (preferably in

Curriculum Wing); how to staff, fund, and to set up and manage small basic and applied learning/instructional research program.

- o In-country TA training for curriculum revision/review in preparation for year 2 start up.
- o Begin (formative) evaluation training for AKF (TDP), Unicef (PECRP) and ADB projects.
- o Begin Textbook Board Training (short-term TA) in uses of computers in management (production scheduling, control, inventory control, sales and marketing, etc) and for desk-top publishing.
- o Begin short-term study tours for Textbook Board staff to American/British/African/Asian textbook publishing enterprises for instructional materials design, especially for annotated teachers' editions, programmed teaching materials, and other highly-structured teacher materials.
- o Set up and begin training of a National Committee of Curriculum Wing staff, Bureau staff, and Textbook Board staff to develop a Master Curriculum Matrix (including master scope and sequence chart) for all grade 1-5 subjects, sequencing measurable objectives vertically for each grade and integrating them horizontally, across the subjects by grade. Coordinate this work with the test development group.
- o Begin test development program for the integrated 1-3 curriculum, with TA (short-term) drawing on local expertise where it exists. Test items are for criterion--referenced/diagnostic/mastery tests of desired specific measurable instructional objectives/ content and skills higher-order domains plus problem solving and/or applications.
- o After Textbook Board staff have completed and the study tour first products of the Master Curriculum Matrix Committee are complete, begin developing annotated teachers edition for grade 1 of the integrated curriculum and for Urdu. These will enter the trial/ revision/trial cycle during Year 2 in PECRP schools. Data from these trials, from student achievement, student progress data will then be used to revise the statements and sequencing of objectives in the Master Curriculum Matrix.

- o Design and set up master PECRP/TDP formative evaluation plan as a product of evaluation training for start up in Year 2 .
- o Establish a small network (representative sample) of schools to pilot (evaluate) PECRP (revised) materials, techniques, one year behind each experimental year.

#### Year Two

- o Continue study tours, seminars, workshops (and TA) for Textbook Board staff, concentrating on textbook evaluation, during and after development (test editions).
- o Continue TA on computer applications in management and desk top publishing in the Textbook Boards. Run the computer-based management programs in parallel with regular manually operated program to de-bug computer system, train staff, develop new forms, communication needs, etc.
- o Continue development of the Urdu and other language graded vocabulary and of new teaching methods. Make, try, and revise and disseminate demonstration video tapes (NWFP Textbook Board) of teaching methods for teaching Urdu.
- o Set up management, organization scheme and begin operations of Basic/Primary Education cells or sections in Wing/Bureaus; provide TA, series of week-long seminars, workshops, once every two months for combined staff of new sections for training, problem solving, coordination of efforts, and to share work load.
- o Begin curriculum revision, review. Suggest that developing materials and techniques for handling multi-grade teaching and for Kachhi class teaching be the beginning efforts.
- o Begin PECRP/TDP formative evaluation program.
- o Begin operation and formative evaluation of pilot-schools network.
- o Continue work of National Committee on Master Curriculum Matrix in coordination with test development group.
- o Continue development, trial, and revision cycle of annotated teachers' editions for integrated curriculum 1-3, in series, using PECRP schools.

- o Set up in-service teacher and supervisor training committee in each Bureau, with Wing representation, to develop plans, programs, materials, and master schedule for large-scale in-service training in the use of annotated teachers' editions (grade 1), summer of Year 2.
- o Arrange one or two study tours for key Bureau, Wing staff (those ineligible to participate in Bristol or ADB participant training) in necessary areas of practical concern - especially low-cost materials, structured materials, self teaching materials. Follow up with seminars and workshops for other key staff in the Basic/Primary cells in both Bureaus and in the Wing.
- o Following teacher/supervisor workshops in use of grade two annotated teachers' edition (see above), begin follow-up supervision/trouble shooting data collection effort by GCET staff, learning coordinators, super-visors, Bureau staff. (Assumes that the revised integrated curriculum from PCERP is in use in grade 1 in both provinces - in Pushto, Urdu, Baluch, or Brawhie - the schedule may slip because of translation problems and the need to print small runs in 4 languages).

### Year Three

- o Continue training TA, Bureau/Textbook Board staff, as planned, Last year for Bureau staff in Bristol project so begin planning for logical follow-up program, if needed.
- o Continue Urdu/other language graded vocabulary. Establish national in-service program for teaching Urdu, perhaps with national TV, using demonstration tapes, or perhaps begin a national interactive radio program to teach Urdu.
- o Continue PECRP/TDP formative evaluation program, feeding back evaluation results.
- o Continue operation and formative evaluation of Pilot schools network, with data feedback to PECRP staff, other relevant groups.
- o Continue and complete Master Curriculum Matrix and continue revisions using data feedback from PECRP/pilot network formative evaluation.
- o Continue test development, item pool development, development of alternative test forms.

- o Begin planning consideration for a National Basic Education Assessment Program.
- o Continue large-scale in-service teacher and supervisor training in use of annotated teachers' editions in summer - (new grade 1 teachers and grade 2 teachers, assumes revised PCERP grade 2 integrated curriculum in use).
- o Begin development trials in a small sample of rural schools of new multi-grade teaching materials and instructional designs, and of Kachhi-class materials.
- o Continue planning for National Assessment - using criterion-referenced test data from a random sample of students in PECRP experimental and control schools as specimen, pro-forma data and information.
- o Using TA plus training, begin textbook in-school evaluation project during development of texts, plan for and conduct Test Edition of another, different text to de-bug program, in both Textbook Boards.
- o Continue TA/training Textbook Boards on computer applications.
- o Put follow-on training plan (after Bristol) into effect for Bureaus and Wing staff.

## VIII. BUDGET

Instruction and materials		YEARS										T
		1	2	3	4	5	6	7	8	9	10	
	3.1 Curriculum Review/Revision	0.000	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.150
	3.2 Textbooks Review/Revision	0.000	0.025	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225
	3.3 Achievement Testing Review/ Revision	0.000	0.000	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	2.400
	3.4 Teacher Guides Review/Revision	0.050	0.050	0.050	0.075	0.008	0.008	0.008	0.008	0.008	0.008	0.273
	3.5 Coordinate non-MOE Activities	0.050	0.050	0.050	0.050	0.050	0.000	0.000	0.000	0.000	0.000	0.250
	3.6 Interactive Radio - assess	0.000	0.000	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.150
	3.7 Other Distance Teaching	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413	4.130
	3.8 Materials Support	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	30.000
	3.9 Commodities Support	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	2.000
	<b>Sub-totals</b>	<b>3.713</b>	<b>3.813</b>	<b>4.263</b>	<b>4.213</b>	<b>3.971</b>	<b>3.921</b>	<b>3.921</b>	<b>3.921</b>	<b>3.921</b>	<b>3.921</b>	<b>39.578</b>

## Budget notes:

- 3.1 Support costs at \$75,000/yr. for years 2-3
- 3.2 Support costs, \$25,000 in year 2, and 100,000 in years 3 and 4
- 3.3 Support costs, \$300,000/yr for years 3-10
- 3.4 Support costs, \$50,000/yr for years 1-2 (dev.), \$50,000/yr for year 3 and \$75,000/yr for year 4 (prod. & dist.), and \$8,000/yr years 5-10 repl)
- 3.5 Support costs \$50,000/yr for years 1-5
- 3.6 Trial progress for years 3-4 at \$75,000 per year
- 3.7 Support costs for 5,500 students/yr at \$75 for 10 years
- 3.8 Program subsidy at \$3,000,000/yr for 10 years
- 3.9 Support at \$200,000/yr for 10 years

In addition to these items, four budget items in support of the activities of this component are found in the administration and management budget, since that title best fits the description of the use to which the money will be put. See below for a repeat of these four budget items. (N.B. that they are not included in the instruction and material component budget sub-total, to prevent their being counted twice).

	YEARS										T	
	1	2	3	4	5	6	7	8	9	10		
1.5 Curriculum coord (non-MOE)	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.000	0.400
1.6 Textbook Boards - Upgrade	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.500
1.7 Curriculum Boards - Upgrade	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.500
1.8 Curriculum Wings	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.500
	.190	.190	.190	.190	.190	.190	.190	.190	.190	.190	.190	1.900

## Notes for these items:

- 1.5 Curriculum coord (non-MOE) 1.5 Two staff plus support at \$20,000 x 10 years.
- 1.6 Textbook Boards - Upgrade 1.6 Support costs at \$50,000 x 10 years.....
- 1.7 Curriculum Boards - Upgrade 1.7 Support costs at \$50,000 x 10 years.
- 1.8 Curriculum Wings - Upgrade 1.8 Support costs at \$50,000 x 10 years.

## IX. CONSULTANTS TERMS OF REFERENCE

1. COP administrator, planner with curriculum reform experience, R & D and or evaluation experience, especially in management of them. Ph.D. or equivalent. At least 5 years' experience in less developed country work, preferably muslim country(ies).

2. Long-term TA (five years) to work with Curriculum Bureaus, 1 in each province, each of whom also work with Curriculum Wing. One should be expert in I.S.D., test development, evaluation of materials; the other in curriculum development, in-school testing, cognitive development and/or system design. Both need less-developed country experience. Both need Ph.D. 's or equivalent.

2. Short-term TA 6 months each for 3 years to work in Textbook Boards, 1 in each province. Should be expert in publishing production and distribution one with management expertise, (production control, inventory control, costing, etc.). The other should have experience and expertise in the editorial side of the business, both with 5 or more years' experience in less developed country(ies).

Also need short-term TA in Instructional System Design (ISD); content and task analysis; test development; item-pool design; materials evaluation; word processing and desk-top publishing (e.g. MacIntosh Page Maker + Graphics Packages + experience with scanners and laser printers); computer based business applications, e.g. fiscal, production, inventory control-data base management, spread-sheets, etc.). Should commit to about 3 months minimum each year for first five years.

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## V. INITIATING RESEARCH, DEVELOPMENT AND EVALUATION ACTIVITIES

### A. Oganizing research, development, and evaluation

There is a clear need to establish an organized system to manage, direct, and coordinate the multiple research, development, evaluation, and educational reform projects now underway or planned. Moreover, if efforts to improve school quality and efficiency are to be successful and sustainable over time, an additional number of applied research and development activities will be needed in the future.

This will require that priorities be determined, that needs assessments be conducted, that effective ways be created and maintained to make maximal use of data, and that a continuing program of research, development, and evaluation be established, along with a requisite set of training programs.

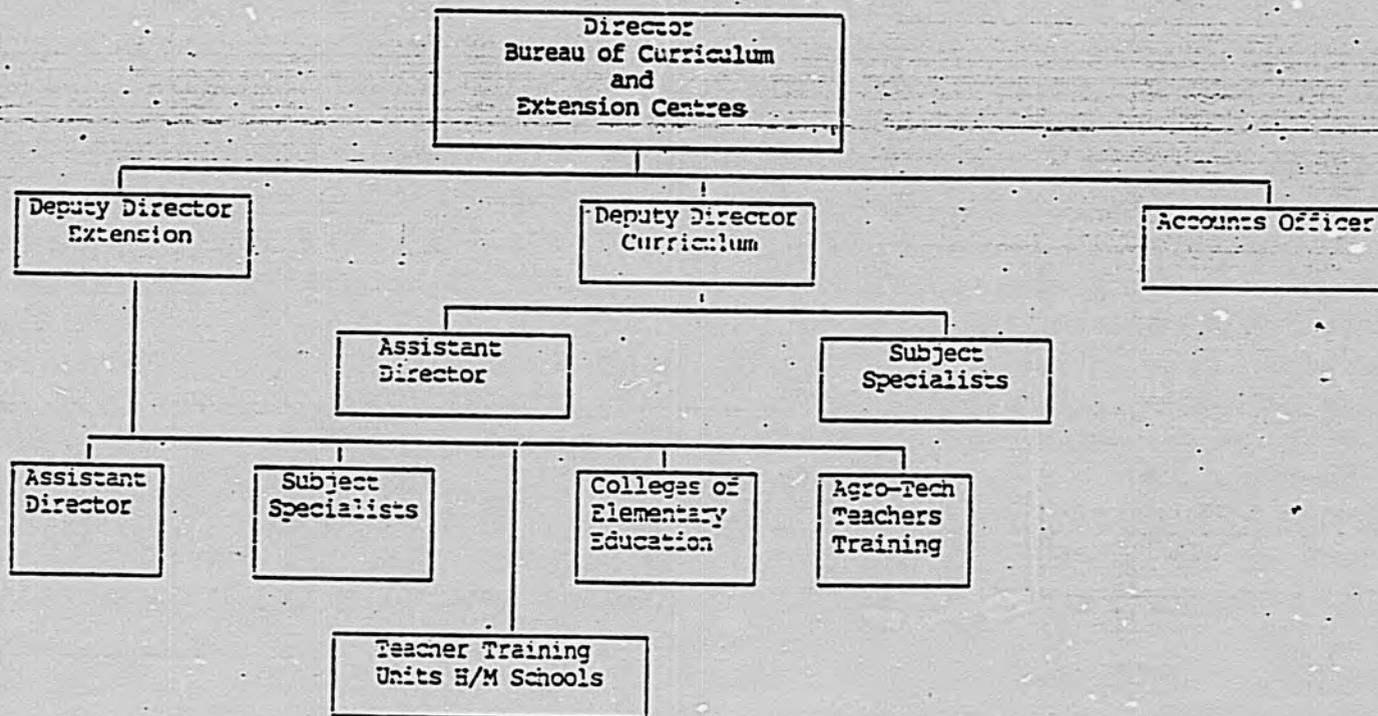
Since the Curriculum Wing and its related provincial Bureaus are and will remain at the heart of these efforts, it makes sense to locate that coordination and set of management tasks in the Wing, with subordinated responsibilities located in the Bureaus for their provinces. Close and careful study should be made of the requirements for such a set of tasks and responsibilities, so that technical assistance and training programs can be mounted as soon as possible.

As time goes on, there will be other research and development needs identified, other programs needing evaluation. A system needs to be put in place as soon as possible for rationalizing those identified problems, assigning priorities, allocating resources, and getting on with the work in a well-managed manner.

### B. Schools trials of materials during and after development

As has been mentioned earlier, the Textbook Boards should have the capacity, working in conjunction with the Curriculum Bureaus, for their writers and editors to try out materials during development when they consider it necessary in order to check whether new or previously untried lesson materials are written at a suitable developmental, vocabulary, and/or cognitive level. They should also have the development time, training, and necessary technical skills to conduct test edition trials of their textbook series, again in conjunction with the Curriculum Bureaus. Note this will require that textbooks be developed in series by a common team of authors under the direction of an editor.

Figure 1: Curriculum Bureau Baluchistan



There are a total of 32 subject specialists in the Baluchistan Bureau. All work interchangeably on curriculum development/revision, teach teacher trainers in the colleges of elementary education, plan preservice training, and plan, prepare for, and teach inservice education courses. The Director said "The division structure doesn't reflect the reality (of their work) for we have fully integrated our responsibilities for both areas."

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ANNEX 2. INSTRUCTION AND MATERIALS

Code Number of Project  
(To be filled in by  
Planning Commission)

PART-A  
PROJECT DIGEST

- |   |  |
|---|--|
| 1. Name of the Project:-<br>the   | Institutional Linkage between<br>Bristol University U.K. and the<br>Curriculum Centers of Pakistan.  |
| 2. Authorities responsible<br>for   | Ministry of Education  |
| i) Sponsoring   | i) Federal Ministry of   |
| ii) Executing the Project<br>Education<br>Curriculum and<br>Punjab.                     | ii) Bureau of<br>Research Center   |
| iii) Operation after completion   | iii) Bureau of Curriculum and<br>Extension Services Sind.<br>iv) Bureau of Curriculum and<br>Extension Services NWFP.<br>v) Bureau Services Baluchistan. |
| 3. (a) Time required for comple-<br>tion of the project in<br>months.                   | N.A.<br>60 months.   |
| (b) Data on which the exe-<br>cution of the project is<br>likely to start.              | September 1988.  |
| (c) Data of completion of<br>the Project.   | December 31, 1992.   |
| 4. (i) Name of the subsector.   | Curriculum Wing.   |
| (ii) Plan Provision   | Nil  |
| (iii) Amount already commit-<br>ted through approved<br>projects in the sub-<br>sector. | Nil.   |
| (iv) Balance available  | Nil  |

(v) To what extent the project will help to achieve the targets of the sub-sector.

The main objective of Curriculum Wing is to frame curricula and syllabi at the national level, reflecting the most modern trends on one side and conforming to the national needs and aspirations on the other. For doing this job satisfactorily, the establishment of institutional liaison with an institute of international standing is absolutely essential. The project provides for this requirements.

6. Capital Cost of the project;

(In million Rs. 11.9339 million)

i) Local currency costs:

Rs. 45000

ii) Foreign currency costs:

Rs. 11.89451 million

Total:

Rs. 11.939 million

6. Annual recurring expenditure after completion

Nil

7. Objectives of the project, preferably in quantitative terms.

- i) To provide for 15 opportunities of training leading to Master's degree in education.
- ii) To provide for 30 opportunities of short term training for senior staff of the Curriculum Centers.
- iii) To procure equipment free of cost for carrying out functions of Curriculum Wing effeciently.
- iv) To provide for 6 research opportunities relating to the practical educational problems of the country.

8. i) Prepared by

S. Ijaz Hussain Bokhari,  
Deputy Educational Adviser,  
Ministry of Education,  
Islamabad.

ii) Checked by

Mr. Abdullah Khadim Hussain,  
Joint Educational Adviser  
Ministry of Education,  
Islamabad.

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- iii) Approved by Dr. S.M. Qureshi,  
Secretary,  
Ministry of Education,  
Islamabad.
9. Location of the Project: Curriculum Wing  
Ministry of Education  
Islamabad.
10. Existing Facilities. N.A.
11. Feeding Institutions.
- i) Federal Ministry of Education
  - ii) Bureau of Curriculum & Research  
Center Punjab
  - iii) Bureau of Curriculum &  
Extension Service Sind.
  - iv) Bureau of Curriculum &  
Extension Services NWFP.
  - v) Bureau of Curriculum &  
Extension Services Baluchistan.

12. Description of the Punjab:

The curriculum wing of the Ministry of Education has been organizing summer seminars in Science, Mathematics and English over the last 14 years. The British Council actively collaborated in this venture and invariably provided the services of one expert in each subject area and some literature for consumption during and after these seminars. This collaboration has been recognized as extremely useful and mutually beneficial by both the institutions.

Over the last one year both parties agreed to establish and institutional liaison in order to make this long association more productive. The work of the curriculum wing involves strong professional competence from the officers working here. The areas like curriculum innovations and reforms, in-service and pre-service teacher training, development and production of textbooks and examination reforms are growing into highly technical disciplines and cannot be handled by amateurs. It is therefore essential that the officers of the curriculum wing find opportunities for having adequate exposure to the latest trends and techniques in these areas. The institutional linkage proposals have been conceived and designed in this conceptual background.

Initially the curriculum wing expressed desire to have liaison with London University. The British Council explored this possibility. London University was found to be over booked with overseas assignments. The second alternative presented by the British council was the Bristol University. The proposal was tentatively accepted.

The British Council has appointed a project coordinator for implementing the program. The Coordinator came to Pakistan in September, 1987, During his visit Directors of Provincial Bureaus of Curriculum were invited to attend a meeting with the British Coordinator. The whole idea was presented to them.

The program that follows has been designed with their full agreement. The program as per our agreement shall cover the following main areas.

(i) STAFF DEVELOPMENT:-

(a) Long Term Training

It has been agreed that the British Council shall provide training facilities for Pakistani officers at Bristol University leading to Master's degree in education. The following wing areas have been identified for the long-term training:-

- i) Curriculum Development
- ii) Teacher Education
- iii) Educational Supervision.

There are however the broad areas, where training will be needed. The specific areas will be worked out, keeping in view the requirements at the time of implementation of the program.

A total of 180 man months have been provided for training. Starting from October, 1988, five officers, one from the curriculum wing and from each of the provincial curriculum centers, will be sent for this training. A total for 15 staff members will obtain degrees under this program. The total cost in foreign exchange shall be borne by the British Council.

(b) Short Term Visits

In order to provide for training of senior officers, who cannot stay away from their duty for longer period, short-term study visits have been made into an important component of the program. A period 90 man months have been provided for this purpose, Every year about ten senior officers, two from the National Bureau of Curriculum and two from each of the Provincial Bureaus shall visit Bristol University for study tour. Before undertaking the visit these officers will identify the areas on which they will like to work and spell out the broad outlines of their study program. Bristol University will assign supervisors to the trainees and the study program will be agreed. It will be ensured that the

areas of study are of practical utility to Pakistan. The entire cost in foreign exchange shall be the responsibility of the British Council.

The following broad areas have been agreed for the study programs.

- i) Principles and approaches of Curriculum development.
- ii) Management of curriculum change.
- iii) Curriculum Evaluation
- iv) Preparation of curriculum Materials.
- v) Teaching of English as a second language.

These areas are tentative and subject to change in the course of implementation.

(ii) NATIONAL SEMINARS:-

It is intended that the benefits of short and long-term training may be disseminated among all the relevant segments of the educational community. The officers returning from short and long-term training programs shall be required to be the resource persons in national seminars/workshop to be held in Pakistan. The British Council has agreed to provide the services of one expert, in the relevant field for each of these seminars at their expense. The duration of these seminars/workshops will be about two weeks. The entire expenditure on these seminars will be borne by the Government of Pakistan. This expenditure will be met out of the regular budget grant of the Curriculum Wing. This aspect has not been reflected into the estimates of the project.

For the first year of the project the following areas have been identified as the topics of the seminars.

- i) Principles and approaches of curriculum development/curriculum reforms.
  - ii) Teaching of English at the lower secondary level
- six seminars/workshops will be organized during the entire period of the project.

These areas are tentative and subject to change in the course of implementation.

(iii) RESEARCH

The importance of educational research can not be over-emphasized. No doubt, in Pakistan a good deal of research is being conducted on different problems of education. But conduct of research and formulation and implementation of plan and programs have not gone hand in hand. An ideal situation can not be expected to exist in this

area. We have definitely reached a stage where research should have some links, with formulation and implementation of policies. These links may be as meagre as we can possibly afford.

Keeping this important point in view, research has been conceived as an important aspect of the program. The broad areas of research have been identified as under:-

- i) Dynamics of implementation of curriculum reforms.
- ii) Teaching of Mathematics and Science at the primary and secondary levels.
- iii) Implications of Teacher,s attitudes in terms of curriculum implementation.
- iv) Suitability of current primary curriculum reforms.

The area has been kept open. Any other aspect relevant to our situation could be included into the list.

In the beginning of the program, six officers, keeping in view their suitability will be selected. Each one of these selecties will be assigned one specific area for research. These researchers will visit Bristol for 3 months and develop details of work to be accomplished. They will come back to Pakistan and continue work on their problems. The British Supervisors at some agreed point in time shall visit Pakistan for guiding these researchers. The visits by the British experts shall extend over two phases. In the first phase the experts will visit Pakistan for one month to devise the basic framework for research, while in the second phase the British experts will come for 15 days at finalize the research report. The final research report will be submitted concurrently to the Government of Pakistan and the Bristol University.

Each year two research studies will be taken up which will continue for three years. The two studies to be taken up in the beginning of the third year shall also continue for three years. No new studies will be taken up at the end of third year. In view of this consideration the project will be completed in 5-calendar years.

### 13. Project indicators:-

- i) Student teacher ratio. N.A.
- ii) Per seat converted area for class room, laboratories, hostel, Library, workshop, community and building etc. N.A.

- iii) Development cost per year per student/teacher/unit capital recovery factor. N.A.
- iv) Recurring expenditure per student/teacher unit clientele. N.A.
- v) Total cost = employment Total no of co-efficient jobs created. N.A.
- vi) Cost per unit out put N.A.
14. Give data when capital expenditure estimated were prepared. If prepared more than one year age, confirm if they are still valid. May, 1988.
15. Capital Cost:  
Please see Annexure A & B.
16. FURNITURE/FIXTURE: EQUIPMENTS
- |   |  |
|---|--|
| A. Furniture/Fixture etc                    | NIL                                      |
| B. <u>Equipment</u>                         | (To be provided by the British Council). |
| i) Language Laboratory (Tand berg)          | = Rs. 6,93,150/-                         |
| ii) Video Camera, recorder and monitor.     | = Rs. 60,000/-                           |
| iii) Overhead Projector                     | = Rs. 60,000/-                           |
| iv) Photocopier UBIX 1802 (Middle Range)    | = Rs. 1,05,000/-                         |
| v) Word processor with publishing facility. | = Rs. 2,10,000/-<br>-----                |
| TOTAL EQUIPMENT                             | = Rs. 11,28,150/-<br>-----               |
17. Recurring Cost:-
- |                       |     |
|-----------------------|-----|
| i) Salaries/Allowance | NIL |
|-----------------------|-----|

- ii) Staff: What will happen to these persons when the project is completed? N.A.
- iii) Annual recurring cost after completion of project. NIL
- iv) Source of financing recurring cost after completion of the Project. N.A.
18. Details of expected income after completion of the Project. NIL
19. Important Activities & Steps involved in the execution of the Project (commencing from Sept:, 1988) As in item 12.

20. Foreign Exchange Component:

	1988	1989	1990	1991	1992
	F.E.C.	F.E.C.	F.E.C.	F.E.C	F.E.
C.					
i) Training	2866667	2866667	2866667	-	-
ii) Seminars Workshops	200,000	200,000	200,000	-	-
iii) Research	297072	297072	297072	297072	297072
iv) Equipment	1074150	-	-	-	-
v) Exchange of Literature	45000	45000	45000	-	-
<b>TOTAL</b>	<b>4482889</b>	<b>3408739</b>	<b>3408739</b>	<b>297072</b>	<b>297072</b>

GRAND TOTAL F.E.C = Rs. 1,18,94511

21. Detail of purchase of Textbooks Journals & Foreign Training Involving F. E. C.

- i) 90 man months of short term training for senior officers of curriculum centers.

- ii) 180 man months of long term training leading to Master's Degree.
- iii) Books and Journals Worth 1,35000
22. Likely Source of Meeting Foreign Exchange Expenditure:
- i) From own sources. Rs. 45000/-
- ii) From Foreign Aid. Rs. 11894511/- (Overseas Development Authority U.K. through British Council).
23. Results of the Project:
- i) The Curriculum Wing Ministry of Education and the Provincial Bureaus of curriculum shall have better qualified staff.
- ii) The centers will have better equipment and literature for performing their function.
- iii) Latest trends in curri-culum development shall flow freely into Pakistan.
- iv) Research activity will be institutionalized.

ANNEXURE-ACOST ESTIMATESA. STAFF DEVELOPMENTa) Long Term Training

Cost of one trainee:

i) Air Fare (Return)	Rs. 27180/-
ii) Local Travel in U.K.	Rs. 6000/-
iii) Monthly stipend @ Rs. 10230	Rs. 122760/-
iv) Other allowances	Rs. 10050/-
v) Academic fee for the full Academic year.	Rs. 110100/-
	-----
TOTAL FOR ONE TRAINEE:	Rs. 276090/-
	-----
Total for 15 trainees	Rs.1380450/-

during the entire project

b) Short Term Training

Cost of one trainee

i) Air Fare	Rs. 27180/-
ii) Local Travel in U.S.	Rs. 3000/-
iii) Boarding and lodging for 90 days @ Rs. 900 per day.	Rs. 81000/-
iv) Other Allowances	Rs. 7350/-
v) Academic fee for three months.	Rs. 45000/-
	-----
Total for one trainee.	Rs. 63530/-
	-----
Total for 30 trainees.	Rs. 1635300/-
Grand total for Training a + b	Rs. 3015750/-

B. NATIONAL SEMINAR:

i) Local Currency:

To be met from the regular budget of the Curriculum Wing.

ii) Cost in Foreign Exchange:

One workshop/seminar

i) Return Air fare for the British Expert.	= Rs. 27180/-
ii) Local Travel in U.K.	= Rs. 990/-
iii) Subsistence in Pakistan @ Rs. 1650/- per day for 20 days.	= Rs. 33000/-
iv) Support Material.	= Rs. 30000/-
Total for one workshop/seminar.	= Rs. 91170/-
Total for 6 workshops/seminars	= Rs. 547020/-

C. RESEARCH:

Six visits one each of Pakistani Researchers to Bristol for three months ---Cost per head.

a) Foreign Exchange:

i) Return Air fare.	=	Rs. 27180/-
ii) Local travel in U.K.	=	Rs. 3000/-
iii) Boarding and lodging in Bristol for 90 days @ Rs. 900/-per day.	=	Rs. 81000/-
iv) Book literature etc.	=	Rs. 3000/-
Total for one researcher.	=	Rs. 114180/-
Total for six	=	Rs. 685080/-

## b) Six visits by Bristol experts to Pakistan for one month each to guide research in the first phase.

i) Return air fare for one expert.	Rs.	27180/-
ii) Local travel in U.K.	Rs.	990/-
iii) Subsistence in Pakistan for 30 days @ Rs. 1650 per day.	Rs.	49500/-
iv) Local travel of Bristol experts in Pakistan.	Rs.	10000/-
For one visit	Rs.	87670 00/-
Total for six experts.	Rs.	526020/-

## c) Six short term visits by the Bristol experts to Pakistan for 15 days, to guide research in the second phase.

i) Return Air fare for one expert.	Rs.	27180/-
ii) Local travel in U.K.	Rs.	990/-

iii)	Subsistence allowances in Pakistan for 15 days @ Rs. 1650/- per day.	Rs.	24750/-
iv)	Local travel in Pakistan	Rs.	5000/-
			-----
	Total:	Rs.	57920/-
	Total for six experts for short visits.	Rs.	347520/-
	Grand total for short term and long term visits of British Experts. (b + c)	Rs.	873510/-
	Total for Research= (a + b + c)	Rs.	14,85,360/-

D. EQUIPMENT:

(To be provided by the British Council)

i)	Language Laboratory (Tand berg)	Rs.	693150/-
ii)	Videc camera, recorder and monitor.	Rs.	60000/-
iii)	Overhead Projector	Rs.	60000/-
iv)	Photocopier UBIX 1802 (middle range)	Rs.	5526/-
v)	Word processor with Publishing facility.	Rs.	11,053/-
			-----
	Total Equipment:	Rs.	1074150/-
			-----

Exchange of Literature.

i)	To be provided by the British Council @ Rs. 45000/- per annum for 3 year.	Rs.	135000/-
----	---	-----	----------

ii) To be provided by Pakistan @ Rs. 15000/-per year.	Rs. 45000/-
Total for Literature exchange.	Rs.1,80,000/-

SUMMARY OF EXPENDITURE:

i) Training:	Rs. 8600,000/-
ii) Seminars and workshops.	Rs. 600,000/-
iii) Research:	Rs. 1485,3360/-
iv) Equipment:	Rs. 1074,150/-
v) Exchange of Literature:	Rs. 180,000/-
Grand total=	Rs. 1,19,39,510/-
Local=	Rs. 45000/-
F.E.C.	Rs. 11894511/-

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## ANNEX 3: INSTRUCTION AND MATERIALS

### Project Plan of Action

#### PRIMARY EDUCATION CURRICULUM REFORM PROJECT-PAKISTAN

##### 1. INTRODUCTION

1.1 Low enrolment in primary schools, sporadic attendance, massive early drop-out and the general low esteem in which organized education is held by many parents and children alike demand reappraisal of the definition of education, its content and practices, past and present.

1.2 Whatever the causes, Pakistan has the dubious distinction of enrolling only 50 per cent of its children in primary schools. Of those only approximately 42 per cent complete the primary course i.e. 21 per cent of the age group. To make matters worse, it is reported that the age of almost 15 per cent of those enrolled in primary schools fall outside the relevant age-group (5-9 years). These figures take on an even more devastating aspect when it is calculated that only 15 per cent of girls enrolled in primary schools ever complete five years.

1.3 This devaluation of the country's human resource base has led to Pakistan, the ninth most populous country in the world, recording some 15 million adult illiterates, 10 million of whom are women. Behind this unflattering figure there are wide disparities between rural and urban populations (47.1 against 17.3 per cent), between female and male (35.1 against 16.0 per cent).

1.4 No country can afford to be left behind to this extent. The average literacy rate among the world's 35 poorest countries is 50 per cent, in Pakistan it is 25 per cent.

1.5 However, primary education is not only about literacy. The benefits which accrue to it are many and varied. In economic terms alone it is estimated that in 45 developing countries studied the financial return on investment in primary education amounts to 24 per cent. In terms of societal growth and development, of community viability and of individual well-being spirituality and happiness the return is beyond value.

1.6 For these gains to be realized, educational policy must be in true alignment with national goals and aspirations. Educational aims must be clearly defined and understood. Strategies for their attainment have to be devised in light of what is possible - in terms of children's intellectual development, of human, material and financial resources available, and with flexibility and alternatives built in to allow for various traditions, environments and capabilities.

1.7 It is then the responsibility of professional educators to faithfully translate policy and strategies into operational terms. The objectives of resultant education programmes and projects must be true to the national goals and educational aims, they must be in harmony with overall strategy and they must be in accord with the needs and perceptions of the communities in which they will be implemented.

1.8 Educational planning of this kind is a scientific discipline, as rigorous as any other, and it is a job for educational experts. When education in the classroom deviates from the principles of overall planning then education falls into disrepute. It becomes irrelevant to the individual child, to the family and community and to the nation at large. What should be an investment in human resource development becomes a burden and an embarrassment.

1.9 Such is the low esteem in which primary education is held and so low is the present efficiency of the system that it is necessary to re-examine, from first principles as it were, the need for reform and to modify existing concepts, attitudes and practices. The need for this is no less than a national emergency and is recognized within the country as such by the government and leaders of public opinion while from outside the country there is an interest and willingness to collaborate and support meaningful and comprehensive change.

## 2. EDUCATIONAL OBJECTIVES

2.1 Educational objectives are defined in the Sixth Five-Year Plan. The purpose of education is:

- (i) To develop roots in the tradition and attitudes of Pakistan society;
- (ii) To develop critical thought and a spirit of enquiry;
- (iii) To equip learners with basic information and intellectual tools for understanding life's experiences;
- (iv) To prepare learners for earning a livelihood in conformity with the norms of economic conduct accepted by the community.

2.2 In brief, the first objective may be stated as socialization. The second objective is intellectual development. Both of these are child-centred. This is most important for educational planners to note. The development of the psyche of each individual child in pattern of what is considered best in Pakistan society is education's first and major role. To perhaps labour the point - the remaining two objectives are in a different category: they relate to knowledge and tools, the equipment with which a child has to be provided. These latter objectives relate to subject matter - to facts, knowledge, principles, and skills necessary to ultimate socialization and mental development.

2.3 This is the classical understanding of education. The word itself derives from Latin roots which give it a meaning of "leading forth". In another sense it is the totality of learnings acquired, the sum of the knowledge, skills, attitudes and values. In these senses an educated person is one who has been guided to fulfilment of his or her genetic potential and in the process has acquired a useful range of learnings relevant to interactions with the environment.

2.4 It was said above that it is the role of the planner to translate policies and strategies into programmes and projects, to proceed from objectives to action. What is equally important is that objectives should not be approached singly. Socialization, intellectual development and acquisition of knowledge and life - skills are all contributory to the overall education, as it has been defined.

2.5 In the past, and at present, the imparting of knowledge and skills has been, and is, often treated in isolation. This gives education a subject bias: knowledge, the structure of mathematics, the grammar of language, the concepts of science, etc. tend to become the focus of learning. Imbalance leads to irrelevance and irrelevance leads to rejection by more and more people.

2.6 Reform of primary education entails renewal of the content, modification of teaching/learning methods appropriate to each child's environment and reorganization of the infrastructures of the system. In summary, if primary education is to attain the objectives set for it, the system, the curriculum and the teaching/learning methods all must be oriented towards the development of the child. There is little, if anything, to be gained from re-designing curriculum without, at the same time, re-orienting teacher education and introducing methods appropriate to the material and the present day. Similarly it would be a fruitless exercise to provide more and more places in schools without setting to rights the deficiencies in educational content and outdated methodologies. Curriculum reform cannot stand alone - nor can teacher education, or expansion of the system, or any of the facets of the concept "education".

### 3. OBJECTIVES OF CURRICULUM REFORM

3.1 The parameters of the Primary Education Curriculum Reform Project will be set wide in order to accommodate activities in educational management, administration, teacher education, methods, curriculum content research, monitoring and evaluation. The objectives of the project are as follows:-

1. To develop integrated learning materials with an emphasis on literacy and numeracy for primary classes one to five;
2. To reorient curriculum content to include issues on child survival and environment and to facilitate his/her preparation for lifelong learning and sustained improvement of quality of life;

3. To design the learning situations and the teaching/learning materials in a rigorous systematic and scientific manner which will include prior and post field testing, continuous assessment, monitoring and evaluation and feed-back into the design;
4. To ensure that the new integrated curriculum is also socially, psychologically and environmentally appropriate to the learning needs of children, including those with learning difficulties, those in disadvantaged situations, and particularly to girls in all these categories;
5. To design, test and implement new methodologies appropriate to the curriculum content ensuring that learning is activity-oriented and child-centred. These will subsequently be fed back into teacher education also;
6. To design and utilize new techniques for pupil assessment (including self-assessment ~~including self-assessment~~ in the higher classes, 3-5).
7. To reorient and train teachers, DEOs, supervisors and other support staff to introduce the new curriculum and methodologies.
8. To develop, test and publish material for teachers which will be used as handbooks in support of the new curriculum;
9. To design, prepare, test and print materials for supervisors, auxiliary staff and parents in the process and procedures of the project;
10. To orient and retrain traditional supervisors to act as advisers and resource persons for primary school teachers.

#### 4. EXPECTED OUTCOMES

4.1 Although the outcomes of the primary curriculum reform project will be primarily observable and measurable changes in the primary curriculum there will be other necessary outcomes also. The generally accepted definition of curriculum is that it is the totality of all those activities or learning situations which are made available to learners in order that, through them, they may acquire and develop knowledge and skills, attitudes and values. The design of those activities and the selection of appropriate learning encounters is the art of curriculum planning. The outcomes of the curriculum reform project will therefore primarily be changed and improved content and more efficient and appropriate presentation - new learning materials, better techniques in presenting them and eliciting the best response from the learners.

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4.2 However, in order that this may be so, there will also be observable and measurable changes in teacher education, supervision and administration and processes of assessment, monitoring and evaluation. These latter are also the expected outcomes of the Government's two projects: (i) Primary Education Project, and (ii) Primary Education Development and Expansion Project, the objectives of which are stated to be not only quantitative but qualitative in nature. Work in each of these primary education projects will support and complement implementation of the others - as will also the Co-ordinated Environmental Education and Teacher Education Projects on-going under the direction of the Curriculum Wing of the Ministry of Education. Objectives in all these projects inevitably overlap but each has its own priorities with regard to expected outcomes.

The specific outcomes of the curriculum reform project will be as follows:

#### 4.3 Curriculum

For each of the eight districts a curriculum will be defined in which there will be a sustained emphasis on the socialization of the child and the development of his or her intellect. The curriculum will take cognizance of the invariant progression in the early years from habit formation and practice to acquisition of attitudes and values, and understanding. The curriculum will be devised in such a way as to inculcate those qualities which are believed to be best in the Pakistan heritage and which will serve the individual well in a future in Pakistan.

In the cognitive areas of curriculum there will be heaviest concentration on literacy and numeracy in classes 1-3, and their importance will be continued through class 5. For class 4 and 5 there will be a broader design, increasingly bringing in content which relates to life skills - health, sanitation, nutrition, etc and which is drawn directly from the different environments. Since many children will leave the school system after class 5 the curriculum content in the last year will be increasingly germane to the world of work.

As the end of the five year period syllabi in language and mathematics will be established for the project schools - expressed in terms of expected learning outcomes, or behavioural objectives or minimum learning needs. These will be devised in hierarchies determined in light of previous experience in Pakistan and elsewhere in neighbouring countries, but also after scientific testing, monitoring and evaluation which has provided continuous feed-back and guided refinement and modification. For classes 1-3 the learning objectives will be associated primarily with skill development rather than content since it is the literacy and numeracy skills which will be the tools for life long learning.

#### 4.4 Learning Materials:

Text books for the integrated curriculum will be produced for all five primary classes by the curriculum development centres (Books for Class 1 are already prepared).

In addition, there will be supplementary written materials for children based upon local environments, responses to community needs and wishes and on other topics of interest and utility. These will address life skills and socialization directly and indirectly, drawing upon examples and real life situations which draw attention to matters of health, sanitation, nutrition, etc and the overall socialization of the child in a Pakistan and provincial context;

Additional resource material will be available to the project schools from CDCs, and other project sources.

#### 4.5 Orientation and Training:

During the project period in the eight districts an extensive orientation and training schedule will be followed. It will commence with a meeting of representatives of CDCs, the various Ministry Wings and Textbook Board Chairmen who will study and refine the project objectives, strategy, management structure and other proposals. This group will be, in effect, the national planning committee and will subsequently meet as and when necessary.

The Provincial CDCs will organize the collaboration and orientation of District authorities and personnel, conduct training workshops for teachers and supervisory staff throughout the project period.

CDCs will convene meetings of community leaders, parents, employers and government officials who will be party to the formulation of curricula and syllabi and the design of learning situations and material.

The average number of teachers in a district is 1000 (24,000 teachers in 84 districts). In the eight project districts the orientation and training programme will be as follows:

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Headteachers (within districts)	8,000	8,000	8,000	8,000	8,000	8,000
Teachers	8,000	16,000	24,000	24,000	24,000	24,000
Supervisors/Master Trainers	1,000	1,000	1,000	1,000	1,000	1,000

#### 4.6 Supervisory - Advisory Cadre

After five years there will be, in each Province and in the NBCD and Textbook Board, a core of curriculum designers accomplished in the principles and practices of continuous renewal of curricula, selection and presentation of content, preparation of learning materials, assessment of pupil performance and suitability of learning materials and sensitive to the interaction between learning and community and societal needs and aware of the need for harmonizing this output with the patterns of intellectual growth and development.

There will also be a body of district officials and teachers who will have participated in planning, design and implementation and who will be well versed in the activities of assessment, evaluation, feed-back and continuous modification.

These will be the supervisors and advisers competent to spearhead the reforms in other districts.

#### 4.7 Techniques for Pupil Assessment

After completion of the project there will be, as the outcome of operational, research well established techniques of (i) expressing syllabi and/or supplementary material in terms of measureable behavioural changes (ii) assessing learners' mastery of the content (iii) utilizing the results to modify curriculum material and improve presentation.

#### 4.8 Public acceptance and esteem, reduced attrition

The project is not to be implemented purely as an academic exercise or in a vacuum. An important outcome will be the approbation of the public, parents and children themselves who will find in the new curriculum and related practices a more meaningful, relevant and practical alternative. The indicators of success will be increased enrolment, especially of girls, and retention in schools. Male/female ratios, "drop-out" rates, absenteeism and promotion within the system will be closely monitored throughout the project period to provide evidence of the improved efficiency of the system.

#### 4.9 A viable model

The overall expected outcome is a working curriculum model and associated processes available for replication in the schools of the four provinces. It will have evolved through continuous operational research, tested, tried and found acceptable, affordable and adoptable.

#### 4.10 Strategy and Infrastructures

The project will be a contribution to the overall education strategy in Pakistan and will be essentially operational research. Curriculum design and the content introduced will be subject to repeated trial and testing, constant review, frequent modification and re-trial.

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4.11 The strategy will draw upon existing human resources, building the capacity of established personnel at all levels through orientation, training and involvement in the preparation and trial of curriculum materials. The end-users will participate in the development and their observations and experience will complement the outcomes of rigorous monitoring, assessment and evaluation. In these ways the strategy will differ from Research and Development (R&D), drawing upon problem-solving and social interaction as the bases of much action-oriented research.

4.12 The project will be under the active direction of the Curriculum Wing of the Ministry of Education and the Joint Adviser. Director of the Curriculum Centre in Islamabad will assume overall responsibility. He will assign personnel and resources to the project as necessary, drawing upon the specialist reserves of his institution. A national project co-ordinator and two Deputy Project Co-ordinator will be appointed within the national curriculum centre. While these will be engaged fulltime in the project, other staffmembers will contribute their special skills at the Director's discretion. The Co-ordinator and his Deputies will be responsible for marshalling the appropriate personnel and materials, for generating exemplary procedures and for relaying guidance and information to the provincial centres. The national curriculum centre will continue to make the major input to development of a prototype integrated curriculum but it is the task of the Co-ordinator to encourage and enable the provincial centres to develop that prototype and supplementary materials in consonance with local environments and conditions. This "decentralizing" aspect of the project is vital to its success.

4.13 In the provinces, the project will be implemented under the direction of Directors of Curriculum Centres. Assistant Project Co-ordinators will be appointed who will liaise directly with the national centre and orchestrate the activities of implementation in the project districts.

4.14 Integrated curriculum core text-books will be developed in the national centre and adapted by the curriculum centres and Textbook Boards in the provinces.

4.15 The national curriculum centre will conduct workshops in the preparation of syllabi in terms of minimum learning objectives for each grade. At these workshops supplementary materials will be devised also. Syllabi will be defined in hierarchies of learning and sub-divided into learning packages suitable for self-learning, mastery learning, assessment, self-assessment and for purposes of evaluation of the material itself. This technique will be developed further at provincial levels and gradually become an integral part of continuous curriculum development and renewal. It is foreseen that supplementary learning packages, oriented to local situations, will be suitable for use in the non-formal alternative education system.

## 5. PROGRAMME

5.1 Training within the programme will include social mobilization, public awareness raising, participation by parents, community leaders, government officials, etc in the project design and implementation, orientation and training of cadres of project personnel, curriculum developers, teacher trainers, master trainers, headteachers and teachers. It will include study tours to China, India, Malaysia and Thailand, exchanges of experiences in meetings, seminars and conferences. There will be orientation initial and in-service training of teachers in colleges, resource centres, in clusters of schools and in situ by mobile trainers.

5.2 Project Personnel, the Co-ordinator, Deputy and Assistant Co-ordinators will be supported. Auxiliary staff will be provided, transport, office equipment and materials also.

5.3 Specialist advisers and consultants will be engaged as and when required for specific tasks where the expertise is not available in the centres.

5.4 Assistance and secretarial services will be given to panels of writers and artists who will prepare curriculum materials. Resource persons will be recruited for specialist work. Provision will be made for duplicating and printing texts, questionnaires, tests, etc.

5.5 Support will be given to the conduct of a baseline survey in the eight districts, the selection of indicators, the preparation of measurable objectives, both curricular and of project performance and progress, preparation of text items, pre-testing and administration, evaluation of results, the design of a computer programme, etc. Resource persons will be recruited as necessary where in-house skills are inadequate or when the work-load proves excessive. Duplicating, photocopying and printing will be activities to be assisted.

5.6 Vehicles will be provided to all curriculum centres and to the eight districts of the project together with running allowance (POL). Paper will be provided to Textbook Boards for the production, printing and distribution of printed curricula, integrated textbooks and supplementary teaching/learning materials.

## 6. IMPLEMENTATION

6.1 Project preparation began in November 1986 with the Inter-regional Seminar on Primary Education.

6.2 The schedule of preparatory activities for 1987 is as follows:

A meeting of directors of curriculum centres;

Feedback to Education Secretaries of the Federal Ministry of Education and Provincial Departments of Education;

- Meetings in all provinces between UNICEF and Education Secretaries, Directors of Education, Directors of Curriculum Research and Extension Centres, Textbook Board Chairman and appropriate staff members;
- Meeting of Secretaries of Education convened by the Curriculum Wing of the Ministry of Education;
- Selection of project districts;
- Appointment of project professional personnel at Federal and Provincial Levels;
- Study tour to China, India, Malaysia, Thailand by project professionals at Federal Level;
- First meeting of Project Advisory Committee (CDCs, Secretaries, UNICEF) in Baluchistan;
- Appointment of auxiliary staff;
- Consultative meetings (for discussion of objectives, perspectives and perceptions of parents, community leaders, district officials, subject specialist);
- PC1 (the government budget document) to be cleared by Executive Committee of the National Economic Council;
- Design of schemes of evaluation - of curriculum and of the project itself identifying indicators for assessment, monitoring, formative and summative evaluation;
- Design of computer programme & preparation of questionnaires for district profiles;
- Baseline surveys in all eight districts.

6.3 The main tasks for 1988 will be:

Define a curriculum in two main areas and sub-areas:

Basic Skills -- Speaking, listening, reading, writing, reading for comprehensive based on knowledge and experience.

Operations of arithmetic with whole numbers and decimal fractions, applic. on in situations based on knowledge and drawn from experience and/or projected experience.

Socialization -- Attitudes and values, religious and moral education, habit formation, individual and societal responsibilities, creativity intellectual curiosity, etc.

Understanding and living in harmony with the environment, health and hygiene; food and nutrition; nature and science.

Define each curriculum sub-section in terms of competencies.

Establish linkages between curriculum sub-sections e.g. I(i) reading with II(ii) heritage; I(ii) counting with II(ii) telling time, etc.

Assemble the linked competencies for each class 1 to 3.

Design teacher/learner activities (learning situations) and teaching/learning aids (text-books, supplementary units, visual aids etc) and specify the expected outcome of each teaching/learning encounter. Each outcome should be observable and measurable.

When the behavioural outcomes are specified exactly (and in different categories, not only for example knowledge or psycho-motor skills, etc but in all the hierarchies of learning and understanding) they provide an indication of teaching method.

Print, publish and manufacture curriculum-related texts and teaching/learning materials.

Pin-point indicators against which pupils achievements will be measured and by which the curriculum, the curricular activities and the teaching/learning materials may be evaluated, drawn from the CDC staff, teachers college staff, teachers' panels who have been involved-throughout.

Orient and train master trainers

Orient and train district staff, headteachers and teachers of project schools.

Design record cards for each child entering class 1 of project schools. The cards will be for the purpose of recording attainment in the cognitive domain but also for recording assessment of affective development. They will therefore serve the purposes of diagnostic evaluation of each child's progress and of feed-back into the curriculum design and process. Learner performance will be an indicator of appropriateness and relevance of curriculum content and, at the same time, of the validity and reliability of the test items.

6.4 The main plan for 1989 will be as follows:

Introduce class 1 curriculum, associated text-books teaching aids, etc in the eight project schools.

Continue preparation of curriculum for class 2 and all other activities as for class 1.

Continually analyze evaluation reports from class 1. In light of them re-examine curriculum content, textbooks, supplementary materials and teaching/learning interactions.

Prepare necessary changes for class 1 and prepare revised materials for pupils and teachers.

Orient class 1 teachers to changes

Orientation of class 2 teachers, teacher trainers, head teachers, officials etc as for class 1 preparation.

National Conference of educational planners, Secretaries, Directors, Directors of CDCs to formulate guidelines for curriculum development for class 4 and 5.

6.5 The main tasks for 1990 will be as follows:

Introduce class 2 curriculum, associated text-books teaching aids, etc in the eight project schools.

Introduce modified class 1 curriculum etc.

Continue preparation of curriculum etc for class 3.

Continually analyze evaluation reports from class 1 and 2. In light of them, re-examine curriculum content, text-books, supplementary materials and teaching/learning situations.

Prepare necessary changes for classes 1 and 2.

Orient class 1 and 2 teachers to changes

Orientation of class 3 teachers

6.6 The main tasks for 1991 will be:

Introduce class 3 curriculum etc.

Introduce modified class 1 and 2 curricula

Continue preparation of curriculum etc for class 4.

Prepare any necessary change for classes 1,2,3.

Programme of orientation to continue as before

Commence work on class 5 curriculum.

6.7 The main tasks for 1992 will be:

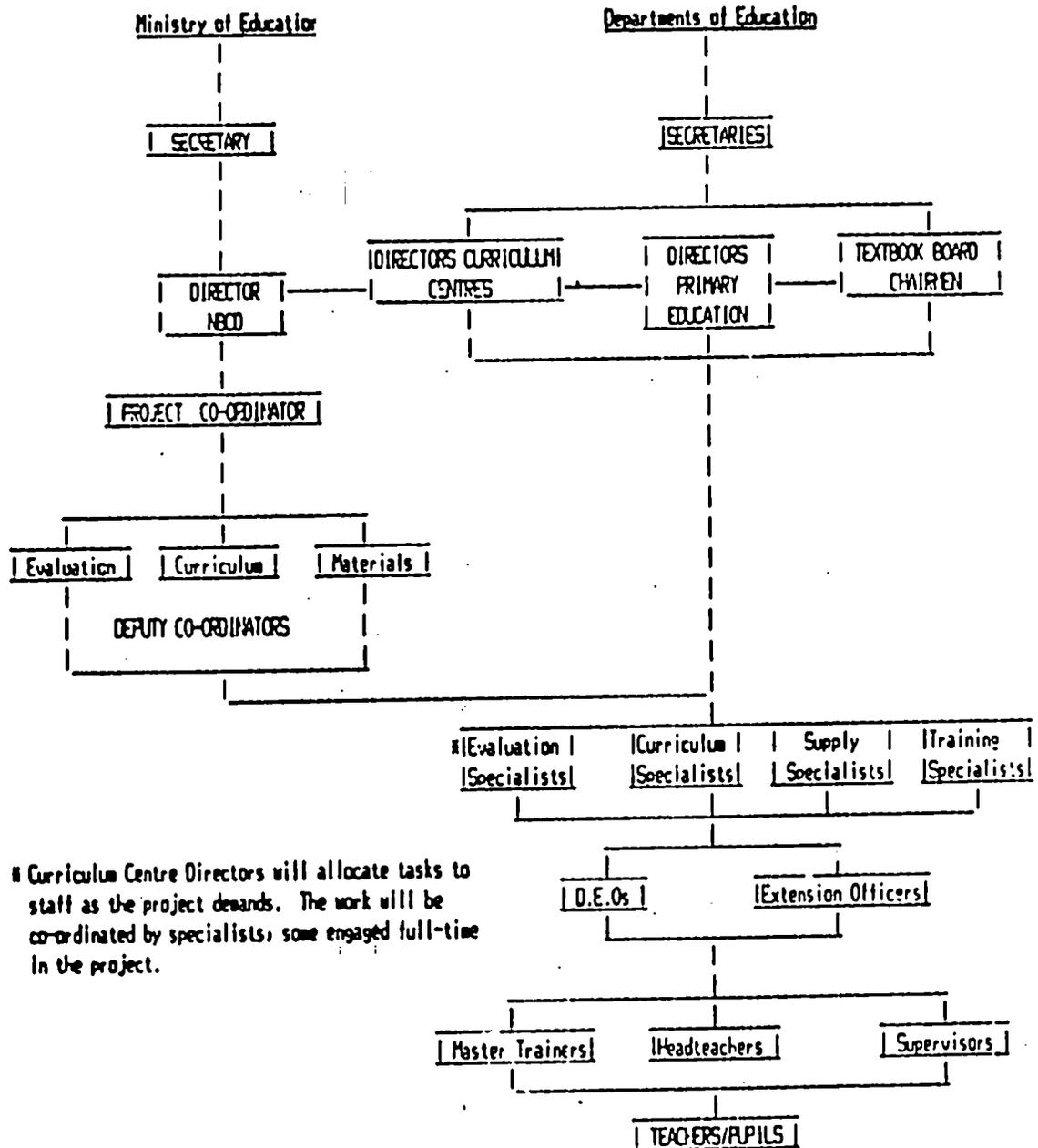
- Introduce class 4 curriculum etc.
- Introduce modified 1,2,3 curricula
- Continue preparation for class 5
- Prepare necessary changes for class 1,2,3,4 in light of evaluation.
- Schedule of orientation as before.

6.8 The main tasks for 1993 will be:

- Introduce class 5 curriculum etc. and modified 1,2,3,4 curricula in light of evaluation.
- Orientation as before
- Evaluation as before

6.9 The main tasks for 1994 will be:

- Introduce modified curricula for classes 1,2,3,4,5 in light of evaluation.
- Continue orientation and training
- Comprehensively evaluate project.



■ Curriculum Centre Directors will allocate tasks to staff as the project demands. The work will be co-ordinated by specialists, some engaged full-time in the project.

## 7. PROJECT MANAGEMENT

7.1 The project will be implemented under the overall operational responsibility of the Joint Adviser, Curriculum Wing of the Ministry of Education. He will allocate a leadership role in management and conceptual development of the project to a Project Co-ordinator, a Deputy Co-ordinator and two additional professionals who will be engaged full-time on the project. Additional staff may be co-opted from time to time as the project needs dictate and where expertise is not available in the Curriculum Wing short-term experts and consultants may be engaged from other sources.

7.2 However, the project is to be developed at all levels as an integral part of the national and provincial work in curriculum development. Other projects with different emphases and the PECRP will be mutually supportive and contributory to the same ultimate objective of reform of primary education.

7.3 In the provinces the project implementation will be under the overall operational responsibility of Directors of Curriculum Centres. They will appoint two assistant co-ordinators at each centre and assign tasks to other staff as appropriate. Again the PECRP operational research will be part and parcel of the programme of the curriculum centre and will complement the on-going programme.

7.4 Curriculum Centres will be responsible for arranging and conducting the programme of training and orientation essential to the curriculum development.

7.5 Textbook Boards will be responsible for the final preparation and production of textbooks and supplementary materials and for its distribution to project schools.

7.6 The Project Co-ordinator, in consultation with computer experts will undertake the design of baseline survey questionnaires, and individual record cards, the design of an evaluation scheme and the instruments for monitoring and assessment. Provincial centres will continuously monitor and assess. Final analysis will be done centrally.

7.7 Definition of a core curriculum in terms of learning objectives will be the responsibility of the Federal CDC as will the continuing development of prototype integrated textbooks. Responsibility for designing additional curricular materials relevant to local district conditions will be with provincial curriculum centres and panels representative of various local interest.

7.8 District education officers will arrange consultation and training in collaboration with Curriculum Research and Extension Centres, teachers colleges, secondary schools and headteachers. They will arrange advisory and supervisory services in the schools.

7.9 Headteachers will ensure that teachers adopt the recommended materials and methodologies and conduct the assessments as required. They will be responsible for reporting results of assessments to district authorities.

## 7.10 Monitoring and Evaluation

Monitoring and evaluation are at the very heart of the project. The essential steps are as follows:

- district profiles
- baseline data
- identification of indicators to be closely monitored
- definition of the curriculum in terms of expected learning outcomes (This includes learnings related to all the objectives).
- preparation of tests of mastery
- administration of tests and collating of data
- feed-back into process in order to review and modify curriculum content and methods
- Summative evaluation.

7.11 Baseline data, results of assessments will be analyzed in a computer programme. Pupils' attainments will be recorded and kept on individual record cards.

## 8. FINANCIAL COMMITMENT

8.1 UNICEF's financial input will supplement governments' (Federal and Provincial) expenditure on primary education in general and curriculum development in particular. The major contribution will be to training and orientation of project personnel, supervisors, master trainers, tutors, headteachers and teachers. Funds will go to travel and subsistence during training courses and to training materials. Included in training costs will be expenditures on the panels which will prepare curriculum materials, their training, travel and subsistence during workshops.

8.2 UNICEF will assist governments to create and finance project posts for the years 1988 and 1989 and thereafter phase out through 1994. This will provide a breathing space in which the posts may be established in the education budgets as necessary. Allowance will be made also for payment of short-term consultants and contractors whose expertise may be needed from time to time.

8.3 UNICEF will provide vehicles to curriculum centres and district offices to enhance their capacity for supervision and training. An allowance for running costs will be made. Drivers will be provided by the Ministry and Departments of Education.

8.4 Preparation, printing, production and distribution of textbooks will be a major expense. In view of the extra cost involved in producing short-run materials for the eight districts, UNICEF will subsidize the Textbook Boards to the extent that brings the cost of experimental material to the children to the level of similar materials in non-project districts. In Baluchistani books are distributed free of charge and that custom will be followed in project schools also.

8.5 Expenditure on evaluation and monitoring will cover the cost of baseline surveys conducted by teams of students, the preparation and printing of questionnaires, record cards, etc.; consultations with computer programme on evaluation design and of engaging computer services for data analysis.

	1988	1989	1990	1991	1992	1993	1994	Totals
—in thousands of US Dollars—								
<u>Training</u>								
Headteachers (within Districts)	100	100	100	100	100	100	-	600
Teachers (incl. travel)	100	200	300	300	300	300	-	1,500
Supervisors/Master trainers	50	50	50	50	50	50	-	300
Panelis	30	30	30	30	30	30	30	210
Study Travel	25	25	25	20	15	15	-	125
								<u>2,735</u>
<u>Salaries</u>								
Professional staff	90	90	60	50	20	15	5	340
Auxiliary staff	30	30	20	15	10	10	5	120
Consultancies (Short term)	10	10	10	10	10	10	10	70
								<u>530</u>
<u>Evaluation</u>								
Baseline & summative surveys.	20	-	-	20	-	-	25	65
Programme design	20	10	5	2	1	1	-	39
Computer services	20	25	30	30	30	30	30	195
								<u>279</u>
<u>Transport</u>								
Vehicles	65	40	25	-	-	-	-	130
Fuel materials production	20	30	38	38	38	30	38	240
								<u>370</u>
<u>Learning Materials</u>								
Textbook Subsidies	120	150	200	200	200	200	-	1,070
Supplementary materials	57	60	60	60	60	60	-	357
								<u>1,427</u>
<b>Totals:</b>	<b>757</b>	<b>650</b>	<b>953</b>	<b>925</b>	<b>874</b>	<b>659</b>	<b>143</b>	<b>5,361</b>

A COMPARISON OF THE ALLOCATIONS TO CURRICULUM  
AREAS FOR TRAINING CLASSES 1 AND 2 (MINUTES/WEEK)

Country	Total	Language	Mathematics	Work-orientation	Arts	Phys./Health Edu.	Characters Dev. Moral/Religious Education.	Civics/Environment
China	1380	600	240	-	300	120	60	-
India	1200	360	180	240	120	120	-	-
Malaysia	1170		903	-	134		133	-
Philippines	1150	600	200				150	200
Thailand	1500	520	220	60			120	560
Pakistan (Proposed integrated course)	1560	840	360			120	60	160

CURRICULUM AREAS AS DEFINED IN FIVE COUNTRIES FOR PRIMARY CLASSES 1 AND 2

China	1. Language and Mathematics	2. Moral Ideology	3. Natural Science	4. Physical Education	5. Music & Fine Arts
India	1. Language and Mathematics	2. Environmental Studies	3. Socially useful productive work	4. Arts	
Malaysia	1. Basic Skills	2. Spirituality, values and attitudes	3. Humanities and environment	4. Arts and Recreation.	
Philippines	1. Language and Mathematics	2. Character building activities	3. Civics and Culture.		
Thailand	1. Language and Mathematics	2. Life Experiences	3. Character Development	4. Work Orientation.	

## ANNEX 4: INSTRUCTION AND MATERIALS

### STAFF DEVELOPMENT FOR PROFESSIONAL STAFF ENGAGED IN CURRICULUM DEVELOPMENT, TEXTBOOK WRITING AND EDITING, AND TEACHER TRAINING

#### Knowledge and Skills

Staff development programs are designed to assure that the professional staff have the opportunity to extend their knowledge and skill in the areas relevant to their functions. Most professional staff have obtained a general working knowledge of the following areas through their university studies and through on the job experience. However, an optimal staff development program would allow staff members to refresh themselves in the following general knowledge or foundation areas and would provide special training in the technical fields. This would particularly important for professional staff engaged in curriculum development, instructional design, and the design and conduct of teacher training. Those engaged in textbook writing and editing should have a basic familiarization with the major topics areas, and specialized working knowledge of the technical areas, and of those marked with an \*:

#### Technical knowledge

- o Computer applications
- o Word processing \*
- o Graphics design \*
- o Information access--the use of data bases
- o Information reduction--the use of file programs to classify and sort data \*
- o The use of formatting/design software \*
- o Audio tape development
- o Teaching AID development
- o Design and development of posters \*
- o Television development.
- o Elementary camera and VCR operation
- o Principles of tape editing
- o Design of videotapes

- o Design of print materials \*
- o Editing \*
- o Layout and formatting \*
- o Textbook design \*

#### Foundation areas of knowledge for Instructional Design

- o Instructional models \*
- o Social learning models \*
- o Behavioral models \*
- o Information- processing models \*
- o Individual psychology
- o Cognitive development \*
- o child growth and development
- o Socialization

#### Curriculum implementation training

- o Research on training
- o Production of theory- based components of instruction
- o Demonstrations of teaching
- o Guided practice
- o Use of Feedback in training
- o Coaching for implementation

#### Curriculum design and development

- o Analysis of social needs
- o Research on student achievement
- o Research and scholarship on the structure of the disciplines \*
- o Formulation of objectives \*
- o Principles for achieving sequence \*

- o Principles for achieving continuity \*
- o Principles for achieving integration \*
- o Selection of instructional models \*

Curriculum development strategies

- o Selection and organization of objectives \*
- o Design of instructional materials \*
- o Pilot-testing
- o Analysis of data from tests
- o Design of formative evaluation
- o Analysis and utilization of data from formative procedures \*
- o Conduct of field tests

Knowledge of subject matter and curriculum research

- o Knowledge of the scope of the field \*
- o Knowledge of research on curriculum and instruction \*

## ANNEX 5: INSTRUCTION AND MATERIALS

### SELECTED FIELD OBSERVATIONS

The following are field observations gathered as a result of several field trips made to Baluchistan and NWFP over a year and a half during work on the BRIDGES Project and in preparation for the Social Soundness Analysis for PED. Overall, conditions in NWFP are more favorable to both quantitative and qualitative changes in the educational program and therefore many of the following details concentrate on the more difficult conditions of Baluchistan. It is difficult to generalize widely about conditions of schools in the two provinces, details vary so widely. These comments therefore should be taken as illustrative rather than definitive.

Instructional materials outside of textbooks and teaching kits locked away in a cabinet are hard to find in classrooms. Sometimes the walls of rooms are adorned with faded verses from the Koran, or maps of Baluchistan and Pakistan. All are hung too high to see easily and may only be rarely used for classroom instruction. It is doubtful whether instructional materials, unless tied directly to curriculum in some kind of compelling way, would be used by teachers. The most useful would be simple plasticized charts of the alphabet and numbers for Kachi and Pakki grades, with instructions in small letters suggesting different ways the teachers might use them, and indicating how high they should be hung for young children to use them properly. The alphabet charts should avoid pictures which may be confusing to children with different mother tongues.

The numbers should be associated with sets of objects (the example in one but not all of the teaching kits I saw should be avoided; there, for some unknown reason, each number is associated with an incorrect set of objects). Any instructional materials of this kind should be tested first on a limited basis to insure that there are no mistakes in presentation or problems in usage (the textbooks are full of these kinds of problem). Observation in the early grades suggests that the teacher would be saved a great deal of classroom time spent daily in writing these sequences on the blackboard if simple, easy to read charts were available. Further it might more profitably encourage teachers to require children to refer to the charts rather than to trace endlessly over teacher produced letters and numbers. Instructional charts for the higher grades should be produced sparingly and in every case tied directly and usefully to the curriculum. It is better not to provide such charts if they are only used to decorate the walls (one class we saw had five of the same maps of Pakistan glued to the wall) or similarly if they are so lacking in relevance that the teacher forgets to bring them out once a year. Materials which lack relevance reinforce the teacher's notion that bureaucrats don't really understand them, and causes them routinely to ignore any innovations that are sent to them.

The problems teachers have with textbooks are probably the most vexing they face. This is most critical in the Kachi and Pakki years, and to lesser degree in grade two. If textbooks were improved for these three years and teachers were trained in more effective ways to teach these grades, dropout rates almost certainly would decline. This comes clear from watching these classes in action. The Pakki, or grade one class, is an official grade reported under regular enrollments. It has become the practice in most, perhaps all, schools to extend the Pakki class down one and often two years to "get children used to going to school". These additional children are often unofficial, unregistered children or they appear for several years in a combined Kachi/Pakki grade, as though they are new entrants every year (thus making the official registers appear as though there is a high dropout rate between grades one and two, which indeed there is, though not as large as it would appear).

The practice of accommodating so many children for several years in the same class is almost certainly a consequence of the difficulty of the early texts. It has become the practice in most schools to require a test of the Kachi children's mastery of the first primer book before allowing them to become full-fledged Pakki members. By that time the majority of students has become discouraged and dropped out.

When schools separate out the Pakki children their numbers are only a fraction of the large Kachi class. Typical rural schools usually do not have enough teachers to accommodate two classes and therefore they are likely to be combined.

One class which was a fairly standard example contained about 75 students varying in age from about 3 years to boys whose voices were beginning to change. New arrivals join the back rows in the room and if they stay more than a few days are given the first book (textbooks are given free in Baluchistan, but are in short supply in these early grades because of the number of children who come for a few days and drop out, taking their books with them). Teachers generally ignore these back rows except to keep a semblance of order in them. The new arrivals are gradually socialized into the chanting of alphabets and numbers, and patriotic verses that make up a good part of the Kachi/Pakki day. Another major chunk of time is spent in writing alphabets and numbers on the clay washed boards called takhtis. Some classes do nothing but these two activities. Better teachers listen to each child individually reciting from their books--practically every child is at a different point in the work because of the staggered way they join the class. More likely the teacher concentrates on getting the front rows through the requisite texts to promote them, after several years, into the second grade.

In the class in question, children in the back rows came for the three days we observed them, and had no individual contact with

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the teacher. For most of the time they sat doing nothing, and only joined in occasionally during the chanting. It is hard to blame the teacher who can not be sure these young children will stay long enough to make it worth his trouble. His energies are taken up by the older students who by their persistence have shown themselves worthy of his attentions. It is difficult to know how such a class could be effectively taught given the current problems with materials, and the huge numbers of children in various stages of progress. There is a need to improve the materials, and to limit the numbers in this class to children who are old enough to profit from instruction. It is unlikely, however, that parents or teachers will accept limitations on the ages of children until the texts are easy enough to be absorbed in a single year. If the numbers of children in these classes are not reduced, then improved materials will have to be almost self-teaching to accommodate the level and stages of the children.

What makes these texts so difficult? First, is the fact that the materials are usually in a language that the children are not familiar with. When examples are presented of objects which start with an alphabetic letter, they are likely to have a local name which starts with another letter, thus causing more rather than less confusion. The primer which introduces the letters becomes increasingly more difficult with each letter. Besides presenting the letter, the book soon is showing how the letter is written in its three forms at the beginning, in the middle, and at the end of a word. Words are also introduced from the early pages of the primer, not always with a relationship to the letter in question. By the seventeenth letter, whole sentences are presented with no relationship at all to the letter ("My brother's wife gives me whey to drink"). Thus before the child has even mastered the letters of the alphabet, he or she must be able to read.

The same is true for the beginning math book where there are numerous confusions in the pictorial representations of "bigger than" "smaller than", etc. After this first unit, the second unit for the first grade requires the children to learn, among other things, the numbers from 1 to 100, certain fractions, decimals, the concept of zero, etc.

The Urdu book with which the grade one Pakki class starts is a reading book that children memorize. When asked, a child often cannot pick out individual words separated from their memorized context. A measure of the teaching quality at this grade level is whether a child can both read and understand individual words. This capacity does not seem secure until grade three, when children may be able to pick up something new and decipher most of its content. In the time given to struggling with difficult texts children could progress a great deal further and with far greater comprehension if they were presented appropriate and well-sequenced materials.

Teachers in this Kachi/Pakki grade have, with few exceptions, become orchestrators of repetition, oral and written. Teachers' guides are said to exist but none were available in any of the schools we visited, and it is unlikely they would be used if they were not tied directly to individual lessons and specific material. Most useful would be instructions written directly into a text similar to that for the students, so that there would be no extra effort required to use them. The teachers are used to accepting advice and are all-to-eager to be told the "right way" to do things. They need suggestions for making schoolwork more interesting and productive, and need to be made aware of the implications in learning of the practices they use, such as calling mainly on those whose hands are raised, or giving children the answers rather than asking them for answers. Given the present constraints in instructional materials, however, the first remedy appears to lie in a more usable text.

Teachers complain that children forget everything over the summer holiday (June, July and August) which comes in the middle of the school year (April to March in most areas). To change the school year so it starts in September would be a simple expedient that would allow continuity in the work of a grade level, avoiding some of the time devoted to review in the year.

Similarly, many schools have breaks which last up to 40 minutes to allow children to go home for snacks and bathrooms. Providing toilets in schools, may enable the schools to shorten the break period and give more time to instruction.

The writing materials used by children at present are very difficult to use. While sharpened bamboo pens, painted tin slates and wooden paddles washed with clay are ingenious and cheap, they have certain limitations. Much classroom time is spent on reclaying and drying the takhti boards, and if the teacher doesn't permit this activity, then they are only usable once in the school day. It is very disruptive of the large Kachi/Pakki classes when children are moving back and forth preparing their boards. In schools where water is difficult to obtain, the takhti water often doubles for drinking water.

Slate boards and chalk are easier to clean and use. Children carry wiper rags and sometimes a small bottle of water (otherwise they spit on the boards) to erase them. Slates cannot be used for homework because they smudge easily.

The bamboo pens are very difficult to use. They clog and almost never have the proper amount of ink. They need to be redipped after every one or two letters. The ink spills easily and gets all over the children's clothes, books and hands. The point of the pen must be sharpened frequently, a difficult task for a small child. If not done properly, the letters become thick and illegible. The takhti boards are small. To accommodate the numbers up to 50, for example, requires very tiny numbers. One blot and the number is lost. It cannot be changed until the whole

board is rewashed. These problems with writing materials are very frustrating to small children.

ANNEX 6: INSTRUCTION AND MATERIALS

STATEMENT SHOWING PARTICULAR OF THE TEXTBOOKS

PUBLISHED FOR THE ACADEMIC YEAR 1989 BALUCHISTAN

S.No	Title of Book	Class	No. of copies Printed for (1989) (1st Edition)	No. of Pages in Book	Size of Book.	Quantity of Paper used in reams of 20x30 size (50 gr.) (Without Title)	Price of Book.	Total face value/ cost (Price No. of copies)	Total cost of Paper used (without Title Cover) Rs. 250/- per ream
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Urdu Ka Qaida	I	5,00,000	32	20x30/8	2160 reams	Rs. 3/45	Rs. 17,25,000/-	Rs. 5,40,000/-
2.	Darul Kitab	I	2,50,000	48	20x30/8	1620 reams	Rs. 5/75	Rs. 14,37,500/-	Rs. 4,05,000/-
3.	Maths	I	1,85,000	43	20x30/8	1173 reams	Rs. 4/70	Rs. 8,69,500/-	Rs. 2,93,250/-
4.	Urdu	II	95,000	48	20x30/8	615 reams	Rs. 5/85	Rs. 5,35,750/-	Rs. 1,53,750/-
5.	Maths	II	70,000	76	20x30/8	7011/2 reams	Rs. 7/15	Rs. 5,00,500/-	Rs. 1,75,375/-
6.	Science	II	75,000	34	20x30/8	324 reams	Rs. 3/95	Rs. 2,96,250/-	Rs. 81,000/-
7.	Urdu	III	65,000	61	20x30/8	561/2 reams	Rs. 7/50	Rs. 4,07,500/-	Rs. 1,40,375/-
8.	Maths	III	56,000	104	20x30/8	7531/4 reams	Rs. 8/20	Rs. 6,59,200/-	Rs. 1,38,312/50
9.	Quran Guide	III	52,000	40	20x30/8	2701/2 reams	Rs. 3/45	Rs. 1,79,400/-	Rs. 67,629/-
10.	H.Aloon (10 Blatt:)	III	57,000	60	20x30/8	418 reams	Rs. 6/50	Rs. 3,70,500/-	Rs. 1,12,000/-
11.	Science	III	50,000	40	20x30/8	270 reams	Rs. 4/30	Rs. 2,10,000/-	Rs. 67,500/-
12.	Urdu	IV	45,000	80	20x30/8	477 reams	Rs. 8/85	Rs. 3,62,250/-	Rs. 1,19,250/-
13.	Maths	IV	42,000	104	20x30/8	562 reams	Rs. 7/80	Rs. 3,27,600/-	Rs. 1,40,500/-
14.	Science	IV	42,000	56	20x30/8	303 reams	Rs. 4/95	Rs. 2,07,900/-	Rs. 75,750/-
15.	H.Aloon	IV	42,000	82	20x30/8	447 reams	Rs. 7/15	Rs. 3,00,300/-	Rs. 1,11,750/-
16.	Desial	IV	42,000	34	20x30/8	1851/2 reams	Rs. 3/85	Rs. 1,28,100/-	Rs. 46,375/-
17.	Urdu(Qaid)	IV	42,000	60	20x10/8	329 reams	Rs. 4/50	Rs. 1,93,500/-	Rs. 82,250/-

18. Urdu	V	32,000	90	20x30/8	399 ream	Rs. 8/15	Rs. 2,60,800/-	Rs. 99,750/-
19. Matha	V	35,000	112	20x30/8	503 ream	Rs. 8/10	Rs. 2,83,300/-	Rs. 1,25,750/-
20. Science	V	33,000	72	20x30/8	309 ream	Rs. 6/-	Rs. 1,98,000/-	Rs. 77,350/-
21. H.Aloos	V	34,000	92	20x30/8	429 1/2 ream	Rs. 7/65	Rs. 2,60,100/-	Rs. 1,01,375/-
22. Deniat	V	34,000	48	20x30/8	212 ream	Rs. 4/05	Rs. 1,37,700/-	Rs. 51,000/-
23. Urdu Grammar	V	32,000	68	20x30/8	278 ream	Rs. 4/55	Rs. 1,58,400/-	Rs. 69,500/-
		<b>19,11,000</b>	<b>1498</b>		<b>13330.75 ream</b>		<b>Rs. 99,39,350/-</b>	<b>Rs. 33,32,6875/50</b>

**SUMMARY**

i) Total Paper in ream 13330 3/4 in 20x30 size 60 gr: (1 Edition)	=	155	M.Ton.
ii) Total Paper in ream 936 in 20x30 size of 80 grammage for Title cover (1 Edition)		151/2	M.Ton.
iii) Total Paper in ream 227 in 22x26 size 50 grammage	=	31/2	M.Ton.
		<b>Total: 374</b>	<b>M.Ton.</b>

- 9,50