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PAKISTAN SCHOOL EDUCATION MASTER PLAN

DRAFT FINAL REPORT

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PAKISTAN SCHOOL EDUCATION MASTER PLAN T.A. NO. 1297-PAK

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I. EXECUTIVE SUMMARY

This report examines the school education sector in Pakistan, defined here as primary, middle, and secondary education through grade 12. The study directly responds to the Government of Pakistan's recognition that better coordination and more efficient use of scarce resources is essential to improving access to and quality of school education. Rather than producing a grand strategic plan as the title suggests, the purpose of the study is to assist the government to "develop a tool for educational planners by preparing and costing enrollment scenarios to be used by the government in setting targets and determining resource requirements for the subsequent expansion of education." The hope, therefore, was that preparation of such a framework "would (i) enable more accurate enrollment projections to be made, and (ii) facilitate the coordination of donor-assisted projects in school education."¹¹

The report consists of five parts. Section II lays the foundation for the study, identifying the key issues and trends facing the school education sector. Section III reviews the status of each subsector--primary, middle, lower, and higher secondary education--and presents detailed data about enrollment, teacher training, and school facilities initiatives during the past decade. Section IV presents a framework for future analysis of school education needs, three enrollment expansion scenarios and variations for consideration, and the costs associated with each. Section V outlines key donor initiatives in school education, and presents preliminary recommendations for building on these activities. The following paragraphs outline the contents of each section and the preliminary recommendations for consideration and the Asian Development Bank.

Section II -- Introduction outlines eight key areas that affect work in planning and implementing change in the educational system of Pakistan. Broadly stated, these issues focus on four areas: 1) establishing realistic goals and targets for school education; 2) improving and decentralizing education management; 3) enhancing instructional inputs; and 4) broadening support for education beyond the public sector.

Section III -- Formal Education System: Structures, Past and Present describes the current status of the education sector, with particular reference to the issues outlined in Section II. Detailed qualitative information in these areas is supported by detailed data on trends in school enrollments over the last decade. Particular attention is given to regional variations in the data, and the possible influence of programs financed by foreign donors on these trends. Lastly, other complementary concerns--manpower planning, vocational and technical training, nonformal education--are briefly reviewed and recommendations made on potential future directions.

¹ Background Information and Terms of Reference, School Education Master Plan, page 1.

Section IV -- Enrollment Forecasts presents five enrollment expansion projections, broken down by grade, level (primary, middle, lower secondary), province, and gender. The assumptions behind each scenario are outlined, and based on an analysis of unit costing for educational inputs, the costs of three of the enrollment expansion scenarios are outlined. The section concludes with a discussion of options and tradeoffs for the Ministry of Education to consider. Supplementing this section, Annex 5 presents a detailed description of the methodologies used in projecting enrollments, and the stepby-step process used in preparing the five enrollment projections.

Section V -- Foreign Assistance reviews the activities of the major foreign donors currently supporting school education in Pakistan. A case study of Balochistan is presented to illustrate one model for enhancing donor collaboration, supplementing other recommendations outlined in the section.

Section VI -- Recommendations summarizes the 25 draft recommendations in eight groups, highlighting goals for the coming decade; improving school structure and education management; vastly increasing teacher training and improving instructional materials; and offering recommendations focused on private education, education finance, manpower planning, and coordination of technical assistance.

II. INTRODUCTION

For the past two decades, education has been the second largest annual government expenditure in Pakistan, exceeded only by military commitnients. Increasing access to primary schooling and improving the quality of schooling have been repeatedly stated as sector objectives in annual plans and in long-term documents. Reality has not matched expectations, however. The enrollment of the school-age population is currently low. There is a desperate shortage of qualified trained teachers, especially females, and in the rural areas (where enrollment is the lowest), federal development budget allocations to the provinces are frequently not fully spent. Management and evaluation capacities throughout the system are weak. National education development plans are comprehensive but less than realistic in their estimates of time and structural changes required to create sustainable growth. Existing human and fiscal resources are often not used most efficiently, and the generation of new financial support for education and of a well-trained, dedicated cadre of teachers and administrators has trailed the demand imposed by system growth.

This section reviews some of these major issues affecting future work in planning and implementing change in the educational system of Pakistan. Subsequently, in Section III, the current status of Pakistan's school education system is reviewed, with particular reference to these issues.

A. <u>PROBLEMS/ ISSUES ENCOUNTERED</u>

1. <u>Unrealistic Plan Targets and Unarticulated Goals</u>

The first major issue facing education planners in Pakistan is the need to formulate realistic policies and plans. Currently, policies are declared in national meetings; plans are written and targets are clothed in numbers; but the policies and plan targets are not linked to agreed-to and accepted goals which are also reinforced by political will and purpose. Many of the targets are unreal because the numbers are unreal. Attainable targets are not set within a coherent framework of constraints. There is no analysis of tradeoffs, where alternatives are compared and rationally chosen. Since all goals and targets cannot be attained at the same time, given resource constraints, key elements are sacrificed and the entire plan or policy unravels.

The current data are too weak to analyze the efficient use of resources in schools. The "cost" data are actually budget estimates, not expenditures; and data on system performance, enrollments, and graduates are unreliable. Also, no policy framework has been designed to array the information for decisionmaking. For example, no policy statement was given to guide preparation of this Master Plan, only work tasks to accomplish. The lack of a policy and planning framework is a grave concern. Past Five-year Plans are incomplete regarding analysis of operational expenditures or recurrent costs in the provincial education systems where the schools are actually run. The national education plans mainly cover estimates of capital investment required, along with general estimates of the recurrent expenditures required to attain unstated goals and unclear targets. Because of an unclear goal-e.g, "universal primary education"--rough feasibility assessments are conducted in preparing these plans, using such general indicators as percent of GNP to be expended on education. Progress toward target attainment is sketched out using the indicator GPR (gross enrollment rate), an inaccurate measure of system performance.²

During implementation of the plans, moreover, the necessary operational-level planning has become a pro formal exercise with little or no translation of five-year plans into realistic operating plans, nor any national coordination, monitoring of attainment, feedback, and adjustment, or assessment at the end of the term of the plan that would permit rolling the plan forward. As a result, the education components of previous plans have failed repeatedly to meet established targets. The failure of these plans cannot be placed solely on the planning process or the planners. The real failure lies mainly in the inability to mobilize political will, revenues, and resources to meet the goals established.

Belaboring the problems with education data and the lack of information on which to base sound plans, policies, and management decisions is not the point of this study. Lack of information is an issue for the future, and help is on the way in the form of new EMIS systems developed in Balochistan and under development in NWFP. The UNESCO-funded national EMIS project will add information as well, as will the school mapping exercises now being completed. The Balochistan EMIS system already has produced fundamental tables with the age-grade distributions necessary for sound enrollment projections, and the information will serve many other planning and management needs from school location to teacher recruitment. (See Section III for details.)

Better data and information will not resolve the main issue--the lack of a planning process in which goals are discussed, analyzed, and developed in a systematic framework and policies are analyzed within the limits of resource constraints. Within

² GPR, used by Pakistan education planners to track system performance, is calculated by dividing enrollment in a given age group by the total school-age population in that group. In primary schools, for example, the age group is assumed to be 6- to 11-year old children. Thus, the GPR for primary schools is calculated by dividing primary school enrollments (the "numerator") by the total 6 to 11-year old population (the "denominator"). Both the numerator and denominator in this equation are inaccurate: in the "numerator," primary school enrollments include both children younger than five and older than 10 years; in the "denominator", the primary age group population are not 6 to 11-year olds, but rather, a larger group that varies by area of the country. In addition, underlying population data are inaccurate, given the lack of a census since 1981. (Section IV includes a more thorough discussion of this concern.)

such a framework, costs can be analyzed and tradeoff decisions made. Some examples of cost analysis and tradeoff decisions will be offered for further consideration in this study, but ultimately, goals must be set and decisions made by the government. To assist this decisionmaking process, consideration could be given to using a set of strategic, heuristic exercises to assist the government in developing a goal framework, clarifying goals, and identifying targets (e.g., the BRIDGES strategic gaming exercise, EPIC, 1991).

2. Irregular School Structures

A second set of issues involves the irregularity of school structures, even at primary levels (See Exhibit 1, Section III). This irregularity and uncertainty about how structures may change causes major problems in systems planning and in implementing educational programs. Exhibit 1 indicates that the education system from grade 1 to 12 is a complex set of schools that operates with many different grade combinations, and, through "upgrading", the mix is constantly changing. The two key problems of the current system's grade structure are the combinations of grades in schools teaching kindergarten through grade 8, and the placement of grades 11 and 12.

After completing this study, it is unclear whether Pakistan's goal is to continue to move toward a 1-8 basic education program. This course is recommended in this study, although it should be taken with a realistic awareness of the difficulties and according to a declared policy that is accepted by all, with a schedule established for accomplishing the change. In addition, the large number of underage children in Kachi classes should be controlled if primary education is to improve.

Similar considerations apply to regularizing secondary level grade structures. Grades 11 and 12 are found in both higher secondary schools and intermediate colleges. The two settings are very different, resulting in confusion over standards and programs. A logical course would be to convert the system into a 1-8 and 9-12 structure, and move grades 11 and 12 down to the secondary level. Admission to these grades in intermediate college would be closed off, and the colleges would become postsecondary B.A. institutions.

Realistically, such decisions are dependent on public policy and may come at high political cost. This issue will be discussed more thoroughly in the next main section.

3. Instructional Inputs

Providing adequate instructional inputs is also problematic because of constrained resources. A related problem is provision of inputs in a complete program package so that facilities are not built only to lie idle without basic equipment or teachers.

Foreign donor assistance has helped greatly in the provision of facilities, but the capital investment increases recurrent expenditures, and even with some of that burden assumed by the central government, the provincial school systems have few sources of revenues. Providing other essential inputs--e.g., teaching/supervision and curriculum/materials--also raises critical issues, especially the recruitment and training of teachers. This is especially important, given that the current supply of teachers is inadequate to meet the demand of increasing enrollments projected under any future scenario, and the turnover in teacher ranks.

a. <u>Teacher Training</u>

Training is still centered in preservice PTC (Primary Teaching Certificate) programs in the teacher training colleges. A substantial effort should be made to shorten yet upgrade the programs, increase pay and status, and restore teacher morale. In addition, research suggests (BRIDGES,1990) that teaching performance is affected more positively by the general education level of the teachers, rather than by specific pedagogical study in preservice teacher training institutions.

The morale of teacher training staff is low in Pakistan. The spirit of defeatism is passed on to the new teachers, and little that follows in the profession itself (salary, status, satisfaction) is likely to change that view (AEPAM studies, BRIDGES, 1990). This problem is even more acute in the science and occupational training fields.

Also, the duration of preservice teacher training should be shortened and the program intensified and accelerated if demand is to be met for trained teachers. The training schedule should have a first cycle of four months duration. In some cases, this time can be completed by using summer vacation or weekends. In urban areas near schools where the teachers are assigned, classes can be held after school, in the evening, or on weekends. It is necessary, however, to make every effort to prevent training fatigue. In rural areas, the "mobile" teacher training alternative can be used. A school year of experience would follow the first cycle of training. During the vacation period after the first year of teaching experience, the teacher would be brought back for follow-up training cycles. Two to three cycles should be offered depending on school calendars--in the rural areas to the north, for example, calendars differ according to the seasons. The practical training should include closely supervised ex_F rience, especially for rural teachers who must handle multiclass units using group methods. The course work should be heavier on general education and lighter on pedagogy and theory of method.

Short courses for teachers recruited without prior study in education might produce better candidates and save both time and money, thus helping to close the gap between the numbers of teachers that will be needed in rural schools and the number that can be trained in full PTC programs. But attracting unemployed B.A.s to primary school teaching also will require changes in pay scales. The most cost-effective option for primary teacher training is accelerated training outside of teacher training institutes. Training should be offered in multiple short cycles, interspersed with periods of supervised teaching experience during the school year. For training in sparsely settled rural areas, the mobile teacher training project should be expanded to all four provinces.

b. <u>Teacher Supervision</u>

A related input issue is improving supervision of teachers. The current structure of AEOs and ADEOs must be modified to improve intensity of the working visits. New patterns of supervision under the PEP and PED projects--i.e, the Learning Coordinators-are promising (BRIDGES, 1990), but in most areas, visits are too infrequent; sometimes only once a year in rural areas, sometimes none. Unless supervisors can get out to the schools, and they cannot in many rural areas, supervision fails.

Additionally, the training and mission of supervisors must change to emphasize professional support and counseling for teachers, and methods for mobilizing community support for education. The Learning Coordinator program is a valuable first step in support of teachers.

c. Instructional Materials

The improvement of all instructional materials, from textbooks to annotated class notes and instructional guides, must continue as follow-on to the integrated curricula modules and materials development programs being undertaken with UNICEF and UNESCO support. The process of commissioning writers to produce books is said to be based on favoritism, as it is in many developing countries. Curriculum and textbook boards exist, and the National Book Foundation has shown promise, but a system of standards and procedures for selecting talented writers needs to be established. Only a quick look at books produced for the Pakistan schools was possible during the time allowed for this study, but the quality of the writing appeared to need improvement. Improvement will require open competition. There must be incentives. Foreign technical assistance could offer these, but, ultimately, books for Pakistani children must be written by Pakistanis. Given the fine literary traditions and quality of Urdu poetry, for example, it is clear that talented Pakistani writers are available. Bringing their talent to the development of textbooks, however, will likely require freer, more open competition and incentives to reward performance. (No better system than royalties, modified to fit circumstances, has yet been found). Additionally, book adoption procedures should be modified, and good books, when they are found, should be given wider acceptance in all provinces.

Beyond the problems of conceiving, writing, and manufacturing books lies the problem of distribution. An objective of mass education in Pakistan, where the level of literacy is estimated from 25 percent down to less than 1 percent for some groups in rural areas, is to get as much of the printed word as possible into homes for families. In this regard, the *Banco del Libro* program in Venezuela is a good model for increasing reading material and reading in the homes (McGinn and Davis, 1966). In this program, books were produced at low cost with the hope that children would take them home. The life of the book was shortened but the positive effects of the program in the home were clear.

Examination of books and educational materials here has been cursory, but further exploration of the issue is warranted, and an in-depth study of book development and distribution may be worthwhile. (Franklin Books and UNESCO both have had significant experience in the area.)

4. Decentralization

Decentralization is a significant, much-debated issue. Despite small-scale attempts to devolve some provincial functions to divisional and district level, it may still be a long time before school-based or community-based management is implemented in Pakistan. New databases and information systems, now under development, will facilitate decentralization of management functions to levels below the province, where most responsibility now lies. Decisions on critical management matters also will need to be decentralized to division or district level in an orderly transitional process. Personnel recruitment, assignment, and promotion should be decentralized below provincial levels; but these are precisely the areas where central managers may wish to keep control for patronage reasons.

Resistance to devolving responsibility for building locations also may be enmeshed in local politics. Curriculum and textbooks are, for the most part, kept under central control, but because talent is not widely distributed and standards must be maintained, curriculum and textbooks might best be produced on centralized basis for the near future.

Decentralization may move faster when experienced supervisors are more widely distributed below division and district levels. Training of lower echelon managers will be supported by recruitment of experienced supervisors from the ranks of the new Learning Coordinators.

In a pilot project in the PEP program in Balochistan and Sindh, Learning Coordinators were given responsibility for supervising and monitoring teacher absences (AEPAM). After a promising start, some of the Learning Coordinators were given the opportunity to become regular school teachers, but the scope of the project was limited and the devolution of responsibility lapsed. The latest PEP initiative in Punjab has incorporated the Sindh program in all districts, so decentralization may continue in the largest province. The new cadre are called "supervisors", and the program will continue at least for the duration of the PEP project. Its progress should be carefully assessed.

In summary, the main functions that could be decentralized are:

- Planning
- Personnel, appointments, recruitment locally
- Finance, within limits and controls.

5. <u>"Vocationalization"</u>

The debate over "vocationalization" of general education is a response to parental perception that general education at the secondary level is irrelevant to training of students for future occupations and employment. Some conceive of it as a renewed attempt to keep vocational education under the control of education secretariats and the technical and vocational education wing at the national level.

One objective of "vocationalization" appears to be the introduction of fundamental concepts of work and productivity into the general education curricula. It provides an orientation to the world of work, but not sufficient training to enter it. In general, however, the concept of "vocationalization" does seem to be clearly understood in Pakistan.

One promising exception seems to be in Punjab, where a program to cover 25,000 students in 300 schools has been well conceived and planned. (This program is discussed further in Section III, Manpower Development and Training.) The program may have some promise if it is carried out in training establishments centered in the industrialized areas around Lahore and along the Grand Trunk Road. The key issue is where the training center is located. In rural Punjab, the program would make little sense.

6. <u>Mosque Schools</u>

The issue of using Mosque schools as an alternative to regular national primary schools was raised in discussions with education officials in all the provinces. In general, government educators felt that Mosque schools are necessary, in fact essential, in rural areas. Some suggested that the percentage of girls attending such schools should be increased. In Punjab, educators complained only that there were not enough Mosque schools to expand into regular, two-grade primary schools. The NWFP, however, had a very different view--that Mosque schools would not serve girls well. These differences are part of a more general discussion of differing opinions from province to province.

Studies (Anderson, BRIDGES, 1990) report that parents favor Mosque schools for girls, but education officials deny that this holds true in NWFP. The World Bank has plans to help with the construction of Mosque schools in Punjab Province. The investment appears a sound one if universal primary education is the goal.

7. Universal Access to Primary Education

Universal access to formal primary school has been a goal accepted in the last three five-year plans, including the current 7th Plan. It is a goal that was built into one set of projections in this study. Given increased implied costs, and the fact that nonformal education and literacy have not yet had a full trial in Pakistan, the goal should be retained, but it should be examined more carefully than it has been to date. The desirability of the goal is not the issue. The issue is the assumption that universal basic education and literacy must be achieved through formal schooling. The answer may be yes, if it can be afforded, given realistic projections of resources. This study indicates, however, that it may be very difficult to accomplish given present system inefficiency, resource constraints, and the education sector's past shares of GNP, which rose slowly from 1.6 percent in FY 1984 to 2.4 percent in FY 1988. The percent is still below the average of 3.1 percent for Asian countries. As a percentage of the annual budget, education spending at 9 percent is about half the average for all developing countries, and primary education is low at 34 percent of the educational budget. Defense outlays as a share of GNP are three times as high as education, and the signs for a defense spending cut are not promising.

The central issue, however, is not whether the resources will increase (measured in GNP shares on any other aggregate indicator), but whether increased financing will bring a proportionate increase in efficiency sufficient to attain universal primary schooling of quality sufficient to insure functional literacy.

8. Other Issues

Other issues examined briefly were:

- **Upgrading** -- the advantages, costs, and consequences of this are examined in Section III on school structure and the issues that arise from attempts to normalize it. It also relates to the problems of structure, also discussed in that section and in Annex 1.
- Sustaining Innovations -- the difficulty of sustaining innovations until their promise is realized is also an issue that would repay study. The BRIDGES project attempted this, but little of operational relevance has resulted. The Learning Coordinator role in supervision of teachers was an innovation that seems to have lasted. So has distance teaching at Allama Iqbal Open University. Many of the promising proposals under LAMEC, however, have faded. The experience at NICE (the National Institute for Communication through Education) which is discussed in later sections, is an example. It looked promising but it was turned down by a review committee.

- Administration -- the issue of expanding the role of the DEO (District Education Officer) has often been raised. The DEO plays the keystone role in the supervisory and administrative structure.
- **Private Education** -- little time was available to examine the issues or the facts of private education in Pakistan, although this study made a systematic attempt to collate data on private schools and enrollments in Pakistan. The Steering Committee, in a June '91 memo, proposed that a study of private schooling and five other studies be carried out by the Master Plan team leader during his seven weeks in country. The idea was sound, the time insufficient.

Studies of private education, based on partial samples, have made impact estimates, but a complete and serious study should be made in the near future. The issues examined in this study were: i) how much of a burden of education might private institutions assume; ii) in what levels and in what programs might private education contribute and; iii) what is the quality and cost of private education, insofar as it can be ascertained. Without complete data on the current status of private education, an attempt to project future enrollments in private schools would be illadvised. As a reasonable estimate, however, private schooling carries about 8 percent of the enrollment burden, over all levels. This report recommends that a complete study of private education in Pakistan be made, that it cover all levels and types of programs, and that it attempt a complete census of institutions and enumeration of enrollments, so that a sampling frame can be constructed for future surveys. This would permit the monitoring of change and the projection of future developments in private schooling. These issues are examined further in Section III and in Annex 2.

Private resources should take on more of the burden of education in Pakistan, especially at secondary and higher levels, or universal access to primary education is not likely to occur during the 10-year period of this study.

III. FORMAL EDUCATION SYSTEM: STRUCTURES, PAST AND PRESENT

A. HISTORY OF SCHOOL STRUCTURES

A brief history of proposals for changing the grade and program structures of the Pakistan education system appears later in the next section. Here, the effects of the current educational structure on the planning and management of education in Pakistan are discussed.

1. General Structure of the School System

A chart of the school system structure, depicting the education sector by levels and programs, generally provides the framework for describing the system and organizing a coherent analysis of educational issues and programs. This convention is followed here, but in Pakistan, the actual system is ever changing through the "upgrading" process. The actual system is, at any given time, very different from the official version of the structure, which may be three years out of date. Exhibit 1 shows a version of the system as of June 1991, but the change process continues, and the system in July 1991 will likely be very different. The same is true for data on the system; enrollments have changed three times for some provinces, as new and corrected data come in. The challenge is first to pin the basic data down, and then to project requirements with the current version before the data change.

In addition to ever-changing data, Exhibit 1 highlights a major issue in planning and managing education in Pakistan. The system does not follow the level and grade structure of the classic form shown in Exhibit 2. The exhibit is clear and useful in showing degree programs above higher secondary, but in reality, many combinations and alternate paths occur in grades 1-12. In all school systems, programs branch and differentiate into specialized programs at secondary school level, but in Pakistan, the grade structure of any given school at any level may change. There are parallel tracks, even in grades 1-10, and every combination of grades occurs: grades 1-3 in Mosque schools; 1-5 in a complete primary; grades 1-10 and 1-12 in some secondary schools; and any combination of grades from 1-2, 1-3, and 1-4, as schools are "upgraded" to a complete 1-5 primary, or go on to become a 1-8 primary/middle school. The classic "8-4 pattern" for primary and secondary school levels was proposed as national policy as far back as 1979, and the six plans from 1955 through 1988 proposed no structural changes. The current plan (7th, 1988-93) now proposes a more complex structure: K-3, 4-8, 9-12, 13-15, 16, and above. This could be confusing if it were followed by any of the schools; it appears it is not.

The varied grade structures do not impede incremental implementation of primary education projects at the school level (e.g., PED, PEP), but project planning becomes an exercise with soft numbers, especially when data are aggregated at the

EDUCATION STRUCTURE (SIMPLIFIED)



a] Usay (Basic 1-8 by upgrade) b) Secondary 9-12 years

(4) Proposed B.Sd. to 15 year (5) Some M.Ed. 2 years after B.A.

Exhibit 2



national level and indicators are computed to fill the PC1 requirements³ and the formats of project proposals and visiting mission reports.

The extent of structural variability is now covered over by poor data, but it will become more obvious as EMIS systems come on line and permit analysis of grade groupings. The mix of grades will continue for a few years more, at least over the time of this study (1990 to 2001), but hopefully patterns will normalize, as "upgrading" is completed in future years.

2. Effects of an Irregular School Structure

How does the irregular pattern affect matters? First, it complicates planning, since flow through the grades of the system changes according to the pattern of grades. Flow rates, promotion rates, or transition rates are different in schools where there is no regular grade sequence following in the same school. Loss is higher when students must end in one grade and continue to the next grade in a different school, especially when this break does not occur at a regular juncture, such as at the end of grade 5, grade 8, or grade 9. Tracking is difficult and flow rates unreliable when they are computed on data aggregated from different grade structures. Finally, in managing the system, the costing, budgeting, and allocation of instructional inputs also is difficult when the term "primary grade" may mean the early grades in a secondary school, not grades in a primary school.

The effect on rural children and their families is even more serious. Rural girls, already at a disadvantage in entering school, face a grave problem in completing primary education when momentum built up by steady progress is interrupted by a dead-end grade structure. It is this effect on education that matters most, and experience and research suggest a social loss when children, just beginning to experience a reward in learning, have no chance of continuing in a graded sequence.

The problem will not soon end in remote and thinly populated areas, but new education management information systems will provide a basis for improved planning of school locations, including nuclear and cluster school patterns. Increased outreach to rural areas through mobile teacher training programs, and greater mobility and coverage in supervision also will permit better school-based planning and coverage. Other remedies are dealt with in later sections.⁴

³ See Section IV for a discussion of the PC-1 process.

⁴ See Annex 1 for further discussion of the evolution of Pakistan's school system structure since 1947.

B. **PRIMARY EDUCATION**

Because of the structural irregularity discussed previously, the enrollments for primary grades (1-5) are compiled from regular primary schools with grades 1 to 5, schools with grades 1-8, grade 1-10 schools, and grade 1-12 schools. Mosque school enrollments are also included. (Discussion of the Mosque schools is included later in this section.) Little is known about private school enrollments, although a complete inventory, listing, and census of private schools is fundamental for full coverage in school planning. The current estimate is that between 1.2 and 1.5 million students attend private institutions at all levels. (See Annex 2 for detailed information on private schools prepared by AEPAM for this study).

Table III-1 and III-2 show enrollment data (grades 1-5), by province and special areas (e.g, FATA, FANA, Islamabad), for the most recent past years available (1989-90). These data are based on information for primary grades in government and Mosque schools, contained in official reports, and shown separately for boys and girls. Enrollments from private schools are not included, which would add from 8 to 10 percent to the totals. (See Annex 2).

All data provided at the start of this mission were found to be inaccurate and needed revision. Data from NWFP were found to be particularly unstable. Corrected data, detailed in Tables III-1 and III-2, were used in preparing the enrollment forecasts described later in this report.

1. Enrollments, Boys and Girls, Primary Grades, 1985-1990

a. Enrollment Highlights for Primary Boys

Table III-1 shows enrollments for the most recent five years, updated. The highlights for boys education are:

- The enrollment increase for boys in Pakistan typifies the general pattern of growth for the provinces, with the exceptions noted below. The range is even across all grades at the primary level. The lowest increase is at grade 3, a 6 percent cumulative annual increase from 1985-86. The highest increase is 8 percent, which occurs in both the first and fifth grades.
- 2) Enrollment increases are on average larger in Balochistan and NWFP, where the growth rate ranged from 8 to 11 percent. In part this reflects the statistical artifact of an increase from a smaller base number, but it also may reflect the effects of the PEP and PED programs from the World Bank, USAID, and other interventions by the Asian Development Bank and

Table III-1

Boys Primary Enrollment (Grades 1-5) 1985-1990

| Province | Grade | 1985-86* | * 1986-87 | * 1987-88* | 1988-89 | 1989-90 | Cum Gr Rate |
|----------|-----------|------------------|-------------|--------------|-------------|---------------|----------------|
| Pakistan | Grade-1 | 1,666,181 | 1,784,500 | 2,001,587 | 2,072,955 | 2,294,014 | 0.08 |
| | Grade-2 | 1,044,232 | 1,121,324 | 1,150,707 | 1,242,732 | 1,361,041 | 0.07 |
| | Grade-3 | 865,690 | 931,028 | 1,032,907 | 1,060,415 | 1,100,278 | 0.06 |
| | Grade-4 | 747,996 | 799,783 | 908,767 | 939,807 | 987,944 | 0.07 |
| | Grade-5 | 626,853 | 667,514 | 767,088 | 800,846 | 847,068 | 0.08 |
| | Total | 4,950,951 | 5,304,149 | 5,861,056 | 6,116,755 | 6,590,345 | |
| | * Islam | abad not incl | Luded | | | | |
| | Grades | 1985-86 | 1986-87 | 1987-88 | 1988-89 1 | 989-90 | Cum Gr Rate |
| NWFP | Grade-1 | 371,385 | 383,524 | 421,221 | 458,918 4 | 96.615 | 0.08 |
| | Grade-2 | 140,720 | 153,087 | 165,394 | 177,700 1 | 90.007 | 0.08 |
| | Grade-3 | 119,962 | 131,890 | 142,314 | 152.738 1 | 63.162 | 0.08 |
| | Grade-4 | 98,755 | 106,541 | 120,253 | 133,965 1 | 47.677 | 0.11 |
| | Grade-5 | 85,545 | 92,019 | 104,437 | 116,855 1 | 29,273 | 0.11 |
| | Total | 816,367 | 867,061 | 953,619 1 | ,040,176 1 | ,126,734 | |
| | Cons de s | 1065 06 | | | | | Cum Gr |
| | Grades | 1982-80 | 1986-87 | 1987-88 | 1988-89 1 | 989-90 | Rate |
| Punjab | Grade-1 | 722,833 | 806,334 | 929,584 | 936,000 10 | 67,000 | 0.10 |
| | Grade-2 | 572 , 772 | 627,205 | 704,489 | 693,000 7 | 80,000 | 0.08 |
| | Grade-3 | 471,217 | 543,154 | 612,341 | 606,000 6 | 31,000 | 0.08 |
| | Grade-4 | 430,198 | 473,360 | 544,385 | 552,000 5 | 72,000 | 0.07 |
| | Grade-5 | 363,539 | 396,431 | 462,282 | 471,000 4 | 93,000 | 0.06 |
| | Total | 2,560,559 | 2,846,484 3 | 3,253,081 3, | 258,000 3,5 | 43,000 | |
| | Grades | 1985-86 | 1986-87 | 1987-88 19 | 988-89 19 | Ct 89–90 1 | un Gr Rate |
| Sindh | Grade-1 | 391,503 | 401.101 | 425.874 4 | 31 445 43 | | |
| | Grade-2 | 256,991 | 273.819 | 205.038 20 | | 7 206 | .03 |
| | Grade-3 | 221.512 | 204,964 | 220,153 2 | 35,836 22 | 1 7 2 8 | 0.04 |
| 1 | Grade-4 | 177,558 | 181.895 | 196 181 10 | 20,030 23. | 7 7 7 7 7 7 | 0.01 |
| | Grade-5 | 148,254 | 151,845 | 165,516 17 | 70,856 17 | 5,221 | 0.04 |
| | Total | 1,195,818 1 | ,213,624 1, | 212,762 1,32 | 26,761 1,34 | 7,439 | |
| | | | | | | | |

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Table III-1 (continued)

| Province | Grades | 1985-86 | 198697 | 1007 00 | 1000 00 | 1000 00 | Cum Gr |
|-----------|--------------------|---------|---------|---------|---------|---------|--------|
| | | | 1900-07 | 190/-00 | 1908-89 | 1989-90 | Rate |
| Baloch. | Grade-1 | 120,858 | 132,709 | 145,676 | 164,187 | 195,030 | 0.13 |
| | Grade-2 | 50,886 | 45,614 | 47,980 | 49,930 | 60,665 | 0.04 |
| | Grade-J | 34,702 | 32,329 | 34,612 | 37,347 | 44,809 | 0.07 |
| | Grade~4 Crade 5 | 26,804 | 23,178 | 26,617 | 28,407 | 34,399 | 0.06 |
| | Grade-5 | 18,257 | 15,863 | 18,596 | 21,468 | 26,654 | 0.10 |
| | Total | 251,507 | 249,693 | 273,481 | 301,339 | 361,557 | |
| | | | | | | | Cum Cr |
| | Grades | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| FATA | Grade-1 | 49,441 | 55,206 | 62,864 | 65,014 | 81,513 | 0.13 |
| | Grade-2 | 17,789 | 16,997 | 15,754 | 20,896 | 19,928 | 0.03 |
| | Grade-3 | 13,423 | 13,775 | 13,213 | 16,897 | 17,020 | 0.06 |
| | Grace-4 | 10,176 | 10,264 | 11,066 | 14,172 | 14,458 | 0.09 |
| | Grade-5 | 7,460 | 7,475 | 7,823 | 11,069 | 12,010 | 0.13 |
| | Total | 98,288 | 103,717 | 110,720 | 128,048 | 144,929 | |
| | | | | | | | |
| | Grades | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| FANA | Grade-1 | 10,162 | 5,626 | 6,349 | 6,515 | 6,687 | -0.10 |
| | Grade-2 | 5,075 | 4,602 | 5,406 | 5,789 | 6,196 | 0.05 |
| | Grade-3 | 4,874 | 4,916 | 4,352 | 5,101 | 5,812 | 0.04 |
| | Grade-4 | 4,505 | 4,545 | 4,753 | 5,266 | 5,710 | 0.06 |
| | Grade-5 | 3,798 | 3,881 | 4,059 | 4,828 | 5,500 | 0.10 |
| | Total | 28,413 | 23,570 | 24,919 | 27,499 | 2,9905 | |
| | Grades | 1985-86 | 1996 97 | 1097 00 | 1000 00 | 1000 00 | Cum Gr |
| | | | | 190/-00 | 1988-89 | 1989-90 | Rate |
| Islamabad | Grade-1 | | | 10,019 | 10,876 | 11,117 | 0.05 |
| | Grade-2 | | | 6,646 | 6,616 | 7,039 | 0.03 |
| | Grade-J | | | 5,922 | 5,496 | 6,747 | 0.07 |
| | Grade-4 | | | 5,512 | 6,174 | 6,468 | 0.08 |
| | GEAGE-3 | | | 4,375 | 4,770 | 5,410 | 0.11 |
| | Total | | | 32,474 | 34,932 | 36,781 | |
| | | | | | | | |

UNICEF, among others. In Balochistan, one of the largest increases--13 percent--occurs in the first grade, an expected pattern. NWFP's largest increase is 11 percent in grades 2 and 5.

- 3) Sindh shows the lowest increase, with a 1 percent gain for boys in third grade, the lowest of all the increases, except for the special case of FANA, where there was a 10 percent decline in grade 1 enrollments. The large difference from 1985-86 to 1986-87 in grade 1 at FANA suggests unstable data, a major program, or a change in definition. (At this stage of analysis, the number should be noted and also double checked for accuracy.)
- 4) FATA, by contrast, shows a very high increase--13 percent--in grades 1 and 5.
- 5) Islamabad reflects internal migration differences, with the highest enrollment growth occurring in the last two grades--11 percent in grade 5. Later analysis indicates that Islamabad is in what is called "an impacted area" (affected from outside the area), and planners should note this and allocate accordingly.

b. Enrollment Highlights for Primary Girls

Girls' enrollment growth (Table III-2) was not markedly different from boys', and thus disappointing given the governments' declared priority to increase educational access for rural girls.

- 1) Balochistan and NWFP showed high growth rates for girls, just as they showed high growth for boys. NWFP data appeared flawed in the fourth and fifth grades, but this may not affect growth rates.
- 2) A very high growth rate appears for FATA girls' enrollment. Note a very large, though steady, gain over the period, with a burst from 1986-87 to 1988, a slide downward in the next year, and then another increase by more than double in 1989-1990. Over the period, the enrollments tripled.
- 3) FANA enrollment for girls showed the same pattern as for boys--a decline of 6 percent in grade l.
- 4) Sindh showed the smallest increase for girls, as it did for boys, and again this reflects a much larger base in grades 1 and 2, and a decline in enrollment flow through the grades. In absolute numbers, the fifth grade total is half of the first grade. The average growth over five years is 5 percent.

Table III-2 Girls Primary Enrollments 1985-1990

| Province | Grade | 1985-86 | * 1986-87 | * 1987-88 | * 1988-89 | 1989-90 | Cum Gr Rate |
|-------------|----------|-----------|-----------|-----------|-----------|------------------|----------------|
| Pakistan | Grade-1 | 889,383 | 977,588 | 1,087,432 | 1,233,764 | 1,361,017 | 0.11 |
| | Grade-2 | 476,969 | 507,519 | 590,946 | 593,712 | 651,317 | 0.08 |
| | Grade-3 | 393,329 | 422,580 | 441,150 | 494,325 | 529 , 708 | 0.08 |
| | Grade-4 | 407,817 | 437,942 | 467,422 | 520,855 | 561,808 | 0.08 |
| | Grade-5 | 335,463 | 362,459 | 397,127 | 440,542 | 473,756 | 0.09 |
| | Total | 2,502,960 | 2,708,088 | 2,984,077 | 3,283,198 | 3,577,606 | |
| * Islamabad | not incl | uded | | | | | |
| | 6 | 1005 05 | | | | | Cim Gr |
| NWFP | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | Grade-1 | 103,152 | 117,088 | 132,430 | 147,772 | 163,114 | 0.12 |
| | Grade-2 | 33,930 | 37,123 | 43,048 | 48,973 | 54,898 | 0.13 |
| | Grade-3 | 21,233 | 23,236 | 26,943 | 30,650 | 34,337 | 0.13 |
| | Grade-4 | 17,149 | 19,135 | 21,676 | 24,216 | 26,757 | 0.12 |
| | Grade-5 | 202,557 | 226,163 | 258,282 | 290,400 | 322, 339 | 0.12 |
| | Total | 348,474 | 382,352 | 434,353 | 486,354 | 538,355 | |
| | | | | | | | Cum Gr |
| Punjab | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | Grade-1 | 596,473 | 672,516 | 755,608 | 878,000 | 968,000 | 0.13 |
| | Grade-2 | 316,262 | 340,648 | 371,693 | 408,000 | 453,000 | 0.09 |
| | Grade-3 | 265,534 | 291,930 | 310,500 | 349,000 | 376.000 | 0.09 |
| | Grade-4 | 226,195 | 249.571 | 264.884 | 300,000 | 323,000 | 0.09 |
| | Grade-5 | 180,858 | 201,175 | 213,982 | 241,000 | 26,0000 | 0.09 |
| | Total | 1,585,322 | 1,755,840 | 1,916,667 | 2,176,000 | 2,380,000 | |
| | | | | | | | 0- ~ |
| Sindh | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | Grade-1 | 155,551 | 152,375 | 158,228 | 166,921 | 171,484 | 0.02 |
| | Grade-2 | 116,516 | 116,494 | 163,822 | 123,572 | 127,442 | 0.02 |
| | Grade-3 | 93,263 | 93,185 | 87,106 | 96,626 | 9,8059 | 0.01 |
| | Grade-4 | 76,879 | 75,868 | 75,820 | 79,169 | 81,738 | 0.02 |
| | Grade-5 | 64,567 | 65,138 | 74,052 | 77,391 | 77,691 | 0.05 |
| | Total | 506,776 | 503,060 | 559,028 | 543,679 | 556,414 | |
| | | | | | | | |

Table III-2 (continued)

| Baloch. | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
|-----------|--------------------|-----------------|---------------|-----------------|-----------------|------------------|----------------|
| | Grade-1 Grade-2 | 26,786 8,077 | 27,324 10,701 | 28,771 9,607 | 31,016 9,588 | 38,522 12,566 | 0.10 0.1% |
| | Grade-3 Grade-4 | 5,976 | 6,190 | 7,368 | 7,464 | 9,389 | 0.12 |
| | Grade-5 | 3,925 | 3,558 | 3,833 | 4,108 | 5,484 | 0.09 |
| | Total | 49,735 | 52,661 | 54,631 | 57,86 | 5 73,078 | |
| | | | | | | | Cum Gr |
| FATA | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | Grade-1 | 5,513 | 7,115 | 11,077 | 8,660 | 18,421 | 0.35 |
| | Grade_3 | 1,303 | 1,670 | 1,/1/ | 2,337 | 2,014 | 0.10 |
| | Grade-4 | 517 | 588 | 1,110 | 1,429 | 1,739 | 0.20 |
| | Grade-5 | 193 | 227 | 348 | 450 | 460 | 0.28 |
| | Total | 8,414 | 10,596 | 14,948 | 14,040 | 24,010 | |
| | | | | | | | Cum Gr |
| FANA | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-03 | 1989-90 | Rate |
| | Grade-1 | 1,908 | 1,170 | 1,318 | 1,395 | 1,476 | -0.06 |
| | Grade-2 | 821 | 883 | 1,059 | 1,242 | 1,397 | 0.14 |
| | Grade-J | 635 | 698 | 881 | 1,017 | 1,128 | 0.15 |
| | Grade-4 | 201 | 486 | /1/ | 868 | 900 | 0.16 |
| | Grade=5 | 370 | 342 | 4/5 | /38 | 848 | 0.23 |
| | Total | 4,240 | 3,579 | 4,450 | 5,260 | 5,749 | |
| | | | | | | | Cum Gr |
| Islamabad | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | Grade-1 | | | 8,923 | 9,409 | 9,841 | 0.02 |
| | Grade-2 | | | 5,357 | 5,404 | 5,938 | 0.03 |
| | Grade-3 | | | 4,792 | 4,945 | 5,264 | 0.02 |
| | Grade-4 | | | 3,823 | 4,598 | 5,004 | 0.07 |
| | Grade-5 | | | 2,971 | 3,236 | 3,928 | 0.07 |
| | Total | | | 25,866 | 27,592 | 29,975 | |
| | | | | | | | |

5) For girls, Islamabad again showed the internal migration pattern, with greater increases but in smaller absolute numbers in grades 4 and 5. The numbers in grade 1 began proportionately large and stayed that way. As in FATA, the shrinkage down the grades is high and indicates a system in rapid change with no sign of movement toward the equilibrium that would make forecasts credible.

In summary, the overall growth in primary enrollments is strong and reflects a priority for primary education by the GOP and the results of programs funded by foreign donors. Higher growth in enrollments of girls in the PEP and PED target areas offers some evidence that foreign assistance projects are moving toward the priority goal of increasing access to schooling for girls in rural areas. Enrollment growth in the upper primary grades may even suggest improved flow and output in the system as schools add upper grades; unfortunately, the data do not show the same pattern in all provinces, and the growth for girls is disappointing in some areas. Growth patterns are varied and irregular. This may reflect a system in the throes of abrupt change; it may simply be bad data; or it may be some of both.

c. Gross Enrollment Ratios

Gross enrollment ratios, or GPRs, though unreliable because of the weakness in underlying population and enrollment data, are commonly used to track system performance. The reported GPRs in Sindh in 1987 (where the database makes them at least plausible), for example, range from 25 percent in Jacobobad to 52.1 percent in Karachi East District; the average for the province was 37.9 percent. In World Bank reports, primary enrollment is reported as 63 percent of the relevant age group, and 60 percent is a GPR that is generally used. Making due allowances for inaccuracy, as mentioned previously, the ratio probably serves a useful way to monitor changes in the system. The projections suggest that if under-age enrollments in Kachi-holding classes are subtracted, the GPR is not much over 60 percent.

2. <u>Inputs to Primary Education</u>

Inputs to primary education normally are described following a conventional list of instructional requirements:

- Teachers, supervisors, and principals
- Curriculum, instructional materials, and textbooks
- Facilities, equipment, and consumable supplies.

The most basic input, however, is to deliver a complete and unified set of these required inputs. Alone and singly, none of them can insure more effective instruction and learning. The complete package of inputs must be delivered at the same time, or a project fails. Empty labs and classrooms without teachers waste scarce resources and impair morale. In all provinces where foreign aid contributes to the support of school programs, the team observed cases of schools without teachers or schools without books. Therefore, while the section describes inputs to primary education in terms of the "conventional list" outlined above, coordinated delivery of these requirements is also a key requirement, as outlined below.

a. <u>Coordinating Inputs</u>

The two major foreign assistance programs for primary education are designed to provide the appropriate mix of required inputs, particularly the World Bank PEP projects and the follow-on phases. The program planned the delivery of a complete package--buildings, trained teachers, supervisors (Learning Coordinators), and instructional materials--in the form of integrated learning modules. In many areas, however, inputs came at various times and out of sequence. The same applies to USAID PED programs and ADB programs at middle and secondary level. No matter how well planned the program is, coordinated delivery may slip. Complementary inputs may arrive in piecemeal fashion, as in the case of 12 empty middle school laboratories in Balochistan, where the equipment waits for a curriculum approval signoff.

A variety of proposals were made by Pakistani educators for strengthening program control and monitoring at the project level:

- i) Ensure that the PC1 procedure includes close checks and ongoing monitoring.
- ii) Provide project officers with more training; circulate more information and exchanges of views and experience among them; provide workshops and seminars; offer more technical (fiscal and engineering) backup. Standardize certain reporting procedures.
- iii) Coordinate work among the staffs of the additional secretaries of education and the P&D staffs in the provinces. Where the additional secretaries are strong, as in Balochistan and Sindh, provide recognition and support.
- iv) Provide a person responsible for "package inspection" for large foreign assistance programs. In general, projects are well run, but this function could be strengthened.

Some of the problems insuring coordinated delivery of inputs to large, comprehensive projects will be resolved as new and useful management information is provided, as described below.

b. <u>School Facilities Symbolize the School</u>

The term "shelterless school" refers to a school where children in at least one class sit in the open, or the facilities are so dilapidated they must be replaced. It also refers to schools where the premises are not owned but are rented. While buildings may not be as critical in education as teachers or books, the image of a school is destroyed in communities where children do not have a roof over their heads. Facilities are essential symbols of the existence of a school as a living institution in a community. Thus, the team felt that the current priority assigned to replacing shelterless schools is sound, especially in the case of children sitting in the open.

A sadder spectacle than shelterless schools, however, is where the buildings are constructed and no students attend, or where school buildings are diverted to other purposes. In the latter case, the team heard of such cases and observed one, but the overall impression is that it is not common in Pakistan, in project areas. Where these abuses do occur, it may be due to the fact that such decisions are often out of the control of the educators. The control of local education can be strengthened, however, when there is information on local demand to back up decisions on choice of school locations. BEMIS, the education management information system in Balochistan, for example, provides location data on communities where schools are wanted and needed and ranks them on three priorities. While information alone will not prevent poor location, it will strengthen the ability of the local district officer to make sound decisions on school locations.

School mapping exercises also will improve location planning, but need to be supported by EMIS collections and special surveys. The databases in Balochistan, NWFP, and an earlier one in Sindh, and the UNESCO project which is attempting national coverage, all will help. The new techniques of infomapping, in which Pakistani planners are now being trained abroad, will improve school mapping and management and provide more precise information on community needs for schools.

c. Growth in Schools and School Buildings, 1985-1990

Pakistan data do not always distinguish between "schools" and "school buildings". At the close of the 6th Plan and the start of 7th Plan (1988), the number of primary schools was 100,300, which included Mosque schools but excluded private schools.⁵

Table III-3 shows that the number of primary schools for boys grew at an 8 percent cumulative annual increase over a five-year period from 1985-86 to 1989-90. The annual increase was slightly less for girls at 7 percent, and these growth rates held for all provinces, except Punjab, where the rate of growth for boys was only half the girls'

⁵ See table in Annex 2. Based on data gathered in this study, there were 1,821 private primary schools in 1989.

| Table III-3 | | | | | | | | |
|-------------|-------------------------------|------|--|--|--|--|--|--|
| Number | of Primary Schools and Growth | Rate | | | | | | |
| | (by Gender and Province) | | | | | | | |

| Pakistan | Year | | Male | Female | Total | | | | | | |
|--|----------|---|-------|--------|----------------|--|--|--|--|--|--|
| | 1985-86 | - | 57707 | 22606 | 80313 | | | | | | |
| | 1986-87 | | 65062 | 23601 | 88663 | | | | | | |
| | 1987-88* | * | 71179 | 25045 | 96224 | | | | | | |
| | 1988-89* | * | 76590 | 27670 | 104260 | | | | | | |
| | 1989-90* | * | 77608 | 29507 | 107115 | | | | | | |
| | | 1 | | 27507 | 10/115 | | | | | | |
| | Growth | | 0.08 | 0.07 | 0.07 | | | | | | |
| * Co-ed schools of federal area included in girls schools. | | | | | | | | | | | |
| <pre>** Federal schools teachers for 1987-88 to 1989-90 not included in total.</pre> | | | | | | | | | | | |
| NWF P | Year | | Male | Female | Total | | | | | | |
| | 1005 00 | | | | | | | | | | |
| | 1985-86 | | 5628 | 2388 | 8016 | | | | | | |
| | 1986-87 | | 8253 | 2519 | 10772 | | | | | | |
| | 1987-88 | | 8920 | 2695 | 11615 | | | | | | |
| | 1988-89 | | 10108 | 2976 | 13084 | | | | | | |
| | 1989-90 | | 11058 | 3255 | 14313 | | | | | | |
| | Growth | | 0.18 | 0.08 | 0.16 | | | | | | |
| Punjab | Year | | Male | Female | Total | | | | | | |
| | 1985-86 | | 29711 | 16499 | 16100 | | | | | | |
| | 1986-87 | | 31090 | 17204 | 40199 | | | | | | |
| | 1987_99 | | 32045 | 10255 | 40303 | | | | | | |
| | 1000 00 | | 33045 | 10200 | 51300 | | | | | | |
| | 1900-09 | | 34133 | 20281 | 54414 | | | | | | |
| | 1989-90 | 1 | 35253 | 22282 | 57535 | | | | | | |
| | Growth | | 0.04 | 0.08 | 0.06 | | | | | | |
| Sindh | Year | | Male | Female | Total | | | | | | |
| | | | | | | | | | | | |
| | 1985-86 | | 16310 | 2806 | 19116 | | | | | | |
| | 1986-87 | | 19373 | 2836 | 22200 | | | | | | |
| | 1987-88 | | 22142 | 3102 | 25241 | | | | | | |
| | 1988-89 | | 24866 | 3402 | 2J244 79760 | | | | | | |
| | 1989_90* | | 27606 | 2000 | 20200 | | | | | | |
| | 1909-90" | | 22090 | 2900 | 20090 | | | | | | |
| | Growth | _ | 0.09 | 0.01 | 0.08 | | | | | | |
| Dessinais | | | | | | | | | | | |

* Provincial data for the year 1989-90 not available.

Table III-3 (continued)

| Balochistan | Year | Male | Female | Total | |
|-------------|---|--------------------------------------|---------------------------------|--------------------------------------|---------------------------------|
| | 1985-86 1986-87 1987-88 1988-89 | 4378 4517 5158 5402 | 472 488 508 515 | 4850 5005 5666 5917 | |
| | 1989-90 Growth | 6200 | 529 | 6729 | |
| | | | | 0.09 | - |
| FATA | Year | Male | Female | Total | |
| | 1985-86 1986-87 1987-88 1988-89 1989-90 | 1260 1402 1450 1676 1929 | 237 277 291 316 343 | 1496 1679 1741 1992 2272 | |
| | Growth | 0.11 | 0.10 | 0.11 | |
| FANA | Year | Male | Female | Total | |
| | 1985-86 1986-87 1987-88 1988-89 1989-90 | 342 346 381 321 387 | 100 66 67 58 72 | 441 412 448 379 459 | |
| | Growth | 0.03 | -0.08 | 0.01 | |
| | | | | | |
| Islamabad | Year | Male | Female | Mixed | Total |
| | 1985-86 1986-87 1987-88 1988-89 1989-90 | 79 82 83 84 85 | 72 73 73 70 70 | 44 48 54 52 56 | 195 203 210 206 211 |
| | Growth | 0.12 | -0.01 | 0.06 | 0.02 |

rate. In Sindh, the growth rate for boys schools was 9 percent compared with a 1 percent growth rate for girls--despite policy statements of a priority for girls' primary schooling. In most provinces, the rate of growth for boys' schools continues to be higher than for girls. Punjab is the exception, and it weights the country growth rates toward a result that appears more equitable by gender.

The results are disappointing in Balochistan, with a growth rate for boys that is triple that for girls, and in NWFP where the rate is 18 percent for boys and 8 percent for girls. Priorities underlying the PEP and PED programs have not yet begun to show in the data. In FATA there is an even growth pattern, but in FANA there is an 8 percent decline in girls' schools. Islamabad shows a slight decline at -1 percent. Only in Punjab do the growth rates favor girls, but even there, the girls' rate begins from a very much lower base than boys'. In 1985-86 the absolute number of boys' schools was almost double that of girls, so the growth rate for girls appears higher, even though the absolute numbers of new schools were about the same during the period (5,794 for girls; 5,542 for boys).

In Islamabad, the growth for girls is actually negative over the period, and there were two schools fewer for girls at the end of the period in 1989-1990. In FANA, the number of girls' schools decreased from 100 to 72 in five years.

While the number of schools is not the same as the number of buildings, in a country where a large proportion of schools are housed in one building or one classroom, the two are closely related. Clearly school and building capacities can differ, and facilities can differ in quality, but there is no evidence that girls' schools are larger and better, only the clear indication that they are not increasing according to espoused priorities of the government.

Therefore, foreign assistance programs that give a priority to building schools for girls appear amply justified by the data. If it were not for the effect of Punjab, the province with the largest number of schools and a growth rate that favors girls schools, Pakistan would show a marked imbalance toward growth for boys' schools.

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To help address this concern, several foreign donors emphasize the provision of facilities, especially for girls' primary schools. The Second PEP project, for example, targeted 3,500 classrooms and in November 1990 reported 1,263 (36 percent) completed and 25 percent near c^c mpletion. The follow-on PEP project for Sindh targeted construction of 5,250 two-room schools and 420 five- room schools to replace shelterless schools, and 4,000 one-room schools for Mosque schools. Sindh education officials expressed satisfaction with this target. Toilet facilities and boundary walls also would be built, and major repairs begun for 1,000 schools.

Yet, despite such initiatives, a critique of the 7th Plan traced the failure to meet past targets for school facilities: except for the 5th Plan (1978-1983) when the target was
modest and realistic, all targets expressed in Plans 1 through 6 were not achieved. (1988, Bhatti et al, NEC).

To summarize, school building programs (e.g., PEP and PED projects) have five difficult problems, given the current education structure and process:

- Classrooms and grades must be added incrementally, a grade at a time and a room at a time. This creates ever-increasing numbers of incomplete schools until full "upgrading" brings the school to grades 1-5 or 1-8. Building a complete school runs the risk of having too few children available to fill upper grades. Clearly, the cost-efficient choice is to add classrooms sequentially to meed demand, but this leads to incomplete grade structures and the frustration of children and their families when there is no grade open for continuing schooling.
- A second problem is building schools without the assured delivery of a complete package of basic inputs that includes teachers and instructional materials.
- It is difficult to ensure the assignment of teachers even if the facility is provided. The supply of trained teachers for assignment to rural areas is inadequate. (The following section will recommend ways to remedy this.)
- A fourth problem is monitoring and managing construction schedules at project levels. Lags in construction can be substantial and delay the intended instructional reforms. In Balochistan, for example, the PEP project, after a slow start on 1,000 units of school construction and reconditioning, is now moving ahead to finish on a two-year schedule a target that was programmed for five.
- Lastly, the timely arrival of other necessary inputs can be delayed. The PEP-II project, for example, planned delivery of a coherent package of education inputs, including classrooms (3,000 for Sindh; 2,000 for NWFP; 1,000 for Balochistan), along with teacher training, increased and improved supervision, and provision of instructional materials, including teaching kits. Some elements of the program, such as the Learning Coordinators, work well. Other program features do not. Learning kits offered in an earlier primary education curriculum improvement project by UNESCO, for example, were not sustained because there was no continuing budgetary provision for replacing consumable supplies. In addition, in both the PEP and PED projects, inputs arrive sequentially rather than in a set, but this may be an inevitable consequence of large and dispersed projects. The proposals made previously for improving project monitoring may reduce the effects of this problem.

d. <u>Teaching and Supervision</u>

The most critically short input in Pakistan schools is teachers. The number of teachers reported for the past five years, and corrected, appear in Table III-4. The increase in total teachers is 6 percent-6 percent for males, 7 percent for females. The growth pattern is much more even on gender. "Male" and "Female" refer to the gender of the teacher, not of the schools, which may be classified as "Boys", "Girls", or "Mixed" (such as in Islamabad).

Number of Teachers and Growth Rate (by Gender and Province)

| Pakistan | Year | Male | Female | Total |
|---|---|---|--|---|
| | 1985-86 1986-87 1987-88** 1988-89** 1989-90** | 136,545 148,558 165,458 176,458 169,708 | 64,941 69,513 74,064 80,823 83,579 | 201,486 218,071 239,522 257,281 253,287 |
| | Growth | 0.06 | 0.07 | 0.06 |
| * Co-ed so girls so ** Federal 1989-90 | chools of f chools. schools te not includ | ederal are achers for ed in tota | a include 1987-88 1. | d in to |
| NWFP | Year | Male | Female | Total |
| | 1985-86 1986-87 1987-88 1988-89 1989-90 | 16,567 15,812 18,022 24,117 26,835 | 5,847 6,430 7,297 8,042 9,084 | 22,414 22,242 25,319 32,159 35,919 |
| | Growth | 0.13 | 0.12 | 0.13 |
| Punjab | Year | Male | Female | Total |
| | 1985-86 1986-87 1987-88 1988-89 1989-90 | 72,537 78,505 87,768 86,916 91,866 | 38,353 40,494 43,321 47,336 50,995 | 110,890 118,999 131,089 134,252 142,861 |
| | Growth | 0.06 | 0.07 | 0.07 |
| Sindh | Year | Male | Female | Total |
| | 1985-86 1986-87 1987-88 1988-89 1989-90* | 34,526 40,192 43,692 47,432 32,594 | 17,493 18,836 20,338 21,932 20,087 | 52,019 59,028 64,030 69,364 52,681 |
| | Growth | -0.01 | 0.04 | 0.00 |

* Provincial data for the year 1989-90 not available.

Table III-4 (continued)

| 1985-86 7,833 1,381 9,21 | .4 |
|----------------------------------|----|
| 1986-87 8,405 1,629 10,03 | 4 |
| 1987-88 10,583 2,219 12,80 | 2 |
| 1988-89 11,391 2,325 13,71 | .6 |
| 1989-90 11,880 2,043 13,92 | 3 |
| Growth 0.11 0.10 0.1 | 1 |
| | |
| FATA Year Male Female Total | |
| 1985-86 3,759 611 4,370 | |
| 1986-87 4,577 892 5,469 | |
| 1987-88 4,587 769 5,356 | |
| 1988-89 5,733 1,077 6,810 | |
| 1989-90 5,623 1,235 6,858 | |
| Growth 0.11 0.19 0.12 | |
| | |
| FANA Year Male Female Total | |
| | |
| 1986-87 538 107 645 | |
| 1987-88 806 120 926 | |
| 1988-89 869 111 980 | |
| 1989-90 910 135 1,045 | |
| Growth 0.01 0.00 0.01 | |
| | |
| Islamabad Year Male Female Total | |
| 1985-86 448 1.123 1.571 | |
| 1986-87 529 1,125 1,654 | |
| 1987-88 N.A N.A | |
| 1988-89 N.A N.A | |
| 1989-90 N.A N.A | |
| Growth 0.18 0.00 0.05 | |

Primary school teachers are trained up to a Primary Teacher Training College credential in preservice programs in Elementary Teacher Training Colleges. Since training output does not meet replacement needs in rural areas, teachers are recruited untrained and, after a period of service, may receive preservice training while on the job. The variety of attempts to keep up with training needs through accelerated two- month training programs, or through mobile teacher training, are discussed later in this section.

Tables from the British ODA Survey of Teacher Training (1988) illustrate this bleak scene.

| | Baloch | NWFP | Punjab | Sindh | Total |
|-----------------------------|--------|------|--------|-------|--------|
| Male | | | | | |
| Trained | 4.8 | 13.8 | 50.1 | 24.4 | 91.1 |
| Untrained | 6.2 | 5.5 | 16.3 | 5.2 | 33.1 |
| Total | 11.0 | 13 | 66.4 | 26 | 126.2 |
| Trained (%) | 43.0 | 72.0 | 75.0 | 83.0 | 74.0 |
| Female* | | | | | ······ |
| Trained | 0.63 | 4.2 | 25.3 | 16.6 | 46.7 |
| Untrained | 1.1 | 3.6 | 8.0 | 0.65 | 13.4 |
| Total | 1.8 | 7.8 | 33.3 | 17.3 | 60.1 |
| Trained (%) | 36.0 | 54.0 | 76.0 | 96.0 | 78.0 |
| Annual Increment Trained | 14% | 9% | 4% | 8% | 8% |

Trained and Untrained Teachers (000s)

* Note that the female training standard is lower in Balochistan and NWFP and higher in Sindh and Punjab.

These data show that the proportion of trained teachers in Sindh is high for males, at 83 percent, and even higher for females at 96 percent. This implies that a strong training effort from past programs provided results. Annual increases range from 4 to 14 percent. Growth is highest for Balochistan, which began lower.

For the year 1988-89, Table III-5 shows that the total number of teachers enrolled in training exceeds 60,000, with 59 percent male and 41 percent female. Almost 39 percent are in teacher training schools or junior training colleges; the remaining 61 percent are in training units attached to schools or colleges. This latter setting is almost 50 percent female.

An adequate supply of PTC-level teachers does not depend solely on the total enrollment in teacher training institutions, however. In addition to the annual output of PTC-level teachers, the proportion that actually enters service and the number who stay in service are also key indicators in determining if the number of teachers needed to match enrollment growth and replace wastage is being achieved.

Recent output of PTCs in Pakistan in 1987 shows:

| | | | | <u> </u> | |
|--------|--------|------|--------|----------|---------------|
| | Baloch | NWFP | Punjab | Sindh | Total |
| Male | 655 | 1129 | 6875 | 2263 | 11 022 |
| Female | 52 | N/A | 8318 | 1056 | 9883 |
| Total | 707 | 1538 | 15293 | 3319 | 20905 |

Annual Output of PTCs (000s)

| Percent Annual Output | (of Existing Tra | ined Teachers |
|-----------------------|------------------|---------------|
|-----------------------|------------------|---------------|

| | Baloch | NWFP | Punjab | Sindh | Total |
|--------|--------|------|--------|-------|-------|
| Male | 13 | 8 | 14 | 9 | 12 |
| Female | 8 | N/A | 33 | 6 | 21 |

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Number of Institutions, Enrollment, and Teachers of Teacher Training Schools/ Institutions/ Junior Training Colleges of Second Level (Below the Degree) in Pakistan 1988-1989

| | Total | | | Tea Scho | Teacher Training Schools/ Jr. Training Colleges | | | Teacher Training Units Attached to Schools/ Colleges | | |
|-------------------|----------|-------|---------------|-------------|---|--------|---------|--|----------|--|
| Items/ Area | Total | Male | Female | Total | Male | Female | Total | Male | Female | |
| 1. Number of Inst | itutions | | | | | - | <u></u> | 4 | <u>L</u> | |
| Total | 576 | 313 | 263 | 133 | 88 | 45 | 443 | 225 | 218 | |
| NWFP | 43 | 27 | 16 | 43 | 27 | 16 | | | | |
| Punjab | 476 | 249 | 227 | 34 | 25 | 9 | 442 | 224 | 218 | |
| Sind | 19 | 13 | 6 | 19 | 13 | 6 | | | _ | |
| Balochistan | 8 | 7 | 1 | 7 | 6 | 1 | 1 | 1 | _ | |
| Special Areas | 30 | 17 | 13 | 30 | 17 | 13 | | | _ | |
| 2. Enrollment | | | | | | | | | | |
| Total | 63957 | 37762 | 26195 | 24768 | 17181 | 7587 | 39189 | 20581 | 18608 | |
| NWFP | 6554 | 4699 | 1855 | 6554 | 4699 | 1855 | _ | | | |
| Punjab | 50905 | 28677 | 22228 | 12481 | 8741 | 3740 | 38424 | 19936 | 18488 | |
| Sind | 3316 | 1830 | 1486 | 3316 | 1830 | 1486 | | _ | | |
| Balochistan | 1860 | 1696 | 164 | 1285 | 1121 | 164 | 575 | 575 | _ | |
| Special Areas | 1322 | 860 | 462 | 1132 | 790 | 342 | 190 | 70 | 120 | |
| 3. Teachers | | | | | | | | | | |
| Total | 5275 | 3065 | 2210 | 1945 | 1301 | 644 | 3330 | 1764 | 1566 | |
| NWFP | 877 | 547 | 330 | 877 | 547 | 330 | | | _ | |
| Punjab | 3877 | 2156 | 1 72 1 | 596 | 426 | 170 | 3281 | 1730 | 1551 | |
| Sind | 216 | 150 | 66 | 216 | 150 | 66 | | _ | | |
| Balochistan | 129 | 104 | 25 | 110 | 85 | 25 | 19 | 19 | | |
| Special Areas | 176 | 108 | 68 | 146 | 93 | 53 | 30 | 15 | 15 | |

A comparison of the annual growth in enrollment in the primary schools of each province with the annual increase in the output of male teacher training institutions shows the following:

- In Balochistan, the output of male teachers just meets the increase in enrollment in grade 1, thus allowing no margin for replacement. The shc-tage of trained teachers will worsen if schools depend only on output from technical training centers. Since the turnover is not precisely known, although it is clearly large, the sole hope is to accelerate teacher training. The USAID/PED mobile teacher training project, accelerated programs, and other innovative short-cuts must be used. (See Section V.)
- In NWFP, enrollment is growing more slowly (8 percent in grade 1, up to 11 percent in the higher grades) than teacher output, which allows a small margin for replacement.
- In Punjab, the growth in enrollment exceeds the growth in teacher output, and allows a small margin of 4 percent for replacement.
- In Sindh, the growth of enrollment is low--4 percent--and the 9 percent annual output allows more than 5 percent for replacement.

Except in Punjab, the enrollment/output situation is worse for female teachers than for males. For female teachers, the comparison of output with enrollment growth indicates there is no margin for replacement. In Balochistan, where the directorate has made a strong case for accelerated (four-month) teacher training, the case appears to be justified. Enrollment growth exceeds the annual output of teachers by 4 percent on the basis of the latest teacher output data available (1987). The situation is probably worse in NWFP because enrollment growth is even higher and the exact output figures for, trained female teachers appears to be low. Punjab appears adequate, with a high growth in enrollment but a very high output of teachers, providing a margin for replacement. Sindh has low enrollment growth but as well, low output of female teachers, and there is no margin for replacement.

Given rapidly increasing demand for teachers because of rapidly increasing enrollments and high turnover among newly trained teachers, it appears that however great the effort to accelerate the supply of trained teachers, it will fall short of rising demand. In Balochistan, one official estimated it would take 400 years to meet demand at the current pace. Thus, provincial education officers must continue to recruit untrained teachers and provide whatever training they can. Evidence from BRIDGES studies (1989, 1990) indicates that general education level affects the quality of teaching performance more than pedagogical study at PTC (primary teachers), CT (middle), and even B.Ed. level (lower secondary). This being so, the priority should perhaps be given to recruitment and providing incentives to well-educated applicants who may not have specific teacher training credentials. The suggestion that unemployed persons with Bachelors degrees could be attracted if pay restrictions were lifted, is worth trying, but with caution.

B.A.s are not likely to solve the problem in rural areas, in any case, where placement is difficult. Rural girls will not teach in urban areas, separated from home and family; urban girls will not accept assignments to remote rural areas. Mobile teacher training programs offer hope, as do the accelerated programs. The latter programs are now being criticized as professionally inadequate, but data indicate that officials should continue with them given the acute shortage of teachers.

e. <u>Curriculum, Textbooks, and Instructional Materials</u>

Recommendations on curricula and textbooks are difficult to make, because no materials were made available for analysis during this brief visit. Dissatisfaction appears widespread about the current system of letting contracts for the writing of books, and many criticisms at out the quality of schoolbooks were brought to the attention of the team. This suggests that more attention should be given to improving current procedures for planning, writing, and above all, distributing books, especially in foreign-aided programs focused on curriculum reform and instructional materials development. Distribution is a key problem not clearly addressed. If the books do not get to the schools or into the hands of students, the best curricula fail. Not so obvious are the advantages of getting books into the homes of semi-literate families, as McGinn and Davis (1966) showed in the *Banco del Libro* program in Venezuela. Apart from this small recommendation, more programs need to develop better curricula and materials.

The World Bank and USAID have contributed to improving primary school curricula and text books in the comprehensive PEP and PED programs, and ADB, UNICEF, and UNESCO have worked on the problem to good purpose. The PED research in Balochistan and NWFP made an extensive survey and a set of critical recommendations for developing annotated teaching text embedded in instructional notes and collateral teaching guides. This is an effective means of offering continuing help to teachers.

The World Bank PEP project has offered sustained support for the development of integrated learning modules and for the development and diffusion of materials through the Provisional Education Extension Center in Punjab. The modules hopefully will be made available as an important support for the mobile teacher training programs in Balochistan. As of the visit of this team to Quetta, this had not yet happened.

Work on the learning modules should occur in partnership with all programs attempting to improve instruction at the primary school level with the curriculum and research sections in the provinces, and with foreign technicians. A more explicit effort to present, discuss, and critique the materials in interprovincial and interagency workshops is in order. Without objective critiques, the key step in prototyping and developing new materials is missing.

Contracting procedures for book development and writing must be opened and reformed. As mentioned earlier, there were criticisms from all provinces that the selection procedure is closed to many, and that there are no incentives for creative writing talents. The standard books examined during this study seemed to lack originality and creativity, and more effort should be made to attract fresh and able talent.

f. <u>Consumable Supplies</u>

Consumable supplies (paper, instructional material) is a major missing element in Pakistan primary education, although not as serious as in the vocational institutes and training centers where there is often insufficient stock to practice the trade. Even at the allocation stage, there is little provision for instructional supplies in the primary schools-about one percent of recurrent expenditures for primary education in 1989. As schools are constructed, teachers trained, and books and instructional materials provided, consumable supplies must become increasingly available to support new activity-based learning approaches. For want of a sheet of paper, creative teaching and innovative supervision can fail.

A case in point was the introduction, through foreign assistance, of Teaching Kits. These kits, which could have been a valuable resource for teachers who generally had only a book and few supplies, were almost never used in practice a decade later because teachers were afraid to use the supplies or damage the teaching aids (BRIDGES research in Balochistan and NWFP). Learning Coordinators, the new supervisory support for teachers provided under PEP, had a higher perceived utility and greater use, and presumably a longer effective life, because Learning Coordinators do not appear to represent a direct outlay at the school level. (BRIDGES, 1990). The provision of another innovation, the construction of residences for girls at school centers, failed to gain social acceptance by the girls or their families, although it appears to be a sound idea (BRIDGES).

3. Mosque Schools

A summary of enrollments in Mosque schools is shown below. (See Annex 3 for detailed data.) The data reported, unfortunately, were incomplete and spotty.

(17

| | Schools | Enrollment (000s) | Teachers | | | | |
|---|---------|----------------------|----------|--|--|--|--|
| Balochistan ¹ | 2,311 | 96 | 2,311 | | | | |
| NWFP ² | 4,670 | 202 | 6,722 | | | | |
| Sindh ³ | 12,420 | 243 | 14,920 | | | | |
| Punjab⁴ | 11,819 | 320 | 19,949 | | | | |
| Islamabad (CD) | 155 | 2 | N/A | | | | |
| Pakistan (Total) | 31,375 | 863 | 43,902 | | | | |
| ¹ Balochistan, 1990: all enrollments and teachers were listed as "male." ² NWFP, 1990: data were unclear but it appears that all, or most Mosque school enrollments were boys. ³ Sindh, 1989: had the highest number of schools, highest total enrollment, and highest enrollment of girls (63,200). | | | | | | | |

Mosque Schools and Enrollment

* Punjab, 1989: all enrollments and teachers were listed as "male".

The data, though incomplete, indicate that Mosque schools carry a large burden of the enrollment, especially in the rural areas of Pakistan. Over three-quarters of a million students are accommodated in Mosque schools (863,000), but only 63,200 (7 percent) of these enrollments are female, and according to the table, all of these are in Sindh. These data do not appear to be completely accurate, because scattered female enrollments in Mosque schools are reported in other provinces (BRIDGES, 1990). The low female enrollment indicates, however, that Mosque schools are not as yet the answer to low female enrollments in the rural areas.

Nevertheless, it is clear that expansion and improvements in Mosque schools are one of the few cost-effective alternatives available to meet the need for increased rural coverage for girls. The Mosque building exists in most areas headed by the Imam or religious leader. All that is needed is a female teacher and, in some places, an extra room. In cost terms, little can match this advantage for expanding primary school coverage. For villages between 200 and 500 in population, and where the number of children aged 5 to 9 may not exceed 100, the Mosque school may be a particularly attractive option.

Few criticisms were voiced of the Mosque schools. Schools of any given sect of Islam serve the people of any of the 72 Islamic sects in Pakistan. Representatives from the larger provinces maintained a favorable view of Mosque schools. In Punjab and Balochistan, officials reported there were no sectarian problems in the schools. The prevailing view was that Mosque schools served their purpose well and at a lower cost. Also, village parents appear willing and prepared to send both boys and girls to Mosque schools. It is not clear why the provinces reported so few girls enrolled.

BRIDGES research (Anderson, 1990) indicates that DEOs, Learning Coordinators, and teachers also report no disadvantages to Mosque schools. The chief advantages cited included religious training and proximity to village homes. With the main element of a successful Mosque school being the Imam, the study recommended special education training for him. Interestingly, where a national school was nearby a village, such as in Punjab, the enrollment in Mosque schools was low. BRIDGES data also reported higher percentages of girls attending Mosque schools than provincial data show.

An exception to the favorable view of Mosque schools and the prospect of Mosque schools serving girls, however, was expressed vehemently by an educator from NWFP. He did not think girls should be sent to the Mosque schools in that province. If nothing else, his comments illustrate the need to test all generalizations and conclusions expressed in this report with each provincial representative.

In Sindh, an official at MOE stated that the only problem he foresaw with Mosque schools was the decreasing number of Mosques in which to locate schools and suggested that more Mosques be built. The World Bank is, in fact, providing funds to build 4,000 one-room Mosque schools in Sindh. Aid to expand Mosque schools appears well spent.

4. Private Schools: Primary, Middle, and Secondary Levels

Private schools, developed in the time of the British, and expanded and improved until 1972, the year the Government of Pakistan announced the nationalization of private institutions. For the next eight years, private institutions declined in both numbers enrolled and in quality of education. Currently, it appears the growth in private education, at all levels of schooling, is on the rise. An USAID study⁶ estimates that 1.3 million students are enrolled in 5,00 private institutions at all levels of schooling. A World Bank/Asian Development Bank study of secondary schools in Punjab⁷ sets the share of private education at eight percent in primary level and 11 percent at middle. Since neither estimate was based on a clearly delineated sampling frame because there is no central registry of private institutions, private schools are estimated to provide 8 percent of primary enrollments in Pakistan, a sizable contribution. Enrollments in

⁶ Study of Private Education in Pakistan, National Education Consultants (NEC), Rashid Ahmad, 1990 (PED Project)

⁷ Upper Secondary Education in the Punjab, Shahid H. Kardar, Systems (Private) Limited, December 1990

private primary schools gathered for this study indicate almost a half million students enrolled in 1990. This is about 6 percent of the total primary enrollments reported in schools nationwide.

Most observers agree that private education is growing briskly, but again, this is impressionistic. It is also unclear that the share of enrollments in private institutions is increasing, or will increase. In the projections made for this study, it was assumed that the share will be close to 7 percent in 2001. It is unclear, however, how large a contribution education will make to the national task of universal basic education.

The NEC study surveyed 432 schools of which 250 were grades 1-5. (Our study showed almost 2,700 primary schools in the four provinces.) Substantial numbers of primary schools at all levels advertise as being English medium. More than 80 percent of the schools are in urban areas, and run for profit.

The private schools are not of the quality some parents might expect: 70 percent have inadequate buildings; 60 percent of the teachers earn between Rs 500 and Rs 1000 a month, and most were trained to matriculation or intermediate level; and many untrained teachers may earn as little as Rs 100 to Rs 500 a month. The NEC study recommended: stricter regulation and standards by provincial education directorates; simplified and more flexible codes; grants-in-aid from both provincial and national sources; and registration and more effective control, with inspections and more representation of outside experts and community and family on boards that set policies and advise governance.

The study also recommends that USAID establish a revolving fund to augment assistance from federal and provincial resources, and that grants-in-aid be strictly monitored. It was also recommended that USAID provide grants-in-aid and subventions to assist the education of poorer families. Given the current reduction of USAID funding and program support in general, there appears little chance that USAID will assist private schools, or that such subventions will increase opportunity for urban poor or rural women.

Evidence to support subsidizing private education as a cost-effective way to insure increased coverage and higher quality schooling is described in the NEC study. If the urban poor masses and rural women have problems accessing national schools, it is difficult to see how private, for-profit schools, as they are described in the NEC study, will increase social equity. This issue should be addressed. Nor is it clear why foreign assistance agencies should supply the funds, or how control and standards could be insured.

For further background on private education, see the report prepared by AEPAM staff for this study, and attached in Annex 2.

5. Literacy and Nonformal Basic Education

The priority in human resource development in Pakistan is to provide a basic education that will insure functional literacy for the majority of children and young adults who are denied access to schooling. Government plans and the position papers of foreign and international assistance agencies agree that basic education and functional literacy are priority goals over the next 10 years, the period covered by this report. The instrument of choice for accomplishing this is universal primary schooling through grade 5 with special attention given to the education of women in rural areas where need is greatest.

Universal literacy provided by formal, primary schooling is not the only way to accomplish functional literacy, nor has it always proven to be the most cost-efficient solution. Many countries have tried combinations of formal, basic education, supplemented by nonformal education and literacy campaigns. One standard applied to assess when a population has achieved literacy is that more than 90 percent of people aged 7 to 60+ are able to read (34 to 45 words a minute) and write (8 words a minute), and read and follow written directions sufficiently to perform an assigned task. The complexity of the task and the performance criteria may be variously set, depending on circumstances.

The Ministry of Labor/National Training Bureau, where performance testing of this kind has had some trials, estimates are that only 7 percent of the working-age population would perform successfully on a test of functional literacy. This would be an average of 10 percent for males, and 3 percent for females. In rural areas, females would average 1 percent. The official estimate of adult literacy in Pakistan is 26 percent (1989). For rural females the rate is 7.3 percent, based on the last assessment of literacy in 1981.

| | Male | Female | Total |
|-------|------|--------|-------|
| Urban | 55.1 | 37.3 | 47.1 |
| Rural | 26.2 | 7.3 | 17.3 |
| Total | 35.1 | 16.0 | 26.2 |

Literacy Rates (1981 Census)

Kerala State in India is the most recent literacy success story. It announced the attainment of literacy for more than 90 percent of its population earlier this year. This accomplishment was built on a strong base of old culture, a strong system of religious schools, and, more recently, a strong literacy campaign, largely carried out by volunteers to complete the job. Any rational plan for national education must consider the nonformal education option along with the option of universal access to formal primary

education in schools. The costs of formal schooling as projected in this study will be large, though feasible with increased effort and financial allocations and improved efficiency in the system. <u>But this will not insure literacy for a large segment of the</u> <u>population</u>. Estimates are that close to 50 million adults will remain illiterate, passed over by the system and distanced from their children. The social costs of this may be enormous. (Further discussion of the status of literacy and nonformal education programs is provided in Annex 4.)

C. <u>MIDDLE SCHOOL EDUCATION</u>

1. Boys Enrollment

Table III-6 shows data on the middle grades, (6-8) and growth in boys' enrollment over the past five years. Highlights include:

- For Pakistan, the growth in enrollments is stable across the years for all three grades.
- The large provinces, Sindh and Punjab, show lower gains. Sindh, starting with a smaller base-year enrollment, averages 3 percent growth for the three grades. Punjab growth averages 6 percent.
- Balochistan and NWFP show higher than average growth in boys' enrollments. NWFP growth ranges from 9 percent in grade 6 to 12 percent in grade 8; Balochistan has its highest growth, 12 percent, in grade 6. In part, growth is higher because base enrollment starts lower. The PED, PEP, and ADB programs may be affecting this growth from the primary level, but this is not certain.
- The largest enrollment gains, all rates 11 percent or greater, are in the small areas, FATA and FANA. Only three years of data were available for Islamabad as a separate area.

Middle Level Enrollment (Grades 6-8) Boys Enrollment 1985-1990

| Province | Grade | 1985-86* | 1986-87* | 1987-88* | 1988-89 | 1989-90 | Cum Gr Rate |
|----------|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------|
| Pakistan | Grade-6 Grade-7 Grade-8 | 551012 459516 384952 | 585643 481858 402521 | 630869 529591 437109 | 661983 544913 455454 | 714106 581755 511593 | 0.07 0.06 0.07 |
| | * Islama | abad data | not inclu | ded. | | | |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| NWFP | Grade-6 Grade-7 Grade-8 | 69662 55965 46558 | 76457 62521 48862 | 85601 70254 59201 | 93479 76816 67140 | 99979 83791 74541 | 0.09 0.11 0.12 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Punjab | Grade-6 Grade-7 Grade-8 | 341458 282201 232173 | 363641 295971 246013 | 393195 331236 266215 | 406000 335000 270000 | 435000 358000 309000 | 0.06 0.06 0.07 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Sindh | Grade-6 Grade-7 Grade-8 | 118305 103876 91746 | 122985 105591 92883 | 127276 108508 96040 | 133989 111267 100802 | 144737 113573 106740 | 0.05 0.02 0.04 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Baloch. | Grade-6 Grade-7 Grade-8 | 12389 9975 8613 | 13150 9997 8991 | 13732 10970 9147 | 16121 12342 10100 | 19444 14977 11760 | 0.12 0.11 0.08 |

Table III-6 (continued)

| Province | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
|-----------|--------------------|--------------|--------------|--------------|--------------|--------------|----------------|
| FATA | Grade-6 | 6561 | 6607 | 7779 | 8950 | 10512 | 0.13 |
| | Grade-7 Grade-8 | 5354 3877 | 5493 3678 | 6214 4381 | 6934 5083 | 8126 6579 | 0.11 0.14 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| FANA | Grade-6 | 2637 | 2803 | 3286 | 3444 | 4434 | 0.14 |
| | Grade-/ Grade-8 | 2145 1985 | 2285 2094 | 2409 2125 | 2554 2329 | 3288 2973 | 0.11 0.11 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Islamabad | Grade-6 | | | 4544 | 5178 | 5875 | 0.14 |
| | Grade-/ Grade-8 | | | 3979 3548 | 4437 3896 | 4881 4385 | $0.11 \\ 0.11$ |

. .

2. <u>Girls Enrollment</u>

For girls, growth at the national level is higher. This fits well with national education priorities, but has no identifiable cause except that the girls enrollments started so low because of past unequal support. Growth is substantial: 9 percent for Pakistan as a whole. This is shown in Table III-7 following. Issues of note include:

- The Punjab/Sindh contrast. Sindh, with a much smaller base, stays relatively small in growth rate, averaging about 4 percent for the three grades over the period. Punjab, with a larger base and a reduced potential for growth, shows an average growth of 13 percent -- triple the Sindh rate. This suggests that significant efforts are being made toward achieving equity of educational opportunity for girls in Punjab; at least in comparison with other areas.
- In NWFP, the growth rate is high at 14 percent. This contrasts with Balochistan where it runs from a 5 percent in grade 6 down to 3 percent in grade 8. Here, if donor programs are affecting girls' enrollment gains, the effects are not yet showing up at the middle school level.
- FATA shows marked irregularity--1 percent for grade 6, and 19 percent for grade 7. There is again a big jump in 1985-86, and an abrupt fall in 1986-87.
- FANA shows very high growth rates--21 percent, 27 percent, and 21 percent. Enrollment triples in five years. But note that enrollments started at a very low level in 1985.
- Islamabad shows a high increase, between 15 and 17 percent. Again, this is an in-migration phenomenon from areas where there are no possibilities for continuing from primary to middle grades.

Middle Level Enrollment (Grades 6-8) Girls Enrollment 1985-1990

| Province | | 1005 | | | | | Cum Gr |
|----------|--------------------|-----------|----------|----------|----------|------------|--------|
| | Grade | 1982- | 80 1980- | 8/ 198/- | 88 1988- | 89 1989-90 | Rate |
| Pakistan | Grade-6 | 222578 | 248002 | 273094 | 296654 | 314036 | 0.09 |
| | Grade-7 | 178321 | 197784 | 221629 | 239369 | 248702 | 0.09 |
| | Grade-8 | 148718 | 162295 | 180218 | 199725 | 203265 | 0.08 |
| | | | | | | | Cum Gr |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| NWFP | Grade-6 | 11293 | 12566 | 15307 | 17656 | | 0 14 |
| | Grade-7 | 8684 | 10006 | 11528 | 13140 | 14920 | 0.14 |
| | Grade-8 | 6131 | 6848 | 7971 | 9402 | 10364 | 0.14 |
| | | | | | | | 0 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| | | | | | | | |
| Punjab | Grade-6 | 130480 | 146257 | 169842 | 187000 | 211000 | 0.13 |
| | Grade-8 | 83239 | 43994 | 106808 | 120000 | 137000 | 0.13 |
| | | 00207 | ,,,,, | 100000 | 120000 | 137000 | 0.13 |
| | 6 | | | | | | Cum Gr |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| Sindh | Grade-6 | 60587 | 60994 | 66400 | 62949 | 72410 | 0.05 |
| | Grade-7 | 50674 | 50976 | 56097 | 56586 | 56983 | 0.03 |
| | Grade-8 | 45369 | 45272 | 49238 | 50088 | 50573 | 0.03 |
| | | | | | | | Cum Gr |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| Baloch. | Grade-6 | 4052 | 4292 | 3938 | 4521 | 1886 | |
| | Grade-7 | 2859 | 3077 | 2670 | 3221 | 3681 | 0.07 |
| | Grade-8 | 3005 | 3155 | 2747 | 2895 | 3324 | 0.03 |
| | | | | | | | |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| 28.MB | ande C | | | | | | |
| FAIA | Grade-0 Grade-7 | 209 86 | 145 | 169 | 193 | 220 | 0.01 |
| | Grade-8 | 87 | 81 | 94 | 106 | 132 | 0.19 |
| | | | | - | | | |
| | Crada | 1095 96 | 1006 07 | 1007 00 | 1000 00 | | Cum Gr |
| | GLAGE | 1902-80 | 1980-8/ | 198/-88 | 1988-89 | 1989-90 | Rate |
| Fana | Grade-6 | 180 | 163 | 280 | 335 | 389 | 0.21 |
| | Grade-7 | 133 | 119 | 224 | 292 | 346 | 0.27 |
| | Grade-8 | 133 | 131 | 168 | 234 | 283 | 0.21 |
| | | | | | | | Cum Gr |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Rate |
| Islama- | Grade-6 | | | 3016 | 2330 | 3969 | 0 15 |
| bad | Grade-7 | | | 2517 | 2640 | 3451 | 0.17 |
| | Grade-8 | | | 2093 | 2343 | 2769 | 0.15 |

3. <u>Transition from Primary (Grade 5) to Middle (Grade 6)</u>

The primary to middle grades transition (grade 5 to grade 6) fractions are shown in Table III-8. Flow or transition rates represent enrollment in the higher grade (6) as a fraction of grade 5 enrollment in the prior year. A ratio greater than 1 indicates more enrolled in sixth grade than in fifth grade. This suggests a backlog of enrollments from prior years, either because of grade repetition, dropout and re-entry, or because there were no higher grades open to students qualified to continue.

- Transition rates are generally high between levels, 90 percent in most provinces. This may mean that most of the cohort from grade 5 goes on to grade 6, but it also may mean that numbers have accumulated up from grade 5 completers in past years because there were no openings for grade 6.
- In Punjab in the 1985-86 to 1986-87 transition, the coefficient is 1, which suggests 100 percent continue.
- Balochistan shows a low transition in the first year, but the rate climbs steadily up to the level of the other provinces by 1990.
- FATA, which has shown a different pattern in all other comparisons, does the same on transitions. Transitions greater than 1 occur in two successive years, and this assuredly suggests that enrollments were backlogged prior to the opening of new schooling opportunities in middle grades.
- It is likely, however, that coefficients greater than 1 for Islamabad result from inmigration from other areas. Islamabad data permitted only two transition calculations because enrollments were merged previously with Punjab. Both are greater than 1, and the 1988-89 to 1989-90 transition is 1.23.

| Year | Pakistan | NWFP | Punjab | Sindh | Balochistan | FATA | FANA | Islamabad |
|--------------------|----------|------|--------|-------|-------------|------|------|-----------|
| 1985-86 to 1986-87 | 0.93 | 0.89 | 1.00 | 0.83 | 0.72 | 0.89 | 0.74 | |
| 1986-87 to 1987-88 | 0.95 | 0.93 | 0.99 | 0.84 | 0.87 | 1.04 | 0.85 | |
| 1987-88 to 1988-89 | 0.86 | 0.90 | 0.88 | 0.81 | 0.87 | 1.14 | 0.85 | 1.18 |
| 1988-89 to 1989-90 | 0.89 | 0.86 | 0.92 | 0.85 | 0.91 | 0.95 | 0.92 | 1.23 |

Table III-8 Transition Rates Grade 5 to 6 Boys and Girls

GIRLS

BOYS

| Year | Pakistan | NWFP | Punjab | Sindh | Balochistan | FATA | FANA | Islamabad |
|--------------------|----------|------|--------|-------|-------------|------|------|-----------|
| 1985-86 to 1986-87 | 0.74 | 0.46 | 0.81 | 0.94 | 1.09 | 0.75 | 0.43 | |
| 1986-87 to 1987-88 | 0.75 | 0.52 | 0.84 | 1.02 | 1.11 | 0.74 | 0.82 | |
| 1987-88 to 1988-89 | 0.75 | 0.52 | 0.87 | | 1.18 | 0.55 | 0.71 | 1.12 |
| 1988-89 to 1989-90 | 0.71 | 0.49 | 0.88 | | 1.19 | 0.49 | 0.53 | 1.23 |

For girls, the table shows that the transition ratios are consistently lower than boys in most provinces. Balochistan has high transition rates for girls, over 1 for all years. Sindh has one transition rate (1986-87) greater than 1, but all years are high, just as NWFP rates are low. Islamabad rates are high and reflect in-migration of grade 5 completers from other areas. The encouraging sign is the improved rates for girls. Many reports note that girls have higher achievement than boys in lower grades, and this may be causing girls enrollments to increase at transition points.

D. LOWER SECONDARY EDUCATION

1. Boys Enrollment Growth

Table III-9 shows enrollment growth in lower secondary schools (grades 9-10) for boys. For Pakistan, with Islamabad not included, the growth averages about 6 percent for both grades 9 and 10. For NWFP it is 8 percent for grade 9 and 13 percent for grade 10. It is lower for Punjab where the base number is large. Sindh is even still lower at 5 percent to grade 9 and 3 percent to grade 10. Balochistan climbs very rapidly for grade 9, which is 11 percent, but the growth wave has not hit 10th grade which is only 4 percent. FATA has high growth at 26 percent for 10th grade; in absolute numbers, the enrollment more than doubles (2.5-fold increase). FANA also showed a 20 percent rate of growth in grade 10; in absolute numbers, the enrollment doubles in the period. Islamabad enrollment grew 22 percent, which implies a doubling in three years if it continues. It is clear that the capital city is an "impacted area", affected by in-migration, and this suggests difficulties in planning from year to year.

Lower Secondary Level Enrollment (Grades 9-10) Boys Enrollment 1985-1990

| Province | Grade | 1985- | 86* 1986- | 87* 1987- | 88 1988- | -89 1989-9 | Cum Gr 0 Rate |
|--------------------------|------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Pakistan Total | Grade-9 Grade-10 | 276680 215604 | 294992 225846 | 316028 249339 | 309021 262449 | 358803 268851 | 0.07 0.06 |
| | Total | 492284 | 520838 | 565367 | 571470 | 627654 | 0.06 |
| * Islam | abad data | not inclu | ded | | | | * |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| NWFP | Grade-9 Grade-10 | 33086 24103 | 38187 26611 | 37713 35068 | 43985 33608 | 45626 39500 | 0.08 0.13 |
| | Total | 57189 | 64798 | 72781 | 77593 | 85126 | 0.10 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Punjab | Grade-9 Grade-10 | 170097 102407 | 178714 115886 | 193218 133516 | 177000 151000 | 222000 166000 | 0.07 0.05 |
| | Total | 293896 | 309562 | 337823 | 331000 | 373000 | 0.06 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Sindh | Grade-9 Grade-10 | 64846 61030 | 67029 62184 | 73493 62338 | 75653 66274 | 77933 67942 | 0.05 0.03 |
| | Total | 125876 | 129213 | 135831 | 141927 | 145875 | 0.04 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Baloch. | Grade-9 Grade-10 | 5439 1460 | 7479 3769 | 7403 4554 | 7842 4894 | 8155 5130 | 0.11 0.04 |
| | Total | 9899 | 11248 | 11957 | 12936 | 13295 | 0.08 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| рата Г | Grade-9 Grade-10 Total | 2188 1659 3847 | 2502 1834 4336 | 2693 2049 4742 | 3119 2662 5781 | 3458 4148 7606 | 0.12 0.26 0.19 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Fana | Grade-9 Grade-10 | 1024 553 | 1081 600 | 1508 725 | 1422 1011 | 1621 1131 | 0.12 0.20 |
| | Total | 1577 | 1681 | 2233 | 2433 | 2752 | 0.15 |

Table III-9 (continued)

| | Grade | 1985-86* | 1986-87* | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
|----------------|---------------------|----------|----------|--------------|--------------|--------------|----------------|
| Islama- bad | Grade-9 Grade-10 | | | 2417 2194 | 2956 2210 | 4021 2808 | 0.22 0.14 |
| | Grade-8 | | | 4611 | 5166 | 6829 | 0.22 |
| * Data | not availa | able | | ******** | | | |

2. Girls Enrollment Growth

The growth of girls' enrollment, grades 9 and 10, is higher than the rate for boys, but the difference is only 1 percent and 2 percent respectively for Pakistan as a whole. (See Table III-10.) This is because Punjab, with the largest enrollments, shows a growth enrollment for girls more than double that for boys, in both grades 9 and 10. In NWFP, the growth for boys and girls is high, especially in grade 10, and slightly larger for girls in both grades. Balochistan is higher, 11 percent for boys to 7 percent for girls in the 9th grade; but the growth of girls enrollment is more than twice the rate for boys in 10th grade.

FATA shows the same growth rate for girls and boys in the 9th grade (12 percent), but the high growth rate of 26 percent for boys in 10th grade is almost four times that of girls. FANA has high rates for boys in the 10th grade, 23 percent compared to a slightly higher growth rate of 26 percent for girls. Islamabad, reflecting in-migration from lower grades outside the capital district, increases over 20 percent in a single-year transition for both boys and girls, and the rate for the 10th grade is high at 13 percent and 11 percent, respectively.

Despite the priority assigned to the primary level in the 4th through 7th Plans and educational policy statements, middle and lower secondary education enrollments have expanded at a more rapid rate. In part this represents an increase from a smaller base number. It also indicates that enrollments have accumulated from prior years, when students could not continue on to middle and secondary level because there were no schools open to them. This accounts also for the greater increase in enrollment in private schools. The entry into private schools is influenced by the belief that private education is superior to public education.⁸

The policy implications are that, however high the priority is said to be for increasing opportunity for basic primary education, the increase of enrollments in higher grades will continue with a momentum of its own. This will occur despite existing government policy and the priorities of foreign assistance agencies concentrating on expansion of primary education. This has been true in all countries with histories similar to Pakistan. Slowing growth at upper education levels in order to speed it at lower levels takes great political will. The demand for ever higher educational attainment is insatiable, and the advocates are influential, articulate, and not easily denied. Perhaps a more viable option is to focus on expansion at both levels by limiting the growth in public lower secondary and higher secondary schools while promoting the use of private schools at those levels. This would allow the government to maintain its policy of open progression through the education system by allowing affluent families to enroll their children in private schools, which have substantial potential for expansion.

⁸ See Annex 2, Private Education in Pakistan, and Study Report on Private Primary Education in Pakistan, National Education Consultants, Ltd., October 1990.

Lower Secondary Enrollment (Grades 9-10) Girls Enrollment 1985-1990

| Province | Grade | 1985- | -86* 1986 | -87* 1987 | -88 1988- | 89 1989-90 | Cum Gr Rate |
|----------|---------------------|-------------------|-------------------|-------------------|------------------------|-------------------------|----------------|
| Pakistan | Grade-9 Grade-10 | 107,053 77,240 | 104,600 82,004 | 114,795 92,302 | 122,363 105,177 | 146,186 109,944 | 0.08 0.09 |
| | Total | 184,293 | 186,604 | 207,097 | 227,640 | 256,130 | |
| * Islama | abad data | not inclu | lded | | * * * | * ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ | |
| | Grade | 1985-86 | 1986-87 | 1987-88 | L988-89 19 | 989-90 | Cum Gr Rate |
| NWFP | Grade-9 Grade-10 | 5,345 3,191 | 6,101 3,388 | 5,832 4,904 | 6,995 4,955 | 7,624, 5,603 | 0.09 0.15 |
| | Total | 8,536 | 9,489 | 10,736 | 11,950 | 13,227 | |
| | Grade | 1985-86 | 1986-87 | 1987-8 | 88 1988-89 | 9 1989-90 | Cum Gr Rate |
| Punjab | Grade-9 Grade-10 | 58,169 44,248 | 64,225 48,550 | 71,70 54,23 | 06 77,000 06 67,000 |) 95,000) 70,000 | 0.14 0.12 |
| | Total | 102,41 | 7 112,7 | 75 125,94 | 144,00 | 99,280 | 0.13 |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Sindh | Grade-9 Grade-10 | 31,818 28,665 | 32,418 28,926 | 35,273 30,946 | 36,308 31,666 | 37,333 32,714 | 0.04 0.03 |
| | Total | 60,483 | 61,344 | 66,219 | 67,974 | 70,047 | |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Baloch. | Grade-9 Grade-10 | 1,553 1,059 | 1,688 1,086 | 1,787 2,116 | 1,881 1,419 | 2,010 1,484 | 0.07 |
| | Total | 2,612 | 2,774 | 3,903 | 3,300 | 3,494 | |
| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 1 | 989-90 | Cum Gr Rate |
| рата | Grade-9 Grade-10 | 38 32 | 39 20 | 48 22 | 68 42 | 60 42 | 0.12 0.07 |
| | Total | 70 | 59 | 70 | 110 | 102 | |

Exhibit III-10 (continued)

| | Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
|----------------|---------------------|-----------|-----------|----------------|----------------|----------------|----------------|
| Г ЛЛЛ | Grade-9 Grade-10 | 131 45 | 129 34 | 149 78 | 111 95 | 159 101 | 0.05 0.23 |
| | Total | 176 | 163 | 227 | 206 | 260 | |
| | Grade | 1985-86* | 1986-87* | 1987-88 | 1988-89 | 1989-90 | Cum Gr Rate |
| Islama- bad | Grade-9 Grade-10 | | | 1,654 1,341 | 1,895 1,372 | 2,577 1,661 | 0.25 0.11 |
| | Total | | | 2,995 | 3,267 | 4,238 | |
| * Data | not availa | ble | | | | | |

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3. Special Programs at Lower Secondary Level

Apart from general programs at the lower secondary level, there are important specialized training fields, as Exhibit 1 showed. Occupational training receives extended treatment later in the section on Manpower Development and Training.

E. <u>HIGHER SECONDARY EDUCATION</u>

The Asian Development Bank and the World Bank have just completed fieldwork on a study of higher secondary education; however, no usable information was available for this study team before departure from Pakistan in July. When the information appears, it can be included in this study or assessed separately. A second reason for treating the matter briefly is that it is not clear, given other social priorities for basic education, what the government can afford to do about higher secondary and higher education with its limited resources to meet high unit costs, and avowed priorities to expand enrollment in grades 1-8. One alternative is to offer "shadow schooling" at the higher levels, in which the quality of allocations and inputs are reduced and more emphasis is placed on reducing costs through tuition and other fees. The study team recognizes that it is more difficult to avoid social and political pressure when cuts are made at upper grade levels where students and their families have greater voice. Unrest in colleges and higher levels reflects this problem in Pakistan. Reducing or limiting the quality of higher level programs also has economic consequences in wasted resources and substandard training of manpower in high technology fields.

1. Higher Secondary, General and Science Education

Table III-11 shows enrollments in the higher secondary grades (11 and 12), classified by Science stream and Arts stream. These data were gathered from enrollments in grade 11 and 12 in both higher secondary schools and intermediate colleges.

It is interesting to note the relative share of Science enrollments compared to Arts (referred to as the "Humanities Stream" in other studies). For Pakistan, the share of Science out of the total enrollment (boys and girls) in Grade 11 is 43 percent at the start of the period. This increases by 1 percent over the three years. The same holds true for 12th grade, where there is a slight gain in the share for Science during the period.

By province, NWFP shows a lower share in science for both boys and girls together, about 7 percent below the share for Pakistan. Girls' share begins very low in NWFP, but gains a fev percentage points over the period.

Punjab is also low on the total share in Science at slightly less than 30 percent, but it also gains about 3 percent over the period.

Sindh shows the highest share in Science for boys and girls, almost 65 percent, and this share falls only 1 percent over the period. Boys' share is high at 80 percent in 11th grade; girls' share is lower, but at almost 39 percent it is the highest share of girls in Science in the provinces, and it has increased a few percentage points over the three-year period.

Based on partial data from Punjab, it appears that the share of Science enrollments in grades 11 and 12 is higher in intermediate colleges (45 percent) than it is in higher secondary schools.⁹ Data also suggest that enrollment in the Science stream is increasing relative to the Arts, especially in boys' schools in urban areas. This study reports that college programs are better staffed, better equipped, and better supplied than secondary schools.

Costs to start and support programs are higher at the college level. The prestige of college programs is higher among students and their families, but there is more political unrest in colleges and more class and study time is lost to political agitation. In both secondary schools and intermediate colleges, fees are paid by parents. Some are substantial. The study shows that colleges have been more generously treated than secondary schools, especially those in rural areas. It concludes that the most costeffective solution to the ever-increasing social demand for higher secondary level education is to open up more secondary schools and to provide them with basic inputs. The study also recommends that the share of costs from private sources--in this case, families--also should increase.

As a whole, the participation rate in Science is growing relative to Arts. This shift will be reinforced by the Institute for Promotion of Science Education and Training (IPSET) program, designed to increase awareness and enthusiasm for Science among secondary and middle school students and to improve curriculum, equipment, facilities, books, and supplies. No other foreign assistance investment in schooling above the basic education level would seem to promise as much social and economic return as the IPSET program for basic Science development in middle and secondary schools.

a. <u>Priorities for Science Programs</u>

With priorities fixed on basic education and the target enrollment in grades 1-8 difficult to attain under the most favorable circumstances projected in Section IV, it is difficult to see where in higher secondary level an investment in foreign technical assistance would pay dividends, except for the IPSET program to aid Science. The burden of paying for secondary education, and for higher education, should shift to fees paid by the families. It would be in the government's interest, and also consistent with current priorities of foreign aid agencies, to concentrate resources as they now do--on

⁹ Upper Secondary Education in the Punjab, S.H. Khadar, Lahore, Systems Limited, 1990.

Enrollment at Higher Secondary Level in General Arts and Science 1987-88 to 1989-90

| | | | Scie | ence | | | Arts | | | | | |
|---------|-------|---------|-------|--|------------|-------|-------|--------------|----------|-------|-----------|-------|
| | | Grade 1 | 1 | | Grade 1 | 2 | | Grade 1 | 1 | (| Grade 1 | 2 |
| Year | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total |
| | | | | •••••••••••••••••••••••••••••••••••••• | РАК | ISTA | N | | <u> </u> | | L <u></u> | |
| 1987-88 | 59530 | 13495 | 73025 | 46403 | 9585 | 55988 | 59937 | 40179 | 100116 | 48995 | 31590 | 80585 |
| 1988-89 | 60952 | 13862 | 74814 | 46502 | 10321 | 56823 | 63154 | 45026 | 108180 | 46406 | 32103 | 78509 |
| 1989-90 | 66545 | 16334 | 82879 | 50457 | 11752 | 62209 | 63929 | 48052 | 111981 | 51694 | 37573 | 89267 |
| | | | | | N | WFP | | | | | | L |
| 1987-88 | 4843 | 382 | 5225 | 3142 | 251 | 3393 | 7894 | 1962 | 9856 | 5649 | 1306 | 6955 |
| 1988-89 | 5152 | 493 | 5645 | 3308 | 357 | 3665 | 8565 | 2086 | 10651 | 6128 | 1388 | 7516 |
| 1989-90 | 5435 | 554 | 5989 | 3501 | 400 | 3901 | 8953 | 2344 | 11297 | 6414 | 1560 | 7974 |
| | a | | | | P U | NJAE | 3 | | | | | |
| 1987-88 | 21654 | 4019 | 25673 | 16931 | 2773 | 19704 | 39766 | 22453 | 62219 | 38480 | 26485 | 64965 |
| 1988-89 | 26642 | 6034 | 32676 | 22263 | 4049 | 26312 | 44930 | 30811 | 75741 | 33768 | 21562 | 55330 |
| 1989-90 | 27864 | 6098 | 33962 | 23115 | 4495 | 27610 | 45009 | 30374 | 75383 | 38755 | 24434 | 63189 |
| | r | · | r | <u> </u> | SI | NDH | | | | | | |
| 1987-88 | 19839 | 5803 | 25642 | 13462 | 3213 | 16675 | 4225 | 99 <u>42</u> | 14167 | 7020 | 12052 | 19072 |
| 1988-89 | 24537 | 6782 | 31319 | 17379 | 5476 | 22855 | 7156 | 11255 | 18411 | 4490 | 8317 | 12807 |
| 1989-90 | 28878 | 9041 | 37919 | 20191 | 6350 | 26541 | 6987 | 14354 | 21341 | 4384 | 10678 | 15062 |
| | | | r | <u> </u> | ALOC | HIST | ΓΑΝ | | | | | |
| 1987-88 | 2988 | 426 | 3414 | 3087 | 365 | 3452 | 840 | 704 | 1544 | 1008 | 824 | 1832 |
| 1988-89 | 3797 | 539 | 4336 | 3090 | 435 | 3525 | 1019 | 841 | 1860 | 806 | 820 | 1626 |
| 1989-90 | 3509 | 616 | 4125 | 3185 | 496 | 3681 | 1492 | 944 | 2436 | 924 | 884 | 1808 |
| n | r | · | | | F / | ATA | | | | | | |
| 1987-88 | 463 | 0 | 463 | 241 | 0 | 241 | 670 | 0 | 670 | 483 | 0 | 483 |
| 1988-89 | 685 | 0 | 685 | 384 | 0 | 384 | 1221 | 0 | 1221 | 1033 | 0 | 1033 |
| 1989-90 | 685 | 0 | 685 | 384 | 0 | 384 | 1221 | 0 | 1221 | 1033 | 0 | 1033 |
| I | T | | | | F A | NA | | | | | | |
| 1987-88 | 86 | 11 | 97 | 8 | 3 | 11 | 185 | 17 | 202 | 90 | 14 | 104 |
| 1988-89 | 139 | 14 | 153 | 78 | 4 | 82 | 263 | 33 | 296 | 181 | 16 | 197 |
| 1989-90 | 174 | 25 | 199 | 81 | 11 | 92 | 267 | 36 | 303 | 184 | 17 | 201 |

providing basic general education at lower grades, and in developing Science education at the middle school level and at the lower and higher secondary level.

This is the objective of the large ADB-supported Science program that is built around IPSET and in four outreach centers in the provinces. This program is further described in the section on Manpower Development and Training, and in Section V on foreign technical assistance programs.

2. <u>Teacher Training at the Secondary Level</u>

Teacher training, reviewed earlier, dealt with teaching services as an input to primary education. Table III-12 summarizes data on teacher training institutes in 1987-88. Note that over 62 percent of the enrollments at Primary Teacher Certificate and middle school (CT) teaching level are in Punjab, and the enrollment is evenly split between males and females. Less than 4 percent of the enrollment is in Balochistan. This highlights the need for the mobile teacher training program based in that area. Even NWFP has five times the Balochistan share of enrollments in teacher training institutions.

3. Other Vocational and Technological Training

Tables III-13 (a) through (d) provide basic data on vocational and technical institutions. The level covered is from lower secondary (grades 9 and 10) up to higher secondary and one grade beyond (11-13) in the case of polytechnics. Vocational institutes are covered fully in the next section. This study has no useful suggestions to offer on agro-technical schools.

Table III-14 shows enrollment in commercial institutions in 1989-90. These data only cover higher level programs in official institutions; they do not include the vast enrollments in private commercial training institutions at all levels. This makes the enrollments shown incomplete and difficult to use to characterize training in commercial fields.

One recommendation can be made, however, on commercial institutions. If they are assisted at all by outside funding, the support should be provided through private, nonprofit organizations with a mandate for helping girls in the depressed urban slum areas around Karachi and Lahore. Providing subventions to the uncontrolled, for-profit private commercial institutes visited by the study team would have minimal benefit, except for the ownerentrepreneurs.

Finally, Table III-15 shows enrollment in Colleges of Technology and Polytechnics. No analysis of this level and kind of training was undertaken, and no recommendations are made for assisting it. The relevance of most of these programs to demand for high

technology manpower is not firmly established in Pakistan, and with information in its current state at even lower and more simple levels of training for occupations and professions, it may be a long time before any sensible planning can be done for these fields. (See the next section on Manpower Development and Job Training for further information.)

| | РТС | СТ | ОТ | Arts & Crafts | DM | Tech/ Agro Tech | DPE/ PTI | Others | Total |
|------------|---------|------|-----|------------------|-----|-----------------------|-------------|----------|----------|
| Pakistan | (Total) | | | | | | | | <u> </u> |
| Total | 27606 | 4178 | 383 | 193 | 247 | 156 | 100 | 0 | 32863 |
| Male | 15489 | 2596 | 317 | 184 | 229 | 117 | 100 | 0 | 19032 |
| Female | 12117 | 1582 | 66 | 9 | 18 | 39 | 0 | 0 | 13831 |
| NWFP | | | | | | | • | | |
| Total | 6401 | 73 | 0 | 0 | 80 | 0 | 0 | 0 | 6554 |
| Male | 4464 | 49 | | | 62 | | | | 4575 |
| Female | 1937 | 24 | | | 18 | | | | 1979 |
| Punjab | | | | | | | | | |
| Total | 17002 | 3031 | 243 | 164 | 0 | 12 | 0 | 0 | 20452 |
| Male | 8190 | 1828 | 240 | 159 | | 12 | | | 10429 |
| Female | 8812 | 1203 | 3 | 5 | | 0 | | | 10023 |
| Sindh | | | | | | | <u> </u> | | |
| Total | 2703 | 462 | 40 | 29 | 0 | 54 | 0 | 0 | 3288 |
| Male | 1630 | 252 | 37 | 25 | | 40 | | | 1984 |
| Female | 1073 | 210 | 3 | 4 | | 14 | | | 1304 |
| Balochista | m | | | | • | | | | |
| Total | 755 | 280 | 0 | 0 | 100 | 50 | 100 | 0 | 1285 |
| Male | 655 | 240 | | | 100 | 40 | 100 | | 1135 |
| Female | 100 | 40 | | | 0 | 10 | 0 | | 150 |
| Special A | reas | | | L | l. | | L | - | |
| Total | 745 | 332 | 100 | 0 | 67 | 40 | 0 | 0 | 1284 |
| Male | 550 | 227 | 40 | | 67 | 25 | | | 909 |
| Female | 195 | 105 | 60 | | 0 | 15 | | | 375 |

Number of Teachers in Training Institutes (below degree level) by Course of Study and Sex, 1987-88

Table III-13(a) Vocational/ Industrial Institutions Number, Enrollment, and Teachers, by Sex 1986-87, 1987-88, and 1988-89 Pi sistan

| | <u>19</u> | 86-87 | <u>19</u> | 87-88 | <u>198</u> | 8-89 |
|---|--------------------------|------------------------|--------------------------------|-------------------------|----------------------------------|---------------------------|
| | Male | Female | <u>Male</u> | Female | Male | Female |
| A.Number of Institutions | 16 | 134 | 14 | 155 | 13 | 167 |
| B.Enrollment/No.of Studer | <u>nts</u> 270 | 07 8036 | 2288 | 11441 | 2447 | 11529 |
| a) Certificate 2-year Courses (Total) | 2707 | 8036 | 2288 | 11441 | 2447 | 11529 |
| Year 1 Year 2 | 1318 1389 | 5689 2347 | 1201 1087 | 6789 4652 | 1303 1144 | 6917 4612 |
| C.Number of Teachers by Qualifications | 181 | 802 | 211 | 900 | 212 | 921 |
| BE/Bsc/Eng. AMIE Dip/Associate Eng. Certificate Holders BA/BSc. MA/MSc. Others | 5 60 37 7 72 | - 96 - 706 | 8 96 56 27 15 9 | - 51 - 849 | 8 102 57 17 18 10 | 5 4 26 10 872 |
| D.Number of Teachers by Status | 181 | 802 | 211 | 900 | 212 | 921 |
| Principals Chief Trade Instructors | 12 6 | 102 14 | 13 6 | 70 8 | 13 6 | 74 9 |
| Sr.Trade Instructors Trade Instructors Jr. Instructors Others | 16 68 70 9 | 8 144 252 290 | 31 84 66 11 | 10 151 278 383 | 31 86 66 10 | 13 153 265 407 |

Source: Statistics on Technical Education, 1986-87/1988-89, Islamabad, CBE, 1991.

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Table III-13(b) Vocational/ Industrial Institutions Number, Enrollment, and Teachers, by Sex 1986-87, 1987-88, 1988-89 Sindh

| | | 198 | 36-87 | <u>19</u> | 87-88 | 198 | 8-89 |
|----------------------------------|--|---------------------|--------------------|--------------------------|---------------------|---------------------------|-------------------------------|
| | | Male | Female | <u>Male</u> | Female | Male | Female |
| <u>A.N</u> | umber of Institutions | 6 | 49 | 5 | 47 | 4 | 59 |
| B.Er | rollment/No.of Studer | <u>nts</u> 187 | 8 2851 | 1550 | 5525 | 1550 | 5448 |
| a) | Certificate 2-year Courses (Total) | 1878 | 2851 | 1550 | 5525 | 1550 | 5448 |
| | Year 1 Year 2 | 767 1111 | 1422 1429 | 800 750 | 2725 2800 | 800 750 | 2748 2700 |
| C.Nu Qu | mber of Teachers by alifications | 72 | 134 | 78 | 203 | 79 | 208 |
| 1. 2. 3. 4. 5. 6. | BE/Bsc/Engg.AMIE Dip.in Assoc. Engg. Certificate Holders BA/BSc. MA/MSc. Others | - - - 72 | - - - 134 | 29 5 20 15 9 | - 47 - 156 | 35 6 10 18 10 | 5 4 26 10 163 |
| D.Nu by | mber of Teachers Status | 72 | 134 | 78 | 203 | 79 | 208 |
| 1. 2. | Principals Chief Trade Instructors | 2 4 | 42 | 4 4 | 5 - | 4 4 | 6 6 |
| 3. 4. 5. 6. | Sr.Trade Instructors Trade Instructors Jr. Instructors Others | 12 23 22 9 | - - 92 | 14 23 22 11 | - 18 180 | 14 25 22 10 | _ _ 202 |

Table III-13(c) Vocational/ Industrial Institutions Number, Enrollment, and Teachers, by Sex 1986-87, 1987-88, 1988-89 Punjab

| | <u>19</u> | 86-87 | <u>19</u> | 87-88 | <u>19</u> | 88-89 |
|--|-------------|-----------------------|------------------|-------------------------|------------------|-------------------------|
| | <u>Male</u> | Female | <u>Male</u> | Female | <u>Male</u> | Raale |
| A.Number of Institutions | - | 75 | - | 98 | - | 98 |
| B.Enrollment/No.of Studer | nts - | 4879 | - | 5579 | - | 5655 |
| a) Certificate 2-year Courses (Total) | - | 4879 | - | 5579 | - | 5655 |
| Year 1 Year 2 | - | 4068 811 | - - | 3850 1729 | - | 3910 1745 |
| C.Number of Teachers by Qualifications | - | 572 | - | 601 | - | 617 |
| BE/Bsc/Engg.AMIE Dip.in Assoc. Engg. Certificate Holders BA/BSc. MA/MSc. Others | | - - 572 | | - - - 601 | - - - - | - - - 617 |
| D.Number of Teachers by Status | - | 572 | - | 601 | - | 617 |
| 1. Frincipals 2. Chief Trade Instructors | - | 50 6 | - | 55 8 | - | 58 9 |
| Sr.Trade Instructors Trade Instructors Jr. Instructors Others | | 8 98 212 198 | - - - - | 10 105 220 203 | | 13 107 225 205 |

Table III-13(d) Vocational/ Industrial Institutions Number, Enrollment, and Teachers, by Sex 1986-87, 1987-88, 1988-89 NWFP

| | | <u>198</u> | 86-87 | <u>19</u> | 87-88 | 1988-89 | |
|----------------------------------|--|-------------------------|-------------------|-------------------------|--------------------|-------------------------|-------------------|
| | | Male | Female | Male | <u>Female</u> | Male | Female |
| <u>A.Nu</u> | mber of Institutions | 10 | 1,0 | 9 | 10 | 9 | 10 |
| <u>B.En</u> | rollment/No.of Studer | <u>nts</u> 829 | 306 | 738 | 337 | 897 | 426 |
| a) | Certificate 2-year Courses (Total) | 829 | 306 | 738 | 337 | 897 | 426 |
| | Year 1 Year 2 | 551 278 | 199 107 | 401 337 | 214 123 | 503 394 | 259 167 |
| C.Nu Qu | mber of Teachers by alifications | 109 | 96 | 133 | 96 | 133 | 96 |
| 1. 2. 3. 4. 5. 6. | BE/Bsc/Engg.AMIE Dip.in Assoc. Engg. Certificate Holders BA/BSc. MA/MSc. Others | 5 60 37 7 - | - 96 - - | 8 67 51 7 - | - 4 - 92 | 8 67 51 7 - | _ 4 _ 92 |
| D.Nui by | mber of Teachers Status | 109 | 96 | 133 | 96 | 133 | 96 |
| 1. 2. | Principals Chief Trade Instructors | 10 2 | 10 | 9 2 | 10 | 9 2 | 10 _ |
| 3. 4. 5. 6. | Sr.Trade Instructors Trade Instructors Jr. Instructors Others | 45 4 48 - | 46 | 61 17 44 - | 46 _ 40 _ | 61 17 44 - | 46 40 - |
Table III-15

Enrollment in Colleges of Technology and Polytechnics 1985-86 to 1988-89 D.A.E. Course (4-year Study Program)

| | | 1 st Year | | 2 nd Year | | | |
|-------------|------|----------------------|-------|----------------------|----------|----------|--|
| Year | Boys | Girls | Total | Boys | Girls | Total | |
| PAKISTAN | | | | ······ | | <u> </u> | |
| 1985-86 | 2826 | 298 | 3124 | 4350 | 180 | 4530 | |
| 1986-87 | 4772 | 308 | 5080 | 4407 | 205 | 4612 | |
| 1987-88 | 6912 | 418 | 7330 | 7263 | 317 | 7580 | |
| 1988-89 | 7392 | 806 | 8198 | 7148 | 604 | 7752 | |
| N W F P | | | | - | | | |
| 1985-86 | 310 | 0 | 310 | 310 | 0 | 310 | |
| 1986-87 | 339 | 0 | 339 | 286 | 0 | 286 | |
| 1987-88 | 820 | 78 | 898 | 785 | 35 | 820 | |
| 1988-89 | | | | | | | |
| PUNJAB | | | | | | | |
| 1985-86 | 2516 | 298 | 2814 | 2429 | 180 | 2609 | |
| 1986-87 | 3062 | 308 | 3370 | 2718 | 205 | 2923 | |
| 1987-88 | 4273 | 418 | 4691 | 5507 | 317 | 5824 | |
| 1988-89 | 4511 | 321 | 4832 | 4712 | 127 | 4839 | |
| SINDH | | | | | | • | |
| 1985-86 | 1204 | 212 | 1416 | 1120 | 158 | 1278 | |
| 1986-87 | 807 | 208 | 1015 | 827 | 212 | 1039 | |
| 1987-88 | 1690 | 250 | 1940 | 1082 | 200 | 1282 | |
| 1988-89 | 2090 | 300 | 2390 | 1681 | 248 | 1929 | |
| BALOCHISTAN | | | | | . | | |
| 1985-86 | 172 | 0 | 172 | 168 | 0 | 168 | |
| 1986-87 | 163 | 0 | 163 | 152 | 0 | 152 | |
| 1987-88 | 163 | 0 | 163 | 152 | 0 | 152 | |
| 1988-89 | 0 | 0 | 0 | 171 | 0 | 171 | |

F. MANPOWER DEVELOPMENT AND JOB TRAINING

Occupational training for employment in Pakistan is a complex enterprise, with responsibility, management, and financing shared among government bureaus and autonomous agencies, private institutions, and company training departments. The ADB-supported Hawthorn study (1989; see Exhibit 3 following) and other technical and vocational education studies have identified nearly 3,000 public and privately supported trades training institutions, two-thirds of them administered under the Social Welfare Directorate. But studies to date have identified only the most visible training institutions run by government ministries and autonomous authorities. There are many others. Even within the government itself, many agencies operate training organizations. WAPDA (water and power) and the Defense Ministry, for example, administer vast training operations. Most of the private firms are proud to run their own training operations. A current estimate is that there may be close to 4,000 training entities in The Sindh Board of Technical Education study (1986) listed over 500 Pakistan. government and private training institutions affiliated with, and thus examined by, the Board. Enrollments in these institutions were 8,066 in the public sector and slightly more than that in the private sector (1986). (As a comparison, the yearly output from Board examination records was over 100,000.)

Currently, a UNDP/ILO project is working to develop an information system to assess labor supply and to support manpower development and the management of training in all provinces in Pakistan.

These efforts, however, are constrained by the lack of a population or industrial census, a registry of training institutions and establishments, and most importantly, by the lack of a basic sampling frame to guide future surveys in the education and training sectors. Without such information, it is not possible to make concrete conclusions about the rate-of-return and the priority to be ascribed to investments in manpower development. Therefore, this section is limited to a brief description of the status of technical and vocational training in Pakistan, and identifying some obvious flaws in manpower data and manpower planning approaches and some tentative conclusions for further consideration.

1. <u>Major Training Institutions and Programs</u>

In formal vocational education and training, there are two major training programs at the secondary level: i) vocational institutes for boys and for girls (GVIs), operated under provincial vocational and technical directorates, with support from the Secondary and Technical Education Wing of the MOE; and ii) Training Centers operated by Provincial Training Boards (PTBs) and supported by the National Training Bureau (NTB), MOL. (See Table III-16)

Findings of the Hawthorn Report

- i) The TEVT system is not providing adequate and relevant training to meet Pakistan's present and future manpower needs. There is lack of quality in training and inefficiency in the training system, both in delivery and management.
- ii) Existing programs do not adequately reflect manpower training needs, either nationally or within specific provinces. There is serious lack of a continuous process for industrial training, needs assessment, development of strategies and associated programs, and curriculum development.
- iii) There is a lack of central coordinated planning for the implementation of TEVT. Evidence of wastage of resources exists in all subsectors, including duplication of training facilities. There is excess capacity within some geographic areas and some specific training areas, while there is inadequate capacity in others.
- iv) There is a major lack of professional expert management and support for TEVT, both in general system management terms and for the management of training institutions.
- v) There is a lack of system and process for the physical planning of TEVT; building facilities and equipment, both in terms of curriculum implementation and actual planning, and control of the physical plan.
- vi) The administration of TEVT lacks an adequate database and management system for effective planning and management. Human resource data - teachers and instructors - is inadequate for proper planning and systems are outmoded and incapable of dealing with the current magnitude of TEVT employment.
- vii) Current financial data is inadequate for the monitoring of system costs and benefits. Financial management systems require urgent review in order to facilitate proper planning and budgetary control system efficiency.
- viii) Review of system performance is essential. Excessive disparities on unit costs occur even within the same subsectors.

Source: ADB-sponsored study (TA 999 PAK) on Technical and Vocational Education in 1989. Pakistan, 1989.

| | A | Vocati | ional In | stitutes | titutes Commer- | | rt. College Technolog | es of y | Engineering Colleges/ Universities | | |
|---------------------------------|-------------------------------|-----------------|----------|----------|--------------------|-----------------|--------------------------|------------|---------------------------------------|----------|--|
| Province | Agro- Technical Schools | Boys | Girls | Total | cial Institutes | Male | Female | Total | Universi- ties | Colleges | |
| Punjab | 3128 | 38 | 98 | 136 | 1114 | 13 | 9 | 22 | 1 | 4 | |
| Sindh | 500 | 9 | 59 | 68 | 34 | 15 | 3 | 18 | 2 | 1 | |
| NWFP | 921 | 15 | 10 | 25 | 13 | 5 | 1 | 6 | 1 | | |
| Balochistan | 51 | 4 | _ | 4 | | 1 | | 1 | | 1 | |
| Federal Area/ Cantt/Garrison | 88 | 2 | _ | 2 | _ | _ | 1 | 1 | | | |
| AJK | 141 | 2 | | 2 | — | | _ | | | | |
| Pakistan Total | 4829 | 70 ¹ | 167 | 237 | 158 | 34 ² | 14 ³ | 48 | 4 | 6 | |

Table III-16Vocational, Technical, and Engineering Institutions in Pakistan1988-1989

¹ These include 56 VIs -- 38 in Punjab, 4 in Sindh, 6 in NWFP, 4 in Balochistan, 2 each in Federal Area and AJK.

² These include 10 Colleges of Technology -- 5 in Punjab, 4 in Sindh, and 1 in NWFP.

These include 12 Women Polytechnic Institutes established by Women Div. -- 6 in Punjab, 3 in Sindh, and 1 in NWFP.
These include 12 G

These include 12 Commercial Training Institutes for females.

Source: Data compiled by S&TE Wing (information received from concerned agencies).

In the provinces, control of the vocational institutes for boys is shifting from education departments to PTBs run by the labor secretariats. The Ministry of Labor and Manpower NTB supports the work of TTCs (Technical Training Centers) and ATCs (Apprenticeship Training Centers) at the national level. In Punjab, the vocational institutes for boys have been shifted to the control of Provincial Training Boards. The Provincial Training Boards operate the centers. In Balochistan, the modest training that is provided is at the Technical Training Centers. In Sindh, responsibility for training is divided between the Labor and Education secretariats, as it is in NWFP, and the vocational education programs in the institutes appear to suffer by comparison with the center operated by the Ministry of Labor.

Both the training centers and the institutes train students in the same fields. There is talk of revising programs to keep up with newly emerging technologies and fields, but this is not apparent from the list of courses, shown in Exhibit 4.

Data on VTIs and teachers were shown in Table III-13. Data errors were amended to accord with common sense. If the amendments are correct, the table shows the number of VTIs for boys decreases from 16 in 1986-87 to 13 in 1988-89. Enrollment falls from 2,707 in 1987, to 2,447 in 1989. Vocational Institutes begin at grade 9, and offer one- and two-year certificates, depending on the field.

In the provinces, education offices and employees sometimes do not recognize Technical Education and Vocational Training (TEVT) certificates as sufficient qualification for direct employment in a trade. Follow-up data do not exist, but from provincial interviews, it is estimated that over 50 percent of boys attempt to go on to further education in higher secondary grades, or to the polytechnics. It is not clear how their credentials would allow this, and this should be investigated.

The current discussion about "vocationalizing" general education does not look realistic at this time, nor does training at the next higher level in the 48 polytechnics appear relevant to occupational and professional employment. Table III-16 listed 34 polytechnics and technology colleges for males and 14 for females in 1988-89. Data on vocational and technical training diverge widely, according to a number of sources, and there was no time to verify the data provided.

Prospects for assistance in the field of technical education do not appear promising, although assistance for NEEC (National Educational Equipment Center) in Lahore was provided for the production of teaching kits. BRIDGES' research (1980) indicated that this innovation was unsustainable, not because of design flaws, but because there were no funds budgeted to replace materials consumed. The current proposal for assisting mobile science labs should depend on an evaluation of how well the program for middle and secondary school labs is working. (The study team encountered a number of nonfunctioning labs in the northern provinces. However, this

Exhibit 4 Vocational/ Occupational Courses Offered

| Vocation | al Institutes | Polytechnics | College of Technology (B- | Engineering Colleges |
|-------------------------|-----------------------|----------------------|---------------------------|----------------------|
| Girls | Boys | | Tech) | Universities |
| Machine Embroidery | Mechanic | Architecture | Electrical Technology | Electrical Engin. |
| Hand Embroidery | Die Making | Public Health | Mechanical Technology | Mechanical Engin. |
| Knitting (Hand/Machine) | Electric Wiring | Drafting/Designing | Electrical Power Tech. | Chemical Engin. |
| Leather Work | Carpentry | Machine Shop | Electronics/Commun. | Petroleum/Gas |
| Cutting | Foundry | Metallurgy/Welding | Automobile Technology | Metallurgical |
| Fret Work | Mechanical Draftsman | Instrument | Air Conditioning Tech. | Mining Engineering |
| Printing | Welding (Elec. & Gas) | Foundry/Pattern | Mechanical Production | Architecture |
| Wood Work | Turner | Electrical | Chemical Technology | Electronic Engin. |
| Typing | General Fitter | Chemical | Construction Tech. | Industrial Manag. |
| Drawing/Painting | Electrical Winding | Textile Weaving | Highway Technology | Agriculture Engin |
| Drawing | Auto/Diesel Mechanic | Textile Spinning | Public Health Engin. | Textile Engin. |
| Cooking | Tracer | Radio/TV/Electronics | | Ŭ |
| Food Preservation | Plumber/Pipe Fitter | Tower | | |
| Eng. Typing/Shorthand | Telex Radio Mechanic | Refrigeration | | |
| Fancy Craft | Machinist | Watch Making | | |
| Home Management | Ref./Air conditioning | Glass/Ceramics | | |
| Drawing/Designing | Painting | Tool Design | | |
| | Tailors | Mechanical | | |
| | Armature Winding | Auto/Diesel | | |
| | Molder | Auto/Farm Machinery | | |
| | Sheet Metal Worker | | | |
| | Brick Layer | | | |
| | Electrician (Auto) | | | |
| | Building (Drafting) | | | |
| | Surveying | | | |
| | Building Construction | | | |

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may have been due to a poor sampling). General programs to aid science and technology, like IPSET, have appeal because they appear practical and productive, but the charm is often only surface allure.

Vocational training institutes for girls outnumber institutes for boys by a wide margin, over 2 to 1. (See Table III-16.) There are 167 institutes for girls in the provinces: Sindh (59), Punjab (98), and NWFP (10). No VTIs for girls were shown for Balochistan; four were listed for boys. The number of institutes for females is increasing nevertheless in contrast to the situation for boys. Therefore, investment in girls' vocational institutes may make more sense on both economic (increase in family income) and social equity grounds. With increased numbers of girls flowing through the lower grades under the Optimal enrollment scenario, there should be some form of terminal training experience. The high quality of training for women and female teachers in the Peshawar center is a good advertisement for further assistance in girls' training.

The National Technical Teacher Training College and the training wings in Punjab, Sindh, and NWFP have been proposed for external assistance, and the ADB has assisted technical teacher training for females. The total output of technical teachers from training programs operated by national and provincial technical education wings is 350 a year. No case has been made on the teacher demand side for expanding the output of teachers for boys' polytechnics, but it may exist; there was insufficient time during the study to ascertain this demand.

2. <u>Training Centers, Technical and Apprentice (TTCs and ATCs)</u>

In the provinces, the labor departments, with support from MOL and NTB, operate TTCs (certificate-level, occupational training in one- and two-year programs) for boys, and ATCs offering apprenticeship training. The trend, as noted, is toward certificate-level training in TTCs for boys with Provincial Training Bureaus examining and certifying graduates.

Programs to support these training centers must be shaped to fit the unique characteristics of the industrial area surrounding the center. This holds for all manpower development and training programs, a point that should be emphasized in programs in which linking training and work is the aim. National training programs will fail unless they are differentiated and adapted to their industrial area or regional job market. Only a few areas in Pakistan have a sufficient industrial infrastructure to make occupational training a sound investment.

Examination has been a major problem in vocational and technical areas, as it has in other secondary level programs. Formerly, it was believed that vocational trainees could not be examined, but with increasing awareness of performance-based testing and criterion-referenced tests, examinations and certification procedures are improving. This has been aided by the development of task-sequenced trade training manuals, which have detailed job sheets and sequenced steps for completing jobs in the trade.

Prepared for each trade, these manuals now offer a foundation for performancebased and criterion-referenced testing. In the past, the prejudice prevailed that vocational training was inferior because it could not be "properly tested" with a pencil and paper. This view, which lowered the status of occupational training with students and their families, to say nothing of academic officials, should fade, and the status associated with these training programs should increase.

In Pakistan, TTCs, under Provincial Training Boards in the labor secretariats, are supported by the Pak Netherlands Human Resources Project (NHRP), by UNDP/ILO, and with loans from the banks. TTC programs, under the labor secretariats are viewed as being more in tune with manpower needs in industries and occupations, although a rudimentary occupational information system (supply or demand) should be prepared in the future. Sound work is being conducted by the MOL and the Pak Netherlands Human Resources Project, focused on the premise that training through participatory work must be the basis of technology transfer to Pakistani counterparts. The NHRP is providing a sound training base, so that when the necessary manpower information components (a national, industrial census and regular rounds of establishment and labor market surveys) are available, the information system, with some updating of algorithms, can be put in place and function as a manpower planning system.

The trend toward moving responsibility for TTCs from the Ministry of Education to the Ministry of Labor is viewed as a move in the right direction by officials in three of the four provinces visited, because it unifies the structure and management under one organization, and the MOL is perceived to be more in touch with the job markets. It is less clear that moving TTCs under the Provincial Training Boards, however, has improved occupational training or employment prospects for graduates of the programs.

TTC programs take in eighth grade "passes" or higher, and offer one- and twoyear training certificates, depending on the field. TTC staffs report generally strong parental and community interest in training for employment and earnings, but the quality of TTCs varies as supported by brief visits of the Study Team to two centers that showed marked differences in the quality of management, instruction, facilities, equipment, stock inputs and enrollment. In the low enrollment center, families and students were apparently not persuaded that the training center would develop occupational skills leading to employment. Several TTCs had no headmaster, and some are virtually empty, as in the case of one center visited by the team.

Occupational information for planning vocational education or training--from general manpower planning data to current and specific results from establishment and local labor market surveys--are not in hand. The lack of data, classified by occupations and sectors, for classic manpower forecasts is perhaps a blessing. In past attempts at manpower planning in Pakistan, the one-digit, modified ISIC sectoral categories did not permit sensible interpretation of four-digit ISCO categories. The resulting projections were useless exercises. However, the lack of other basic components of occupational and employment planning--establishment and local labor market surveys--is a more serious shortcoming. The efforts to overcome this will take several years. The Pak Netherlands Human Resource Project is now in its third year, with two more years to run. Only a long and patient training effort offers a sound hope for improving the planning of occupational training.

3. Summary Comment on Occupational Training

Occupational training can be made relevant to work in Pakistan, under the following conditions:

- a) For boys, vocational institutes under the Ministry of Education should continue to be phased out. TTCs should take over the burden, not because they now work well, but because they work better than the vocational training institutes. A basis for improved planning is being developed under the NTB and PTBs. The claim is also made that the TTCs are less riddled with student politics and the rigid class schedules preferred by conventional classroom teachers. Under the Provincial Training Boards, programs claim to be 80 percent practical and 20 percent theoretical, whereas the split in the institutes is said to be 70 percent practical and 30 percent theoretical. Some not-unbiased observers from MOL claim that the real ratio is actually closer to 70 percent theoretical and 30 percent practical in the institutes. The important issue, of course, is the quality of the instructional or training time, not what the content purports to be.
- b) TTCS are said to be less rigid, and though training fields are limited to the 27 specified (See Exhibit 4), TTCs can allow the flexible training response that differentiates training adaptive to technological change from outmoded traditional training which is said to characterize vocational education in the institutes. Work periods also are less rigid in TTCs. The day consists of the block of time from 8:30 a.m. to 2:00 p.m.; it is not segmented into small, disruptive periods as in the school routines of the institutes. Jobs must be completed or left at the proper stage. Materials and job sheets guide time-on-task learning, and it is not left to the discretion of the instructor.
- c) Entrance qualifications should be adapted according to the training field. For electrical, electronic, and computer fields, entrance requirements could be raised above the present grade 10 requirement; for plumbing and carpentry, the requirement could be dropped below grade 8 to insure a greater supply of applicants in lean years. It could be raised later as the

supply of 8th grade graduates increases. This recommendation should be tested.

- d) Improved apprentice training programs should be developed with private industry. There is demand, despite low quality output. Only 5,500 such trainees are reported to be enrolled in an apprentice program that was targeted for 9,000.
- e) Training in sandwich courses designed for upgrading employees in private firms is possible only in a limited number of areas where private industry is already developed. Areas chosen by experienced training officials from MOL include:
 - i) Karachi and Hyderabad and along the road connecting the two.
 - ii) In Punjab, where even though 30 percent of the area is too rural, in approximately 70 percent of Punjab, some workbased training is feasible. The prime site, identified by all sources, was the Grand Trunk Road, running from Lahore to Gujramwalla. A second prospect mentioned was Salkut, off the Grand Trunk Road.
- $\mathcal{M}^{o^{\varsigma}}$ iii) Faisalbad, Wassinabad, and Sagaha, all with small industry concentrations.
 - iv) Taxila, 20 miles from Islamabad, where there is heavy machinery and foundries.
 - v) Quetta, where there seems to be a sufficient base of small industry.
 - vi) No site was identified in Balochistan.
 - f) MOL authorities do not want to assume full responsibility for training in all areas, but they do believe they should take over most training in industrial and construction trades. In hotel and tourism, training should be run by that ministry; fishing should be run by fisheries; forestry by forestry; and water resources and power by WAPDA. Steel working and foundry training should be under the direction of industry, with NTB cooperation.
 - g) The foremost problem to resolve in job training in Pakistan is the lack of general literacy. The PTBs report worker literacy at much lower levels

than the national average of 26 percent; and close to 1 percent among rural women.

- h) TTCs and ATCs should be planned, established, and reshaped to fit changing job demands and technology through local, continuing surveys that yield updated data on establishments and occupations. The information should be fed into spreadsheets with updating algorithms of the type developed by Reimers, Williams, and Davis for African agricultural manpower (1989).
- i) Small industries, with less than 10 employees in urban areas and less than five in rural, are the great hope for employment in skilled occupations. The coverage of establishments also should encompass those with perhaps less than five employees in urban areas and three in rural. Training facilities should be placed only in areas which offer employment for skilled workers. Skill training is frequently unsuccessful when planned or implemented on a national, or even provincewide basis.
- j) The TTCs of the future should have the offices and mechanisms for networking with local industry and establishments, specifically private industry councils and Work Study Coordinators. This does not imply that private industry will take over the training burden. Outside of a few sites in Europe, it never has, and the current record of private support of education and training in the United States is uneven at best. Incentives must be offered to attract industry cooperation, even though these sometimes look more like "give-aways."
- k) In Pakistan, as elsewhere, both high and low quality private training establishments exist. During this study, there was not time to visit any private training institutions in vocational, technical, or commercial fields. Little information is available, but the possibility of offering aid through stipends or fellowships to worthy but needy students should be considered. Clearly students would have to demonstrate ability with a proven record and their families would have to establish need. How this latter condition could be established and enforced in Pakistan is beyond the ken of this study team. First, enforceable standards and instruments for evaluating, monitoring, and enforcement of standards must be developed.
- I) A key role that should be understood, accepted, and tried in Pakistan is the Work Study Coordinator, a unique individual with both work experience and educational credentials sufficient in win acceptance in school and industry settings. It is an easier role to describe than create; local school authorities in the United States are still having trouble

recruiting, selecting, and training such individuals. The Work Study Coordinator could work from either the school or industry side. The important point is that he have the educational credentials, the work and production experience, and the social skills to establish networks between training centers and industry. It will be a very difficult post to fill, but some industrial councils already established in Pakistan might help. Rawalpindi is said to have a good organization of private industries. In Lahore is the Lahore Ali Technical Training organization. The Pak Arab technical training group also was mentioned.

a. "Vocationalization" as a Viable Possibility in Pakistan

Although vocational schools do not seem the most appropriate way to develop occupational and job-relevant training programs, Punjab has a plan for "vocationalization" that seems worth examination. The Punjab program appears to have gone beyond the usual limitations. The program is planned for 300 schools, serving 25,000 students. It will offer six hours of practical work and training, and two hours of theory. More than 900 teachers with an equal number of assistants will be required. Each school will offer two to three trade specialties selected from the list contained in Exhibit 4. An interesting work-related feature of the program is the hope to attract experienced, skilled workers as training assistants. Another idea is to select the training fields on the basis of a local labor market survey of employment and training needs. A special allocation will be provided to ensure adequate consumable stock to support realtime, work-based training projects.

Though there is as yet no clear idea in the program of what a Work Study Coordinator might do to insure a better fit between the school training program and nearby industry, there is a general openness toward industry. The program might provide a useful test situation in the industrial areas around Lahore, where the training program and selected industries might be linked. With the prospects for making education more relevant to work and employment generally bleak, and the demand of parents so insistent that their children have training for jobs, *Punjab is certainly worth a closer look and more detailed study, and assistance, if the program turns out to be as promising as it is now made to sound.*

G. SELF-EMPLOYMENT AND SMALL INDUSTRY DEVELOPMENT

This brief section on entrepreneurial training and small industry development is included here because it is important enough to require a mention in any report on education and training in Pakistan.

Training for entrepreneurial and small industry development and self-employment can only be provided through participation in the process of small industry development itself. The development process is the training. No general information is available for

Pakistan, I ut there are a few examples of small initiatives. Even a cursory look at the industrial and small enterprise zones in Pakistan indicate that a large amount of informal training goes on in small, traditional family shops and firms. There must be a huge informal economic sector (DeSoto, 1988) operating and producing in Pakistan, but there do not appear to be many official programs designed to tap in and support these enterprises.

Perhaps the largest program is a Rs.25 billion program designed to promote selfemployment through small enterprise development in Punjab (Siddique, *Nation*, 5 July 1991). The project is run by the Punjab Small Industries Corporation (PSIC). A large bureaucratic infrastructure has been established, however (eight regional directorates and 44 outreach offices), precisely the wrong way to start such an enterprise (Davis, 1981). At the outset, the project infrastructure and program staff dwarf the active projects under development. Both the number of small firms participating and the schemes for financing them are small. Currently, the program is described as "in the doldrums". This is unfortunate because programs that link training, development, and jobs are very necessary in Pakistan, and the economy and the scale of technology and production should be hospitable to small-industry development.

The problem list in Punjab included the classic situations to avoid when attempting small industry development, especially for rural areas (rice milling, vegetable preserving, preparation of foods and juices, garments, and spare parts). The main problems are:

- Application forms are too complex for potential clients to read and understand, and the application process is too long, cumbersome, and baffling.
- Formal degree requirements, for example that a small firm be run by a person with an engineering degree, or that such a specialist be hired, are unreal. These services are provided at the development stage of most successful projects (Davis, CYSEC case, 1982).
- Lastly, there is the sad but classic flaw that the funds and help go to the well-connected and not to poor, working men and their families driven by the need to make a living, and forced by necessity to invent new ways to cope, and experienced in how to do it.

None of these problems, however, are unusual in the start-up of such programs.

The need for training for self-employment cannot be ignored in Pakistan. Potentially it offers the most direct economic return of any education or training program and it is the only means to reach the large masses in the informal economic sectors (DeSoto, Myers, Davis). It is the most difficult to accomplish and requires a full range of funding, training, and supporting services and rigorous controls. It was impossible during this brief look at Pakistan to discover if there are any private foundations or banks set up to support small industry development. There are many in India and Bangladesh, and the Inter-American Foundation was an early pioneer in the field. UNICEF has undertaken interesting work in Brazil in supporting private foundations that set up small enterprises and self-employment for "street children". It is worth looking at the possibility in Pakistan.

IV. ENROLLMENT FORECASTS

A simple enrollment forecast is based on quantitative assumptions built into a logical structure that guides the way data are expected to change over a future period. In this "Master Plan" exercise, the period was 1990-1991 to 2000-2001. When forecasts are supported by a policy framework and a set of plan goals and activity targets, the forecasts can be developed into a "scenario", which is a coherent and fully developed story of the future, as it is envisaged by policymakers and communicated to planners and analysts.

During the development of the Master Plan, little specific guidance was provided to the team regarding the development of such scenarios. To meet the objectives of the terms of reference, therefore, the team reviewed the government's goals for the education sector as outlined in the 7th Five-Year Plan, and other appropriate documents, to prepare three "high", "medium", and "low" scenarios. In developing these scenarios, more than 10 sets of projections and variants on basic sets were analyzed. The results of this analysis are presented below.

A. <u>A SUMMARY OF ENROLLMENT PROJECTIONS</u>

Table IV-1 displays a summary of five sets of projections at primary level and four sets at middle and lower secondary, covering the years 1990-1991 to 2000-2001. A detailed description of the methodology used in forecasting these enrollment trends is presented in Annex 5. Other sets of projections are presented and discussed later in the section. Each of the sets required up to 48 separate projections:

- Eight areas (Pakistan, four provinces, and the three areas, FANA, FATA, Islamabad).
- Three levels (primary, middle, lower secondary).
- Two groups (boys and girls separately, and the total).

The three school levels cover 10 grades (five primary, three middle, and two lower secondary). Note that all projections run in this study assumed that higher secondary enrollments would be unchanged. A study of upper secondary level, a joint effort sponsored by ADB and the World Bank, was not completed in time to be incorporated in this study. When it is complete, assumptions about how higher secondary programs will develop can be added to this study or subsequent ones. Even as this study stands, tables for just the alternative projections completed would exceed 200 pages in tabular numbers alone. In order not to drown readers in sheer numbers, a summary of these forecasts is offered in Table IV-1. The full printout of selected forecasts is contained in Annex 5, and a set of computer diskettes containing this data will accompany the final report.

Exhibit 5 summarizes the assumptions used in forecasting enrollment trends.

Exhibit 5

Assumptions Used to Forecast Enrollment Trends

- The historical data for school enrollments from 1970 to 1990 are real data collected from government documents, corrected and updated by data from provincial education authorities. The projection model covers a 10-year period, from 1990 through 2000.
- The base year is 1989-90, and the transition rate for that year is based on the average transition rates for the previous six years for each province.
- School age populations for the primary, middle, and lower secondary levels are projected in the two ways: by age group (5-9, 10-12, 13-14 for primary, middle, and lower secondary); and by combined school-age/population forecasts. The "Time Series" forecast, however, is based on historical trends in enrollments.

B. PRIMARY LEVEL PROJECTIONS

1. <u>Time Series Forecast</u>

Table IV-1 shows that the Time Series forecast yields the highest total enrollment at the end of the forecast period. With boys primary enrollment at 12.5 million and girls at 7.4 million, the total is just short of 20 million. The Time Series forecast assumes that the pattern of enrollments will continue to show the same growth as in the past. It also assumes that the system will have the same waste and inefficiency as in the past. Note that the girls proportion of enrollment is 37 percent, but what cannot be inferred from a summary is that most girls are waiting in Kachi holding classes, or being forced out of incomplete rural schools. What happens to girls in primary schools under the Time Series projection needs to be seen in each table for each grade in each province. This can only be seen in the detailed tables on the enrollment forecasts (see Annex 5), or in greater detail on the spreadsheets (in computer diskettes accompanying the final report). Even without studying the spreadsheets, it is apparent from the summary that girls do not attain equity in enrollments at primary level. The girls' share varies from a low of .26 to a high of .51 in the five sets of primary enrollment projections shown in Table IV-1. In the Time Series, the growth rate of girls' enrollments from 1990-91 to 2000-01 is 7 percent compared to boys' growth at 6 percent.

Table IV-1

End Summary of Enrollment Projections

PRIMARY

| | | | | | | | Girls Pi | rim <mark>ary gr</mark> o | bwth | GPR 6 | Boys | GPR | Girls |
|-------------|-------|---------|--------|--------|----------|--------|----------|---------------------------|-------|---------|---------|---------|---------|
| | | 1990-91 | | | 2000-200 | 1 | Pr op | | | | | | |
| | Boys | Girls | Total | Boys | Girls | Total | to Total | Boys | Girla | 1990-91 | 2000-01 | 1990-91 | 2000-01 |
| Time Series | 6,818 | 3,606 | 10,424 | 12,451 | 7,402 | 19,853 | 0.37 | 0.06 | 0.07 | 0.80 | 1.09 | 0.47 | 9.72 |
| (Existing) | 6,834 | 3,208 | 10,042 | 11,127 | 3,901 | 15,028 | 0.26 | 0.05 | 0.02 | 0.80 | 0.97 | 0.42 | 0.38 |
| Base Line | 6,854 | 3,560 | 10,414 | 11,989 | 5,102 | 17,091 | 0.30 | 0.05 | 0.03 | 0.81 | 1.05 | 0.46 | 0.50 |
| Optional 1º | 5,988 | 2,924 | 8,912 | 8,893 | 6,072 | 14,965 | 0.41 | 0.04 | 0.07 | 0.70 | 0.78 | 0.38 | 0.59 |
| Better Best | 3,125 | 1,961 | 5,086 | 4,946 | 5,050 | 9,996 | 0.51 | 0.04 | 0.09 | 0.37 | 0.43 | 0.26 | 0.49 |

NIDDLE

| | | | | | Girls Middle growth | | | | GPR Boys | | GPR Girls | | |
|-------------|-------|---------|-------|-------|---------------------|-------|----------|------|----------|---------|-----------|---------|---------|
| | | 1990-91 | | | 200J-2001 | | Ргор | | | | | | |
| | Boys | Girls | Total | Boys | Girls | Total | to Total | Boys | Girls | 1990-91 | 2000-01 | 1990-91 | 2000-01 |
| Time Series | 1,866 | 790 | 2,656 | 3,314 | 1,815 | 5,129 | 0.35 | 0.05 | 0.08 | 0.40 | 0.53 | 0.18 | 0.31 |
| (Existing) | 1,960 | 811 | 2,771 | 3,640 | 1,018 | 4,658 | 0.22 | 0.06 | 0.02 | 0.42 | 0.58 | 0.19 | 0.18 |
| Base Line | 1,949 | 830 | 2,779 | 3,894 | 1,540 | 5,434 | 0.28 | 0.06 | 0.06 | 0.42 | 0.62 | 0.19 | 0.27 |
| Best Case | 1,543 | 671 | 2,214 | 1,777 | 1,819 | 3,596 | 0.51 | 0.01 | 0.09 | 0.33 | 0.28 | 0.16 | 0.31 |

LOWER SECONDARY

| | | | | | | | Girls 1 | ower Secon | dary | GPR 6 | Boys | GPR | Girls |
|-------------|------|---------|-------|-------|-----------|-------|----------|------------|-------|---------|---------|---------|---------|
| | | 1990-91 | | | 2000-2001 | | Prop | Growth | | | | | |
| | Boys | Girls | Total | Boys | Girls | Total | to Total | Boys | Girls | 1990-91 | 2000-01 | 1990-91 | 2000-01 |
| Time Series | 644 | 262 | 906 | 1,095 | 560 | 1,655 | 0.34 | 0.05 | 0.07 | 0.22 | 0.28 | 0.10 | 0.15 |
| (Existing) | 701 | 530 | 1,231 | 1,605 | 1,603 | 3,208 | 0.50 | 0.08 | 0.11 | 0.24 | 0.41 | 0.20 | 0.44 |
| Base Line | 691 | 304 | 995 | 1,408 | 846 | 2,254 | 0.38 | 0.07 | 0.10 | 0.24 | 0.36 | 0.11 | 0.23 |
| Best Case | 689 | 304 | 993 | 617 | 970 | 1,587 | 0.61 | -0.01 | 0.11 | 0.24 | 0.16 | 0.11 | 0.27 |
| | | | | | | | | | | | | | |

*Optimal 1 forecast substituted for "Best Case" at Primary level to improve access for girls.

The boys' GPR (gross participation rate) starts at .80 in 1991 and grows to 1.09 in 2001. GPR is the enrollment of boys in grades 1-5 divided by the population of boys in ages 5-9. This ratio implies that more than 100 percent of the boys are enrolled in primary school, but the GPR is inaccurate in both the numerator (enrollment) and the denominator (population). It is used in this report because it is so widely used in planning documents in Pakistan, and gives some notion of how the system is moving toward "universal coverage" (See Section III for further discussion). Girls' GPR also improves, from .47 in 1990-91 to .72 in 2000-01. This suggests that even if the system follows the same inefficient and inequitable pattern of the past, girls' enrollments will grow, but not at a rate equal to boys. Again the GPR reflects large numbers of girls in school, mainly at Kachi and lower grades, and not girls progressing through the system. Enrollments of girls in the higher primary grades remains low.

The Time Series set indicates that if the present pattern of enrollments continues, girls will not make up the difference in access over the term of the forecast. This was based on a 10-year data series, in which newer programs (PED and PEP) are showing improvements for girls. The Time Series based on 20 years (1970-71 to 1990-91), also was prepared and showed an even slower gain for girls. This difference reflects the fact that in the first 10 years of the longer Time Series, girls made meager gains in access to schooling. There have been some indications in recent years that foreign-assisted programs in primary education are achieving equity gains for girls in rural areas (see Section III); the evidence is subtle, however, rather than overpowering.

Other Time Series forecasts were run, using different curve fits and different data series; these will be briefly discussed later. All of the later Times Series forecasts yielded totals about the same as in Table IV-1, varying from a bit under 20 million to a bit over. Time Series are useful guides.

2. <u>Base Line Series</u>

a. <u>A Note on Method</u>

More interesting than the Time Series, which are mechanical more than logical, is the series called "Base Line", which projects a total primary enroliment of 17 million in 2000-01; 12 million boys and 5.1 million girls. Thus it is the "medium scenario" in the set shown. The assumption in Base Line is that the current ratios that determine enrollments remain as is. The ratios or fractions which determine the pattern of enrollments are shown in Table IV-3. These are: percentage of the relevant age group admitted to first grade; and transition rates (TRs) from grade 1 to grade 5. Here the TRs are the fraction of enrollment in grade x, year y to the enrollment in the previous grade and year (grade x-1, year y-1). The fraction admitted and the transition rates form a matrix, as shown in Table IV-2. The elements of this matrix are varied according to assumptions, or quantitative guesses, to derive the alternate sets of projections in this report.

Exhibit IV-2

Matrix of Scenario Assumptions (Optimal 1 Forecast) Intake Fractions for Boys NWFP

| | Pop/ Gr1 | Gr1/ Gr2 | Gr2/Gr3 | Gr3/Gr4 | Gr4/ Gr5 |
|-----------|----------|----------|---------|---------|----------|
| 1990-91 | 0.79 | 0.40 | 0.95 | 0.97 | 0.96 |
| 1991-92 | 0.80 | 0.65 | 0.95 | 0.97 | 0.96 |
| 1992-93 | 0.81 | 0.70 | 0.96 | 0.97 | 0.97 |
| 1993-94 | 0.81 | 0.75 | 0.96 | 0.97 | 0.97 |
| 1994-95 | 0.82 | 0.80 | 0.97 | 0.97 | 0.97 |
| 1995-96 | 0.83 | 0.85 | 0.97 | 0.97 | 0.97 |
| 1996-97 | 0.84 | 0.90 | 0.97 | 0.98 | 0.98 |
| 1997-98 | 0.85 | 0.95 | 0.98 | 0.98 | 0.98 |
| 1998-99 | 0.86 | 0.95 | 0.98 | 0.98 | 0.98 |
| 1999-2000 | 0.86 | 0.95 | 0.99 | 0.98 | 0.99 |
| 2000-01 | 0.87 | 0.95 | 0.99 | 0.98 | 0.99 |

Since there are hundreds of such elements to change in the matrix, it is difficult to simply describe any given set. General comments are noted on the spreadsheets, and Exhibit 5 outlines assumptions behind each enrollment projection.

All the projection sets except the Time Series are based on population forecasts.¹⁰ The population is forecast in five-year age groups, 0-4, 5-9, etc. Past forecasts used age group 5-9 to represent the age group population that corresponds to the primary school lever. The actual range, as shown in Table IV-3, is ages 4 to 12. Table IV-3, based on data from the Balochistan EMIS, is the first reliable age-grade information produced in Pakistan (BEMIS, 10/31/90). According to these data, the range of ages in the 1st grade (which includes students in both Kachi and Pakki classes) is from 4 to 12 years). This is why GPR is "unreliable"; in calculating the GPR ratio, both enrollment in the numerator and the age-grade population in the denominator are inaccurate.

Two procedures were used to estimate the fraction of the forecasted population that enters grade 1 of primary level. In the "Existing" set (parentheses in Table IV-1), the forecast populations in age groups 0-4, 5-9, and 10-14 were distributed into single years using Sprague multipliers. For each single-year age group from 4 to 12, a fraction (based on data such as that on Table IV-2) was entered into grade 1 (Kachi and Pakki).

¹⁰ Population data were based on estimates by Dr. Luis Crouch, Research Triangle Institute, and by NIPS, the National Institute of Population Studies. Data were adjusted and projected to fit Year 1 of each forecast. It is clear, however, that better population forecasts are needed, and are the responsibility of the Planning Wing.

Table IV-3

Balochistan Profile

TOTAL ENROLLMENT BY AGE/LEVEL/GENDER

Û

G

Gü

16+

G

G

TOTAL

.35

This single-year age-group was then projected through grade 1 to 5, using diagonal transition rates. This was the basis for all forecast series except Time Series. The "Existing" set is enclosed in parentheses because it did not produce results that were worth the extra effort of attempting to determine exact age group proportions to bring into Grade 1, rather than simply using the group 5-9 as all previous forecasts in Pakistan have done. "Existing" was complicated and not worth the effort, although it makes an important point that forecasters should be careful when treating the age group, 5-9, as though it is the true primary school population.

In the series title "Base Line," the common simplification of using 5-9 as the entry age population to primary school was used. Apart from the difference in handling the entrance fractions, Base Line and Existing used the same forecast method and assumptions. Both Base Line and Existing stayed close to historical trends in admission fractions and transition rates. The choice here was for Base Line, because it was simpler and less open to computation errors.

To summarize, in all forecast sets except Time Series, the elements of a matrix, such as the example in Table IV-2, are changed according to assumed improvements and the resulting enrollment figures forecast to the year 2001. Any future planner in Pakistan can change the elements to suit his view of the future. The Base Line forecast, however, assumes no structural change in the future.

b. No Relative Improvement in Girls' Rates

In the Base Line set, as noted, there is little improvement in the enrollments of girls relative to boys over the next 10 years. The GPR for girls stays about the same (.46) and the GPR for boys drops a few points to 1.05; the share of girls' enrollment actually declines from .37 to .30 in Base Line. (Note that this does not mean a decline in numbers, since both girls and boys enrollments increase from 3 to 5 percent a year over the period. The problem with Base Line is that it does not reflect adequately the publicly stated priority for increasing the access of girls to primary education and enhancing the opportunity for them to continue and complete their schooling. This is presumably the priority of Pakistan government and of foreign technical assistance programs.

Base Line projections were not wholly satisfactory, either in terms of social equity or realism. Analysis of recent enrollments, covered in Section III, indicates that access to primary schooling for girls was improving in recent years, especially in regions served by the PEP and PED projects. To reflect this emerging change, another set of primary forecasts was run. This appears in Table IV-1 as "Optimal 1" at Primary Level. In this forecast, the age group admittance fractions were raised for both boys and girls, but the raise was greater proportionately for girls. Girls' GPR now rises from .50 to .59, not exactly universal education, but about as much as could be assumed reasonably in 11 years. The growth rate for girls is now 7 percent compared to 5 percent for boys, and the boys' GPR returns to approximately .78, still greater than girls, but a bit more equal. In 2001, the girls share on primary enrollment climbs to .41, a gain of 11 points over the .31 of Base Line.

Table IV-4

The Optimal 1 Variant Summary

Total Pakistan Boys

Optimal 1" Variant on Best Case Enrollment Total Boys Pakistan

| Grade | 1990-91 | 1991-92 | :992-93 | 1773-74 | 1994-95 | 1995-96 | 1995-97 | 1097-03 | 1995-99 | 1799-2000 | 2000-2001 | Growth S |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|----------|
| Grade 1 | 1526514 | 1595292 | 1565208 | 1734907 | 1309761 | 1887840 | 1958822 | 2052754 | 2140384 | 2231201 | 2325540 | |
| Grade 2 | 1381736 | 1057603 | 1142463 | 1230722 | 1324325 | 1424972 | 1532827 | 1647983 | 1757213 | 1873701 | 1997938 | |
| Grade 3 | 1152963 | 1193154 | 919448 | 996702 | 1079496 | 1157913 | 1263352 | 1365164 | 1476504 | 1591337 | 1573536 | |
| Grade 4 | 1035439 | 1102387 | 1132427 | 875949 | 750484 | 1030476 | 1116054 | 1208456 | 1308693 | 1915125 | 1515793 | 0.038715 |
| Grade 5 | 991844 | 736265 | 1004035 | 1038284 | 807238 | 883963 | 964655 | 1051586 | 1145785 | 1243410 | 1357133 | 0.055731 |
| Total | 5988696 | 5386711 | 5863582 | 5876563 | 5973354 | 6395170 | 6845711 | 7327153 | 7623180 | 8349775 | 9893039 | |

Optimal 1 Total Pakistan Girls

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-97 | 1999-2000 | 2000-2001 | Growth R |
|-------------------------|-------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------|
| Grade Grade | 1 2 | 956517 637105 | 1060998 515656 | 1131858 592979 | 1206014 555495 | 1304304 723426 | 1407408 810049 | 1537485 904651 | 1574101 1022474 | 1817531 1139620 | 2064063 1266344 | 2125985 | |
| Grade Grade Grade | 3 4 5 | 525486 437105 367355 | 513398 431867 358439 | 420331 422468 359230 | 484580 346656 354055 | 537102 399845 302424 | 594433 443416 349956 | 667571 491014 389393 | 747820 551738 432688 | 847905 618420 487937 | 949845 701505 548922 | 1061226 786598 525111 | 0.040514 0.054598 |
| Total | | 2923567 | 2880360 | 2926866 | 3046799 | 3267102 | 3605260 | 3990113 | 4428820 | 4911413 | 5531278 | 6072428 | |

More importantly for equity considerations, girls' enrollment is growing in the upper grades of primary--4 and 5--only in grades 1 and 2. In the present situation, girls are admitted into Kachi classes, only to be forced out by the lack of opportunities to continue their education in higher grades. Table IV-4 (supplemental) shows growth rates of 6 percent for girls in grades 4 and 5 over the years of the forecast.

Under both the Base Line and Optimal projections, more girls and boys are admitted in grade 1, and more move through the system to the upper grades and completion of grade 5. This implies an increase in system efficiency, which in turn implies an increase in inputs and costs as discussed in the next section.

This study estimates that the present inefficient system requires 10 years of education to produce a graduate of the five years of primary school. This is so because of the large number of years wasted on students who repeat or drop out before acquiring a meaningful level of literacy and learning. Under the Base Line, Optimal, and Better Best scenarios in Table IV-1 the plan is to improve efficiency and decrease the total number of years to produce a graduate from 9.5 to 6.5. This is still not a highly efficient system, but it is an improvement. In the scenarios shown, historical transition rates were raised to reflect hypothesized improvements in system efficiency. Using these improved rates, the cohort was moved through the grades.

3. "Better Best" Scenario

The fourth projection set in Table IV-1 proposes a bold stroke that would improve efficiency, reduce current costs, and achieve equity between boys and girls. It entails removing the Kachi section from grade 1 on the grounds that without proper educational inputs it is not so much an educational enterprise as it is a custodial or baby sitting operation. Eliminating Kachi reduces grade 1 enrollment by almost 60 percent. (Table IV-3 shows that Kachi makes up about 63 percent of the combined Pakki and Kachi first grade enrollment.) Under the Better Best scenario, total primary school enrollment would be one-third less in 2001 than it is under Optimal, because the Kachi classes would not be open. With primary school concentrating on children more mature and ready to learn, throughput in the system could be expected to increase. Enrollment would be lower but more would move through the system and complete the level.

The girls' share of enrollment would improve relative to boys; and girls' growth rate would be more rapid, though their GPR would not improve. In fact, it would be lower. Four- and five-year old children would not be enrolled in school under the Better Best scenario. The study team fully recognizes that the Better Best scenario does not appear likely to be implemented because of political or social reasons. Until Pakistan has the resources to offer meaningful preschool experience, it may be wiser to concentrate scarce resources on the education of children six years old and older.

Table IV-5

Transition Rates Grade 5 to 6

| BO15 | | | | | | | | |
|--------------------|----------|------|--------|-------|-------------|------|------|-----------|
| Year | Pakistan | NWFP | Punjab | Sindh | Balochistan | FATA | FANA | Islamabad |
| 1985-86 to 1986-87 | 0.93 | 0.89 | 1.00 | 0.83 | 0.72 | 0.89 | 0.74 | |
| 1986-87 to 1987-88 | 0.95 | 0.93 | 0.99 | 0.84 | 0.87 | 1.04 | 0.85 | |
| 1987-88 to 1988-89 | 0.86 | 0.90 | 0.88 | 0.81 | 0.87 | 1.14 | 0.85 | 1.18 |
| 1988-89 to 1989-90 | 0.89 | 0.86 | 0.92 | 0.85 | 0.91 | 0.95 | 0.92 | 1.23 |

GIRLS

DOV/C

| Year | Pakistan | NWFP | Punjab | Sindh | Balochistan | FATA | FANA | Islamabad |
|--------------------|----------|------|--------|-------|-------------|------|------|-----------|
| 1985-86 to 1986-87 | 0.74 | 0.46 | 0.81 | 0.94 | 1.09 | 0.75 | 0.43 | |
| 1986-87 to 1987-88 | 0.75 | 0.52 | 0.84 | 1.02 | 1.11 | 0.74 | 0.82 | |
| 1987-88 to 1988-89 | 0.75 | 0.52 | 0.87 | 0.85 | 1.18 | 0.55 | 0.71 | 1.12 |
| 1988-89 to 1989-90 | 0.71 | 0.49 | 0.88 | 0.94 | 1.19 | 0.49 | 0.53 | 1.23 |

C. MIDDLE SCHOOL PROJECTIONS

With projections for grades 1 to 5 completed, transition rates were computed and used to move grade 5 graduates to grade 6, and then on through grade 8. Table IV-5 shows the transition rates from primary to middle grades--i.e., from grade 5 to grade 6---for both girls and boys. The results for four sets of projections are shown in the Middle School section of Table IV-1. The Better Best scenario does not appear because it was a set of projections carried out only for the primary school level as it involved only a change in the structure of grade 1.

In Table IV-1, Base Line shows the highest total, since improved flow rates at primary level bring larger numbers into middle school. This supports the policy of universal access from grades 1-8, and it reflects the improvements in efficiency and flow assumed under the Base Line and Existing scenarios. The Best Case scenario is the lowest because it moves even larger numbers through faster. Best Case tries to achieve more equity, since the share of girls and boys middle school enrollments is now almost even at 50 percent each. This comes at very high growth rate for girls (9 percent) and with boys' growth held down to 1 percent.

For boys, GPRs for the first two sets of projections are both over .50 and for Base Line it is .62. This is, however, at the expense of girls' GPR which is .31 in Time Series and .27 in Base Line. Under Best Case, however, though the GPR for boys falls to .28, the GPR for girls rises to .31. Again the GPR does not present a clear picture since it includes large numbers of over-age boys in the numerator, but not in the denominator where the population is assumed to be limited to ages 10, 11, and 12. For this reason, it is probably deceptive to use GPRs at the middle or lower secondary level.

1. Summary Comment on Middle School

The projections for middle school illustrate some basic truths for planning under highly constrained resources, as in Pakistan. Enrollment targets cannot be achieved over the short term, and, because systems move ponderously, five years is a short term; even 10 years is insufficient time to effect changes at middle school level when it must depend on changes in primary level. Thus, enrollment growth can be projected as increasing for girls, as in the Best Case scenario, but it only comes about by reducing or holding constant enrollment gains for boys. In Best Case, though girls enrollment almost triples by 2001, boys' enrollment only increases about 15 percent. This is only about a 1 percent a year growth rate over the period. Holding down the boys enrollment results in Best Case being the smallest of the four projections at middle school level.

The Best Case scenario produces greater throughput and completion rates for boys and girls. The results also illustrate that the most favorable scenario is not always the one that produces the largest numbers of enrollments. High repetition and dropout rates may drive up enrollments without making the system more productive or efficient.

D. LOWER SECONDARY PROJECTIONS

In the projections for lower secondary level, only Base Line and Best Case should be considered. Time Series runs far too low in coverage for girls to even consider as it reflects the past exclusion of girls from access to schooling. Existing appears so high as to be distorted, so it also is not considered. Base Line shows good coverage and equity for girls, but the results may appear high for some planners who hope to reduce the enrollment burdens at the upper secondary levels in order to devote scarce resources to priority social targets at lower education levels. In that case, it is simple enough to reduce them and at the same time even increase the girls' share, as in Best Case where the girls are projected with a greater proportion (61 percent) of the enrollments than the boys. This may be reasonable given that girls progress through the system at a faster rate and their promotion rates appear higher in the few examples of data that were available to this study.

Holding boys' enrollments down may not be reasonable on political, cultural, or social grounds, however, since it implies an actual reduction in the growth rate of boys' enrollments. Even the absolute number of boys enrolled in lower secondary school in

2001 declines under the Best Case alternative. All of the other series show substantial increases, and in the case of Base Line, boys increase by 7 percent a year and girls by 10 percent. Under both Base Line and Best Case, girls' GPR is around 25 percent, which is substantial, but again the ratio may be inflated by the fact that it uses only a two-year age group (13 and 14) in the denominator. In reality, a much wider spread of ages is found in the upper grades of Pakistani schools.

At the lower secondary level, planners may want to hold down enrollments for both boys and girls, hoping that the burden will be assumed by private and Mosque schools. If so, alternate projections are simple enough to run by reducing the transition rates from grade 8 to grade 9.

E. <u>ENROLLMENT FORECAST VARIANTS</u>

This section offers some additional forecast variants on the Time Series analysis. Table IV-6 uses double exponential smoothing, but with a recent 10-year series of data corrected for accuracy. Here the shorter period and more accurate data produce a lower total enrollment of 15 million, but the forecast package warns that the Time Series base is too short for accurate forecasts beyond eight years.

Table IV-6

Simple Exponential with Smoothing)

II.

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|---------------|-------------------|--------------------|-------------|
| (99) | 4.51.55.5 | 3417066 | 2988908 |
| 1992-23 | \$782300 | 3610362 | 10°08868 |
| 1 2:2:2 - 24 | 7062566 | - 18 J L 204 (2 4) | CERCESSO . |
| 1990-02 | 7357207 | 4035350 | 11538057 |
| 1995-93 | 7667164 | 1171153 | 102839312 |
| 1926-22 | 7093453 | 4527828 | 12110261 |
| 1997-53 | 8337172 | 4726028 | 131333345 |
| (999) (12 | 8699510 | - 70°0254 | 101190674 |
| (C15)6, 0 (1) | D(0811253 | 5410569 | 14522360 |
| | | 77261210 | 出版 计算机分词 网络 |

Table IV-7

Time Series--Pakistan--Boys, Girls, Total (Double Exponential with Smoothing, in 000s)

| Year | Boys | Cirls | Total |
|---------|-------|-------|-------|
| 1989-90 | 9126 | 5634 | 14760 |
| 1990-91 | 9346 | 5832 | 15179 |
| 1991-92 | 9591 | 6031 | 15622 |
| 1992-93 | 9860 | 6229 | 16089 |
| 1993-94 | 10141 | 6428 | 16569 |
| 1994-95 | 10408 | 6626 | 17034 |
| 1995-96 | 10672 | 6825 | 17497 |
| 1996-97 | 10958 | 702.0 | 17784 |
| 1997-98 | 11287 | 7222 | 18507 |
| 1998-99 | 11622 | 7421 | 19043 |
| 1999-00 | 11894 | 7619 | 19513 |
| 2000-01 | 12133 | 7810 | 19951 |

Table IV-7 shows a Time Series based on 20 years of enrollment data and using the method of double exponential smoothing, instead of the simple exponential shown in Summary Table IV-1. The results are slightly lower, with a total enrollment of just under 20 million in 2001.

Several other forecasts using different curve-fitting methods were run but the results provided no new information, and most forecasts fluctuated around 20 million boys and girls enrolled in 2001. This, of course, assumes that current patterns of inefficiency continue into the future for the next 10 years. There is no inevitability to this, although the failure to come close to attaining plan targets in the past four or five planning cycles may make the worst case seem an alternative that must at least be considered.

F. PRIVATE EDUCATION'S SHARE OF ENROLLMENTS

There was little data on which to base estimates of the share of enrollments to be handled by private education. This report assembles the best data available on current reports from the provinces. The best estimate is that private schools serve 6 to 8 percent of school enrollments at all levels. Data on private education were discussed in Section III and in Annex 2.

In these projections in all series, the assumption is that private education will move toward the high end of the estimate and handle about 8 percent of school enrollments at all levels. The expectation in these projections is that the main contribution of private schools will be at secondary school level, especially higher secondary. Here it is assumed that affluent and concerned parents can afford to pay higher fees. In some special areas, such as urban poverty areas where immigrants are coming in from rural zones, schools operated by private charitable or religious foundations may take over a portion of the burden for the most needy, but this will be small unless the present social circumstances change. It is unclear h. w much of the burden private schools will assume in the coming years.

If, according to expectation, private education does assume a larger burden at the higher secondary level, the government would be free to use more of its resources for primary and middle school. The priority for government is to insure universal basic education at grades 1-8, and to encourage affluent families to pay for secondary level education. This priority is built into all sets of enrollment projections in this study.

G. <u>A CLOSING NOTE ON PROJECTIONS</u>

In all projections but Time Series, increasing fractions of the school-age population were moved into school and through the grades by raising the transition rates to reflect expected improvements. This reflected the goal of the system to move toward "universalization", at least at primary level, and possibly up through grade 8. The Base Line forecast initially kept close to the current pattern of entrance fractions and transition rates, and moved the rates up gradually for both boys and girls. To better address equity concerns, Optimal 1 and Better Best admitted larger fractions of girls in grades 5 to 9 as these two scenarios moved toward an entrance fraction exceeding .90 for girls in 2001. In no case was the admission fraction moved higher than .96 (for either boys or girls), which is as close to universal access as many systems similar to Pakistan attain. Even with this "assumed increase", only one GPR in Time Series for the primary level rose above .60 by the end of the forecast period. This should serve as a cautionary note of how long it takes to turn around an inefficient system and to move toward universalization. School systems can be turned around quickly on paper, but progress is agonizingly slow in reality, as the past seven unrealized five-year plans attest. The 7th Plan probably will come no closer to fulfillment than the previous six. Given the limited time ahead, it is doubtful that the 8th plan will come any closer to universalization without major mobilization of public and political will and increased financial resources.

Forty years ago, international agencies declared that universal literacy or basic education would be achieved within a decade. In Pakistan, as in many countries, the goal still lies ahead, and unrealistic plans have brought it no closer. In forecasting enrollments, therefore, an attempt was made to present a realistic picture of what can be accomplished over the next 10 years. The scenarios attempted to gain greater equity for girls, but given the existing inequitable distribution and the slow growth shown in prior years, their disadvantage will not be easily overcome. The next section deals with the costs and allocations required to move toward the projected targets.

H. EDUCATIONAL COSTS AND TRADEOFFS

1. <u>Importance of Cost Information in Educational Planning</u>

As indicated earlier, Pakistan's past five-year plans have not been based on realistic assessments of the costs of achieving targets in light of available resources and priorities. As a result, actual accomplishments of the educational system have often fallen far short of targets outlined in five-year plans. While it may be tempting to believe unrealistic targets will maintain enthusiasm within the educational system and among its constituencies, in fact, after one or two planning cycles, unrealistic educational targets become readily notable to all of these parties. Consequently, educational plans are not taken seriously. If future plans are to be achieved, cost information and resource constraints must become more integral parts of the planning process in Pakistan.

The goal of a cost analysis, therefore, should be to identify differences in the resource implications of the major choices facing the educational system. While costs are usually expressed in monetary terms, their importance in planning is that they represent foregone opportunities. Considering the sizable political pressures on the education system, it is especially useful for planners to be able to evaluate the cost tradeoffs between those educational outcomes having strong political support and those outcomes being important but having less support. For example, increased technical education enrollments can come at the expense of primary enrollments or at the cost of

deferring improvements in the quality of primary education. Because previous five-year plans have attached importance to universal access to primary education, the per-student cost for each costed educational alternative will be shown as a proportion of the perstudent costs of primary education as well as in Rupees.

2. <u>Unit Costs of Educational Alternatives</u>

The educational alternatives for which unit cost calculations were made include the three levels outlined below.

a. <u>Enrollments</u>

- **Primary** (grades 1-5) -- These enrollments are costed separately according to the four types of public schools in which they take place Mosque, primary, middle, or secondary schools.
- **Middle** (grades 6-8) -- Separate unit costs for middle-level enrollments are calculated according to whether they take place in middle schools or in secondary schools.
- Secondary (grades 9-10) -- Unit costs are calculated for enrollments in secondary schools.
- **College education** -- Unit costs are for high-stage and degree-level enrollments combined.
- **Technical education** -- This broad category for which a single unit cost is presented includes vocational institutions, commercial institutions, polytechnic institutions, and monotechnic institutions.
- **Degree-level enrollments within colleges** for teacher training --Separate per-student costs are presented for teacher training institutions and for mobile training units in rural areas.

b. **Quality Improvements**

Two example sets of quality improvements are included among the costed educational alternatives to illustrate how planners can evaluate tradeoffs among options having qualitative and quantitative educational outcomes:

• Quality enhancements at the primary level, including a combination of curricular, textbook, and teacher training

improvements, as well as student workbooks and teacher guides keyed to text pages. This example set of quality enhancements is based on improvements being designed in the PED Program in NWFP and Balochistan. The cost analysis of these quality improvements illustrates how spreading their fixed costs over large numbers of enrollments can result in low per-student costs.

• Quality improvements at the secondary level, as illustrated by the Pakistan Science Education Project. While this project also has fixed costs spread over large numbers of enrollments, it has larger variable costs than the example for quality improvements for primary schools above. Although different ways of carrying out quality improvements would have distinct costs, the relationships between fixed and variable costs in many of these cases would be similar to those shown here.

c. <u>New School Space</u>

- Recurrent and development costs are not usually directly compared by educational cost analysts. However, specific developmental projects have opportunity costs in terms of what would be the outcomes if the same funds were expended on recurrent items. The most common use of development cost data is to show the outlays needed for school expansion. The per-student costs of new space represent cash flows that could alternatively be spent on recurrent items. However, educational expansion can take place with varying numbers of new schools and differing amounts of space per student within schools. Thus, the educational value of added space, relative to its cost, should be compared with that of the educational value of alternatively spending funds on recurrent items.
- Amortization -- Since school space can be used for many years, the cash flows for new construction overstate the costs per student accommodated with the added space. While information about these cash flows is important, planners also should amortize them on an annual depreciated studentuser cost basis to allow comparisons with the unit costs of recurrent activities. The depreciation period should be based on the estimated useful life of new facilities; the useful life of

equipment used in education--e.g., that employed in vocational training--depends on obsolescence as well as depreciation.

Given the Master Plan's focus on education at the primary, middle, and secondary levels (through grade 16), these three levels were the primary focus of the cost analysis prepared for this plan. It was not possible to use expenditure data on schools to calculate unit costs at these levels because enrollments at multiple levels can appear within schools designated as middle or secondary schools (see Section II for further discussion of the problems associated with upgrading of schools). As shown in Table IV-8, for example, approximately three-quarters of Pakistan's middle-level students were in secondary schools in 1987-88, while over 30 percent of the primary enrollments for Punjab and Balochistan were in middle and secondary schools. The upgrading of primary schools to middle schools and middle schools to secondary schools has severe implications for cost analysis--expenditures on middle or of high-level enrollments.

To estimate the separate costs for primary, middle, and secondary education, the number of teachers required at each level within schools was based on their academic qualifications and the level of enrollments. For each province, data was obtained on the number of teachers possessing each academic qualification who teach in primary, Normally, teachers having a specific academic middle, and secondary schools. qualification teach at one of these three levels. For example, teachers with a Primary Teaching Certificate usually teach primary-level students. Data also were available on enrollments at the primary, middle, and secondary (grades 9-10) levels within secondary schools, and for the first two categories of enrollments, within middle schools. Salaries were attached to teachers in each academic qualification category according to the government pay scale and an estimated average experience level based on discussions with education officals. Fringe benefits and the cost of the policy of paying the most experienced third of all teachers in each pay scale at the next pay grade were calculate 1 from civil service formulae. For three provinces, data were obtained on the numbers of non-teaching personnel in schools, and one province provided a tabulation of its maintenance and utility expenditures for each of the three categories of schools. These data were used to estimate non-teaching expenditures within schools which were proportionately allocated according to the different categories of enrollments.

There are two sources of error in using this methodology: 1) the degree to which teaching assignments do not in fact follow teaching qualifications; and 2) the need to estimate teachers' average experience levels to calculate salaries from the governmental pay schedule. An example of the first case are teachers possessing certain academic qualifications, such as for the different categories of language teachers, who instruct students enrolled at different levels, most frequently both middle and secondary-level enrollees in secondary schools. These academic qualification categories, however, tend

to be those with relatively low numbers of teachers. Thus, this source of error is likely modest. The second source of error is probably also modest since the individual salary steps in the civil service salary scale for added years of experience are small. Nonetheless, Pakistan's education planners soon will be readily able to make refinements on this costing methodology. Within a few months, it will be possible to use the School Census Databases for NWFP and Balochistan for this purpose. Unfortunately, the Sindh School Census does not provide information about assignments of teachers to student categories within schools. For this province and for Punjab, however, it should be possible to perform small sample surveys for this task.

It should be pointed out that the unit costs calculated in this study at each level-for primary, middle, and lower secondary enrollments--do not include costs incurred outside of schools for education department officials and supervisors. The unit costs developed in this study are multiplied by enrollments to yield total expenditures for primary, middle, and lower secondary education. These estimates are close to the provincial expenditure data for primary and secondary education combined. This suggests that many of the extra-school expenditures for administration and supervision may be included under the heading "other" in each province's educational expenditure data, rather than allocated to enrollment categories in these data. It is also noteworthy that the unit costs developed in this study yield expenditure totals for primary education that are lower than the provincial expenditure data for primary education, and expenditure totals for middle and secondary-level education that are higher than the provincial expenditure data for secondary education. Since the combined totals for primary, middle, and secondary education based on the study's unit costs are close to the combined provincial expenditure data for primary and secondary schools, it appears that some provincial expenditures on middle schools or secondary schools having primary enrollments may be included in the primary education category.

Table IV-8

Percentage of Primary and Middle-Level Enrollments in Primary, Middle, and Secondary Schools (1987-88)

| Enrollment Level | Primary or Mosque | Middle | <u>High</u> | Combined |
|---------------------------------|---|------------------|---------------|-------------------|
| Primary (1-5) | | | | |
| Punjab | 68.1 | 18.4 | 13.5 | 100.0 |
| Baluchistan | 65.5 | 17.1 | 17.4 | 100.0 |
| Sindh | 97.0 | 2.4 | .1 | 100.0 |
| NWFP | 82.4 | 14.7 | 2.9 | 100.0 |
| Middle (6-8) | | | | |
| Punjab | _ | 27.2 | 72.8 | 100.0 |
| Baluchistan | - | 24.0 | 76.0 | 100.0 |
| Sindh | _ | 23.4 | 76.6 | 100.0 |
| NWFP | - | 22.8 | 77.2 | 100.0 |
| Sources: | ہ ہے ہے جو برب بنب جب اور بند سند نے ان کا کا کا کا کا کا ک | | | |
| Punjab: Educational the Punjab. | Statistics (Schools), 1987-88 Academic Education Department. | e Year, Bureau o | of Education, | Government of |
| Balochistan: Educational | Statistics as on 15th October 1988, Dir | ectorate of Educ | ation (Schoo | ls), Balochistan. |

School Type

Sindh: Sindh Educational Database, Academy of Educational Planning and Management and Harvard Institute of International Development.

Requested tabulation for 1989-90 prepared by Mohammed Naseem Khan, Computer NWFP: Programmer, M.U.S.T. Education Department, Peshawar.

At the college level, a per-student cost was calculated based on each province's expenditures for colleges. Because expenditure data are not available separately for intermediate and degree-level colleges, per-student costs are not shown separately for these two types of colleges or for enrollment categories within them. Kardar¹¹ found that unit costs in three intermediate colleges for boys and two intermediate colleges for girls averaged Rs. 2289 and Rs. 1690, respectively. He calculated unit costs of Rs. 1586 and 2064 in six degree colleges for boys and three degree colleges for girls. He attributed the difference in unit costs in boys' intermediate and degree colleges to the considerably higher enrollments in degree colleges which averaged 9310 in his sample, versus 1758 for intermediate colleges.

For girls' institutions, however, enrollments in the higher-cost degree colleges averaged 3,009 versus 1,516 in the lower-cost intermediate colleges. Evidently, these two

Upper Secondary Education in the Punjab, a report for the World Bank and the Asian Development Bank, December 1990, pp. 177 and 178.

forces--economies of scale and higher unit costs of degree-level enrollments within degree colleges--are working in opposite directions.

A broad unit cost measure also was obtained for technical education, including not only vocational institutions, but as well, commercial, polytechnic, and monotechnic institutions. Based on discussions with education officials and data for costs in a few schools, it was concluded that unit costs for many secondary vocational schools may not differ substantially from the broad unit cost measure for technical education. An estimate of the unit cost for a vocational track within high schools was obtained from a detailed set of cost data for a secondary vocational program within secondary schools in Punjab.

Two alternative per-student costs for teacher education were calculated. Perstudent costs of teacher training institutions were based on these institutions' combined expenditures and enrollments. Teacher training institutions have come under criticism not only because of concerns about the quality of instruction, but also because of the lack of accessibility to women in rural areas. It has been noted earlier that mobile teacher training units have the promise of being an important alternative to the use of formal institutions for the training of primary-level teachers on both of these grounds. Perstudent costs for mobile training units to train female teachers in rural areas were prepared by Mr. James W. Hughes, Technical Advisor, Teacher Supply and Training, PED-Balochistan.

Analysis of quality improvements seems essential in light of discussions with education officials and employees of international organizations working in Pakistan. Many concerns have been expressed about the lack of quality in the education system. Problems mentioned and discussed elsewhere in this report include the poor preparation of teachers, the widespread use of rote learning as an instructional technique, inadequate texts, overcrowding, and the absence of adequate training in science and mathematics.

While the view is often expressed that quality enhancements are crucially needed, these improvements require financial resources that could otherwise be spent to increase the number of students having access to the education system. That is, quality can come at the expense of quantity (and vice versa). Therefore, it is important to evaluate the costs of possible quality improvements to weigh them against other potential improvements and enrollment gains that could be achieved with the same funds. While the cost estimates in this report are not precise, in general terms, what matters most is how the cost of alternatives that enhance the quality of learning compare to the cost of other educational alternatives.

The development cost data used here are derived from a sampling of diverse projects. The costs of school space, in fact, vary with the part of the country in which construction occurs and with the type of project. Furthermore, the assumptions made about the depreciation of school facilities are essentially arbitrary and the assumed space use (numbers of students per classroom) is imprecise. Hence, the tradeoffs implied by the per-student costs of school space shown here should be considered illustrative. More precise space use costs can be employed when the specific construction alternatives under consideration are known.

3. <u>Per-Student Unit Costs and Tradeoffs</u>

Table IV-9¹² shows the estimated unit costs in 1990-91 Rupees for primary, middle, and secondary (grades 9-10)-level enrollments in each type of school in the four provinces in Pakistan. (The unusually large value for middle-level enrollments in middle schools in Balochistan is explained in Table IV-15.) Table IV-10 presents weighted average costs at the primary, middle, and secondary levels across school types for each province. Tables IV-11 and IV-12 provide comparisons of Pakistan's primary and secondary per-student costs with those in other parts of the world, both in terms of the sizes of primary per-student costs for primary and secondary education. Both of these comparisons show that Pakistan's per-student primary and secondary education costs are within the range of those found elsewhere.

As in other developing countries, these tables show that Pakistan's per-student costs at secondary level are very high relative to those at the primary level, implying large opportunity costs in terms of the sacrifice of primary enrollments. This is a crucial planning consideration, given the country's goal of universal access to primary education.

Tables IV-13 and 14 show that these opportunity costs are even higher at the college, technical, and teacher education levels. At the college level, unit costs are Rs. 2777 or 4.3 times those of primary education. The estimated per-student costs for technical education institutions--vocational and commercial training institutions, polytechnics, and monotechnics--are Rs. 6019, or 9.4 times the unit costs of primary education. Rough estimates of per-student costs in vocational institutions¹³ are close to this estimate of the per-student overall cost of technical education. The estimated per-student costs for teacher training institutions are 4755, or 7.4 times the per-student costs of primary education.

While all post-primary educational options are inherently costly, educational policymakers need to explore alternative methods of raising cost effectiveness or improving cost recovery in these parts of the educational sector. Two examples of how

¹² Tables IV-9 through IV-19 are located at the end of this section.

¹³ These estimates were based on data obtained during interviews with education officials from a few vocational institutions on the cost of teachers, students, consumable materials, and equipment purchase and maintenance.
cost effectiveness can be improved are considered here. The first example is based on a percentage breakdown of middle schools in the Balochistan Province according to their numbers of students in grades 6 to 8. Table IV-15 indicates that more than half of these schools have less than 20 students in grades 6 to 8. The result is that per-student costs at the middle level in these schools are extremely high. This situation is the result of the strong incentives to upgrade primary schools to middle schools to obtain upgraded teacher positions. Important cost savings can be achieved by modifying these incentives to discourage the formation of middle schools having less than a certain level of enrollments.

The second example of improved cost effectiveness is work being done in the Primary Education Development Program in Balochistan and NWFP in the use of mobile teacher units. The unit cost of an existing mobile female teacher training program is Rs. 4150, or 6.5 times primary unit costs. This unit cost includes a monthly stipend of Rs. 750 paid to each trainee as well as providing every trainee with a complete set of primary textbooks for classes one through five, plus materials for the preparation of visual aids. Based on measured effects on teacher activities and students' learning outcomes, such mobile teacher training programs may have results comparable to yearlong programs in teacher training institutions.

Cost recovery, especially at post-primary levels, has been given relatively little attention in previous five-year plans. Yet, this option has considerable promise for helping to offset the public costs of post-primary education, and thereby releasing resources for financing primary education.

In addition to assessing options for improving cost effectiveness, educational planners also should help policymakers evaluate whether at the margin, additional enrollments at post-primary levels are *worth* the large number of sacrificed primary enrollments. The choice is difficult and must be based on questions of social equity as well as the economic returns to different levels of schooling. It may be much preferable to bring such considerations explicitly into the discussion rather than having the choice made entirely via the intense political pressures facing the education system.

The per-student cost estimates in the first example of quality improvements are shown in Table IV-16. This example, like that of mobile teacher training, is modeled on work currently underway in the Primary Education Development Program in NWFP and Balochistan. The development of revised learning objectives, and related improvements in curriculum and the content of texts and teacher guides, are the key elements of this quality improvement program. These elements are estimated to cost Rs. 74 million for Pakistan as a whole (much of which might be funded by international agencies). One reason for this expense is the need for widespread participation of teachers in the program, the requirement that learning objectives be related to teachers' and citizens' concerns, and the desirability of evaluating and revising the content of curriculum, text design, and teacher training methods according to students' tested success in accomplishing learning objectives.

Unlike the costs of many other educational activities, however, these expenses do not vary with the numbers of students. Hence, over a five-year amortization period, during which there will be more than seven million students, the cost per student of these improvements are a modest Rs. 10.5. The general conclusion that can drawn from this illustrative calculation is that quality improvements having fixed costs can result in modest per-student costs because of Pakistan's high primary enrollment levels. The related costs of teacher and supervisor training do, of course, vary with the numbers of teachers and thus vary indirectly with student enrollments. Because of the large number of students taught by each instructor over several years, these costs also can be modest on a per-student basis. Under one set of assumptions, teacher and supervisor training for these quality improvements could reach Rs. 144,500,000, a sum that would amount to Rs. 20.5 per student if amortized over five years.

The remaining items in Table IV-16 all vary directly with enrollments. Yet these items are themselves very economical, as can be noted in the table. This is one of the reasons why several international educational studies have found that textbooks (and underlying improvements in text content and supporting materials and teacher training) are among the most cost-effective educational inputs.¹⁴

In summary, because the fixed costs of quality improvements for primary education outlined in this example are amortized over large numbers of students and the variable costs of these improvements are low, the ratio of the per-student cost of the improvements outlined in Table IV-12 to the unit cost of primary education in Pakistan is approximately only .25.

The second example analysis of costs of quality improvement is the Pakistan Science Education Project for Secondary Schools. A 1985 needs assessment study¹⁵ found weaknesses in all aspects of science education, including inadequacies in lab facilities, training and motivation of teachers, teaching materials, and methods of instruction. The Science Education Project allocates Rs. 564.8 million (80 percent from the Asian Development Bank) to the following improvements: science rooms and labs in 570 middle schools and 365 secondary schools, provision of teachers in middle and secondary schools; improvements in science facilities in teacher training institutions; and provision of technical expertise in curriculum and text development.

¹⁴ For example, for further information see the section on textbooks in Chapter 8 of Psacharopoulos and Woodhall, *Education for Development*, the World Bank, 1986.)

¹⁵ Needs Assessment Study, Science and Technical Education Wing, Ministry of Education, Pakistan 1985.

The 1985 needs assessment study has an estimated ratio of 50 science students per science teacher in middle and high schools. Based on this ratio, a rough estimate of the annual total number of students to benefit in varying degrees from the Science Education Project will be 700,000. Assuming a five-year useful life of the project's training and equipment, an approximation of the unit cost of this project is thus Rs. 564.8 million/3,500,000 or Rs. 161.37. The ratio of this unit cost to the unit cost of primary education is .25, the same as the unit cost of the example quality improvements in primary education described above.

An important conclusion can be drawn from these two examples of quality improvements. When the resources required for quality improvements can be spread over large numbers of students, the unit costs of these improvements can be modest, implying small sacrifices of quantity for quality. It is important to keep in mind, however, that these examples do not deal with the difficult question of how to develop teachers to implement quality improvements.

Because of the need both for improvements in existing facilities and for new schools, it is useful for planning purposes to have estimates of construction cost improvements for new and renovated facilities. As important as it may seem to make construction improvements, however, especially for primary education, the desirability of expenditures on these improvements should always be carefully compared by planners to the desirability of alternative forms of recurrent expenditures. To facilitate comparison of the relative costs of developmental options and those entailing recurrent expenditures, it is helpful to express these construction cost estimates on an amortized, per-student, annual user cost basis. This cannot be accomplished precisely with available data for the following two reasons. First, documents describing construction costs for projects often do not contain data on enrollments for these projects. Second, there is little systematic information about the rates at which school facilities depreciate. Nonetheless, because of the opportunity costs of the funds used for school construction, planners should develop approximate figures for the user costs of school facilities.

Table IV-17 presents development cost data for a diverse list of development projects. Without any claim of precision (alternative assumptions can readily be made by planners), estimated per-student development costs for school space were calculated to be in the range of Rs. 1700 to Rs. 3500, based on a variety of assumptions taken from available school and class size data. In all cases, a relatively short 15-year amortization period was assumed in place of a longer period with allowance for rising maintenance costs with the age of facilities. The range of per-student annual use cost estimates for new space is from Rs. 113 to Rs. 233. The midpoint of these estimates, Rs. 173, is 27 percent of the unit recurring cost for primary education. Because another alternative use of school construction funds is for quality improvements, it is instructive, for example, to compare the per-student annual use cost estimate for new space of Rs. 173 to the Rs. 145 per-student cost of quality improvements in primary education shown in Table IV-8. The per-student annual use cost estimate for new space is 1.2 times this per-student quality improvement cost.

4. <u>Conclusion</u>

Although alternative cost estimates can be made based on different assumptions and procedures, their relative sizes probably would not differ substantially from those presented in Table IV-15. These estimates, and possible variations, provide a basis for improving the realism of educational planning by incorporating information about opportunity costs in educational plans. During the past 10 years, there has been little variation in Pakistan's percentage of its Gross National Product devoted to public expenditures on education. Instead of engaging in wishful thinking about how this percentage might grow, a more realistic approach would be to assume that this percentage will not change very much. The most valuable planning activity, then, would be to support the education system's capability to make choices within these limited resources. The cost information in Table IV-15, combined with information about educational effectiveness and economic returns along with judgments about quality and equity, can be a significant part of this planning support.

Costs per Student at the Primary, Middle, and Secondary Levels for Punjab, Balochistan, and Sindh (in Rupees) 1990-91

| | Prov | ince | | |
|---|--|--|---|--|
| Level of Instruction & School Type | <u>Punjab</u> | Balochistan | <u>Sindh</u> | NWFP |
| Primary (1-5) in Mosque Schools Primary (1-5) in Primary Schools Primary (1-5) in Middle Schools Primary (1-5) in High Schools Middle (6-8) in Middle Schools Middle (6-8) in High Schools High Stage (9-10) in High School | 1189 628 499 531 1576 802 s 2105 | 701 559 563 448 7021 1617 1809 | 274 776 1395 881 1987 1286 1960 | - 670 684 647 1605 1097 2085 |

Sources and Methodology: as described in Text.

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Table IV-10

Weighted Average Costs per Student at the Primary, Middle, and Secondary Levels for all School Types (in Rupees) 1990-91

Province

| Level of Instruction | Punjab | Balochistan | Sindh | NWFP | Pakistan |
|-------------------------|--------|-------------|-------|------|----------|
| Primary 1-5 | 619 | 568 | 723 | 672 | 639 |
| Middle 6-8 | 1013 | 2915 | 1450 | 1203 | 1212 |
| High Stage 9-10 | 2105 | 1809 | 1960 | 2085 | 2066 |

Sources and Methodology: as described in text.

Costs per Student for Primary Education as a Percentage of Gross National Product per Capita

| Country/Region | Primary Cost per Student/GNP per Capita |
|---|---|
| Pakistan | 9.7 |
| West Africa | 19 |
| East Asia and Pacific | 25 |
| East Asia and Pacific | 11 |
| South Asia | 8 |
| Europe, Middle East and North Africa | 13 I I I I I I I I I I I I I I I I I I I |
| Latin America and the Caribbean | 9.3 |
| Average - Developing countries | 14 |
| Average - OECD countries | 22 |
| Sources: | |
| Pakistan:Table IV-10 and World Bank Statistics on FElsewhere:Psacharopoulos and Woodhall, Education for | Population and GNP. r <i>Development</i> , Table 7-4 in Chapter 7, World Bank. |

Table IV-12 Relative Costs per Student for Secondary and Primary Education

| Country/Region | Secondary Cost per Student/ Primary Cost per Student |
|--|---|
| Pakistan: | |
| Middle Stage | 1.9 |
| High Stage | 3.2 |
| Weighted Average of | |
| Middle & High Stage | 2.2 |
| West Africa | 3.6 |
| East Africa | 4.1 |
| East Asia and Pacific | 1.7 |
| South Asia | 2.0 |
| Europe, Middle East and North Africa | a 2.0 |
| Latin America and the Caribbean | 1.6 |
| Average - Developing Countries | 2.9 |
| Average - OECD Countries | 1.1 |
| ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | |

Sources:

Pakistan: Table IV-10

Elsewhere: Psacharopoulos and Woodhall, Education for Development, Table 7-4 in Chapter 7, World Bank.

Costs per Student for Vocational and Technical Education, College Education, and Teacher Training (in Rupees)

| Educational Category | Cost per <u>Student</u> |
|--|----------------------------|
| Secondary Education Institution with Vocational Track (Extra Unit Costs for Vocational Track: 748-1123) | 2814-3189 |
| College Education (Intermediate and Degree Levels Combined) | 2777 |
| Technical Education Institutions | 6019 |
| Teacher Training Institutions | 4755 |
| Teacher Training with Mobile Units | 4150 |
| Sources and Methodology: as described in text. | |

Table IV-14

Summary: Costs per Student for Educational Alternatives (in Rupees) and as Ratios to the Unit Cost of Primary Education, 1990-91

| Educational Alternative | Cost per Student | Ratio of Cost per Student to Cost per Primary-Level Student |
|--|---------------------|---|
| Primary 1-5 | 639 | 1.00 |
| Middle 6-8 | 1212 | 1.90 |
| High Stage 9-10 | 2066 | 3.23 |
| High Stage with Vocational Tracks | 2814 | 4.40 |
| College Education (Intermediate and Degree Levels (Combined) | 2 <i>1</i> 77 | 4.34 |
| Technical Education Institutions | 6019 | 9.36 |
| Teacher Training Institutions | 4755 | 7.44 |
| Teacher Training with Mobile Units Example of quality improvements in | 4150 | 6.50 |
| primary education Example of quality improvements in | 145 | .25 |
| secondary education | 161 | .25 |
| Annual use for new school space | 173 | . 30 |
| | | |

Sources and Methodology: as described in text.

Percentage Breakdown of Schools Upgraded to Middle Schools According to Number of Students in Grades 6-8 Balochistan

| Number of Students | Perc | ent of Schools |
|----------------------|----------------------|----------------|
| <u>in Grades 6-8</u> | <u>Boys' Schools</u> | Girls' Schools |
| 1-10 | 23.6 | 33.7 |
| 11-20 | 27.1 | 27.9 |
| 21.30 | 18.4 | 13.4 |
| 31.40 | 13.9 | 9.6 |
| 41.60 | 9.4 | 8.6 |
| 61-100 | 5.2 | 5.8 |
| 101-200 | 1.9 | 1.0 |
| 200+ | .5 | 0 |
| | 100.0 | 100.0 |

Source: Educational Statistics as on 15th October 1988, Directorate of Education (Schools), Balochistan.

Illustrative Examples of Per-Student Unit Costs for Quality Improvements in Primary Education

| Item | <u>Cost per Student</u> <u>in Rupees</u> |
|---|---|
| Revised learning objectives, curriculum, and related improvements in the content of texts and the development of teacher guides. | |
| Rs.74,000,000 amortized over five years (7,041,000 students) | 10.5 |
| Related teacher and supervisor training Rs.144,500,000 amortized over five year (7,041,000 students) | s 20.5 |
| Revised and more durable texts (Two-year usage) | 40 |
| Teacher support materials for classroom walls (Three-year usage) | 3 |
| Workbooks for students (One-year usage) | 25 |
| Teacher guides keyed to text pages (Three-year usage) | 9 |
| A four-fold increase in the number of teacher supervisors | 37 |
| Total cost per student for quality improvements | 145 |
| Total cost per student for quality improvements/unit cost of primary education | .25 |
| | |

Source: Calculations based on data provided by Dr. Wade Robinson, Chief of Party, Primary Education Development Program, NWFP and Balochistan.

Unit Costs for Diverse Development Projects

| | | | Rs. in | million |
|------|--|----------|--------|---------------|
| Sub- | Sector with activities | No. | Unit | Total Cost |
| | Primary Education | | | |
| 1. | Opening new Mosque schools | 10,000 | 0.025 | 250 |
| 2. | Opening of new rural schools | 12,000 | 0.265 | 3180 |
| J. | urban schools | 3,000 | 1.000 | 3000 |
| 4. | Provision of furniture and | 5,000 | 10000 | 5000 |
| - | equipment in new Mosque schools | 10,000 | 0.005 | 50 |
| 5. | Provision of furniture and equipment | 1 000 | 0 040 | 40 |
| 6. | Re-construction of buildings of | 1,000 | 0.040 | 40 |
| | existing dilapidated schools | | | |
| - | shelterless schools | 8,000 | 0.200 | 1600 |
| /• | Addition of class rooms in existing schools | 20 000 | 0 100 | 2000 |
| 8. | Supplementing furniture in existing | 2.0,000 | 0.100 | 2000 |
| | primary schools | 15,000 | 0.015 | 225 |
| 9. | Provision of textbooks and library | | | |
| 10. | Provision of sports material in | 50,000 | 0.001 | 50 |
| 10. | primary schools | 80.000 | 0.005 | 40 |
| 11. | Miscellaneous component of World | , | | |
| 10 | Bank aided projects | - | - | 1500 |
| 12. | Miscellaneous programmes | | | 565 |
| | | | | 12500 |
| | Secondary Education | | | |
| 1. | Upgradation of primary schools 8874 (5374 for boys and 3500 for | | | |
| | girls) | 8,874 | 0.500 | 4.437 |
| 2. | Consolidation and improvement | -, | | -, |
| 2 | of middle schools | 1,500 | 0.100 | 150 |
| 3. | middle schools | 1 000 | 0 020 | 00 |
| 4. | Provision of furniture and | 4,000 | 0.020 | 80 |
| _ | equipment in middle schools | 1,500 | 0.100 | 150 |
| 5. | Introduction of vocational | <i>c</i> | | |
| 6. | Introduction of vocational | 6,000 | 0.200 | 1200 |
| | component in high schools | 2,000 | 0.300 | 600 |
| | - v | | | |

Table IV-17, continued

| 7. | Upgradation middle to high schools (3140 for boys and girls) | 4,600 | 0.600 | 2760 |
|----------------|--|-------|--------|-------|
| 8. | Establishment of new high schools | • | _ | |
| • | 120 for boys and 80 for girls | 200 | 2.500 | 500 |
| 9. | Additional class room in middle/ | 2 000 | 0 100 | |
| 10. | Improvement of teaching service | 3,000 | 0.100 | 300 |
| | Middle Schools | | | |
| (a) | Construction of new science labs | | | |
| | schools | 2,000 | 0.100 | 200 |
| (b) | Provision of science equipment | • | | |
| (\mathbf{c}) | IN EXISTING schools Inservice training of science | 4,000 | 0.015 | 60 |
| (0) | teachers | 7,000 | 0.001 | 77 |
| (d) | Establishment of technical middle | | | |
| | 8CU0018 | 50 | 0.20 | 10 |
| | Secondary Schools | | | |
| (a) | Construction of new science labs. | | | |
| (h) | (600 Sqft per Lab.) | 2,000 | 0.120 | 240 |
| (0) | in existing schools | 2.000 | 0.100 | 200 |
| (C) | Inservice science teacher training | 8,000 | 0.0015 | 12 |
| (d) | Residential schools | 2 | 75 | 150 |
| 11. | Consolidation and improvement of | | | |
| • • | existing high schools | 500 | 0.200 | 100 |
| 12. | Provision of library books in high achoris | 2 000 | 0 025 | 50 |
| 13. | Provision of furniture and | 2,000 | 0.025 | 50 |
| | equipment to high schools | 1,000 | 0.100 | 100 |
| 14. | Establishment of model schools | 4.0 | E 000 | 200 |
| 15. | Miscellaneous | 40 | 5.000 | 200 |
| | | | | 11730 |

Table IV-17, continued

| 6th Plan Allocation | Proposed 7th Plan Allocation |
|--|---|
| 7000 4125 305 1315 1300 660 - 750 2100 1275 | 12500 11730 500 1500 1600 1500 60 2500 3300 1600 1000 |
| | 37790 |
| 19000 <u>18790</u> 37790 <u>28000</u> | |
| | 6th Plan Allocation 7000 4125 305 1315 1300 660 - 750 2100 1275 19000 1275 |

Source: Table developed from unnumbered table in annex (5 9P 265) of Mirza Tauhiduddin Ahmad, Editor, Policy Option for Better Education Outcome at Primary Level, Academy for Educational Planning and Management, Ministry of Education, Islamabad, April 1990.

Developmental Funds for Primary Education Compared to Other Subsectors of Education during Plan Periods

| | | First Plan (1955-60) | |
|--|------------|----------------------|-------------|
| | Allocation | Expenditure Percent | Utilization |
| Primary Education | 51.4 | 23.0 | 45% |
| Post Primary and Higher Education | 253.5 | 209.0 | 82% |
| Primary Education as Percent of Total | 16.9% | 9.9% | |
| | | 2nd Plan | |
| | Allocation | Expenditure Percent | Utilization |
| Primary Education | 78.0 | 18.8 | 24% |
| Post Primary and Higher Education | 258.8 | 444.00 | 155% |
| Primary Education as Percent of Total | 21.4% | 4.18 | |
| | | 3rd Plan | • |
| | Allocation | Expenditure Percent | Utilization |
| Primary Education | 68.5 | 25.9 | 37.8% |
| Post Primary and Higher Education | 1005.29 | 560.4 | 56% |
| | | | |

560.4 56%

Primary Education as Percent of Total 6.4% 4.48

Table IV-18, continued

| | Allocation | 5th Plan Expenditure Percent | Utilization |
|--|------------|--|-------------|
| Primary Education | 3049.7 | 1413.1 | 46.3% |
| Post Primary and Higher Education | 7333.3 | 4230.8 | 58% |
| Primary Education as Percent of Total | 29.4% | 25.0% | |

| | Allocation | 6th Plan Expenditure Percent | Utilization |
|---|------------|--|-------------|
| Primary Education | 7000.0 | 3533.0 | 50% |
| Post Primary and Higher Education | 11830.0 | 9897.0 | 83% |
| Primary Education as Percent of | 37 28 | · | |
| | J/.23 | 20.3% | |

Source: Table duplicated from Table 2 (P.134) in "Generating Additional Resources for Financing Primary Education," Ghulam Farid Malik, in Policy Options for Better Education Outcome at Primary Level, Mirza Tauhiduddin Ahmad, Editor, Academy for Educational Planning and Management, Ministry of Education, Islamabad, April 1990.

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Project-Unit Development Costs World Bank Second Primary Education Project Sindh

| Project | Number of <u>Projects</u> | Project- <u>Unit Cost</u> Rs.million |
|---|------------------------------|--|
| Two-roomed schools for shelterless/ dangerous primary schools for rural areas | 5250 Schools | .346 |
| Five-roomed schools for shelterless/ dangerous primary schools for slum locations of urban area | 420 Schools | 1.154 |
| One room for Mosque schools for classes IV and V | 4000 Classrooms | .135 |

I. PROJECT EDUCATIONAL EXPENDITURES

Table IV-20 presents projected public expenditures on primary, middle, and secondary level education under the three sets of enrollment forecasts. The subsequent groups of columns labeled Recurring Expenditures, Teacher Training Expenditures, and Development Expenditures, provide these separate components of educational expenditures for each of the three enrollment categories.

Projected recurring expenditures are calculated by multiplying the unit costs of instruction shown in Table IV-10 for primary, middle, and secondary enrollments by the forecast numbers of students in these categories for each forecast year.

Projected expenditures for teacher training in Table IV-20 are based on (1) the assumptions made on the model about the extra teachers recruited and trained as enrollments grow during the forecast period; and (2) the additional expenditures for teacher training due to assumed rates of turnover of existing teachers.

Forecast development costs in the table are due to the assumed expenses of adding school facilities as enrollments increase. No expenses are included for the replacement of facilities as they wear out.

The specific assumptions underlying the forecast expenditures in Table IV-20 are as follows:

- 1) Teacher Training
 - a) Induced by increased enrollments Rural Areas: one newly trained teacher per 30 added students Urban Areas: one newly trained teacher per 100 added students
 - b) Induced by teacher turnover: average length of service is 20 years.
- 2) Development Expenditures Development costs per added student:

| Primary | Rs. 2000 |
|------------------|----------|
| Middle | Rs. 2500 |
| Secondary (9-10) | Rs. 3000 |

Table IV-20's last four columns show total forecast expenditures on school-level education (the sum of the forecast values of recurring expenditures, expenditures for teacher training, and development expenditures) for each of the three levels of enrollment and for all of these enrollments combined.

Table IV-20 through IV-24 provide forecasts of expenditures for school-level education in each of the four provinces under the three enrollment projections. Also shown in these tables is each province's spending on school-level education as a percentage of the country's total school-level educational spending.

The forecasts of educational spending in Table IV-20 and in the subsequent Tables IV-21 through IV-24 for individual provinces have little meaning in themselves. For these data to be useful for planning purposes, it is necessary to express them so they can be compared to the amounts of resources likely to be available to Pakistan's public education system. Table IV-25 and IV-26 address the question of resource constraints on public expenditures in Pakistan's educational system and the comparison of public school-level expenditures with these constraints.

Table IV-25 shows the ratio of the total public educational budget in Pakistan to GNP for each year since 1983-84. The average value of this ratio over the eight-year period is 20.8, and it can be noted from this table that the ratio has little trend.

In Table IV-26, two alternative constraints on the ratio of public educational spending to GNP are assumed. The first assumed constraint is that this spending is 2 percent of GNP and remains at this percentage during the forecast period. The second assumed constraint is that the ratio of public educational spending to GNP rises linearly from 2 percent to 2.5 percent by 2000-01. Three alternative assumptions were made that GNP would experience real growth of 4 percent, 5 percent, and 6 percent during the forecast period.

The first four columns of Table IV-26 show the forecast expenditures for primary, middle, and secondary level (9-10) school education plus the total for these three levels. The subsequent three columns show total projected educational expenditures for school-level education as a fraction of GNP under the three assumptions for real GNP growth. The initial values shown for the Time Series and Based Line enrollment forecasts are reasonably close to present enrollment levels, and thus the expenditure levels as approximate existing levels in Rupees and as a percentage of GNP. The Best Case enrollment forecast, however, shows initial enrollments significantly below existing enrollments, assumptions that include immediate implementation of a policy of eliminating pre-grade 1 enrollments in primary schools. Hence, the initial expenditure data in Rupees and as a percentage of GNP are below current levels. It is therefore most useful to focus in Table IV-26 on the expenditure forecasts corresponding to the Time Series and Base Line enrollment forecasts.

It can be noted in both of these forecasts that there is substantial growth in total expenditures on school-level education as a percentage of GNP under all three growth assumptions. For example, in the Time Series enrollment forecast, school-level educational expenditures rise from .013 of GNP in 1990-91 to .019 of GNP in 2000-01 under the 4 percent growth assumption. Even under the 6 percent growth assumption, this rise is from .013 to .016.

If total public educational expenditures in Pakistan remain at approximately 2 percent of GNP, it will be necessary either to spend considerably less public funds (as a percentage of GNP) on other parts of Pakistan's educational system or it will not be possible to accommodate with public funds and forecast amounts of school-level enrollments.

The other parts of the education system--college, technical, university education-have strong political support. Therefore, the most likely outcome may be lower-thanforecast levels of school-level enrollments. If indeed the forecasts of school-level enrollments should be realized, however, the remaining columns of Table IV-26 show how much it would be necessary to reduce funding (as a percentage of GNP) for college, technical, and university eduction as well as administration of the education system. The reader can note, for example, the implications shown in Table IV-26 under the Time Series enrollment forecast of the assumptions that total public educational expenditures will be 2 percent GNP and that GNP will grow at 5 percent. Under this scenario, if the forecast levels of enrollment are to be realized, non-school public educational spending would have to drop from .37 of total educational spending to .14 of this total.

The analysis in Table IV-26 suggests that Pakistan's education system is likely, under the forecast levels of enrollments, to face cutbacks from existing public expenditures as a fraction of GNP on some of its categories of enrollments. Only under the assumptions that total public educational funding will be at an above-historical rate of 2.5 percent of GNP, and that GNP will grow at 6 percent, will this outcome be avoided. This analysis therefore suggests that Pakistan's educational planning effort would be greatly improved through analysis of tradeoffs of educational outcomes under resource constraints.

TABLE IV - 20: PROJECTED SCHOOL-LEVEL EXPENDITURES FOR PAKISTAN * BASED UPON THREE ALTERNATIVE ENROLLMENT FORECASTS*

| | PROJE Level | CTED SO | CHOOL - . <u>Ments</u> | RECURRING | | | | ACHER RAININ ENDITL | t IG J <u>RES</u> | DEVEL EXPEN | OPME) ID I TUR | IT RES | TOTAL EXPENDITURES FOR SCHOOL-LEVEL ENROLLMENTS | | | |
|-------------|----------------|-------------|---------------------------|-----------|------|--------------|----------|---------------------------|-------------------------|----------------|-------------------|------------|---|------|------|--------|
| <u>YEAR</u> | <u> </u> | <u>_M</u> _ | <u>_H</u> _ | <u> </u> | M | H | <u>P</u> | <u> </u> | H | <u>P</u> | <u> </u> | <u>_H_</u> | P | M | H | TOTAL |
| TIME-SERI | ES ENRO | LLMENT | FOREC/ | STS: | | | | | | | | | | | | |
| 1990-91 | 10460 | 2662 | 913 | 6684 | 3226 | 1886 | 49 | 12 | 4 | 0 | 0 | 0 | 6733 | 3238 | 1801 | 11842 |
| 1991-92 | 11133 | 2837 | 970 | 7114 | 3439 | 2003 | 121 | 31 | 10 | 1347 | 440 | 170 | 8583 | 3010 | 2193 | 1/676 |
| 1992-93 | 11855 | 3026 | 1030 | 7575 | 3668 | 2129 | 129 | 33 | 11 | 1444 | 472 | 182 | 0168 | 6176 | 2722 | 154/5 |
| 1993-94 | 12629 | 3230 | 1096 | 8070 | 3914 | 2264 | 138 | 36 | 12 | 1548 | 508 | 107 | 0756 | 41/4 | 2/72 | 12042 |
| 1994-95 | 13459 | 3448 | 1167 | 8601 | 4179 | 2411 | 148 | 38 | 13 | 1661 | 546 | 213 | 10/.00 | 44,0 | 2413 | 179007 |
| 1995-96 | 14351 | 3683 | 1244 | 9170 | 4463 | 2569 | 158 | 41 | 14 | 1783 | 587 | 230 | 11112 | 5000 | 2030 | 10047 |
| 1996-97 | 15310 | 3935 | 1327 | 978 | 4770 | 2762 | 160 | 44 | 15 | 1017 | 632 | 250 | 11970 | 5//2 | 2013 | 19017 |
| 1997-98 | 16341 | 4208 | 1418 | 10442 | 5100 | 2030 | 182 | 47 | 16 | 2063 | 692 | 272 | 17497 | 2440 | 2007 | 20322 |
| 1998-99 | 17453 | 4501 | 1517 | 11153 | 5455 | 3135 | 105 | 51 | 17 | 2223 | 733 | 209 | 17571 | 4020 | 3210 | 21/33 |
| 1999-2000 | 18653 | 4817 | 1627 | 11010 | 5838 | 3361 | 210 | 55 | 10 | 2600 | 700 | 270 | 1/520 | 6239 | 3421 | 23201 |
| 2000-2001 | 19950 | 5158 | 1747 | 12748 | 6252 | 3609 | 226 | 59 | 20 | 2594 | 852 | 361 | 15568 | 7163 | 3991 | 26722 |
| BEST CASE | ENROLLI | MENT FO | RECAST | 'S: | | | | | | | | | | | | |
| 1990-91 | 8912 | 2214 | 9 94 | 5695 | 2683 | 2054 | 42 | 10 | 5 | 0 | 0 | 0 | 5737 | 2694 | 2058 | 10489 |
| 1991-92 | 8767 | 1922 | 1095 | 5602 | 2330 | 226 2 | 41 | 9 | 15 | 0 | 0 | 302 | 5643 | 2339 | 2580 | 10562 |
| 1992-93 | 8790 | 1660 | 894 | 5617 | 2012 | 1848 | 44 | 8 | 4 | 47 | 0 | 0 | 5707 | 2020 | 1852 | 9579 |
| 1993-94 | 8923 | 1898 | 693 | 5702 | 2301 | 1431 | 55 | 33 | 3 | 266 | 596 | Ō | 6023 | 2931 | 1434 | 10388 |
| 1994-95 | 9240 | 2006 | 767 | 5905 | 2431 | 1584 | 76 | 20 | 11 | 634 | 268 | 222 | 6614 | 2720 | 1818 | 11152 |
| 1995-96 | 10000 | 2159 | 933 | 6390 | 2617 | 1927 | 124 | 26 | 21 | 1520 | 384 | 498 | 8035 | 3027 | 2447 | 13508 |
| 1996-97 | 10836 | 2281 | 1020 | 6924 | 2765 | 2107 | 136 | 23 | 14 | 1671 | 305 | 262 | 8731 | 3003 | 2382 | 16207 |
| 1997-98 | 11756 | 2574 | 1074 | 7512 | 3120 | 2218 | 149 | 42 | 11 | 1840 | 731 | 161 | 9501 | 3803 | 2300 | 1578/ |
| 1998-99 | 12740 | 2895 | 1230 | 8141 | 3509 | 2540 | 160 | 46 | 22 | 1967 | 802 | 468 | 10268 | 4357 | 3020 | 17455 |
| 1999-2000 | 13881 | 3237 | 1396 | 8870 | 3923 | 2885 | 181 | 50 | 24 | 2283 | 855 | 501 | 11334 | 4928 | 3410 | 10572 |
| 2000-2001 | 14965 | 3595 | 1587 | 9563 | 4358 | 3279 | 181 | 53 | 27 | 2169 | 896 | 572 | 11912 | 5307 | 3878 | 21098 |
| BASELINE I | ENROLLMI | ENT FOR | ECASTS | : | | | •. | | | | | | | | | |
| 1990-91 | 10414 | 2779 | 996 | 6655 | 3368 | 2057 | 49 | 13 | 5 | 0 | 0 | 0 | 6704 | 3381 | 2062 | 12147 |
| 1991-92 | 10734 | 3001 | 1104 ' | 6859 | 3637 | 2281 | 83 | 37 | 16 | 638 | 555 | 326 | 7580 | 4230 | 2623 | 14433 |
| 1992-93 | 11196 | 3216 | 1211 | 7154 | 3898 | 2502 | 100 | 37 | 17 | 924 | 536 | 321 | 8178 | 4471 | 2840 | 15489 |
| 1993-94 | 11712 | 3409 | 1301 | 7484 | 4132 | 2687 | 108 | 36 | 15 | 1033 | 484 | 268 | 8625 | 4651 | 2970 | 16246 |
| 1994-95 | 12291 | 3638 | 1392 ⁻ | 7854 | 4410 | 2876 | 117 | 40 | 16 | 1157 | 573 | 274 | 9127 | 5023 | 3166 | 17316 |
| 1995-96 | 12903 | 3843 | 1487 | 8245 | 4658 | 3072 | 123 | 39 | 17 | 1225 | 512 | 285 | 9593 | 5208 | 3373 | 18174 |
| 1996-97 | 13610 | 4095 | 1609 | 8697 | 4963 | 3324 | 136 | 45 | 20 | 1414 | 630 | 366 | 10247 | 5638 | 3710 | 19595 |
| 1997-98 | 14394 | 4365 | 1744 | 9198 | 5291 | 3603 | 147 | 48 | 22 | 1568 | 676 | 405 | 10913 | 6014 | 4030 | 20958 |
| 1998-99 | 15207 | 4700 | 1881 | 9717 | 5696 | 3887 | 154 | 56 | 23 | 1626 | 836 | 412 | 11497 | 6588 | 4327 | 22408 |
| 1999-2000 | 16107 | 5056 | 2056 | 10292 | 6128 | 4248 | 167 | 60 | 27 | 1799 | 891 | 524 | 12258 | 7079 | 4800 | 24138 |
| 2000-2001 | 17091 | 5434 | 225 3 | 10921 | 6586 | 4656 | 180 | 64 | 51 | 1968 | 945 | 592 | 13070 | 7596 | 5278 | 25944 |

* Enrollments are measured in thousands of students. All costs are expressed in millions of Rupees.

| ; | PROJE <u>LEVEL</u> | CTED S ENROL | CHOOL - LMENTS | REC EXPE | URR ING | ES | TE/ TR/ <u>EXPE</u> | ACHER AININ N <u>DITU</u> | G Res | DEVE EXPE | LOPMEN NDITURI | T <u>ES</u> | T01 F(| TAL EXP DR SCHO ENROLL | ENDITUR OL-LEVE MENTS | ES L | PROPORTION OF TOTAL EXPENDITABLES |
|-----------------|-----------------------|-----------------|-------------------|-------------|-------------|----------|---------------------------|---------------------------------|----------|--------------|-------------------|----------------|--------------|------------------------------|-----------------------------|--------------|---|
| YEAR | <u> </u> | <u> </u> | <u> H </u> | <u>P</u> | <u> </u> | <u>H</u> | <u> </u> | <u> </u> | H | <u> </u> | M | <u> </u> | <u> </u> | H | <u>_H_</u> | <u>TOTAL</u> | PAKISTAN |
| TIME SERIES | ENROLL | MENT F | ORECASI | rs: | | | | | | | | | | | | | |
| 1990-91 | 1557 | 321 | 103 | 1046 | 386 | 215 | 7 | 2 | 0 | 0 | 0 | 0 | 1054 | 388 | 215 | 1656 | 0.14 |
| 1991-92 | 1689 | 351 | 112 | 1135 | 422 | 233 | 21 | 5 | 1 | 263 | 75 | 26 | 1419 | 502 | 260 | 2181 | 0.15 |
| 1992-93 | 1831 | 384 | 121 | 1231 | 462 | 252 | 23 | 5 | 2 | 286 | 82 | 28 | 1539 | 549 | 282 | 2371 | 0.15 |
| 1993-94 | 1986 | 420 | 131 | 1335 | 505 | 273 | 25 | 6 | 2 | 310 | 90 | 31 | 1670 | 601 | 306 | 2577 | 0.15 |
| 1994-95 | 2155 | 460 | 142 | 1448 | 553 | 297 | 27 | 6 | 2 | 337 | 99 | 33 | 1813 | 658 | 332 | 2802 | 0.16 |
| 1995-96 | 2338 | 503 | 154 | 1571 | 605 | 322 | 30 | ·7 | 2 | 366 | 108 | 36 | 1967 | 720 | 360 | 3048 | 0.16 |
| 1996-97 | 2537 | 550 | 168 | 1705 | 662 | 350 | 32 | 7 | 2 | 398 | 119 | 40 | 2135 | 788 | 391 | 3315 | 0.16 |
| 1997-98 | 2754 | 602 | 182 | 1850 | 725 | 380 | 35 | 8 | 2 | 433 | 130 | 43 | 2318 | 863 | 425 | 3607 | 0.17 |
| 1998-99 | 2989 | 659 | 198 | 2009 | 793 | 413 | 38 | 9 | 3 | 470 | 143 | 47 | 2517 | 945 | 463 | 3924 | 0.17 |
| 1999-2000 | 3245 | 722 | 215 | 2180 | 868 | 449 | 41 | 10 | 3 | 511 | 156 | 52 | 2733 | 1034 | 50 3 | 4271 | 0.17 |
| 2000-2001 | 3523 | 790 | 234 | 2367 | 951 | 488 | 45 | 11 | 3 | 556 | 171 | 57 | 2968 | 1133 | 548 | 4649 | 0.17 |
| BEST CASE E | NROLLME | NT FOR | RECASTS | : | | | | | | | | | | | | | |
| 1990-91 | 1182 | 270 | 116 | 794 | 324 | 242 | 6 | 1 | 1 | 0 | 0 | 0 | 800 | 326 | 242 | 1358 | 0.13 |
| 1991-92 | 1203 | 241 | 134 | 809 | 290 | 280 | 3 | 1 | 3 | 43 | 0 | 55 | 859 | 292 | 338 | 1489 | 0.14 |
| 1992-93 | 1238 | 223 | 110 | 832 | 268 | 229 | 9 | 1 | 1 | 68 | 0 | 0 | 909 | 269 | 230 | 1409 | 0.15 |
| 1993-94 | 1288 | 259 | 88 | 865 | 312 | 184 | 11 | 5 | 0 | 10 0 | 89 | 0 | 976 | , 19 | 184 | 1566 | 0.15 |
| 1994-95 | 1357 | 273 | 103 | 912 | 328 | 214 | 13 | 3 | 2 | 138 | 34 | 44 | 1064 | 365 | 259 | 1688 | 0.15 |
| 1995-96 | 1505 | 290 | 125 | 1011 | 349 | 260 | 22 | - 3 | 3 | 296 | 43 | 67 | 1329 | 395 | 330 | 2054 | 0.15 |
| 1996- 97 | 1667 | 311 | 131 | 1121 | 374 | 273 | 24 | 4 | 1 | 325 | 52 | 19 | 1470 | 429 | 293 | 2192 | 0.15 |
| 1997-98 | 1847 | 364 | 140 | 1241 | 437 | 291 | 27 | 7 | 2 | 359 | 133 | 26 | 1628 | 577 | 318 | 2523 | 0.16 |
| 1998-99 | 2019 | 423 | 167 | 1356 | 50 8 | 348 | 27 | 8 | - 4 | 343 | 147 | 81 | 1726 | 664 | 433 | 2823 | 0.16 |
| 1999-2000 | 2196 | 487 | 199 | 1476 | 586 | 414 | 28 | 9 | 4 | 355 | 162 | 95 | 1859 | 757 | 513 | 3130 | 0.16 |
| 2000-2001 | 2357 | 555 | 233 | 1584 | 667 | 487 | 27 | 9 | 5 | 3 21 | 168 | 105 | 1932 | 845 | 596 | 3374 | 0.16 |
| BASELINE EN | IROLLME | it fori | ECASTS: | | | | | | | | | | | | | | |
| 1990-91 | 1571 | 337 | 117 | 1056 | 405 | 244 | 7 | 2 | 1 | 0 | 0 | 0 | 1063 | 407 | 244 | 1714 | 0.14 |
| 1991-92 | 1668 | 372 | 137 | 1121 | 448 | 286 | 18 | 5 | 3 | 192 | 89 | 60 | 1330 | 543 | 549 | 2222 | 0.15 |
| 1992-93 | 1768 | 412 | 154 | 1188 | 496 | 321 | 19 | 6 | 2 | 201 | 100 | 51 | 1405 | 602 | 374 | 2384 | 0.15 |
| 1993-94 | 1864 | 460 | 172 | 1253 | 554 | 359 | 19 | 7 | 3 | 192 | 120 | 54 | 1463 | 680 | 415 | 2559 | 0.16 |
| 1994-95 | 1941 | 515 | 182 | 1305 | 620 | 380 | 17 | 8 | 2 | 155 | 137 | 32 | 1475 | 765 | 414 | 2655 | 0.15 |
| 1995-96 | 2011 | 566 | 203 | 1351 | 680 | 423 | 16 | 8 | 3 | 139 | 126 | 62 | 1506 | 814 | 488 | 2809 | 0.15 |
| 1996-97 | 2086 | 603 | 236 | 1402 | 726 | 492 | 17 | 7 | 4 | 150 | 94 | 98 | 1569 | 826 | 595 | 2990 | 0.15 |
| 1997-98 | 2163 | 634 | 264 | 1454 | 763 | 551 | 18 | 6 | 4 | 155 | 78 | 86 | 162 6 | 848 | 642 | 3115 | 0.15 |
| 1998-99 | 2243 | 669 | 287 | 1507 | 805 | 599 | 19 | 7 | 4 | 160 | 86 | 68 | 1686 | 897 | 671 | 3254 | 0.15 |
| 1999-2000 | 2326 | 705 | 313 | 1563 | 848 | 654 | 19 | 7 | 4 | 166 | 90 | 79 | 1748 | 945 | 736 | 3429 | 0.14 |
| 2000-2001 | 2411 | 743 | 342 | 1620 | 893 | 714 | 20 | 7 | 5 | 171 | 95 | 87 | 1812 | 995 | 805 | 361. | 0.14 |

* Enrollments are measured in thousands of students. All costs are expressed in millions of Rupees.

| | PROJE LEVEL | CTED S ENROL | CHOOL - LMENTS | RE EXP | CURRIN | G RES | TE/ TR/ <u>EXPE</u> | ACHER AININ NDITU | G RES | DEVE EXPE | LOPMEN ND I TUR | T Es | TO F | TAL EXE OR SCHO ENROLL | PENDITUR XOL-LEVE .MENTS | RES EL | PROPORTION OF TOTAL EXPENDITURES |
|------------------|----------------|-----------------|-------------------|-----------|--------------|----------|---------------------------|-------------------------|----------|--------------|--------------------|---------|--------------|------------------------------|--------------------------------|---------------|--|
| YEAR | <u> </u> | <u></u> | <u>_H_</u> | <u>P</u> | M | <u> </u> | <u>P</u> | <u> </u> | H | <u> </u> | <u> </u> | H | <u>P</u> | <u> </u> | <u> </u> | <u>TOTAL</u> | PAKISTAN |
| TIME SERIES | ENROLL | MENT F | ORECAST | 'S: | | | | | | | | | | | | | |
| 1990-91 | 6150 | 1655 | 546 | 3807 | 1677 | 1150 | 29 | 8 | 3 | 0 | 0 | 0 | 3836 | 1684 | 1152 | 6673 | 0.56 |
| 1991- 9 2 | 6541 | 1765 | 581 | 4049 | 1788 | 1222 | 70 | 20 | 6 | 781 | 276 | 'i03 | 4900 | 2084 | 1332 | 8315 | 0.57 |
| 1992-93 | 6956 | 1884 | 617 | 4306 | 1908 | 1299 | 75 | 21 | 7 | 831 | 296 | 110 | 5212 | 2225 | 1416 | 8853 | 0.57 |
| 1993-94 | 7398 | 2011 | 657 | 4580 | 2037 | 1382 | 80 | 22 | 7 | 884 | 317 | 118 | 5544 | 2376 | 1507 | 9427 | 0.56 |
| 1994-95 | 7869 | 2147 | 698 | 4871 | 2175 | 1470 | 85 | 24 | 8 | 941 | 340 | 126 | 5897 | 2539 | 1603 | 10039 | 0.56 |
| 1995-96 | 8370 | 2293 | 743 | 5181 | 2323 | 1564 | 90 | 26 | 8 | 1002 | 366 | 134 | 6273 | 2714 | 1707 | 10693 | 0.56 |
| 1996-97 | 8903 | 2450 | 791 | 5511 | 2482 | 1665 | 96 | 27 | 9 | 1066 | 393 | 143 | 6673 | 2 9 02 | 1817 | 11392 | 0.56 |
| 1997-98 | 9470 | 2619 | 842 | 5862 | 2653 | 1773 | 102 | 29 | 9 | 1135 | 422 | 153 | 7099 | 3104 | 1935 | 12138 | 0.56 |
| 1998-99 | 10074 | 2800 | 897 | 6236 | 2837 | 1888 | 109 | 32 | 10 | 1208 | 453 | 164 | 7553 | 3322 | 2062 | 12936 | 0.56 |
| 1999-2000 | 10717 | 2995 | 955 | 6634 | 3034 | 2011 | 116 | 34 | 10 | 1286 | 488 | 175 | 8036 | 3556 | 2197 | 13788 | 0.55 |
| 2000-2001 | 11402 | 3205 | 1018 | 7058 | 3247 | 2143 | 123 | 36 | 11 | 1369 | 524 | 188 | 8550 | 3807 | 2342 | 14699 | 0.55 |
| BEST CASE E | ENROLLME | NT FOR | ECASTS | I | | | | | | | | | | | | | |
| 1990-91 | 52 73 | 1371 | 603 | 3264 | 1389 | 1270 | 25 | 6 | 3 | 0 | 0 | 0 | 3289 | 1396 | 1273 | 5937 | 0.57 |
| 1991-92 | 5059 | 1181 | 652 | 3131 | 119 7 | 1372 | 24 | 6 | 8 | 0 | 0 | 145 | 3155 | 1202 | 152 5 | 5882 | 0.56 |
| 1992-93 | 4960 | 1015 | 531 | 3070 | 1028 | 1118 | 23 | 5 | 2 | 0 | 0 | 0 | 3094 | 1033 | 1121 | 5247 | 0.55 |
| 1993-94 | 4943 | 1184 | 414 | 3060 | 120J | 872 | 23 | 23 | 2 | 0 | 423 | 0 | 3083 | 1646 | 874 | 5602 | 0.54 |
| 1994-95 | 5032 | 1224 | 458 | 3115 | 124D | 963 | 33 | 10 | 7 | 178 | - 99 | 131 | 3326 | 1349 | 1101 | 5775 | 0.52 |
| 1995-96 | 5413 | 1296 | 578 | 3350 | 1313 | 1217 | 64 | 13 | 15 | 761 | 181 | 361 | 4175 | 1508 | 1593 | 7277 | 0.54 |
| 1996-97 | 5832 | 1320 | 615 | 3610 | 1338 | 1295 | 70 | 9 | 7 | 839 | 60 | 111 | 4519 | 1407 | 1413 | 7338 | 0.52 |
| 1997-98 | 6292 | 1479 | 602 | 3895 | 1498 | 1268 | 76 | 23 | 3 | 921 | 396 | 0 | 4892 | 1918 | 12 7 0 | 8 081 | 0.51 |
| 1998-99 | 6796 | 1642 | 686 | 4207 | 1664 | 1445 | 83 | 24 | 12 | 1007 | 408 | 253 | 5297 | 2096 | 1710 | 9102 | 0.52 |
| 1999-2000 | 7394 | 1814 | 775 | 4577 | 1838 | 1631 | 96 | 26 | 13 | 1196 | 430 | 265 | 5868 | 2294 | 1909 | 10071 | 0.51 |
| 2000-2001 | 7967 | 1995 | 868 | 4932 | 2021 | 1826 | 95 | 28 | 14 | 1147 | 452 | 278 | 6174 | 2501 | 2118 | 10794 | 0.51 |
| BASELINE E | NROLLMEN | IT FORE | CASTS: | | | | • | | | | | | | | | | |
| 1990-91 | 6163 | 1737 | 604 | 3815 | 1759 | 1271 | 29 | 8 | 3 | 0 | 0 | 0 | 3843 | 1768 | 1274 | 6885 | 0.57 |
| 1991-92 | 6287 | 1868 | 658 | 3892 | 1893 | 1386 | 42 | 22 | 9 | 249 | 329 | 163 | 4183 | 2244 | 1558 | 7984 | 0.55 |
| 1992-93 | 6546 | 1995 | 719 | 4052 | 2021 | 1514 | 57 | 22 | 10 | 517 | 318 | 184 | 467.6 | 2361 | 1708 | 8695 | 0.56 |
| 1993-94 | 6861 | 2113 | 775 | 4247 | 2141 | 1631 | 64 | 22 | 9 | 627 | 294 | 167 | 4940 | 2457 | 1807 | 9204 | 0.57 |
| 1994-95 | 7236 | 2239 | 832 | 4479 | 2268 | 1751 | 72 | 23 | 10 | 752 | 314 | 171 | 530 3 | 2605 | 1932 | 9841 | 0.57 |
| 1995-96 | 7667 | 2347 | 885 | 4746 | 2377 | 1862 | 80 | 22 | 10 | 862 | 270 | 158 | 5688 | 2669 | 2029 | 10386 | 0.57 |
| 1996-97 | 8181 | 2499 | 940 | 5064 | 2532 | 1978 | 91 | 27 | 10 | 1028 | 381 | 165 | 6183 | 2940 | 2153 | 11275 | 0.58 |
| 1997-98 | 8767 | 2685 | 992 | 5427 | 2720 | 2088 | 101 | 32 | 10 | 1172 | 464 | 157 | 6699 | 3216 | 2255 | 12170 | 0.58 |
| 1998-99 | 9375 | 2929 | 1063 | 5803 | 2967 | 2237 | 105 | 39 | 12 | 1217 | 611 | 212 | 7126 | 3616 | 2461 | 13204 | 0.59 |
| 1999-2000 | 10063 | 3191 | 1169 | 6227 | 3233 | 2461 | 117 | 42 | 16 | 1376 | 656 | 320 | 7722 | 3930 | 2798 | 14450 | 0.60 |
| 2000-2001 | 10829 | 3472 | 1284 | 6703 | 3518 | 2703 | 129 | 45 | 18 | 1531 | 703 | 344 | 8362 | 4265 | 3065 | 1569 3 | 0.60 |

TABLE IV - 22: PROJECTED SCHOOL-LEVEL EXPENDITURES FOR PUNJAB BASED UPON THREE ALTERNATIVE ENROLLMENT FORECASTS

* Enrollments are measured in thousands of students. All costs are expressed in millions of Rupees.

| | PROJE <u>LEVEL</u> | PROJECTED SCHOOL- Level Enrollments P M H | | | RECURRING EXPENDITURES | | | TEACHER TRAINING <u>EXPENDITURES</u> | | | DEVELOPMENT EXPENDITURES | | | OR SCH | PROPORTION OF TOTAL SCHOOL-LEVEL EXPENDITURES | | |
|-----------------|-----------------------|---|----------|----------|---------------------------|------|----------|--|-----|------------|-----------------------------|------------|--------------|----------|--|-------|-----------------|
| YEAR | <u> </u> | M | <u>н</u> | <u> </u> | <u> </u> | H | <u>P</u> | M | H | <u>.</u> P | <u> </u> | <u>_H_</u> | P | <u> </u> | <u> </u> | TOTAL | FOR Pakistan |
| TIME SERIES | S ENROLL | MENT F | ORECAS | TS: | | | | | | | | | | | | | |
| 1990-91 | 2066 | 574 | 225 | 1494 | 833 | 442 | 10 | 3 | 1 | 0 | 0 | 0 | 1504 | 835 | 443 | 2781 | 0.23 |
| 1991-92 | 2152 | 599 | 234 | 1556 | 869 | 458 | 19 | 5 | 2 | 172 | 63 | 25 | 1747 | 938 | 485 | 3170 | 0.22 |
| 1992-93 | 2242 | 626 | 242 | 1621 | 908 | 475 | 20 | 6 | 2 | 179 | 66 | 26 | 18 20 | 979 | 503 | 3303 | 0.21 |
| 1993-94 | 2336 | 653 | 252 | 1689 | 948 | 493 | 20 | 6 | 2 | 187 | 69 | 27 | 1896 | 1022 | 522 | 3441 | 0.21 |
| 1994-95 | 2433 | 682 | 261 | 1759 | 989 | 511 | 21 | 6 | 2 | 196 | 72 | 28 | 1977 | 1067 | 542 | 3586 | 0.20 |
| 1995- 96 | 2536 | 712 | 271 | 1833 | 1033 | 531 | 22 | 6 | , 2 | 205 | 75 | 29 | 2060 | 1115 | 562 | 3737 | 0.20 |
| 1996-97 | 2643 | 744 | 281 | 1911 | 1078 | 551 | 23 | 7 | 2 | 214 | 79 | 30 | 2148 | 1164 | 583 | 3895 | 0.19 |
| 1997-98 | 2754 | 777 | 291 | 1991 | 1126 | 571 | 24 | 7 | 2 | 223 | 82 | 32 | 2239 | 1215 | 605 | 4059 | 0.19 |
| 1998-99 | 2871 | 811 | 302 | 2076 | 1176 | 593 | 25 | 7 | 3 | 233 | 86 | 33 | 2335 | 1269 | 628 | 4231 | 0.18 |
| 1999-2000 | 2993 | 847 | 314 | 2164 | 1228 | 615 | 26 | 8 | 3 | 244 | 89 | 34 | 2434 | 1325 | 652 | 4411 | 0.18 |
| 2000-2001 | 3121 | 884 | 326 | 2256 | 1282 | 638 | 28 | 8 | 3 | 255 | 93 | 35 | 2539 | 1383 | 676 | 4598 | 0.17 |
| BEST CASE E | | NT FOR | ECASTS | : | | | | | | | | | | | | | |
| 1990-91 | 1915 | 473 | 233 | 1384 | 685 | 456 | 9 | 2 | 1 | 0 | 0 | 0 | 1393 | 688 | 457 | 2538 | 0.24 |
| 1991-92 | 1982 | 410 | 259 | 1433 | 595 | 509 | 16 | 2 | 4 | 135 | 0 | 80 | 1584 | 597 | 592 | 2774 | 0.25 |
| 1992-93 | 2077 | 347 | 210 | 1502 | 504 | 411 | 19 | 2 | 1 | 190 | 0 | 0 | 1711 | 505 | 412 | 2628 | 0.27 |
| 1993-94 | 2176 | 375 | 157 | 1573 | 544 | 307 | 20 | 5 | 1 | 198 | 70 | 0 | 1792 | 618 | 308 | 2718 | 0.26 |
| 1994-95 | 2321 | 430 | 176 | 1678 | 623 | 345 | 26 | 8 | 3 | 290 | 137 | 57 | 1993 | 768 | 405 | 3166 | 0.28 |
| 1995-96 | 2511 | 491 | 196 | 1815 | 712 | 383 | 31 | 9 | 3 | 379 | 153 | 59 | 2226 | 874 | 445 | 3545 | 0.26 |
| 1996-97 | 2717 | 566 | 235 | 1965 | 821 | 461 | 34 | 10 | 5 | 413 | 187 | 119 | 2411 | 1019 | 586 | 4016 | 0.28 |
| 1997-98 | 2946 | 636 | 287 | 2130 | 922 | 563 | 37 | 10 | 7 | 457 | 174 | 156 | 2624 | 1106 | 726 | 4456 | 0.28 |
| 1998-99 | 3197 | 709 | 325 | 2312 | 1027 | 637 | 41 | 11 | 5 | 503 | 182 | 113 | 2856 | 1220 | 755 | 4831 | 0.27 |
| 1999-2000 | 3492 | 788 | 366 | 2525 | 1142 | 717 | 46 | 12 | 6 | 590 | 198 | 122 | 3162 | 1352 | 845 | 5359 | 0.27 |
| 2000-2001 | 3785 | 871 | 409 | 2737 | 1263 | 802 | 48 | 13 | 6 | 585 | 208 | 131 | 3370 | 1483 | 939 | 5792 | 0.27 |
| BASELINE E | NROLLMEN | T FORE | CASTS: | | | | | | | | | | | | | | |
| 1990-91 | 1985 | 577 | 228 | 1435 | 836 | 446 | 9 | 3 | 1. | 0 | 0 | 0 | 1444 | 839 | 447 | 2731 | 0.22 |
| 1991-92 | 2062 | 615 | 248 | 1491 | 891 | 487 | 18 | 7 | 3 | 154 | 95 | 62 | 1662 | 993 | 553 | 3208 | 0.22 |
| 1992-93 | 2141 | 650 | 269 | 1548 | 942 | 527 | 18 | 7 | 3 | 158 | 88 | 62 | 1724 | 1037 | 592 | 3353 | 0.22 |
| 1993-94 | 2221 | 672 | 284 | 1606 | 974 | 556 | 19 | 5 | 3 | 159 | 54 | 44 | 1783 | 1034 | 602 | 3419 | 0.21 |
| 1994-95 | 2318 | 712 | 309 | 1676 | 1032 | 606 | 21 | 7 | 4 | 195 | 100 | 77 | 1892 | 1140 | 688 | 3720 | 0.21 |
| 1995-96 | 2404 | 747 | 329 | 1738 | 1084 | 646 | 20 | 7 | 4 | 171 | 89 | 60 | 1929 | 1180 | 710 | 3819 | 0.21 |
| 1996-97 | 2494 | 797 | 357 | 1803 | 1156 | 700 | 21 | 9 | 4 | 181 | 124 | 83 | 2005 | 1289 | 787 | 4081 | 0.21 |
| 1997-98 | 2587 | 839 | 403 | 1870 | 1217 | 790 | 22 | 8 | 7 | 185 | 105 | 138 | 2077 | 1330 | 934 | 4340 | 0.21 |
| 1998-99 | 2682 | 883 | 441 | 1939 | 1281 | 865 | 22 | 9 | 6 | 190 | 110 | 115 | 2151 | 1400 | 986 | 4537 | 0.20 |
| 1999-2000 | 2780 | 929 | 478 | 2010 | 1347 | 937 | 23 | 9 | 6 | 197 | 114 | 111 | 2230 | 1470 | 1054 | 4754 | 0.20 |
| 2000-2001 | 2881 | 975 | 518 | 2083 | 1414 | 1015 | 24 | 9 | 6 | 203 | 115 | 119 | 2310 | 1539 | 1140 | 4988 | 0.19 |

TABLE IV - 23: PROJECTED SCHOOL-LEVEL EXPENDITURES FOR SINDH BASED UPON THREE ALTERNATIVE ENROLLMENT FORECASTS

* Enrollments are measured in thousands of students. All costs are expressed in millions of Rupees.

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| | | | | | | | | | | | | , |
|------------|-----|-------------|---------------|---------------|------|--------------------|-------|--------|-------|--------------|-------------|-----------|
| TARIE IV - | 74. | PPO.IECTED | SCHOOL -LEVEL | EXDENDITIORS | FOR | BALOCHISTAN | DACEN | LIDON | TUDEE | AL TEDNATIVE | ENDOUT MENT | CODECARTE |
| | | I NOUL GILD | SOUGHE FEAFE | PVL PMATIONES | 1.04 | OVFOCUT31VN | DAJED | Urvill | INKEE | ALICKAAIIVE | | TURELABIS |

G

| | PROJE LEVEL | CTED S | CHOOL - LMENTS | RE Exp | CURRING ENDITUS | G RES | TE TR <u>Expe</u> | ACHER AININ NDITU | G Res | DEVE EXPE | LOPMEN ND I TUR | T ES | TO F(| TAL EXP DR SCHO Enroll | ENDITU IOL-LEVI MENTS | RES EL | PROPORTION OF TOTAL SCHOOL-LEVEL EXPENDITURES |
|-------------|----------------|----------|-------------------|-----------|--------------------|------------|-------------------------|-------------------------|----------|---|--------------------|---------|----------|------------------------------|-----------------------------|-----------|--|
| YEAR | <u> </u> | <u> </u> | H | <u> </u> | M | <u>_H</u> | <u>P</u> | <u> M</u> | <u> </u> | <u>P</u> | M | H | <u> </u> | M | <u>_</u> H_ | TOTAL | FOR <u>PAKISTAN</u> |
| TIME SERIES | ENROLL | MENT F | ORECAST | s: | | | | | | | | | | | | | |
| 1990-91 | 446 | 58 | 19 | 253 | 169 | 34 | 2 | 0 | 0 | 0 | 0 | 0 | 255 | 169 | 34 | 459 | 0.04 |
| 1991-92 | 489 | 62 | 20 | 278 | 182 | 36 | 7 | 1 | 0 | 86 | 11 | 4 | 371 | 194 | 41 | 606 | 0.04 |
| 1992-93 | 537 | 67 | 22 | 305 | 196 | 39 | 7 | 1 | 0 | 95 | 12 | 5 | 407 | 209 | 44 | 660 | 0.04 |
| 1993-94 | 589 | 73 | 23 | 335 | 211 | 42 | 8 | 1 | 0 | 105 | 13 | 5 | 447 | 225 | 48 | 720 | 0.04 |
| 1994-95 | 647 | 78 | 25 | 367 | 228 | 46 | 9 | 1 | 0 | 115 | 14 | 6 | 492 | 243 | 51 | 786 | 0.04 |
| 1995-96 | 710 | 84 | 27 | 403 | 245 | 49 | 10 | 1. | Ō | 127 | 15 | 6 | 540 | 261 | 55 | 857 | 0.05 |
| 1996-97 | 780 | 91 | 29 | 443 | 264 | 53 | 11 | 1 | ŏ | 140 | 16 | 6 | 595 | 282 | 60 | 076 | 0.05 |
| 1997-98 | 858 | 98 | 32 | 487 | 285 | 57 | 12 | 1 | Ň | 155 | 18 | 7 | 654 | 304 | 65 | 1023 | 0.05 |
| 1998-00 | 944 | 105 | 34 | 536 | 307 | 62 | 13 | i | ň | 171 | 10 | 8 | 720 | 307 | 70 | 1117 | 0.05 |
| 1000-2000 | 1038 | 117 | 37 | 500 | 331 | 47 | 15 | - i | ň | 180 | 20 | 8 | 703 | 252 | 75 | 1222 | 0.05 |
| 2000-2001 | 1143 | 122 | 40 | 649 | 357 | 72 | 16 | i | Ö | 209 | 22 | ç | 874 | 380 | 82 | 1336 | 0.05 |
| BEST CASE E | NROLLME | NT FOR | ECASTS: | | | | | | | | | | | | | | |
| 1990-91 | 346 | 53 | 22 | 196 | 156 | 40 | 2 | 0 | 0 | 0 | 0 | 0 | 198 | 156 | 40 | 394 | 0.04 |
| 1991-92 | 331 | 47 | 28 | 188 | 137 | 50 | 2 | Ō | 1 | õ | Ő | 17 | 120 | 137 | 67 | 303 | 0.04 |
| 1992-93 | 327 | 38 | 22 | 186 | 111 | 40 | 2 | õ | ò | ŏ | ŏ | 0 | 187 | 112 | 40 | 339 | 0.04 |
| 1993-94 | 332 | 41 | 17 | 189 | 120 | 30 | 2 | 1 | Ō | 10 | 8 | Ō | 201 | 129 | 30 | 360 | 0.03 |
| 1994-95 | 345 | 45 | 17 | 196 | 130 | 31 | 3 | 1 | ŏ | 27 | 8 | ñ | 226 | 130 | 31 | 306 | 0.05 |
| 1995-96 | 373 | 50 | 20 | 212 | 146 | 35 | 5 | i | ň | 55 | 13 | Ř | 271 | 160 | 44 | 475 | 0.04 |
| 1996-97 | 202 | 56 | 23 | 220 | 162 | 41 | ś | i | ň | 62 | 14 | 10 | 206 | 176 | 52 | 526 | 0.04 |
| 1997-98 | 438 | 63 | 28 | 240 | 185 | 50 | 6 | 1 | 1 | 68 | 20 | 15 | 322 | 205 | 66 | 50/ | 0.04 |
| 1008-00 | 475 | 86 | 22 | 270 | 250 | ٥ <u>٦</u> | Ă | रं | i | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 56 | 15 | 350 | 300 | 76 | 735 | 0.04 |
| 1000-2000 | 521 | 108 | 32 | 206 | 314 | 68 | 7 | ž | i | 02 | 55 | 15 | 306 | 372 | 87 | 251 | 0.04 |
| 2000-2001 | 562 | 131 | 56 | 319 | 381 | 101 | 7 | 3 | ż | 82 | 57 | 54 | 409 | 441 | 158 | 1008 | 0.05 |
| BASELINE EN | ROLLMEN | T FORE | CASTS: | | | | | | | | | | | | | | |
| 1990-91 | 454 | 71 | 22 | 258 | 206 | 40 | 2 | 0 | 0 | 0 | 0 | 0 | 260 | 206 | 40 | 506 | 0.04 |
| 1991-92 | 471 | 81 | 28 | 268 | 236 | 51 | 4 | 1 | 1 | 34 | 26 | 18 | 306 | 263 | 69 | 638 | 0.04 |
| 1992-93 | 490 | 89 | 34 | 278 | 260 | 62 | 4 | 1 | 1 | 38 | 21 | 19 | 321 | 282 | 82 | 684 | 0.04 |
| 1993-94 | 510 | 93 | 38 | 290 | 271 | 68 | 4 | 1 | 1 | 40 | 9 | 10 | 334 | 281 | 79 | 695 | 0.04 |
| 1994-95 | 532 | 99 | 38 | 302 | 288 | 69 | 5 | 1 | Ó | 43 | 15 | 1 | 349 | 304 | 70 | 723 | 0.04 |
| 1995-96 | 553 | 105 | 39 | 314 | 307 | 70 | 5 | 1 | Ō | 42 | 17 | 3 | 361 | 325 | 73 | 759 | 0.04 |
| 1996-97 | 574 | 113 | 44 | 326 | 330 | 79 | 5 | i | 1 | 44 | 20 | 15 | 375 | 351 | 94 | 820 | 0.04 |
| 1997-98 | 597 | 121 | 49 | 339 | 352 | 89 | Š | 1 | 1 | 45 | 18 | 17 | 389 | 372 | 106 | 868 | 0.04 |
| 1998-99 | 621 | 120 | 53 | 352 | 375 | 97 | 5 | i | 1 | 47 | 20 | 13 | 405 | 396 | 110 | 911 | 0.04 |
| 1999-2000 | 645 | 137 | 58 | 366 | 399 | 105 | 6 | i | i | 20 | 21 | 13 | 421 | 421 | 119 | 961 | 0.04 |
| 2000-2001 | 671 | 146 | 71 | 381 | 425 | 129 | 6 | ż | 2 | 51 | 22 | 40 | 438 | 448 | 171 | 1057 | 0.04 |
| | - • • | | • • | • | | | - | - | | | | - | | | | · • | |

* Enrollments are measured in thousands of students. All costs are expressed in millions of Rupees.

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Ratio of Total Public Educational Budget to GNP

| Year | Ratio |
|---------|-------|
| 1983-4 | .0161 |
| 1984-5 | .0174 |
| 1985-6 | .0223 |
| 1986-7 | .0234 |
| 1987-8 | .0237 |
| 1988-9 | .0207 |
| 1989-90 | .0212 |
| 1990-91 | .0216 |

TABLE IV - 26: ANALYSIS OF PROJECTED EDUCATIONAL EXPENDITURES AS A PROPORTION OF GNP

| | | | | | | | | TOTAL EDUCATIONAL EXPENDITURES HELD CONSTANT AT 2% OF GNP | | | | | | TO <u>Rise</u> | TAL EDU | CATIONA | L EXPEN N <u>P By 2</u> | 10 I TURE 2000-20 | s 01_ |
|-----------|--------------|---------------------------|------------------------------|--------------|-----------------------------------|---|--------------------------------|--|---|------------------|---------------------------------------|--|-----------------------------------|-------------------|--|-----------------------|--|----------------------|-----------|
| | TO F | TAL EX OR SCH ENROL | PENDITE OOL-LEV LMENTS | JRES VEL | TOTAL FOR SC ENROL PROPO | EXPENDI HOOL-LE LMENTS RTION O | TURES VEL AS A IF GNP | A\ Expe For Edu PL | AILABL NDITUR OTHER JCATION JRPOSES | .E RES IAL | AV EXPE IS A PR TOTAL EXP | AILABL NDITUR OPORTI EDUCAT ENDITU | F. ES ON OF IONAL RES | EX F | AVAILABI PENDITUR OR OTHER DUCATION PURPOSES | LE RES RAL S | AVAILABLE EXPENDITURES AS A PROPORTION OF TOTAL EDUCATIONAL EXPENDITURES | | |
| | | | | | | GR | ОШТН ВИ | TE OF | GNP: | | | | | | сроити | | E CND- | | |
| YEAR | <u> </u> | <u>M</u> | <u> </u> | <u>TOTAL</u> | 4% | <u>5x</u> | <u>6%</u> | 4% | 5% | _6% | 4% | <u> 5x </u> | <u>6%</u> | 4% | <u>_5%</u> | <u>-6%</u> | <u>4%</u> | <u> 5x </u> | <u>6%</u> |
| TIME-SERI | ES ENRO | LLMENT | FOREC | ASTS: | | | | | | | | | | | | | | | |
| 1990-91 | 67 33 | 3238 | 1891 | 11862 | 0.013 | 0.013 | 0.013 | 6756 | 6935 | 7114 | 0.36 | 0.37 | 0.37 | 6756 | 6935 | 7114 | 0.36 | 0.37 | 0.37 |
| 1991-92 | 8583 | 3910 | 2183 | 14676 | 0.015 | 0.015 | 0.014 | 4830 | 5205 | 5583 | 0.25 | 0.26 | 0.27 | 5315 | 5699 | 6086 | 0.27 | 0.28 | 0.30 |
| 1992-93 | 9148 | 4174 | 2322 | 15645 | 0.015 | 0.015 | 0.015 | 4646 | 5233 | 5831 | 0.23 | 0.25 | 0.27 | 5653 | 6270 | 6898 | 0.27 | 0.29 | 0.31 |
| 1993-94 | 9756 | 4458 | 2473 | 16687 | 0.016 | 0.015 | 0.015 | 4421 | 5239 | 6080 | 0.21 | 0.24 | 0.27 | 5992 | 6871 | 7776 | 0.27 | 0.29 | 0.32 |
| 1994-95 | 10409 | 4763 | 2636 | 17808 | 0.016 | 0.015 | 0.015 | 4149 | 5218 | 6327 | 0.19 | 0.23 | 0.26 | 6327 | 7503 | 8723 | 0.26 | 0.30 | 0.33 |
| 1995-96 | 11112 | 5092 | 2813 | 19017 | 0.017 | 0.016 | 0.015 | 3825 | 5165 | 6569 | 0.17 | 0.21 | 0.26 | 6656 | 8163 | 9743 | 0.26 | 0.30 | 0.34 |
| 1996-97 | 11870 | 5446 | 3007 | 20322 | 0.017 | 0.016 | 0.015 | 3441 | 5074 | 6803 | 0.15 | 0.2 | 0.25 | 6974 | 8853 | 10841 | 0.26 | 0.31 | 0.35 |
| 1997-98 | 12687 | 5828 | 3218 | 21/33 | 0.018 | 0.016 | 0.015 | 2989 | 4940 | 7024 | 0.12 | 0.19 | 0.24 | 7275 | 9568 | 12017 | 0.25 | 0.31 | 0.36 |
| 1998-99 | 13571 | 0239 | 3451 | 23261 | 0.018 | 0.017 | 0.015 | 2459 | 4/55 | 7226 | 0.1 | 0.17 | 0.24 | 7554 | 10306 | 13274 | 0.25 | 0.31 | 0.37 |
| 1999-2000 | 14529 | 71/7 | 3/0/ | 24919 | 0.019 | 0.017 | 0.015 | 1841 | 4504 | 7404 | 0.07 | 0.15 | 0.23 | 7802 | 11064 | 14617 | 0.24 | 0.31 | 0.37 |
| 2000-2001 | 12200 | 1 103 | 2441 | 20122 | 0.019 | 0.017 | 0.016 | 1121 | 4182 | /54/ | 0.04 | 9.14 | 0.22 | 8008 | 11855 | 16042 | 0.23 | 0.31 | 0.38 |
| BEST CASE | ENROLL | MENT F | ORECAS | TS: | | | | | | | | | | | | | | | |
| 1990-91 | 5737 | 2694 | 2058 | 10489 | 0.009 | 0.008 | 0.008 | 8130 | 8309 | 8488 | 0.44 | 0.44 | 0.45 | 8130 | 8309 | 8488 | 0.44 | 0.44 | 0.45 |
| 1991-92 | 5643 | 2339 | 2580 | 10562 | 0.009 | 0.009 | 0.009 | 8901 | 9275 | 9653 | 0.46 | 0.47 | 0.48 | 9385 | 9769 | 10156 | 0.47 | 0.48 | 0.49 |
| 1992-93 | 5707 | 2020 | 1852 | 9579 | 0.008 | 0.008 | 0.008 | 10560 | 11147 | 11745 | 0.52 | 0.54 | 0.55 | 11566 | 12183 | 12811 | 0.55 | 0.56 | 0.57 |
| 1993-94 | 6023 | 2931 | 1434 | 10388 | 0.008 | 0.008 | 0.008 | 10672 | 11489 | 12331 | 0.51 | 0.53 | 0.55 | 12242 | 13121 | 14026 | 0.54 | 0.56 | 0.58 |
| 1994-95 | 6614 | 2720 | 1818 | 11152 | 0.008 | 0.008 | 0.008 | 10755 | 11823 | 12932 | 0.49 | 0.52 | 0.54 | 12932 | 14108 | 15328 | 0.54 | 0.56 | 0.58 |
| 1995-96 | 8035 | 3027 | 2447 | 13508 | 0.009 | 0.009 | 0.008 | 9383 | 10723 | 12127 | 0.41 | 0.45 | 0.48 | 12214 | 13721 | 15301 | 0.48 | 0.51 | 0.54 |
| 1996-97 | 8731 | 3093 | 2382 | 14207 | 0.01 | 0.009 | 0.008 | 9493 | 11127 | 12855 | 0.40 | 0.44 | 0.48 | 13026 | 14905 | 16893 | 0.48 | 0.51 | 0.55 |
| 1997-98 | 9501 | 3893 | 2590 | 15/84 | 0.01 | 0.009 | 0.009 | 8912 | 10863 | 12947 | 0.36 | 0.41 | 0.45 | 13198 | 15491 | 1/940 | 0.46 | 0.50 | 0.54 |
| 1998-99 | 10268 | 4357 | 3029 | 1/055 | 0.011 | 0.01 | 0.009 | 8135 | 10428 | 12902 | 0.32 | 0.38 | 0.43 | 13230 | 15982 | 18950 | 0.43 | 0.48 | 0.52 |
| 1999-2000 | 11554 | 4828 | 3410 | 19572 | 0.011 | 0.01 | 0.009 | (259 | 9922 | 12822 | 0.27 | 0.54 | 0.40 | 13220 | 10482 | 20035 | 0.41 | 0.46 | 0.51 |
| 2000-2001 | 11912 | 2201 | 38/8 | 21098 | 0.012 | 0.01 | 0.009 | 6824 | 9885 | 13251 | 0.25 | 0.32 | 0.39 | 13712 | 17539 | 21746 | 0.40 | 0.46 | 0.51 |
| BASELINE | ENROLLM | IENT FO | RECAST | S: | | | | | | | | | | | | | | | |
| 1990-91 | 6704 | 3381 | 2062 | 12147 | 0.013 | 0.013 | 0.013 | 6470 | 6650 | 6829 | 0.35 | 0.35 | 0.35 | 6471 | 6650 | 6829 | 0.35 | 0.35 | 0.36 |
| 1991-92 | 7580 | 4230 | 2623 | 14433 | 0.015 | 0.014 | 0.014 | 5149 | 552 3 | 5901 | 0.27 | 0.28 | 0.29 | 5633 | 6017 | 6404 | 0.28 | 0.30 | 0.31 |
| 1992-93 | 8178 | 4471 | 2840 | 15489 | 0.015 | 0.015 | 0.014 | 4861 | 5448 | 6046 | 0.24 | 0.26 | 0.28 | 5868 | 6485 | 7113 | 0.28 | 0.30 | 0.32 |

8625 4651 2970 16246 0.015 0.015 0.014 4880 5698 6539 0.23 0.26 0.29 1993-94 6451 7330 8235 0.29 0.31 0.34 3166 17316 0.016 0.015 0.014 4668 5736 6846 0.21 0.25 0.28 1994-95 9127 5023 6845 8021 9241 0.29 0.32 0.35 9593 520**8** 3373 1995-96 18174 0.016 0.015 0.014 4671 6011 7415 0.21 0.25 0.29 10589 7502 9009 0.29 0.33 0.37 3710 19595 0.016 0.015 0.014 4207 5840 7569 0.18 0.23 0.28 1996-97 10247 5638 7739 9618 11606 0.29 0.33 0.37 1997-98 10913 6014 4030 20958 0.017 0.016 0.015 3807 5758 7842 0.16 0.22 0.27 8093 10386 12835 0.28 0.33 0.38 22408 0.017 0.016 0.015 3371 1998-99 11497 6588 4322 8466 11218 14186 0.28 0.34 0.39 5664 8138 0.13 0.2 0.27 1999-2000 12258 7079 4800 24138 0.018 0.016 0.015 2708 5371 8270 8668 11930 15483 0.27 0.33 0.39 0.1 0.18 0.26 2000-2001 13070 7596 5278 25944 0.019 0.017 0.015 1994 5055 8420 0.07 0.17 0.25 8881 12708 16915 0.26 0.33 0.40

* All costs are expressed in millions of Rupees.

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J. <u>COMBINING ENROLLMENT PROJECTIONS, COST ANALYSIS, AND</u> <u>RESOURCE CONSTRAINTS IN EDUCATIONAL PLANNING: AN EXAMPLE</u>

Making realistic educational plans based on costs and resource constraints is facilitated by formal models in which key assumptions about relationships in the education system are clearly stated. This section describes a simple planning model which Pakistan's education planners can use to examine the consequences of different targets for primary, middle, and secondary-level (9-10) enrollments under alternative assumptions about future public education funding.

Table IV-27 presents a small portion of the possible analyses that planners could make regarding tradeoffs among such enrollment and funding targets. The targets for primary, middle, and secondary-level enrollments are expressed in terms of gross participation rates, or GPRs.¹⁶ Recurring expenditures corresponding to each enrollment target for primary, middle, and secondary-level education were calculated, based on the per-student costs presented in Table IV-10. Expenditures for teacher education and for new school facilities are based on the same assumptions as those underlying Table IV-26. Expenditures for higher levels of education and for administration are shown as a percentage of total educational expenditures, and target levels of these expenditures are shown as target percentages of total educational expenditures. In an expanded analysis of tradeoffs in educational planning, the target enrollment for each higher level of education could be shown separately as participation rates of the relevant age groups of the population.

The country's total public educational expenditures, thus calculated, were then divided by the three projected values of Gross National Product (4%, 5%, 6%). (The ratios of public educational financing to GNP are simplified measures because they do not include private educational financing and do not take into account the proportion of all government spending going to education. Nonetheless, the ratio of educational financing to GNP is a useful, if partial, means of assessing the realism of assumptions about future resources available to the education system.

In the face of the high demands and intense political pressures on Pakistan's educational system, it is tempting for planners and administrators to assume that the education sector's share of the country's governmental expenditures will rise. Yet, as noted in Table IV-25, there has been little change in this share over recent years.

¹⁶ It is important to keep in mind that the gross participation rates presented in Table IV-27 provide incomplete measures of educational access. First, they are aggregative. For example, they do not separately show the participation rates of females and males or of rural and urban populations. This problem can be straightforwardly solved by desegregating the participation rates as far as data permit. Secondly, gross participation rates can be increased by grade repetition, about which there are little data in Pakistan. As noted earlier, grade repetition rates are assumed to decline somewhat in the Base Line forecast.

Considering Pakistan's huge debt service costs and defense expenditures, a useful planning assumption is that the ratio of public education funding to GNP will remain close to the present value of just over 2 percent.

The Base-Line projection, labeled Case 1 in Table IV-25, is perhaps the most likely scenario under existing educational policies. With this projection, the GPR for primary education would increase from .63 to .78. Hence, there would be substantial progress under the Base-Line projection towards the country's goal of universal primary education. Also, girls' participation at the primary level would improve and grade repetition decrease. At the same time, the Base-Line projection shows significant progress in the GPRs at the middle level (from .29 to .45) and at the secondary level (from .16 to .30). It can be noted from Table IV-27 that this scenario would require a 45 percent increase in public educational funding as a share of GNP if GNP grows at 4 percent, a 31 percent increase if GNP grows at 5 percent, and an 18 percent increase at a 6 percent growth rate for GNP.

Cases 2 and 3, respectively, show an ambitious but achievable degree of progress (.85 GPR) and nearly full progress (.95) GPR towards universal primary education, while holding the GPRs for middle and secondary-level education at the same levels as in the Base-Line projection. Under these cases, public educational funding as a proportion of GNP rises significantly. Under a 4 percent growth rate for GNP, this proportion would respectively rise (from 1989-90 values of 2.12 percent) 53 percent and 64 percent under Cases 2 and 3, while these proportions would rise 38 percent and 48 percent if GNP grows at 5 percent. Even under the most optimistic 6 percent assumption for GNP growth, education's share of GNP respectively rises 24 and 33 percent in Cases 2 and 3.

In Cases 4, 5, and 6, attempts are made to achieve the 85 percent target for the primary gross participation rate, within a constraint for public educational spending of approximately 2 percent of GNP, by reducing other categories of public education spending. In Case 4, this is accomplished by reducing the target gross participation rates for middle and secondary-level enrollments to their 1988-90 values of .29 and .16. Although higher primary participation will increase pressures for greater enrollments at higher levels, it probably will not be possible to accommodate these enrollments with the resources available to the education system, without substantial cost recovery. The essence of realistic planning under resource constraints is to explore what must be sacrificed to achieve specific goals, such as the 85 percent gross primary participation rate.

The enrollment targets of Case 4, including 85 percent gross primary participation and 1989-90 middle and secondary-level participation, can only be achieved with public spending near 2 percent of GNP if GNP grows at the optimistic rate of 6 percent. In Case 5, additional reductions are made in expenditures on administration and on higher levels of education (college, technical, and university) as a percentage of all educational expenditures from 40.6 to 28.6 percent. These reductions, with a 4 percent GNP growth rate, make it possible to achieve the 85 percent gross primary participation goal (along with a continuation of 1989-90 participation rates for middle and secondary-level enrollments). Case 6 provides an alternative way of achieving an 85 percent gross primary participation rate with public spending near 2 percent of GNP and GNP growth at 4 percent. Under this scenario, the gross participation rates for middle and secondary-level education are raised to .45 and .30 as in the Base Line forecast, while spending on administration and higher levels of education are reduced from 40.6 percent to 10.0 percent of total educational spending. This policy would, of course, require substantial cost recovery and tight controls on enrollments at higher levels.

Many other simulations can be calculated from this model and the model could be augmented to include more detailed targets. The specific application of the model presented in Table IV-27 suggests that Pakistan's education system is unlikely to make substantial improvements in the gross participation rate for primary education unless explicit choices are made to reduce gross participation at higher education levels. This application also points out the dependence of the education system on the growth of the country's economy, a variable which education planners should incorporate into their calculations. The more general value of such modelling exercises is to help planners illustrate for decisionmakers the tradeoffs facing them, and to understand the consequences of alternative conditions facing the education system.

| | GROSS PA | RTICIPATI | ON RATES | Expenditures or Administration Higher Levels | & EDUCATIO | NAL_EXPENDITUR | ES/GNP | | | |
|-------------------------------|----------------------------|---------------|----------------------|--|---|------------------------|------------------------------------|------------------------|------------------------------------|------------------------|
| Enrollmen Targets Cases | c GPR <u>Primary</u> | GPR Middle | GPR <u>Higher</u> | a % of Total Educational Expenditures | , 4% GNP Growth <u>from 89-90</u> | % Change from 89-90 | 5% GNP Growth <u>from 89-90</u> | % Change from 89-90 | 6% GNP Growth <u>from 89-90</u> | % Change from 89-90 |
| 1989-90 Situation | 0.63 | 0.29 | 0.16 | 40.6% | 0.0212 | 0% | 0.0212 | 0% | 0.0212 | 0 % |
| 2000-01 Situation | | | | | | | | | | |
| CASE 1: | 0.78 | 0.45 | 0.30 | 40.6% | 0.0308 | 45% | 0.0277 | 31% | 0.0250 | 18% |
| CASE 2: | 0.85 | 0.45 | 0.30 | 40.6% | 0.0325 | 53% | 0.0292 | 38% | 0.0263 | 24% |
| CASE 3: | 0.95 | 0.45 | 0.30 | 40.6% | 0.0348 | 64% | 0.0313 | 48% | 0.0282 | 33% |
| CASE 4: | 0.85 | 0.29 | 0.16 | 40.6% | 0.0257 | 21% | 0.0231 | 9% | 0.0209 | - 1% |
| CASE 5: | 0.85 | 0.29 | 0.16 | 28.6% | 0.0214 | 1% | 0.0192 | -7% | 0 0173 | - 18% |
| CASE 6: | 0.85 | 0.45 | 0.30 | 10.0% | 0.0214 | 1% | 0.0193 | - 7% | 0.0174 | -17% |

TABLE IV - 27: COMBINING COST ANALYSIS, ENROLLMENT PROJECTIONS AND RESOURCE CONSTRAINTS IN EDUCATIONAL PLANNING: AN EXAMPLE APPLICATION

120-a

V. FOREIGN ASSISTANCE

A. <u>FUNDS AND TECHNICAL SUPPORT</u>

The major external sources of funding for the education sector in Pakistan are the Asian Development Bank, the World Bank, and USAID. Quite a number of multilateral agencies also provide technical assistance, including: UNESCO, UNICEF, UNDP, ILO, and most recently, the World Food Program (WFP). Bilateral donors, apart from USAID, also include: the Netherlands; Britain, mainly through ODA; Germany, through GTZ and in other forms; Japan through substantial material and financial support; Canada through CIDA; France; OECD; and the Scandinavian countries. A rough estimate of the value of their contributions in cash and services is outlined below.

Foreign Assistance Ranked in Order of Magnitude Estimated Imputed Values of Aid 1990-1991

| Agency Est | imated Assistance |
|------------------------------|--|
| | (US\$ millions) |
| World Bank | 700-800 |
| Asian Development Bank | 700 |
| Japan | 400-500 |
| USAID (pre cut-off) | 250 |
| Germany (KFW and some GTZ) | 100 |
| France | 95 |
| Netherlands | <pre>190 (over 5 yrs.; currently about \$30 million/vr.)</pre> |
| UNDP, UNESCO | 20-25 |
| World Food Program (proposed | l) 7+ |
| Great Britain | 5-30 |
| Canada | 5-30 |
| UNICEF | 5+ |
| Others | 3–5 |

Within the education sector, the major portion of assistance goes to primary education (grades 1-5). The World Bank, in past and ongoing PEP (Primary Education) programs, and USAID (PED) have allocated substantial portions of their funds to loans and technical support for comprehensive programs in primary education. The major portion of World Bank loans and USAID grants have gone into the provision of facilities, but the programs are comprehensive in plan, and cover buildings, improvement of instruction through teacher training and improved supervision, and assistance for curriculum development, instructional materials, and books.

1. <u>Donor Coordination at the National Level</u>

In Pakistan, coordination among foreign assistance agencies appears effective at the national level. Currently, the World Bank chairs the 22 foreign assistance groups cooperating in Pakistan. There is one major annual meeting, but there may be several informal gatherings during the course of the year. One day is spent discussing the overall economic situation based on briefing papers, such as the World Bank report. Pakistan Current Economic Situation and Prospects (March 1991). The second day usually takes up a major topic or theme; this year the choice was, appropriately, "the social sectors and the environment." The objective of these meetings is to coordinate efforts, sharpen the focus on critical problems, and marshal sufficient support to meet them. This year, estimated Pakistani requirements were set at US\$2 billion for the year July 1, 1991 to June 30, 1992. The major thematic development hopes are for increased selfreliance and support for privatization. Major problems include the fiscal deficit, deficits in current account and foreign exchange, external debt, inflation, and the high defense and low education budgets. Recently, ADB expressed concern that there be more focused effort to coordinate donor support and activities in the social sectors of health and education (Chowdhury, 1991). A consultative committee to address these concerns is reported to be forming.

There is general agreement among donors, and verbal agreement among government officials, that the education sector is underfunded, and that the distribution of funds among education subsectors in not in accord with existing social and economic development priorities. The priority is to expand and improve education in grades 1-8. The hope is that allocations and expenditures can be held steady at the level of higher secondary, college, and university education. This hope, in turn, is founded on the premise that an increased share of the burden of support for higher secondary and higher education will be taken over by families and private sources. On a strictly *quid-pro-quo* basis--increased school fees for a quality education--it may be realistic to hope that affluent families will pay for the education of their children. To expect privatization in education to benefit the larger and less affluent segments of the population appears no more likely to happen in Pakistan than in the United States.

The foreign assistance programs in primary education have focused a major effort in the replacement of "shelterless schools" and upgrading educational facilities and equipment generally. Shelterless schools (see Section III for a discussion of this term) must be replaced for reasons of physical safety and comfort as well as to contribute to more effective teaching and learning. Bad or nonexistent facilities also must be replaced because of the symbolic nature of a school building to the community and its families. The building gives presence to the school. It is a symbol around which local support can be mobilized. The facility is only a beginning, however, and the program to aid primary schooling must provide a complete package of all basic inputs to education-trained teachers and supervisors, sound curricula, instructional materials, and books. Foreign donors have assisted the government in mounting programs which address these needs. The problem lies not in conception and preplanning, or coordination at the national level. Rather, some lapses in coordination have occurred at provincial and division, district, and school levels, where the projects must be implemented, managed, and controlled.

2. <u>Coordination at Provincial and Local Levels</u>

Although coordination at the national level appears sound, schools are operated at the provincial level, and this is where coordination is essential. In the case of projects, the main activity is at the district, subdistrict, community, and school levels. At these levels, project implementation succeeds or fails. Coordination is not always strong, but there are signs of growing concern for provincial and local project coordination, and examples of growing interest and efforts to insure cooperative work among the project advisors, the responsible officials in the provincial secretariats, ADEOs and Learning Coordinators, and community and school-based representatives and teachers.

A case of local area cooperation in Balochistan is discussed at the end of this section. If this cooperation among the different program groups works as expected, the model may be instructive for officials in other provinces, as well as technical assistance officers in Islamabad.

3. <u>Project Directors: The Key to Coordination</u>

Project directors, based in the provincial capitals in most cases, could play a key role in coordinating efforts at the project level. In some cases they do exactly this, but when this happens it is more a product of circumstances and individual initiative. Coordination should be made a more explicit part of their responsibilities. At a minimum, this would require orientation and training before appointments and field placement. This should be followed up with periodic workshops and discussions. A minimum of two sessions a year should be required, because conditions change very rapidly. Project directors should be encouraged to exchange views through personal correspondence or computer mail. Major technical assistance agencies must be linked, and the importance of project networking should be stressed.

B. <u>SUMMARY OF MAJOR AGENCY PROGRAMS</u>

Discussion of the work of foreign funding and technical assistance agencies is a major focus of this planning study, and discussion is woven in throughout the report. Here only a summary of major programs is attempted.

1. Asian Development Bank (ADB) Programs

One of the major ADB education programs is the Pakistan Girls Primary Education Development Project, scheduled to run from 1990 to 1994, with ADB providing US\$64.5 million, which represents 75 percent of the outlay. The aim is to increase access and improve retention of girls in primary education through a comprehensive program of assistance in instructional materials, teacher training, and recruitment incentives (such as hostels for female teachers); and to improve the acceptability of education for girls in the communities. The project has several innovative features. One is the establishment of community model school centers--456 in Punjab, 140 in Sindh, 141 in NWFP, and 59 in Balochistan. (Described later is a case of how elements of this program could be coordinated with other features of the primary education programs supported by the World Bank, USAID, and UNICEF).

ADB also is a major provider of funds to technical, vocational, and science education. The first loans were provided two decades ago to strengthen technical teacher training colleges and polytechnic institutes. The current value of the bank loan in 1991 was \$21 million and the project established a National Technical Teacher Training College (NTTTC), a government polytechnic institute for women (GPIW), upgraded 11 existing polytechnics, and provided consulting and staff development. The estimated completion date for construction of these facilities is 1991. The upgrading of 11 existing polytechnic institutes has been completed and equipment procured. Consulting services have been delivered fully on the target of 258 person-months, and staff development is about 50 percent completed. The project, launched in July 1980, has had five extensions, and in 1991 was 90 percent completed.

Another major ADB program provides aid to secondary level science education through a loan of US\$28.8 million to finance 80 percent of the total capital costs of \$36 million. The GOP will provide its share of \$7.2 million, and the project, under the Science and Technology Wing of MOE, has established IPSET, the Institute for Promotion of Science Education in Islamabad. IPSET has a network of regional centers in the four provinces, and funds provide lab facilities (science rooms) and equipment for middle schools and high schools. The construction and equipping of science rooms in middle schools and labs in high schools has lagged a bit; in Balochistan, 12 schools have empty science rooms or labs. Rather than allow disuse and deterioration, it would seem more sensible to furnish basic equipment (burners, scales, etc.) and science kits, rather than to delay use of the facility waiting for final agreement on curricular details.

The overall science facility program target is 125 science rooms for middle schools and 80 labs for high schools. Despite the middle school lab problem, the study team was impressed by a report on progress by the IPSET project group in Balochistan. The IPSET project has had difficulty recruiting high-level staff for some positions. On the other hand, the care in selecting staff is reflected in the quality of the staff that are on the project, which is impressively high. Training of science teachers is well underway. The science education center has been built, and training and staff development has begun in a three-stage sequence: i) training of 86 master trainers; ii) training of supervisors; and iii) training of 3,030 science teachers. Planning details furnished by IPSET staff in Islamabad and by provincial staff in Quetta seem to be very well worked out. More detailed comments are offered in the section on science, technical, and vocational education.

ADB provides other loans for supplementary programs in education, such as the purchase of biomedical equipment, but the major focus areas are girls' education and science and technical education. If the choice is to support programs at the secondary level, science and technical fields seem to be the logical choice, given development needs, priorities, and the limits on choice in Pakistan. IFSET might be open to challenge because of unit costs of science and technology programs compared to unit costs at primary level; but if effectiveness and efficiency are moved into the analysis, the quality of outcomes in the current primary schools are by no means demonstrable.

The ADB and the World Bank also have participated in a joint study of higher secondary education, examining the issues of finance, management, structure, and quality of the subsector. Results were not available for this study, and it is unclear from observations made in the course of this study, or in reading the results of earlier partial studies, how promising upper secondary education is for outside support.¹⁷ The study team agrees with the hope that more private and family resources will be available to share the burden of financing developments at this level.

This limited enthusiasm for upper secondary and higher education in Pakistan is quite apart from ADB initiatives already begun in science and technology. This caution refers primarily to general education in grades 11-12 in the Arts and Science streams. The ADB and World Bank joint study may uncover some prospects, but none were evident to the study team during the course of this brief visit to Pakistan.

2. Overview of World Bank Programs in Education

The Second Primary Education Project (PEP II) began in 1985 and was scheduled to run five years at a cost of US\$53 million. (PEP I operated from 1979 to 1985.) The PEP II objective was very broad--improve the quality of education in Pakistan through in-service teacher training, improved learning materials (integrated learning modules), improved supervision and coordination of learning, the use of assistant teachers to expand classroom coverage, and construction, replacement, and improvement of facilities, along with efforts to increase community support. In concept, it was a very complete primary education program, covering 14,000 schools in Sindh, Balochistan, and NWFP.

¹⁷ Upper Secondary Education in the Punjab, Kardhar, S.H., Systems Limited, 1990.

The Third Primary Education Project was scheduled to run from FY 1988 through FY 1994 at a total cost of US\$145 million. The goal was to support the government in its plan to achieve universal primary education by the year 2000, and the project was centered on Punjab, the largest province and school system. Specific objectives were: i) improvement of management capacity by creating additional management staff in the secretariats; ii) improved project management of engineering works; and iii) strengthening NBCT (National Bureau of Curriculum and Textbooks), CRDC (Curriculum Research and Development Center), the Provincial Educational Development Center in Punjab, and NICE (the National Institute for Communications through Education). (The discussion of NICE is in Section III.)

Most of the activities planned in curriculum development and training have moved forward, with some delays in construction. The program also supported policy reform in teacher recruitment and training and innovative approaches to delivery of primary education through reform of teacher training. A special priority was to expand and improve girle' educational facilities in support of a government policy to increase female enrollme its, especially in rural areas.

The last major World Bank program aimed to develop primary education in Sindh Province. This is a broad social development effort to increase schooling in rural and urban poor areas, with special attention to education for girls; to improve delivery of primary education generally; and to increase student learning and achievement. All aspects of educational facilities were to be expanded and improved. The program sought to develop special incentives for improving enrollment and retention of all deprived children, especially rural girls. Nutrition and health components were included.

Improved and expanded recruitment, placement, and retention of female teachers was an objective, and in-service training and improved supervision part of a very comprehensive approach. Overall management is to be improved by strengthening system management at secretariat, division, and district levels.

The objectives of the World Bank programs were comprehensive, and included delivery of a full package of educational inputs. In implementation, vital parts of the program lagged, as described in Section III. Delay is scarcely surprising in view of the vast construction targets--over 5,000 two-room schools to replace shelterless facilities; 420 five-room schools; 4,000 classrooms for one-room Mosque schools; and facilities, walls, and repair of 100 schools.

It is difficult for large loan agencies to package programs in small and manageable project chunks, and the question arises--Is it possible to organize, program, and monitor subprojects within the larger project context?

3. USAID Programs in Pakistan

USAID plans to reduce funding and activity in primary education in Pakistan for reasons unrelated to the relevance or worth of past initiatives. The PED program, centered on Balochistan and NWFP, is a sound and valuable initiative in education that has been curtailed by U.S. domestic politics and its influence on international developments, not deficiencies in its educational approach. The project has four principal components: i) improving the capacity of the two targeted provinces to formulate policy and manage the primary education subsector; ii) improving teacher training and expanding the number available; iii) revision of curriculum and development of instructional materials; and iv) construction of new schools and redistribution of existing schools in underserved areas to increase the enrollment of girls.

The PED project, originally funded at \$280 million for 10 years, has been cut to \$120 million for four years and is scheduled to end in 1994. To American educators, this must seem unfortunate, but the project may be supported by other assistance agencies. In the two provinces where USAID has worked, there may be support for continuing PED initiatives under the auspices of the World Bank or ADB, and there are some indications that discussions are underway to take over support for some of the program components now being phased down by USAID. This is promising precisely because the PED programs have made a special effort to work cooperatively with other agencies and provincial and local educators.

In addition to its action side in primary schooling, PED also included a strong R&D component directed by the USAID BRIDGES project. In both Balochistan and NWFP, officials in the P&D directorates reported that they made no use of the BRIDGES results in their policy decisions or plans. They were only moderately aware of study results and showed little interest in expanding and deepening their knowledge, despite PED's efforts to diffuse the knowledge in professional meetings. This seems to indicate that policy research does not yet have a very practical payoff among educators in Pakistan.

USAID programs of training and support through the Development Support Training Project (DSTP), launched in 1984, and funded at \$250 million, has been cut to \$130 million and will end in 1994. Through this program, significant support has been provided to numerous public and private sector institutions in developing their capacity to design and conduct management training. Another DSTP program component focused on entrepreneurship and small-business training, including a pilot effort focused on female entrepreneurs that has proved quite successful. Other innovative USAID programs addressed the problem of training and placement of female teachers in rural areas in Balochistan through the mobile teacher training program and specially developed modular training scripts. The EMIS project in Balochistan and NWFP is, as noted in other contexts, developing a management information system that can serve as a model for other provinces.
4. UNESCO and International Assistance Agency Programs

UNESCO, with USAID funding and the cooperation of UNDP and UNICEF, runs a major training and development program in management information systems. In Punjab, the cooperation is with the World Bank and with other agencies, in a basic education program and the construction of school facilities for Afghan refugee areas. With AEPAM, there is a fellowship program for training in the area of planning and management information systems. A program for book development was implemented in ROBDAP, the UNESCO regional office for book development (now defunct). A training needs assessment is proposed. In general, UNESCO offers technical assistance to support projects funded by other assistance agencies.

5. UNICEF Assistance

UNICEF contributes Rs35.9 million to a seven-year curriculum reform project in Sindh that will cover 200,000 children in two primary school districts, and train 3,800 teachers to teach with the reformed grade 1-5 curriculum. In cooperation with the Sindh government, the project will train 100 supervisors, and use the largest part of the grant to produce textbooks and curriculum materials. On the basis of research, a new needsoriented curriculum will be designed, and instructional materials developed. The main element is a five-year (1989-1994) comprehensive curriculum development project covering integrated learning materials production, community development, and a staff training program. It will cover eight school districts in Pakistan.

Since launching the curriculum reform program in 1989, UNICEF has worked cooperatively with other agencies. Because of the brevity of this project and UNICEF summer-leave schedules, it was not possible to interview key UNICEF personnel. Appraisals here are based largely on reports from staff in other assistance agencies about UNICEF activity. This being so, the comment has a very positive cast. UNICEF is cited for the cooperative spirit of its staff, and for its emphasis on materials relevant to children's daily life and improved child health and safety. According to NETCOM sources, UNICEF also will cooperate in the Islamabad literacy project.

6. ILO/ UNDP Assistance

ILO, once a major participant in manpower planning and development, now is the executing agency for a large program to aid the MOL/National Training Board. UNDP and the Pak Netherlands Human Resource Development Project work on manpower development and training, both at the national level and with Provincial Training Boards. The first attempt to assess training needs and response by the NTB (1983) floundered on a lack of information about occupational training needs, information necessary to plan the establishment of centers that would respond to local job training needs (see section on Manpower Development and Job Training). Many centers failed to open or opened and failed. With ILO as the executing agency, a number of agencies are now working on manpower development and training, starting with collection of basic training supply information. This effort is sound and should be supported as a necessary basis for planning support to occupational training in VTCs and ATCs. It is expected that a major training effort will get underway with assistance from the World Bank, CIDA, EEC, and the German overseas technical assistance agency (GTZ). Any substantial and lasting contribution in this area of training and development will require a long commitment of time and substantial long-term funding. If successful, the returns also will be huge and lasting.

7. World Food Program

WFP, the World Food Program, is new to Pakistan's education sector. WFP has proposed a US\$7 million program in which food assistance will be made part of an incentive program to encourage rural families to send their children, specifically females, to school, and to keep them there. This is a promising adjunct to all other assistance programs.

8. <u>National Assistance Agencies: The Netherlands</u>

The contribution of the Netherlands to Pakistan development is considerable in agriculture, education, and management among other fields. Fifty projects are now operative, with an annual average value of 60 million guilders, currently valued at US\$30 million. The Netherlands work in training and manpower is described in Section III, and is a model for its emphasis on training and transfer of skills to local counterparts. Another feature that the Netherlands projects share with USAID/PED is a comprehensive and concentrated area effort, in this case in NWFP and Balochistan. These area concentrations are showing results in manpower development and training, improvement in management in the provincial P&D departments, and comprehensive schemes in water management and in agriculture.

9. Contributions of Other Agencies and Sources

Other agencies also assist in critical programs. CIDA committed C\$19.2 to establish NICE, the National Institute of Communication in Education. (See Section III on literacy and nonformal education). The aim of NICE, which still seems sound, was to develop self-learning packages, communication strategies, and improvements in mass communication to support education.

NORAD provides funding for printing primary textbooks. Details were unclear on how this might improve content or the currently inadequate institutional arrangements for contracting for the creation, production, and distribution of textbooks and school reading materials. This is a critical area in need of reform. After a needs survey is complete, NORAD proposes substantial, long-term assistance to primary education in the area of teacher training. Other agencies also work in Pakistan, but there was insufficient time to adequately survey all efforts. British ODA, for example, has assisted in several studies, including a study of teacher training demand in 1988. The Aga Khan Foundation also has had long experience in private schooling in Pakistan, and recently committed itself to developing an Institute for Educational Development at the Aga Khan University, initially focused on teacher training. This foundation also has the experience, the staff, and the reputation to assist in the much-needed study of private education in Pakistan.

C. PLANNING FOREIGN ASSISTANCE TO EDUCATION IN PAKISTAN

In recent years, \$US 1 billion has been committed to education in Pakistan in the form of loans, grants, and technical assistance by the international banks, assistance agencies, and bilateral technical assistance agencies. The existing projects seem to be directed at the appropriate priority area--human resource development through basic education, with special attention to social equity and enhanced educational opportunity for rural women. Such focus promises social and economic returns through its indirect effects on moderating total fertility rates and improving health and nutrition for rural women and their children. Improvements in family health and household management and increased family income, earnings, and savings also may be expected. Given the lack of sound information on education in Pakistan, the choice of basic education as a major vehicle for social and economic development is logical. It is not clear, however, that formal primary schooling should be the only instrument for building the necessary foundation for basic, functional literacy and skills. Nor is it clear that broader efforts in skill training and training related to employment and job productivity can long be neglected. But the strong thrust in basic education is a good start. Still, the effectiveness of the current programs in primary education must be assessed systematically before this choice is accepted as the priority in the future.

Not all is well, however, in the planning and coordinated implementation of the education programs. In part, given the federal state responsibilities and resources for education, and the fact that foreign assistance agencies must work through and with the central government of the respondent nation, some of the problems of educational programs are unavoidable.

The devolution of program structures to the provincial level and, ultimately to division, district, and village level, has been slow and sometimes costly. The four provinces of Pakistan are as large and varied as four separate nations, and within each province, there also may be great variation and difference. Thus, programs that attempt to address the nation as a whole may actually address no real segment of the nation. The large loan and grant programs drive this approach because no national or international agency can deal with a province as a sovereign entity. Since federal funds go primarily to capital investment, and capital investment drives increased expenditures to equip, stock, and maintain school facilities, and to staff schools with teachers, supervisors, and administrators, uneven financial stress affects the provinces, where there is little prospect for increasing provincial revenues and local assessments. A shortage in a key input, consumable supples for example, can idle a costly school facility, lab, or shop equipment.

However logically and comprehensively the programs are programmed and scheduled, other concerns also may intervene and cause the components to be delivered piecemeal. There is great frustration when there are buildings, empty and deteriorating, without teachers or students; or teachers without books or pencils. The program may be well planned, but delivery badly programmed.

Project planning, programming, and delivery are not always helped by the PC.1 exercise--the four step pro forma procedure of filling out forms that cover: 1) project definition and description, 2) the assessment of feasibility, (3) revision of estimates, and (4) project completion and hand-over. This procedure appears to stress pro forma, routinized steps, rather than policy analysis, programming, and considered decision. Though control and project "monitoring" are the main purpose of PC.1, the system does not insure project monitoring and control. Although this study team had insufficient time to study the PC.1 programming process, based on observation and experience in other countries, the limitations in PC.1 planning are clear. Both the process and the information used in it are inadequate to support project planning, control, and management.

In Pakistan, however, help is forthcoming in management information systems, as in Balochistan, NWFP, the Sindh database, the school mapping exercises, and the national MIS effort assisted by UNESCO.

Without adequate data, even the best of planning can only marginally improve the delivery of relevant and quality education programs in Pakistan. Program planners and directors must program and manage project implementation so that all the educational inputs are delivered when required. Stated more simply, there should be no classrooms built without teachers trained and placed; no teachers trained without a curriculum and instructional materials to guide them; and no inexperienced school staffs left to languish without supervision and support.

This would be empty advice without specific examples of how programs can be coordinated to insure delivery of a complete set of educational inputs. The following discussion presents such examples.

1. <u>A Coordinated Approach to Improving Schooling for Rural Girls: A Case from</u> Balochistan

Balochistan offers a case where donors coordinated their programs with the provincial education ministry to work on a multiple approach to a serious problem in

the education of rural women--a severe shortage of women trained and willing to work as teachers in rural areas.

The components of this unified approach to education for rural women were:

An ADB program for Community Model Schools, which had plans to establish 69 nuclear model schools linked to a cluster of six to eight schools in surrounding rural areas. The original ADB plan was to build 14 new schools and upgrade 55 existing sites to complete five-grade, five-teacher rural girls schools, with a residential hostel for female teachers. Each model school center was, in effect, a nuclear school that would serve six to 10 satellite schools in rural areas surrounding the small towns where the model schools were located. Transport would be provided so teachers could reach outlying schools served by the model. The Japanese government was to provide buses, but to date none have cleared through customs.

In essence, the model school clusters provided facilities, transport, and living arrangements for female teachers, designed to win social acceptance in rural areas. But the hostels for girls were not accepted in Balochistan, and the program stalled with only five schools built.

<u>A World Bank school facilities program was provided under its PEP project.</u> The target was 1,000 schools, built or reconditioned over a five-year period. After three years, none had been built, repaired, or upgraded, although construction schedules have been revised. (See Section III.)

<u>Training for teachers was offered in the Primary Education Project funded by the</u> <u>World Bank and run by BMOE</u>. This program prepared at teachers at three levels-master trainers; elementary teacher training college staff; and classroom teachers for primary schools. This program, though valuable, was not specifically designed for the problem of training and placement of female primary school teachers in rural areas.

Another approach to teacher training, designed to fit the problem of female teachers for rural area schools, was the new MFTT, the Mobile Female Teacher Trainign project. The MFTT program sets up a temporary training center in a small town in a rural area where there is a predetermined need for trained female teachers. (A need that will be determined by the USAID information project, BEMIS). Trainees are bused from their villages to the Center, and training is built on activity-based instructional approaches strongly supported by the Curriculum Bureau of the Balochistan Secretariat of Education. Under MFTT, rural girls are trained while still maintaining close ties to their home areas. Transportation to and from their homes to the training centers is provided, and this feature differentiates the program from the hostel approach. The problem of encouraging trained teachers from urban schools to move to distant rural schools is also resolved. When the need is met in the area around the temporary MFTT site, the program shifts to a new area of need. (Further details on MFTT are in the section on costing).

The MFTT program is itself a joint effort, in which UNICEF directly funds program elements and technical assistance is furnished by the USAID PED project. Educators in PED and UNICEF leadership, along with Balochistan MOE officers, specifically the Additional Chief Secretary of Education, perceived a possible link between programs that aimed to build or repair and upgrade school facilities (the ADB Model Cluster Schools and the World Bank primary education project) and MFTT, a project that would train rural female teachers for these schools. Educators from various agencies saw the possibility of merging several programs that offered various inputs needed to resolve the problem of rural schooling for females.

The resultant collaboration addressed two of three necessary educational components--facilities and teacher training. Links now need to be established to programs that provide the third main input component--curriculum and instructional materials.

<u>Several groups were working in Balochistan on curriculum and instructional programs.</u> UNICEF has a current program with the MOE curriculum and extension bureau, conducting a survey to develop curriculum objectives; USAID'S BRIDGES and PED projects researched instructional materials needs and proposed new designs for annotated teaching notes; and the World Bank funded the development of integrated curriculum modules under the PEP project.

Under PEP, instructional modules are prepared with the curriculum and extension staff of the Balochistan Secretariat of Education. These modules were not at the outset accessible to the MFTT project, which had to develop its own scripted lessons in activity learning and instructional methods.

Yet, another source of relevant instructional materials for rural female teacher training was being developed under the distance teaching programs of Allama Iqbal Open University. AIOU had worked with many assistance agencies through the years.

Still another unique component added to the mix of programs offering facilities, teachers, and curriculum and instructional materials--the food incentive program under WFP (World Food Program). As mentioned before, WFP provides basic food supplements to rural families as an incentive for them to send their children to school. This is particularly important to secure parental support for the education of girls, who might otherwise be trapped in household work and thus denied access to schooling.

Out of many different components and with the coordinated support of many different agencies, the possibilities of a multifaceted approach to a complex educational problem have been shaped.

2. End Note

This case from the hard rural areas of Balochistan sounds too ideal as a model for comprehensive, cooperative, locally determined program response. In some ways it is. There are continuing frictions and shortcomings:

- The WFP program, in a burst of enthusiasm for a cooperative effort with the mobile teacher training program, announced that it would provide \$7 million in food aid, and the program extended to 555 girls schools in 20 districts in Balochistan. The program would distribute a monthly takehome ration of oil, tea, and pulses to each student who attended 20 days of school a month. The main mechanism, according to the press release, would be the mobile teacher training project, currently operating with only a few rented buses. Vehicles are essential for the MFTT program, and certainly essential for the WFP program expansion. The Japanese buses never made it out of customs in Islamabad, and, when and if they do, they may never make it to the provinces. But MFTT workers do what they can with what they have. The spirit in the program is adaptation.
- The World Bank primary school construction program is far behind schedule, although current plans are to catch up with large building programs in the last two years of the project--500 schools each year. In such large programs delays occur, but a component to establish management control standards and insure monitoring and completion on schedule is being instituted by the World Bank and MOE.
- The PED program to build 70 primary schools and 20 middle schools, and to rehabilitate 203 classrooms also has been plagued with delay, and USAID programs face current uncertainties generated by political events outside Pakistan.
- There is disagreement between MFTT technical support staff who accept "8-pass" and "10-pass" candidates as a realistic level in rural Balochistan. ADB Model Center programs call for B.A. candidates for training; and the supply in Balochistan does not appear adequate for sustaining this level of admits.
- The general demand for teachers to staff schools is now so large, the loss of teachers from service so high, estimates are that it would take 400 years to catch up with demand if teachers were

to be trained for two years and not the three to four months that is proposed by a realistic official in the BSOE. His proposal aims to train 8,000 in three to four months. This schedule may indeed start to gain on the current deficit and future wastage. The Balochistan teacher training program combines in-service and preservice training. Working teachers, without prior formal training, are given a combination of preservice training and inservice experience. These intensive training periods are built into three academic years of teaching experience.

With all its remaining problems, the Balochistan case points to principles that must underlie any successful, coordinated foreign assistance effort. First, the locus of activity and responsibility is shifted out of Islamabad and toward the provinces, and then on down toward the locales, divisions, districts, and communities. Second, coordinated planning helps translate goals to realistic targets, set within resource constraints, and with cost/benefit comparisons and tradeoff analysis as required. And third, the key is not more abstract general systems planning, but increased effort in programming, management, and control of projects.

Innovative educational programs are found in all corners of Pakistan, but if these bright promises are not sustained and supported by practical programming and on-site management, the promise will die young and unrealized.

VI. RECOMMENDATIONS

Sections II through V presented the background information, and qualitative and quantitative data needed to reach 25 recommendations that merit attention by the Steering Group and the ADB in considering future directions for Pakistan's schools. The balance of this section summarizes these draft recommendations. While concrete suggestions for future directions are presented, it is important to note that much of the focus of this report has been on presenting a framework for evaluating alternative policies and tradeoffs within available financial resources. Building on the mandate expressed in the Terms of Reference to "develop a tool for educational planners", two other concerns directed this approach: 1) dialogue between the study team and the Steering Committee of the Ministry of Education was limited by the short, intensive nature of this assignment and the busy schedules of committee members; and 2) there was by no means consensus about future directions for school education among the key Pakistani educators whose insights have been incorporated in this report.

The hope, therefore, is that this report will stimulate discussion and consideration of the draft recommendations posed in this section to enable Pakistani educators to begin to reach consensus about future directions and goals for school education, and how the foreign donor community might assist in identified areas.

The recommendations below are not presented in priority order. Rather, they are grouped into eight categories, corresponding to the key issues in the education sector (see Section II) which are discussed throughout this report.

A. EDUCATION GOALS AND TARGETS

Recommendation 1: Establish universal access to primary education (grades 1 through 8) as the cornerstone of national education policy, allocate the funding needed, and ensure the political support necessary to achieve this goal within a realistic timeframe. Consider exploring other mechanisms, such as nonformal schooling and mass literacy programs, as an alternative to universal literacy through formal schooling. This is one potential way to alleviate the burden that increased enrollments and enhanced educational inputs will impose on public financial resources.

Recommendation 2: Develop and establish a policy and planning framework for formulating overall goals for the education sector. Anticipating the need to begin preparation of the 8th Five-year Plan, consider using the Master Plan report as a starting point in a broader discussion and analysis of education goals and targets, and in developing a systematic framework for debate of these issues within existing resource constraints. To assist this decisionmaking process, consideration could be given to using a set of strategic, heuristic exercises to assist in developing a goal framework, clarifying goals, and identifying targets (e.g., the BRIDGES strategic gaming exercise, EPIC, 1991).

Recommendation 3: Continue support to the development of EMIS systems in Balochistan, NWFP, and the UNESCO-funded national EMIS project. These initiatives, and complementary efforts such as the school mapping exercises now being completed, will provide the fundamental data with the age-grade distributions necessary for sound enrollment projections, and other information needed for many other planning and management needs from school location to teacher recruitment.

Recommendation 4: Consider undertaking a serious and well-funded effort to develop a "Master Plan" for education when better information is available. This Master Plan study has made a fine start, and the effort should continue. AEPAM has shown its capacity to support such an initiative if provided sufficient time and resources. Preparation of such a plan will require a year or more to allow adequate time for collection and analysis of data and full discussion of results, and a staff of varied specialists to support its preparation.

Recommendation 5: Carefully review and incorporate the results and recommendations of the recent ADB/World Bank study of higher secondary education in the final report for this study.

B. IRREGULAR SCHOOL STRUCTURES

Recommendation 6: Establish as a clear goal and explicit policy objective to move toward a national grade 1 to 8 basic education program. This course should be taken, however, with a realistic awareness of the difficulties and according to a declared policy that is accepted by all, with a schedule established for accomplishing the change. Implementing the decision will be difficult in all provinces, but the policy must be accepted and implemented within a reasonable period, certainly within the term of the 8th Plan.

Recommendation 7: Consider regularizing secondary-level grade structures by converting the education system into a grade 1-8 and 9-12 structure. This would necessitate moving grades 11 and 12 down to the secondary level, and closing off admissions to these grades in intermediate college. As a result, the colleges would become postsecondary, degree-granting institutions.

Recommendation 8: Consider a similar, difficult step in separating the large number of underage children in Kachi classes from Pakki enrollments in grade 1. This would mean keeping kindergarten, or Kachi, as a separate level and educational experience, where available resources can afford to provide it.

C. INSTRUCTIONAL INPUTS

Recommendation 9: Accelerate the training of primary teachers, emphasizing training outside of teacher training institutes--the most cost-effective option. Primary

teacher training should be offered in multiple short cycles, interspersed with periods of supervised teaching experience during the school year. For training in rural areas, the mobile teacher training project should be expanded to all four provinces, with training cycles offered depending on school calendars--in the rural areas to the north, for example, calendars differ according to the seasons; practical training should include closely supervised experience, especially for rural teachers who must handle multiclass units using group methods. In the urban areas, training can be provided near schools where the teachers are assigned, with classes held after school, in the evening, on weekends, or during vacations.

Recommendation 10: Consider an increased emphasis on recruiting college graduates without teaching credentials to help close the gap between the number of teachers that will be needed in rural schools and the number that can be trained in full PTC programs. In addition, the quality of teaching may improve, based on research evidence that indicates that teaching performance is more positively affected by the general education level of the teacher rather than by pedagogical training. However, recruitment of surplus college graduates will require modification of ratings, pay scales, and incentives in order to attract them.

Recommendation 11: Consider expansion of the Learning Coordinator program to improve teacher supervision, as well as increasing the frequency of supervisory visits to schools. Additionally, the training and mission of supervisors should change to emphasize professional support and counseling for teachers, and methods for mobilizing community support for education.

Recommendation 12: Improving instructional materials, from textbooks to annotated class notes and instructional guides, should be emphasized to improve the quality of instruction, building on the integrated curricula modules and materials development being undertaken with UNICEF and UNESCO support. Examination of textbooks and instructional materials in this study has been cursory, but further exploration of the issue is warranted, and an in-depth study of book development and distribution may be worthwhile. Given the fine literary traditions, for example, it is clear that talented Pakistani writers are available. Bringing their talent to the development of textbooks, however, will likely require freer, more open competition and incentives to reward performance.

Recommendation 13: Refine what is meant by "vocationalization" of secondary schooling; it does not seem to be an idea that has been fully thought through, nor does it appear to be a cost-efficient possibility for Pakistan. One promising exception seems to be in Punjab, where a program to cover 25,000 students in 300 schools has been well conceived and planned. The results of this program should be carefully monitored and assessed.

D. ADMINISTRATION AND SUPERVISION

Recommendation 14: Consider decentralization of the following education management functions to the provincial level or below, where most responsibility now lies: a) planning; b) personnel selection, assignment, and promotion; and c) finance, within agreed-upon limits and controls.

Recommendation 15: Consider expansion of the role and responsibilities of the district education officer (DEO), who plays a key role in the supervisory and administrative structure.

Recommendation 16: Improve project monitoring and control systems, particularly at the provincial level and below, and especially on comprehensive assistance programs such as the PEP or PED projects. Guidelines for project monitoring that will ensure smoother implementation and delivery of the necessary inputs in timely fashion are needed. Project development and monitoring systems used by P&D departments in the provinces (i.e., the PC1 system) should be assessed and revised to improve project monitoring and assessment.

E. <u>PRIVATE EDUCATION</u>

Recommendation 17: Private resources should take on more of the burden of education in Pakistan, especially at secondary and higher levels. A complete study of private education in Pakistan should be prepared, covering all levels and types of programs. The study should include a complete census of institutions and enumeration of enrollments, so that a sampling frame can be constructed for future surveys. This would permit the monitoring of change and the projection of future developments in private schooling. In urban areas, the potential for government support and encouragement for private schools was one focus of the recent ADB/World Bank Study on Higher Secondary Education; the results of that assessment should be reviewed and incorporated in the final report for this study.

Recommendation 18: Mosque schools should be expanded to the maximum number possible, as one alternative to increasing rural enrollments. More girls should be brought into Mosque schools, because in rural areas this is widely accepted, and it represents a cost-effective mechanism to increase access for girls in rural areas. Given the mixed feelings about Mosque schools among some Pakistani educators, however, this change in policy should be broadly reviewed and discussed.

F. EDUCATION FINANCE

Recommendation 19: Take a realistic view of the amount of government funds available for the education sector--about 2 percent of GNP. Within this context, carefully consider all assumptions made in this report regarding the costs associated with

recurrent and development expenditures. The central issue to be addressed is clear-funds likely to be available for education will not meet all demands at all levels of the educational system. The choice of tradeoffs between competing alternatives should receive full discussion by the government, and be incorporated in the final report for this study.

Recommendation 20: Selection of activities to improve the quality of education should focus, whenever possible, on improvements with low unit costs--i.e., activities which reach large numbers of students. (See Section IV for several examples of such activities.)

G. MANPOWER DEVELOPMENT AND JOB TRAINING

Recommendation 21: Manpower development and job training activities should be limited to those areas--e.g., Lahore--where there is sufficient industrial infrastructure and employment opportunities to warrant expansion and improvement of TTCs (Technical Training Colleges), as well as the promotion of partnerships between TTCs and ATCs and private industry.

Recommendation 22: Occupational training for boys should increasingly become the responsibility of the Ministry of Labor and Provincial Training Bureaus (PTBs).

Recommendation 23: Continued support for the supply and demand information systems being developed in the Pak Netherlands Human Resource Project and the UNDP/ILO project is an important task to complete before new initiatives are undertaken in this sector.

H. COORDINATION OF FOREIGN ASSISTANCE

Recommendation 24: Continue efforts to coordinate foreign assistance through the "National Consortium" now operating under World Bank chairmanship. The consortium might consider designating a secretary and a computer file to maintain a modest clearinghouse operation of education data and information on projects.

Recommendation 25: A major need is to translate the national-level efforts in coordination and cooperation down to effective programs in the provinces and districts. The case study of Balochistan (see Section V) is a model that is worth further study and possible replication.

Annex 1 Issues Arising from Irregular School Structure

Complexity and irregularity in the structure of school levels and programs in Pakistan gives rise to complicated issues of planning and program implementation. Planning and policy statements of proposed changes in school structure add to the problem when they are not carried out, yet remain part of the established policy. Officials are uncertain of what the structure will be in future years and this makes planning difficult and projection of future requirements very difficult. If each possible change, or no change, were taken into account, a large number of alternative projections would have to be considered, making it extremely difficult to treat all possible permutations and combinations of grade structures systematically.

There also have been conflicts between the objectives in major policy statements and the objectives set forth in the five-year plans. The projects launched under these plans in the various provinces also suffer from the conflict in statements about changes in the structure of the school system.

Policies issuing from the Pakistan Education Conference of 1947 recommended abolition of the intermediate level and establishing a four-level structure for primary and secondary education:

- Pre-Primary -- ages 3-6
- Primary -- grades 1-5 for ages 6-11
- Middle -- grades 6-8 for ages 11-14
- Secondary -- grades 9-11 for ages 14-17.

Four years later, secondary education was split into a three-year secondary and a two-year higher secondary level. The Commission on National Education in 1959 made no mention of pre-primary and these grades were presumably folded into primary. This still creates a difficult problem in flow analysis from the first grade of primary school to the second. The National Education Policy in 1979 recommended three levels:

- Elementary classes 1-8
- Secondary classes 9-12
- University classes 13 +.

This was a far-sighted development, because it is still the ideal toward which many aspire, and toward which provinces sometimes move in the "upgrading" process.

The 1st through 6th Plans moved toward no structural changes, and none were carried out. The current 7th Plan recommends:

- Lower Elementary -- Kindergarten to Grade 3
- Upper Elementary -- 4 to 8
- Secondary -- 9 to 12

- College -- 13-15
- University -- 16 +.

Developmental psychologists, strong on homogenous age groupings for school levels, might favor this, although the groupings become strained at grades 3 and 8 because the children in these ages are at the upper end of their age group.

As mentioned earlier, this grade confusion makes coherent planning difficult for education system planners and managers--if the future structure itself is likely to change, projected enrollment flows cannot hold. The structure outlined in the 7th Plan also takes grades 11 and 12 from Intermediate Colleges and attaches them to Secondary level. (Bhatti, M. et. al, *Draft 7th Five-year Plan: Critique and Suggestions*, NEC, 1988, p. 50.) This may improve the coherence of the structure at secondary level and satisfy some educators who prefer to avoid the exam irregularities and political turmoil that sometimes prevail in intermediate colleges. Students are said to prefer the prestige of "college," as do some teachers.

Closing off admission to intermediate college in grade 11 would be a first step in simplifying the structure. It must be noted, however, that closing admission to grade 11 in intermediate college will create some turmoil in student politics. Also, although an increased emphasis on science is an objective of the "Science Education Project for Secondary Schools" and of IPSET, secondary enrollments in the Science stream appear to be higher in the intermediate colleges than in equivalent grades in secondary school. Teachers who must change from college status to secondary school are also thought likely to oppose such a change.

In summary, the Six-year Education Plan (not a five-year development plan) included this recommended structure, but it was not implemented. At the end of the 1st Five-year Plan, a four-stage system existed. The grade pattern was 5-3-2-2. Despite this, up until the 5th Plan in 1978, no structural change was actually accomplished. The 7th Plan offered a new proposal of 4-5-4, a novel arrangement in world education, but it was not implemented. The 7th Plan recommended abolishing the intermediate colleges, both favored and opposed for various reasons. The result is an ongoing state of uncertainty in the system.

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Annex 2¹ Private Education in Pakistan

The roots of private education in Pakistan can be traced back to the colonial period and the British system of education. It was secular and based on a filter down from the top, an elitist social and economic policy. It presumed that education of the privileged would benefit the general masses, not as much perhaps, but as much as they needed. The policy worked well for elites, not so well for the masses. Charity and education, conceived as one form of social welfare, was left largely to private benefactors; and the outreach instrument for this was often the churches and religious groups. With the matter taken under the guiding wing of the religious, there was less fear of providing education, and it even helped to safeguard religious values and maintain social order in the empire.

This characterization is a stereotyped version of how the British assumed the burden of empire and with it education, but there are elements of verisimilitude in it. Education was left safely in the hands of the religious who fitted comfortably into the social structure. There were great and wise exceptions, like Macaulay, who sometimes peered beyond the curtain and gained a wider vision for education. At the time of independence, most educational institutions were in private hands. The government owned a very small share. Table-1 presents the distribution of educational institutions in United India.

| Distribution of Management of Educational Institutions in United India 1945-46 (%) | | | |
|--|----------------|--------------|------------|
| | Private Sector | Local Bodies | Government |
| Primary School | 42.64 | 53.23 | 4.5 |
| Middle School | 47.09 | 50.24 | 2.6 |
| High School | 82.73 | 8.09 | 9.18 |

Table_1

Source: Compiled from S.M. Qureshi, Private Agencies in Education in S.N. Muherfi (ed) Administration of Education in India (Beroda) India: Acharya Book Depot, 1962, p.169.

Note: These statistics are on an all-India basis for the years 1945-46. Geographical changes, as a result of the partition of the subcontinent, make it impossible to present figures for the areas now under the control of Pakistan. However, these statistics do indicate a general trend prevalent in prepartition India.

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¹ This report was prepared for the Master Plan study by the staff members of AEPM.

The table indicates that in prepartition times, 42.64 percent of the total number of primary schools were in the private sector. The share of private middle schools and secondary schools was greater. This tradition did not continue after the creation of Pakistan. The private sector did exist, but it shifted its activities towards higher education. Table-2 presents contributions of the private sector in the development of primary education in Pakistan.

| Table-2 | | | | |
|---|----------|--------------|--|--|
| Distribution of Management of Education Institutions in Pakistan 1967-68% | | | | |
| Privat | e Sector | Local Bodies | s Government | |
| Primary schools | 4 | 2.79 | 93.18 | |
| Middle schools | 10.30 | 2.08 | 87.60 | |
| Secondary Schools | 39.65 | 25.64 | 34.71 | |
| Colleges | 50.78 | 6.20 | 43.62 | |
| , | | ******* | 두두 두 두 두 두 두 두 두 두 두 두 두 두 두 두 두 두 두 두 | |

Source: Zaki and Khan, Pakistan Education Index, 1970; Tables 1.4, 1.8, 1.12, 2.3

Figures before partition and after partition differ on priorities. In the prepartition years, private sector played a significant role in the development of primary education. After partition it shifted its emphasis to higher education. One reason for this change in priority was commercial. Primary education is not a profitable enterprise. Since government schools charged very small tuition fees, parents preferred to send their children to government or local schools. Poor rural families clearly could not afford education unless it was subsidized by the government.

Location of Private: Schools

Although in the post-independence period the private sector shifted its emphasis to college education, it nevertheless significantly contributed to the development of primary and high school education in urban areas. Tables 3 and 4 indicate the share of private education in urban areas.

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Table-3

Location of Private Primary Schools in Selected Cities of Pakistan

1967 (%) Government Local Bodies Private _____ _____ Rawalpindi 23.41 39.65 36.93 Lahore 29.20 28.28 42.51 Hyderabad 35.68 33.33 30.98 Karachi N.A. N.A. 57.00 Source: Zaki and Khan, Pakistan Education Index, Tables 1.4, 1.8, 1.12, 2.3

Table-4

Location of Private High Schools in Selected Cities In Pakistan 1967

| Regions | Total High Schools | Present Schools | Percentage of Private Schools |
|------------|-----------------------|--------------------|----------------------------------|
| Lahore | 541 | 230 | 42.51 |
| Rawalpindi | 444 | 164 | 40 |
| Hyderabad | 255 | 79 | 31 |
| Karachi | 263 | 193 | 73.38 |
| Quetta | 50 | 11 | 22 |
| Pakistan | 1764 | 706 | 40.02 |
| | | | |

Source: Zaki and Khan *Pakistan Education Index* pp.38-42. Tables 3 and 4 clearly indicate the concentration of the private sector in high cities of Pakistan.

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Problems of Private Education

1. Many private institutions, being of various types, have different objectives, and some institutions have highly discriminatory admission policies. Elite institutions, such as the Chief College in Lahore, previously admitted students on the basis of family background, not educational merit. To address this problem, the education policy of 1972 stated:

"These institutions have played their part well in the social order which created them. It is unthinkable to permit such institutions where access to knowledge and culture is dependent on any consideration other than merit".

- 2. In the motives behind their foundations, private institutions ranged from a real educational interest, as in the case of the Christian schools and colleges and the educational institutions of Anjuman Himayat Islam at Lahore, down to the purely private, profit-seeking schools, with overcrowded classes, unsatisfactory service conditions for the teachers, and very inadequate educational facilities for the students. The general public, and teachers in particular, demanded the nationalization of these institutions.
- 3. The financial position of some of the private sector schools was usually not as sound as government establishments. Most private schools had a little endowment and few donations, and thus they were forced either to charge high tuition fees or to keep expenses down by lowering operational budgets. The latter alternative usually was preferred. But when this alternative was chosen, the quality of instruction fell, teachers received less salary, the libraries bought few books, and the laboratories were ill equipped and became antiquated. The Commission on Student Problems and Welfare (1966) observed:

"The position in most of the private colleges, other than those run by christian missionary society is much worse. The teachers are poorly paid. They have no service conditions, no security of job and no incentives for good work, although, the institutions that employ them have huge students enrollments and a large income from fees. These institutions.....run on commercial basis with an eye to earning profits for the management.....In Karachi we visited a mammoth multipurpose institution called the Islamia College which under one roof dispenses instructions from kindergarten to the graduation level. Apart from spacious classrooms and laboratories we found little or no common facilities in this institution for students. Its library was merely an apology for one; recreational facilities did not exist. The administrator of the college, himself an uneducated person, was also its de facto chief administrative head."

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In some schools, students were forced to purchase books and other stationery items from specific shops. Most of the schools were housed in rented buildings and were frequently shifted from one place to the other. Moreover, facilities for extracurricular activities were not available in a number of private schools.

- 4. Traditionally, teachers in Pakistan have assumed a professional and thus "nonpolitical" posture. As in other societies, this has inhibited teachers' associations from taking up explicitly political goals, or acting in ways that might be labeled partisan. In the 1960s, however, teachers working in private schools organized themselves into a political force. Some of the problems faced by the teaching community included the following:
 - Private educational trusts were usually dominated by businessmen without special knowledge of education, who nevertheless dictated the managerial policies of schools and allegedly mistreated the teachers.
 - Many teachers were retained on a temporary basis unable to qualify for salary improvements or tenure.
 - A particularly corrupt practice engaged in by a disreputable manager was to force teachers to sign payroll or vouchers for salaries comparable to those paid in government schools. Agitating against this practice could likely cause immediate termination.
- 5. Schools established by christian missionaries, though of good educational quality, were also criticized for producing secular citizens having indifferent attitudes towards the Islamic values of society. The Muslim schools in turn were criticized for patronizing specific religious values of certain particular sects which could result in further divisions in the society.
- 6. The Government of Pakistan always has tried to enroll more students in scientific and technical subjects at the college level. But private schools often attempted to evade this aim. The table below presents a comparison of enrollments in scientific and technical subjects in government and private institutions.

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| | ~ • • • • • • • • • • • • • • • • • • • | Private | Government | |
|---------------|---|------------|------------|--|
| Intermediate: | Arts Science | 64% 36% | 54% 46% | |
| Degree: | | | | |
| - | Arts | 86% | 70% | |
| | Science | 14% | 30% | |
| Postgraduate: | | | | |
| 0 | Arts | 100% | 89% | |
| | Science | 0 | 11% | |

Table-5 Groupwise Enrollments in Colleges of Pakistan

Since science education is expensive, the private sector offered arts and humanities more than science subjects.

7. Since a major source of income of the private institutions is tuition fees for students, Table 6 provides the student-teacher ratio in government and private colleges in Pakistan.

| Table-6 Student Teacher Ratio in Government and Private Colleges of Pakistan · 1967 | | | | | |
|---|--------------------------|--------------------|--------------------|-------------------|---------------------------|
| Management | Institutions | No. of Students | No. of Students | Teachers Ratio | |
| Government | 118 | 3208 | 71479 | 22.3 | |
| Private . | 114 | 2644 | 89334 | 33.8 | |
| Total: | 232 | 5852 | 160813 | 27.01 | - 42 42 47 14 47 47 47 48 |
| Source: Compiled fro | om W.M. Zaki, <u>End</u> | of Misery p.44 | | | |

This table indicates that the teacher-student ratio was higher in private colleges compared to government colleges.

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Nationalization of Private Education

- 1. The Government of Pakistan, in its education policy of 1972, announced the nationalization of all private educational institutions. This decision was taken on the grounds that private educational institutions, in addition to being vehicles of commercialism, were responsible for creating inequalities by denving equal access to education and were reinforcing social class-based distributions. Therefore, the privately managed institutions were to be nationalized and integrated into the national education system for the purpose of ensuring equal access to education on the basis of ability and merit rather than class affiliation.
- 2. The salary scales and service conditions of teachers in all privately managed schools will be brought to par with the government schools and colleges.
- 3. Tuition fees, which were formerly higher in private institutions, were made equal to government institutions. As a result of implementation of this policy, 3,334 educational institutions which included 1,826 schools, 155 colleges, 346 mudrassah, and 5 technical institutions were nationalized.

Effects Of Nationalization

As a result of nationalization, the growth rate fell.

| Comparison of Growth Rates of School Education in Pakistan | | | | |
|---|--------------|-------------|---|--------------------------|
| 0 v = 11 d d o o o o o o o | Institutions | Enrollments | Teachers | , - - - - - - - |
| Primary | | | # = = = = = = = = = = = = = = = = = = = | |
| 1960-70 | 7.5% | 6.58% | 6.72% | |
| 1970-78 | 3.00% | 6.25% | 5.10% | |
| Middle | | | | |
| 1960-70 | 7.20% | 6.98% | 4.7 1% | |
| 1 970-78 | 3.27% | 7.12% | 4.7% | |
| High | | | | |
| 1960-70 | 5.81% | 8.08% | 6.61% | |
| 1 970-78 | 3.41% | 5.90% | 7.52% | |
| Colleges | | | | |
| 1960-70 | 9.38% | 8.82% | 7.56% | |
| 1 970-78 | 4.63% | 2.50% | 6.30% | |

Table-7

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Nationalization of education did not help in the expansion of education. It created extra financial burden for the government which assumed the recurrent costs of inefficient nationalized institutions.

| | Table-8 Comparison of L «penditures on Primary Education in Pakistan | | | |
|---------|--|-------------------------------------|---------|------|
| | Developn | nent Expenditures (Million |) | |
| | Expenditure on Education | Expenditure on Primary Education | Percent | |
| 1960-70 | 1026 | 44 | 4.28 | **** |
| 1970-78 | 3442 | 444 | 12.89 | |

Source: Government of Pakistan, Education Statistics (1947-1979), pp.8-9.

The difference in development expenditure in two different periods of time could be attributed to the difference in policy approach. During 1960-70, the local communities, local bodies, and the private sector were involved in the development of education. These agencies supported the government in providing development-oriented activities such as land, building, and furniture. This assistance helped the government to keep development expenditure low. In the 1970-1980 takeover period, the government had to buy land, build buildings, and provide furniture for the schools. Expenditures went up.

| Table-9 Recurring Expenditure on Education (in million) | | | | |
|---|-----------------------------|-------------------------------------|---------|--|
| | Expenditure on Education | Expenditure on Primary Education | Percent | |
| 1969-70 | 2930.3 | 1190.6 | 40.63 | |
| 1979-80 | 10146.3 | 4107.3 | 40.48 | |

The expenditures are again higher during 1970-78 in spite of the fact that the growth rate was lower during this period.

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Secondary Education

| | Total Expenditures | Expenditure on Secondary Edu. | Percentage |
|-----------------|--------------------|----------------------------------|------------|
| 1960-70 | 1026.4 | 224 | 21.82 |
| 1970-80 | 13442.0 | 542 | 15.74 |
| | R | ecurring Expenditures | |
| 1 960-70 | 2930.3 | 537.1 | 18.33 |
| 1970-80 | 10146.3 | 1692.1 | 16.67 |

Development Expenditure

It also should be mentioned that during 1960-70, out of its recurring expenditures, the government granted approximately 10 to 15 percent recurring budget to nongovernment schools.

Conclusion

It can be concluded from the above discussion that nationalization of education proved to be counterproductive. Growth rates in institutions, enrollment, and teachers fell. While expenditures on education increased, no gain in quality was apparent.

Present Situation

The National Education Policy of 1979 reviewed the consequences of nationalization and came to the conclusion that in view of poor participation rates at all levels of education, the government alone cannot carry the burden of the whole education system and it was necessary to encourage once again the participation of private sector in educational development. The following policy measures were recommended:

- Private enterprise will be encouraged to open educational institutions, particularly in rural areas.
- Permission to establish educational institutions will be granted by the Ministry of Education or respective provincial departments.

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- Criteria for according permission to establish educational institutions and their recognition will be developed to ensure academic standards, the hiring of qualified staff and their terms and conditions of service, and adequate physical facilities.
- The existing legislation of nationalization of privately managed educational institutions will be suitably amended to allow opening of private educational institutions and to ensure that such institutions established with the permission of the government will not be nationalized in the future.
- Regular instructional supervision of these institutions will be undertaken by the education departments and relevant statutory bodies.
- Income tax relief will be allowed to individuals and organizations for donations to these schools.

The school management will be bound to maintain school accounts which will be checked by education officials. The schools will be bound to teach books approved by the government. Teachers will be paid a salary as approved by the competent authority. Fees will be fixed by the registration authority.

• Similarly, fees will not be increased without approval by the competent authority. Defaulter's registration will be suspended or canceled besides levying a fine of Rs. 1000 and rigorous imprisonment for one year.

As a result of this policy, a second wave of community participation has emerged.

| Table-10 Private Education in Karachi | | | | |
|--|--------------|-------------|----------|----------|
| | Institutions | Enrollments | Teachers | |
| Primary | 665 | 87,053 | 2,514 | ******** |
| Middle | 139 | 31,067 | 4,556 | |
| Secondary | 271 | 750,499 | 2,003 | |
| Total: | 1,075 | 193,619 | 7,070 | |

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| Institutions | Enrollments | Teachers | ****** |
|--------------|--|--|--|
| | Primary Education | | ~~~~~ |
| 637 | 85,000 | 4,400 | |
| 868 | 142,000 | 6,130 | |
| 970 | 151,000 | 7,142 | |
| | Middle Schools | | |
| 357 | 75,000 | 3,600 | |
| 542 | 128,000 | 3,644 | |
| 598 | 143,000 | 6,894 | |
| | High Schools | | |
| 365 | 165,000 | 3,600 | |
| 411 | 178,000 | 7,171 | |
| 484 | 263,000 | 9,222 | |
| | Institutions 637 868 970 357 542 598 365 411 484 | Institutions Enrollments Primary Education 637 85,000 868 142,000 970 151,000 970 151,000 357 75,000 542 128,000 598 143,000 H: gh Schools 165,000 411 178,000 484 263,000 | Institutions Enrollments Teachers Primary Education 637 85,000 4,400 6637 85,000 6,130 868 142,000 6,130 970 151,000 7,142 Middle Schools 1000 3,600 357 75,000 3,600 542 128,000 3,644 598 143,000 6,894 High Schools 143,000 3,600 365 165,000 3,600 411 178,000 7,171 484 203,000 9,222 |

Private Institutions in Punjab

Note: The same pattern of growth is not observable for higher secondary schools in Punjab.

Private schools offer no easy or ready solution to the problem of ensuring basic education and functional literacy in Pakistan, given the growing burden of an uneducated population, resource limits, and the current low efficiency of the national system. For parents with no resources and therefore no bargaining position or choice, private schools are not a likely answer. There is no evidence yet that private schools can be run more cost effectively than public in Pakistan. Yet the need is so great and resources so exiguous, that all alternatives and choices must be tried, and private education is one such alternative. The more middle and upperclass parents who opt for private education and can afford to meet its terms, the more resources will be made available to share the burden of those families who have no such recourse.

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Private Education in Pakistan Provincial Data

PRIVATE PRIMARY SCHOOLS IN PUNJAB

<u>1982-83</u>

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | 276 | 50692 | 1849 |
| Female | 110 | 22340 | 795 |
| Total | 386 | 73032 | 2644 |

<u>1984-85</u>

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | 285 | 53941 | 1962 |
| Female | 142 | 29233 | 945 |
| Total | 427 | 83174 | 2895 |

<u>1985-86</u>

| | <u>School</u> | Student | Teacher |
|--------|---------------|---------|---------|
| Male | 264 | 53959 | 1911 |
| Female | 187 | 40823 | 1550 |
| Total | 451 | 94782 | 3461 |

1986-87

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | 714 | 96000 | 4975 |
| Female | - | - | - |
| Total | 714 | 96000 | 4975 |

<u>1988-89</u>

| | <u>School</u> | Student | <u>Teacher</u> |
|---------|---|---|--|
| Male | 868 | 142000 | 6130 |
| Female | - | - | - |
| Total | 868 | 142000 | 6130 |
| Source: | Educational in Punjab, 1985-86 and Education P | . Statistic 1982-83, 1 1988-89 E Punjab, Lah | s (Schools) 984-85, Bureau of Nore. |

PRIVATE PRIMARY SCHOOLS IN N.W.F.P.

<u>1986-87</u>

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | 477 | 73958 | 1853 |
| Female | - | - | - |
| Total | 477 | 73958 | 1853 |

1988-89

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | 536 | 38143 | 4057 |
| Female | - | 18295 | - |
| Total | 536 | 56438 | 4057 |

1989-90

| | <u>School</u> | Student | Teacher |
|--------|------------------|---------|---------|
| Male | 596 [.] | 61984 | 1429 |
| Female | - | 28413 | 3605 |
| Total | 596 | 90397 | 5034 |

Sources: 1.N.W.F.P. Development Statistics, 1987-88, Bureau of Statistics, P&D Department, N.W.F.P.

2.Establishment of Management Information Systems, N.W.F.P. MUST, Peshawar.

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PRIVATE PRIMARY SCHOOLS IN SINDH

<u> 1988–89</u>

| | <u>School</u> | Student | Teacher |
|--------|---------------|---------|---------|
| Male | - | - | - |
| Female | - | - | - |
| Total | 208 | 42125 | 1515 |

<u>1989-90</u>

| | <u>School</u> | Student | Teacher |
|--------|---------------|---------|---------|
| Male | - | - | - |
| Female | - | - | - |
| Total | 254 | 50634 | 1858 |
| | | | |

<u>1990-91</u>

| | | <u>School</u> | Sti | udent | Teacher |
|---------|---------------|------------------|-----|-------|-----------|
| Male | • | - | | - | - |
| Fema | le | - | | - | - |
| Tota | 1 | 1105 | 22 | 20960 | 7026 |
| Source: | Data Depai | collected rtment | by | Sindh | Education |

PRIVATE PRIMARY SCHOOLS IN BALOCHISTAN

<u>1987-88</u>

| | <u>School</u> | Student | Teacher |
|--------|---------------|---------|---------|
| Male | - | - | _ |
| Female | - | _ | - |
| Total | 50 | 15900 | 430 |

1988-89

| | School | Student | Teacher |
|--------|--------|---------|---------|
| Male | - | - | - |
| Female | - | - | - |
| Total | 82 | 24900 | 630 |
| | | | |

<u>1989-90</u>

| | <u>School</u> | Student | Teacher |
|---------|----------------------------------|---|------------------------------|
| Male | - | - | - |
| Female | - | - | - |
| Total | 103 | 29900 | 780 |
| Source: | Data Col Departme Balochis | lected from nt, Governm tan, Quetta | n Education ment of a. |

ANNEX 3

MOSQUE SCHOOLS IN PUNJAB PROVINCE

| | | 1984-85 | |
|--------|---------|-----------------|----------|
| | Schools | <u>Students</u> | Teachers |
| Male | 8070 | 219 | 13670 |
| Female | - | - | - |
| Total | 8070 | 219 | 13670 |

| 1985 | -86 |
|------|-----|
|------|-----|

| | <u>Schools</u> | <u>Students</u> | <u>Teachers</u> |
|--------|----------------|-----------------|-----------------|
| Male | 7191 | 181 | 9212 |
| Female | - | - | - |
| Total | 7191 | 181 | 9212 |

| | 1 | 9 | 8 | 6 | - | 8 | 7 |
|---|---|---|---|---|---|---|---|
| - | | | - | | | | |

| | <u>Schools</u> | Students | Teachers |
|--------|----------------|----------|----------|
| Male | 8584 | 230 | 15020 |
| Female | - | _ | - |
| Total | 8584 | 230 | 15020 |

| | <u>1987-88</u> | | | | |
|--------|----------------|----------|----------|--|--|
| | <u>Schools</u> | Students | Teachers | | |
| Male | 10213 | 269 | 18031 | | |
| Female | - | - | _ | | |
| Total | 10213 | 269 | 18031 | | |

| | | 1988-89 | | |
|---------|----------------|------------|------------|----------|
| | <u>Schools</u> | Students | Teachers | |
| Male | 11819 | 320 | 19949 | |
| Female | - | - | - | |
| Total | 11819 | 320 | 19949 | |
| Source: | Statistics | of Schools | in Punjab, | 1988-89. |

MOSQUE SCHOOLS IN BALOCHISTAN PROVINCE

| | 1982-83 | | | | |
|--------|---------|-----------------|----------|--|--|
| | Schools | <u>Students</u> | Teachers | | |
| Male | 500 | 9108 | 500 | | |
| Female | - | 2645 | - | | |
| Total | 500 | 11750 | 500 | | |

| | <u>1984–85</u> | | | | |
|--------|----------------|----------|----------|--|--|
| | Schools | Students | Teachers | | |
| Male | 1300 | 23974 | 1300 | | |
| Female | - | 4962 | - | | |
| Total | 1300 | 28936 | 1300 | | |

| | <u>1985-86</u> | | | | |
|--------|----------------|-----------------|----------|--|--|
| | <u>Schools</u> | <u>Students</u> | Teachers | | |
| Male | 1740 | 48774 | 1740 | | |
| Female | - | | - | | |
| Total | 1740 | 48774 | 1740 | | |

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| | | <u>1986–87</u> | |
|-------------------------|-------------------------------------|--|--------------------------------------|
| | <u>Schools</u> | Students | Teachers |
| Male | 1740 | 51810 | 2210 |
| Female | - | - | - |
| Total | 1740 | 51810 | 2210 |
| | | <u>1987-88</u> | |
| | | | |
| | <u>Schools</u> | Students | Teachers |
| Male | Schools 2210 | <u>Students</u> 64745 | <u>Teachers</u> 2219 |
| Male Female | <u>Schools</u> 2210 - | <u>Students</u> 64745 - | <u>Teachers</u> 2219 - |
| Male Female Total | <u>Schools</u> 2210 - 2210 | <u>Students</u> 64745 - 64745 | <u>Teachers</u> 2219 - 2219 |

| | <u>1988-89</u> | | | | | |
|--------|----------------|----------|----------|--|--|--|
| | <u>Schools</u> | Students | Teachers | | | |
| Male | 2311 | 73222 | 2311 | | | |
| Female | - | - | - | | | |
| Total | 2311 | 73222 | 2311 | | | |

| | 1989-90 | | | | |
|---------|---|---------|-----------------|----------|--|
| | | Schools | <u>Students</u> | Teachers | |
| | Male | 2311 | 95777 | 2311 | |
| | Female | - | - | - | |
| | Total | 2311 | 95777 | 2311 | |
| Source: | Balochistan -86. an Province on request | E | | | |
MOSQUE SCHOOLS IN SINDH PROVINCE

<u>1983-84</u>

| | <u>Schools</u> | <u>Students</u> | Teachers |
|--------|----------------|-----------------|----------|
| Male | 2650 | 75248 | 3040 |
| Female | 100 | 32844 | 198 |
| Total | 2750 | 108092 | 3238 |

| | <u>1984–85</u> | | | | | | |
|--------|----------------|-----------------|----------|--|--|--|--|
| | <u>Schools</u> | <u>Students</u> | Teachers | | | | |
| Male | 2650 | 76426 | 3134 | | | | |
| Female | 100 | 33098 | 204 | | | | |
| Total | 2750 | 109524 | 3338 | | | | |

| | | 1985-86 | |
|--------|----------------|----------|----------|
| | <u>Schools</u> | Students | Teachers |
| Male | 4275 | 114296 | - |
| Female | 100 | 46715 | 200 |
| Total | 4375 | 161011 | 5166 |

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| | | | <u>1986-87</u> | |
|---------|---------------------|----------------------|---------------------------|--------------------------|
| | | Schools | Students | Teachers |
| | Male | 7275 | 166519 | 9727 |
| | Female | 100 | 60004 | 200 |
| | Total | 7375 | 226523 | 9921 |
| | | | <u>1987-88</u> | |
| | | <u>Schools</u> | Students | Teachers |
| | Male | - | 145160 | - |
| | Female | - | 55677 | - |
| | Total | 9965 | 200837 | - |
| | | | <u> 1988–89</u> | |
| | | <u>Schools</u> | Students | Teachers |
| | Male | 12320 | 179674 | 14720 |
| | Female | 100 | 63183 | 200 |
| | Total | 12420 | 242857 | 14920 |
| Source: | 1. Direct 1986 a | orate of and 1990, 1 | Statistics Bureau of S | of Sindh, Statistics, |

P&D Department, Karachi
2. Situation Analysis of Basic Education in Sindh, 1990 by Anita Ghulam Ali.

MOSQUE SCHOOLS IN N.W.F.P. PROVINCE

| | | 1985-86 | |
|--------|----------------|-----------------|----------|
| | <u>Schools</u> | <u>Students</u> | Teachers |
| Male | 1661 | 72949 | 1880 |
| Female | - | - | - |
| Total | 1661 | 72949 | 1880 |

| | <u> 1986–87</u> | | | | | | |
|--------|-----------------|-----------------|----------|--|--|--|--|
| | <u>Schools</u> | <u>Students</u> | Teachers | | | | |
| Male | 2436 | 98001 | 2817 | | | | |
| Female | - | - | - | | | | |
| Total | 2436 | 98001 | 2817 | | | | |

| | | <u>1987-88</u> | |
|--------|---------|----------------|----------|
| | Schools | Students | Teachers |
| Male | 2954 | 128080 | 4540 |
| Female | - | - | - |
| Total | 2954 | 128080 | 4540 |

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| | | | <u>1988-89</u> | | |
|---------|-------------------|--------------------------|--------------------------|--------------------------------|--------------|
| | | Schools | Students | Teachers | |
| | Male | 3620 | 147454 | 4217 | |
| | Female | - | - | - | |
| | Total | 3620 | 147457 | 4217 | |
| | | | <u> 1989-90</u> | | |
| | | Schools | Students | Teachers | |
| | Male | 4218 | 171772 | 5322 | |
| | Female | - | - | - | |
| | Total | 4218 | 171772 | 5322 | |
| | | | <u> 1990–91</u> | | |
| | | <u>Schools</u> | <u>Students</u> | Teachers | |
| | Male | 4670 | 202107 | 6722 | |
| | Female | - | - | - | |
| | Total | 4670 | 202107 | 6722 | |
| Source: | 1. N.W.F Burea | .P. Develo u of Stati | pment Stat stics, Dep | istics 1987-8 t. of P&D, N. | 38, W.F.P |

2. Data collected, Education Department, N.W.F.P.

Annex 4 Status of Literacy and Training Programs

In Pakistan, attainment of literacy through nonformal training was unsuccessful at the national level in campaigns and programs run under LAMFC (Literacy and Mass Education Commission). NETCOM, the National Education and Training Commission, followed LAMEC in 1989 to coordinate literacy programs at the national level. In the provinces, training programs are conducted for workers under the provincial training boards. Programs also operate under social welfare and in a variety of private parastatal organizations. Currently, a much reduced effort goes forward through private voluntary programs and the distance education and training based on Allama Iqbal Open University. At Allama Iqbal, many donors--e.g., ADB, UNICEF, and UNESCO, have assisted. The effort has declined since 1989 when LAMEC was cut.

Efforts to promote literacy under LAMEC included:

- Nai Roshni--accelerated programs for school dropouts, forceouts, and youth beyond the primary school age-group. Nai Roshni once held promise, but only a residual staff of 300 remain of the 17,000 who manned the program when LAMEC was disbanded in 1987 The last staff will be paid off this rnonth.
- READ--A literacy and rural development project.
- BEEP--A program that attempted training in basic, useful skills, without a basis of literacy.
- IFE--an integrated, functional, literacy program.
- IQRA--a pilot project wherein "each-one-teach-one" volunteers were paid Rs 1000 for each newly literate person. Such programs, in which volunteers are paid to produce literates, have fallen into corruption and failure in other settings, so the failure in Pakistan is not surprising.

The responsibility for national coordination of literacy has been recently transferred to NETCOM, but currently this seems a shell of what LAMEC once was. Though new literacy initiatives are planned and talked of, little seems to be up and running at the national level.

National Institute for Communication through Education

Some of the abandoned initiatives seemed to have promise, such as NICE, the National Institute for Communication through Education. Initiated by CIDA, based at Allama Iqbal Open University, and supported by the World Bank and other assistance

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agencies, NICE was a broad program designed to improve general communication as a vehicle for cultural development and social mobilization. It proposed support of education though training of trainers and supervisors (ADEOs), and provided a base for carrying out research and development related to the use of the media for diffusion of information to support mass education and development. It may have been viewed as too broad in its aims and too elaborate in its technology. The program was rejected in 1989 by the Central Development Working Party.

Though NICE did not survive, current programs at AIOU use distance education and radio, film, and TV for mass communication and information diffusion. Without a program of large outreach and low unit costs however, it will be very difficult, if not almost impossible, to reach potential participants--50 million adults and 9.2 million school dropouts--with literacy programs. This clientele is beyond the reach of any imaginable expansion of formal schooling, even if this were the vehicle best suited to serve them. Literacy campaigns and nonformal education must expand, not disappear.

Other Programs

In the provinces, the PTBs (Provincial Training Boards) and the provincial education offices administer or sponsor programs; other autonomous and government agencies also provide continuing education programs for employees requiring upgrading of skills. Literacy training and basic education are frequently integrated in these programs with worker skill training operated under the NTB and PTBs. For example, WAPDA (water and power), Defense, PETROMAN, and the railroads, among other state agencies, maintain extensive training establishments and offer schooling, literacy, and skills training. (Reportedly, it is a status symbol for firms to run their own training establishment.) The Board of Technical Education conducts examinations. A UNDP/ILO project plans to inventory the output of the 52 training establishments and build an information system to improve the planning and management of the training system (For further details, see Section III on technical and vocational training). The outcomes of this inventory should be carefully assessed to determine how to best integrate literacy and basic education into these programs.

At the national level, programs, proposed by not operating, include the following:

- The Quranic literacy program under MOE is in the planning stage, not yet implemented. The target is to open 200 female literacy centers. None are open yet, but the program merits attention. The development of literacy primers had progressed to the first draft stage, and the hope is to have them ready for use in the centers soon.
- A TV literacy program on Channel 2 (public service channel) is up for approval, but nothing is yet underway.

- Nongovernmental organizations are being "mobilized" for greater efforts related to literacy and training.
- An institute for training literacy personnel is at the scheme stage.
- A project of area-intensive coverage to make rural Islamabad literate is proposed, and UNICEF is reportedly interested in helping. The Inlamabad project covers three components-community schools, adult literacy programs, and continuing education. The program foci are appropriate, and it is worth study and support.
- Allama Iqbal Open University is carrying on with work in literacy and nonformal education through distance education and the use of a variety of media forms. The specifics of the program are not clear, but the potential, as mentioned, is great.

Summary and Recommendations

Despite its currently reduced state, the achievement of functional literacy through nonformal education should be examined as an alternative to formal, primary schooling. This will require a competent assessment, a study of the practicality of current proposals, sound operations and program planning, and a solid outline for implementation.

For literacy programs linked to basic skills training under MOL, NTB, and the PTBs, new MIS initiatives supported by the UNDP/ILO and the Pak Netherlands Human Resources Development Project will furnish a basis for sound planning as well as trained analysts and planners to do the work. In addition, the World Bank has, since 1981, assisted in building and renovating 37 centers in the four provinces. (These efforts are described in Section III, Manpower Development and Job Training.)

It is less simple to prescribe a systematic way to approach planning and implementation of programs in the vast sprawl of nonformal literacy and training programs run by private, parastatal, and government ministries. The programs operated by social welfare agencies alone, for example, are said to number in the hundreds. Clearly, however, Allama Iqbal Open University merits support for its distance education and as a potential resource to support the development of radio, film, and TV for mass communication and nonformal education.

Programs to link literacy to skills training, training to work, and work to job creation are also necessary. These are discussed in the section on Manpower Development and Job Training for occupations and employment.

All alternative paths to attaining functional literacy in Pakistan should be examined. Recent announcements (*The News*, July 4, 1991) report that the literacy rate is "plummeting", but offer no hard data to support what seems to be a reasonable inference, given the seeming inactivity in NETCOM. No solid data on the current status of literacy have appeared since reports based on the 1981 census, shown earlier; but it is a safe guess that rates have not improved appreciably from the 17 percent reported in rural areas. The rate of 7.3 percent for rural women, and some put this as low as 1 percent, should be a powerful goad to action.

The 7th Plan abandoned nonformal approaches to literacy on the grounds of expense and inefficiency. The charges against literacy programs appeared to be well founded, but it is also possible that the achievement of literacy through primary schooling may turn out to be more expensive and less effective.

Functional literacy through nonformal education should be further examined in Pakistan. It is an option that has been only partially explored; the results have been disappointing; but efforts in nonformal education seem to have suffered an untimely death.

ANNEX 5 Enrollment Forecasts

To meet the requirement in the Terms of Reference for the preparation of three forecasts, three "high, medium, and low scenarios" of enrollment trends over the next decade were prepared: Time Series, Base Line, and Best Case. In preparing these scenarios, two approaches to projecting enrollments were used in this study, yielding 10 separate sets of forecasts (including "forecast variants" to the three primary scenarios):

- Time Series Forecasts, covering six sets of projections; and
- **Combined School-Age Population and Enrollment Forecasts**, which yielded five different sets of projections.

Not all of these sets of enrollment forecasts are presented in this report, as some sets presented only minor variations. In the Time Series forecasts, only four variants were reported on in the text. In the combined population-enrollment forecasts, one set, "Better Best", was used only for primary-level forecasts, since it involved a change (separating out Kachi enrollments) that effected enrollment only in Grades 1 through 5.

All forecasts were run separately for each of the four provinces and three areas (FATA, FANA, Islamabad), with enrollments separated by gender and by grade level (primary, middle school, lower secondary). Each of these forecasts were then summed to calculate totals for the entire country. Table IV-1 on the next page (repeated from Section IV) summarizes the results of the enrollment projections prepared; Exhibit 5 (see Section IV) outlined the assumptions behind the enrollment forecasts in the table. In this Annex, the emphasis is on explaining the methodological variations between the two principal approaches used.

Time Series Forecasts

Exhibit 5-1 shows a typical Time Series structure, using "Girls Total Enrollment for Pakistan" as an example. A separate Time Series forecast was run for both Boys and Girls for all areas of the country at all levels of education.

The basic assumption behind Time Series forecasts is that past trends will continue into the future. Though a forecast approach that combines population and enrollments forecasts generally produces more valid and reliable results, this is not necessarily the case in Pakistan where recent data is unavailable on the basic population components (base year population census, fertility, mortality, and migration). Thus, the study team prepared a sequence of Time Series forecasts to help estimate what future enrollments might be if policies and programs stay as they have been. able IV-1 End Summery Enrollment Projections

PRIMARY

| | | | | | | | Girls P | rimary gro | owth | GPR E | Boys | GPR | Girls |
|-------------|---------|-------|--------|--------|-----------|--------|----------|------------|-------|---------|---------|---------|---------|
| | 1990-91 | | | | 2000-2001 | | | Ргор | | | | | |
| 6 | Воув | Girls | Total | Boys | Girls | Total | to Total | Boys | Girls | 1990-91 | 2000-01 | 1990-91 | 2000-01 |
| fime Series | 6,818 | 3,606 | 10,424 | 12,451 | 7,402 | 19,853 | 0.37 | 0.06 | 0.07 | 0 , 80 | 1.09 | 0.47 | 0.72 |
| (Existing) | 6,834 | 3,208 | 10,042 | 11,127 | 3,901 | 15,028 | 0.26 | 0.05 | 0.02 | 0.80 | 0.97 | 0.42 | 0.38 |
| Base Line | 6,854 | 3,560 | 10,414 | 11,989 | 5,102 | 17,091 | 0.30 | 0.05 | 0.03 | 0.81 | 1.05 | 0.46 | 0.50 |
| Optional 1* | 5,988 | 2,924 | 8,912 | 8,893 | 6,072 | 14,965 | 0.41 | 0.04 | 0.07 | 0.70 | 0.78 | 0.38 | 0.59 |
| Better Best | 3,125 | 1,961 | 5,086 | 4,946 | 5,050 | 9,996 | 0.51 | 0.04 | 0.09 | 0.37 | 0.43 | 0.26 | 0.49 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

MIDDLE

| | | | | | | | Girls M | iddle grow | th | GPR E | Boys | GPR | Girls |
|------------|-------|------------------|-------|-------|-----------|-------|----------|------------|-------|---------|---------|---------|-----------------|
| | | 1 99 0-91 | | | 2000-2001 | 1 | Prop | | | | | | |
| | Boys | Girls | Total | Boys | Girls | Total | to Total | Boys | Girls | 1990-91 | 2000-01 | 1990-91 | 20 00-01 |
| ime Series | 1,866 | 790 | 2,656 | 3,314 | 1,815 | 5,129 | 0.35 | 0.05 | 0.08 | 0.40 | 0.53 | 0.18 | 0.31 |
| Existing) | 1,960 | 811 | 2,771 | 3,640 | 1,018 | 4,658 | 0.22 | 0.06 | 0.02 | 0.42 | 0.58 | 0.19 | 0.13 |
| Base Line | 1,949 | 830 | 2,779 | 3,894 | 1,540 | 5,434 | 0.28 | 0.06 | 0.06 | 0.42 | 0.62 | 0.19 | 0.27 |
| Best Case | 1,543 | 671 | 2,214 | 1,777 | 1,819 | 3,596 | 0.51 | 0.01 | 0.09 | 0.33 | 0.28 | 0.16 | 0.31 |

LOWER SECONDARY

| | | | | | | | Girls L | .ower Secor | wdary | GPR E | loys | GPR | Girls |
|-------------|------|---------|-------------|---------------|-------------|-------|----------|-------------|-------|---------|---------|---------|---------|
| | | 1990-91 | | | 2000-2001 | | | Prop Growth | | | | | |
| | Boys | Girls | Total | Boys | Girls | Total | to Total | Boys | Girls | 1990-91 | 2000-01 | 1990-91 | 2000-01 |
| Time Series | 644 | 262 | 906 | 1,095 | 560 | 1,655 | 0.34 | 0.05 | 0.07 | 0.22 | 0.28 | 0.10 | 0,15 |
| (Existing) | 701 | 530 | 1,231 | 1,605 | 1,603 | 3,208 | 0.50 | 0.08 | 0.11 | 0.24 | 0.41 | 0.20 | 0.44 |
| Base Line | 691 | 304 | 99 5 | 1,40 8 | 84 6 | 2,254 | 0.38 | 0.07 | 0.10 | 0.24 | 0.36 | 0.11 | 0.23 |
| Best Case | 689 | 304 | 993 | 617 | 970 | 1,587 | 0.61 | -0.01 | 0.11 | 0.24 | 0.16 | 0.11 | 0.27 |

*Optimal 1 forecast substituted for "Best Case" at Primary level to improve access for girls.

The four Time Series sets prepared included: a) two sets with a 10-year data series; and b) two sets with a 20-year data series. Although the longer series may provide a better statistical fit since variations in the data are smoothed out over time, the shorter time series has more recent data which has been corrected and which accounts for more recent trends in enrollments (e.g., more rapid increases in girls' enrollments).

Combined Population and Enrollment Forecasts

- **Exhibit 5-2** is an example of a simplified, three-step method used to prepare a typical population-enrollment forecast, in this case, for Enrollment of Pakistani Girls to the year 2000. The same method illustrated in the exhibit was used for all population-enrollment forecast sets. Only the policy assumptions in each forecast change.
- **Exhibit 5-3** shows an example of the forecast for a typical province, using the "Best Case" enrollment projection for boys in primary school in NWFP.
- **Exhibit 5-4** outlines the logic behind two variants to one of the principal scenarios, Best Case. The first variant, Optimal 1, improves entrance fractions and flow rates for girls. The second variant, Better Best, reflects a decrease of 60 percent to take out children enrolled in Kachi classes.
- **Exhibit 5-5** shows the calculation of the transition rates from Grade 5 in primary school to Grade 6 in middle school, and the projection of the middle school enrollments for girls in Punjab through the year 2001.
- **Exhibit 5-6** shows a similar calculation for the transition from middle school to lower secondary (grades 9 and 10).

Exhibit 5-1 Simple Exponential Time Series

| xample Time S | Geries Projec | tion | | |
|---------------|--------------------------|------------------|----------------------|--|
| FdKI: | stan olris to Primarv | | | |
| listorical | | - | | |
| 970-71 | 1152553 | | | |
| 971-72 | 1512011 | | Step One: | Calculate the exponential growth rate |
| 972-73 | 1359447 | | | using the formula: |
| 1973-74 | 1495138 | | | 0 |
| 1974-75 | 1570527 | | | (3 387 725/1 152 553)err (1/20)-1 _ |
| 1975-76 | 1665127 | | | $(5,567,725,152,555) \exp(1/20) =$ |
| 1976-77 | 1707615 | | | 0.0365 |
| 1977-78 | 1777432 | | | |
| 1978-79 | 1770369 | | | |
| 1979-80 | 1835002 | | | |
| 1980-81 | 1920667 | | 6 4. m | |
| 1981-32 | 2050634 | | step Two: | Once the growth rate is calculated, it |
| 1982-83 | 2202614 | | | can be used to project future values |
| 1983-84 | 2300995 | | | of the series: |
| 1984-85 | 2328635 | | | |
| 1985-86 | 2396008 | | | 3 162 155(1 0585) - 3 340 780 |
| 1986-87 | 2584412 | | | 5,102,135(1.0505) = 5,549,700 |
| 1987-88 | 2835231 | | | |
| 1988-89 | 3111440 | | | |
| 1989-90 | 3387725 | | | |
| Projection | | | | |
| 1990-91 | 3162155 | base year | | |
| 1991-92 | 3349780 | • | | |
| 1992-93 | 3585845 | projection vege | | |
| 993-94 | 3795588 | projection years | | |
| 1994-95 | 3976020 | | | |
| 995-96 | 4210055 | | | |
| 996-97 | 4461533 | | | |
| 997-98 | 4732668 | | | |
| 998-99 | 5026156 | | | |
| 999-2000 | 5345303 | | | |
| 000-2001 | 5694197 | | | |
| | | | | |

Other Time Series forecasts were run using the slight variants provided by a time series forecasting package, *Smart Forecast*. The best fit was obtained using a double exponential with smoothing, although all Time Series forecasts centered around the same total values.

Exhibit 5-2

Preparing Baseline Forecasts: Simplified, Three-Step Process Total Girls in Pakistan (ail provinces and areas)

| tepOne | Sin | Base Lin dh | e Forecas Pu | t Girls S niab | chool Age Populatio | on Primar amabad | у | Entry Aa | n Group |
|----------|----------|----------------|-----------------|-------------------|---------------------|---------------------|------------|---------------------|-------------|
| | Male | Female | Male | Female | Male | Female | | систу ну | e arnah |
| Age | Est.pop. | Est.pop. | Est.pop. | Est.pop. | Est.po | p Est.po | ρ. | Age Dist | 4-9 Years |
| 0 | 514 | 491 | 1138 | 1035 | | 7 | - | 0.95 | Age 4 |
| 1 | 487 | 449 | 1092 | 989 | 7 | 6 | | 0.90 | Age 5 |
| 2 | 464 | 416 | 1052 | 950 | 7 | 6 | | 0.85 | Age 6 |
| 3 | 443 | 391 | 1018 | 916 | 6 | 6 | | 0.40 | Age 6+ |
| 4 | 426 | 372 | 788 | 888 | 6 | 5 | | | |
| 5 | 411 | 359 | 963 | 863 | 6 | 5 | | Base Pop | Change |
| 6 | 398 | 351 | 941 | 842 | 6 | 5 | | 1991-92 | 1.03 |
| 7 | 387 | 347 | 922 | 824 | 6 | 5 | | 1992-93 | 1.028 |
| 8 | 377 | 345 | 905 | 808 | 6 | 5 | | 02 etc | |
| 9 | 369 | 346 | 889 | 794 | 6 | 5 | | | |
| 10 | 361 | 348 | 875 | 781 | 6 | 6 | | | |
| 11 | 355 | 354 | 863 | 771 | 6 | 6 | | | |
| 12 | 347 | 354 | 847 | 756 | 6 | 6 | | | |
| 13 | 337 | 345 | 822 | 735 | 6 | 6 | | | |
| 14 | 325 | 330 | 793 | 709 | 6 | 6 | | | |
| itep Two | | | | | Step Three,Enrollm | ent Proje | ection,Ex. | a n ple last | ; four vear |
| op to 1 | 6r1-2 | 6r2~3 | 6r3-4 | 6r4-5 | 1991 to 1997 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
| 0.22 | 0.53 | 0.87 | 0.98 | 0.99 | | | | | |
| 0.25 | 0.55 | 0.88 | 0.98 | 0.99 | 6r1' | 1485611 | 1509381 | 1533531 | 1556534 |
| 0.28 | 0.57 | 0.88 | 0.98 | 0.99 | 6r2 | 952577 | 1006551 | 1062852 | 1122627 |
| 0.31 | 0.59 | 0.89 | 0.98 | 0.99 | 6r3 | 791575 | 841364 | 893672 | 948575 |
| 0.34 | 0.61 | 0.89 | 0.98 | 0.99 | Gr4 | 661926 | 705664 | 751026 | 798751 |
| 0.38 | 0.64 | 0.90 | 0.98 | 0.99 | Gr5 | 553053 | 590815 | 632026 | 675014 |
| 0.42 | 0.66 | 0.90 | 0.98 | 0.99 | | | | | |
| 0.47 | 0.69 | 0.91 | 0.98 | 0.99 | Total | 4444742 | 4653775 | 4873106 | 5101500 |
| 0.52 | 0.72 | 0.91 | 0.98 | 0.99 | | | | | |
| 0.57 | 0.75 | 0.91 | 0.98 | 0.99 | • | | | | |
| 0.64 | 0.78 | 0.92 | 0.98 | 0.99 | | | | | |

- 1. Population is forecast for each area, gender, age group. Basic population data was based on forecasts by NIPS (National Institute of Population Studies) for 1988 and 1991, forecasts by Dr. Luis Crouch, Research Triangle Institute, and MUST.
- 2. Population is separated into single-year ages, using Sprague tables.
- 3. Population is grouped into appropriate age group to enter Grade 1.
- 4. Appropriate fraction of age group is multiplied to get Grade 1 entrants.
- 5. Grade 1 enrollments are moved to Grade 2, Grade 2 to 3, Grade 3 to 4, and Grade 4 to 5.

These same steps are applied to all enrollment projections: Existing, Base Line, Optimal, Best Case, and Better Best. Different population groupings, entrance fractions, and transition rates are manipulated to give the various results, but the method is the same in all enrollment projection sets.

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Exhibit 5-3 Enrollment Forecast for a Typical Province: Primary Level Boys, NWFP

Annex A on Forecast Methodology

Example of Optimal Forecast by Province Boys N.W.F.P

| | Intake F | ractions | | | | Intake Vector from Population Forecast |
|-----------------|----------|----------|----------|---------|---------|--|
| | Pop/Gr1 | Gr1/6r2 | 6r2/6r3 | 6r3/6r4 | 6r4/6r5 | Intake(assumes Kachi 50%) |
| | | | | | | Formula C90±0.24±L90+0.5 |
| 1990-91 | 0.79 | 0.40 | 0.95 | 0.97 | 0.96 | 109778 |
| 1991-92 | 0.80 | 0.65 | 0.95 | 0.97 | 0.96 | 114202 |
| 1992-93 | 0.81 | 0.70 | 0.96 | 0.97 | 0.97 | 118805 |
| 1993-94 | 0.81 | 0.75 | 0.96 | 0.97 | 0.97 | 123593 |
| 1994-95 | 0.82 | 0.80 | 0.97 | 0.97 | 0.97 | 128573 |
| 1995-96 | 0.83 | 0.85 | 0.97 | 0.97 | 0.97 | 133755 |
| 1996-9 7 | 0.84 | 0.90 | 0.97 | 0.98 | 0.98 | 139145 |
| 1997-98 | 0.85 | 0.95 | 0.98 | 0.98 | 0.98 | 144753 |
| 1998-99 | 0.86 | 0.95 | 0.98 | 0.98 | 0.98 | 150586 |
| 1999-00 | 0.86 | 0.95 | 0.99 | 0.98 | 0.99 | 156655 |
| 2000-01 | 0.87 | 0.95 | ij.ÿ9 | 0.98 | 0.99 | 162968 |
| | | | N.W.F.P. | Boys | | |

Optimal 1 Variant Best Case Enrolment Projection

| 6rade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1 99 6-97 | 1997-98 | 1 998- 99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|----------------|------------------|---------|---------|------------------|---------|------------------|-----------|-----------|
| Grade 1 | 205661 | 214693 | 224082 | 233842 | 243842 | 254527 | 265481 | 276863 | 288690 | 300977 | 313741 |
| Grade 2 | 198646 | 133680 | 150285 | 168062 | 187074 | 207266 | 229074 | 252207 | 263020 | 274256 | 285928 |
| Grade 3 | 179772 | 188886 | 127747 | 144334 | 162213 | 191467 | 202059 | 224436 | 248336 | 260278 | 272753 |
| Grade 4 | 158267 | 174553 | 183586 | 124287 | 140565 | 158135 | 177081 | 197373 | 219451 | 243062 | 255005 |
| Grade 5 | 141770 | 152392 | 168578 | 177834 | 120754 | 136978 | 154563 | 173600 | 194074 | 216430 | 240435 |
| Total | 884116 | 864204 | 8542 78 | 848358 | 854447 | 938372 | 1028258 | 1124479 | 1213570 | 1295002 | 1367863 |
| | | | .: | ** * -* -* - *** | | | | | | | |

Note: this example is from "Optimal 1", but the method is the same in all cases:

- 1. Population intake vector is taken from the forecast for the age group.
- 2. Intake number comes from different fraction of entrant age group, and growth over the years of the forecast is built into the formula.
- 3. Intake fractions are raised, as are transition rates.

6

Exhibit 5-4 Policy Assumptions for Enrollment Projections

Calculation of enrollment projections sets are the same for all forecasts. The outline below lists some of the policy assumptions for two projections.

A. Optimal 1 (a variant of Best Case):

The mechanical steps are the same as in Base Line (steps 1-3 below).

- 1. Population is forecast, and divided into appropriate age groups.
- 2. Entrance fraction is admitted into Grade 1 from population increase.
- 3. Grade transitions are increased. Additional assumptions include:
 - Lower population growth in school ages
 - Higher fraction of age group admitted
 - Growth admittance fraction increases (1 percent)
 - Admission fraction attempts to approach "universal access" over the 10-year period, but does not rise much above 90 percent for any enrollment projection.
 - Improved flow rates, grade to grade, and an increased number of graduates.
 - Optimal 1 also improves entrance fractions and flow rates for girls.
- **B.** Better Best (a variant of the Best Case and Optimal projections):

The mechanical steps are the same as in Base Line, Optimal, and Best Case:

- 1. Population is forecast and appropriate fraction is admitted to Grade 1.
- 2. First grade enrollment is reduced by 60 percent to take out Kachi classes.
- 3. Transition rates from Grade 1 to 2, 2 to 3, 3 to 4, and 4 to 5 are raised close to 1 to reflect near automatic promotion.
- 4. Boys' enrollment growth is held to one-half that of girls, so that at the end of the period, boys' and girls' shares of enrollment are almost equal--i.e., girls enrollments are about 51 percent of the total.

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Exhibit 5-5 Calculation of Transition Rates Grade 5 to Grade 6

Girls Punjab Calculation of Transition Rates Primary to Middle

| 6rade5 | 180858 | 201175 | 213982 | 241000 | 520000 | Punjab | |
|---------|---------|---------|---------|---------|---------|--------------------|----------|
| Grade | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | Year | Tr. Rate |
| Grade-6 | 130480 | 146257 | 169842 | 187000 | 211000 | 1986-86 to 1986-87 | 0.81 |
| Grade-7 | 102407 | 115886 | 133516 | 151000 | 166000 | 1986-87 to 1987-88 | 0.84 |
| Grade-8 | 83239 | 93994 | 106808 | 120000 | 137000 | 1987-88 to 1988-89 | 0.87 |
| | | | | | | 1988-89 to 1989-90 | 0.88 |

Shows use of transition rates to forecast middle school enrollments.

k

| 6r5t06 | 6r6to7 | 6r7to8 | | | Punjab | Girls | | | | | | | | |
|--------|--------|--------|---------|---------|----------------|----------|-----------|---------|---------|---------|---------|---------|-----------|----------|
| | | | | | Best Ca | se Enrol | ment Proj | ection | | | | | | |
| | | | Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-200 |
| 0.85 | 0.89 | 0.91 | Grade 6 | 210248 | 204788 | 200091 | 193383 | 109730 | 131024 | 148829 | 168833 | 192375 | 218701 | 251713 |
| 0.87 | 0.90 | 0.92 | Grade 7 | 187790 | 188992 | 185925 | 183477 | 179099 | 102642 | 123786 | 142013 | 162712 | 187254 | 215008 |
| 0.89 | 0.91 | 0.93 | Grade 8 | 151060 | 172767 | 175762 | 174770 | 174303 | 171935 | 99562 | 121310 | 139172 | 159458 | 183509 |
| 0.91 | 0.92 | 0.94 | | | | | | | | | | | | |
| 0.92 | 0.93 | 0.95 | Total | 549098 | 5 66547 | 561779 | 551629 | 463133 | 405601 | 372177 | 432156 | 494259 | 565413 | 650230 |
| 0.94 | 0.94 | 0.96 | | | | | | | | | | | | |
| 0.95 | 0.94 | 0.97 | | | | | | | | | | | | |
| 0.96 | 0.95 | 0.98 | | | | | | | | | | | | |
| 0.96 | 0.96 | 0.98 | | | | | | | | | | | | |
| 0.96 | 0.97 | 0.98 | | | | | | | | | | | | |
| 0.96 | 0.98 | 0.98 | | | | | | | | | | | | |

Exhibit 5-6 Calculation of Transition Rates Middle School (Grade 8) to Grade 9 and 10 (Lower Secondary)

.

| lid t | o 9 6: | r9 to 0 93 | 10 | | | | | | | | | | | | |
|-------|------------|---------------|-------|----|---------|----------|-----------|-----------|-----------|-----------|-----------|---------|---------|-----------|-----------|
| | | 0.93 | | | Example | of Trans | itions an | nd Base L | ine Proje | ction Hig | her Secon | dary | | | |
| | | 0.93 0.92 | | | | Sindh 6 | irls | | | | | | | | |
| | | 0.91 | | | | _ | | | | | | | | - | |
| | | 0.91 | | | | Base Lii | ne Enroli | ment Proj | ection | | | | | | |
| | | 0.90 | Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
| 0 | .77 | 0.90 | Grade | Ģ | 42092 | 48771 | 50817 | 52546 | | 66774 | 86569 | 101235 | 111232 | 124889 | 139083 |
| 0 | .77 | 0.92 | Grade | 10 |) 33973 | 38724 | 44869 | 46751 | 48342 | 59555 | 62100 | 80509 | 95161 | 105670 | 118644 |
| 0 | .77 .77 | 0.92 | Total | | 76065 | 87495 | 95686 | 99297 | 112379 | 126329 | 149449 | 181745 | 206393 | 230559 | 257727 |
| 0 | .77 | 0.92 | | | | 0,1,0 | /0000 | ,,,,,, | 110077 | ILUUL / | 140007 | 101/40 | 2000/0 | 200007 | 237727 |
| 0 | .78 79 | 0.93 | | | | | | | | | | | | | |
| 0 | .79 | 0.93 | | | | | | | | | | | | | |
| 0 | .79 | 0.94 | | | | | | | | | | | | | |
| õ | .80 | 0.95 | | | | | | | | | | | | | |

Complete Enrollment Projections

--Base Line --Optimal

Primary Boys Pakistan(FANA not included)

Base Line Enrolment Projection

| rade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---|---------|---------|---------|---------|---------|---------|---------|---------|----------|-----------|-----------|
| Grade 1 | 1 | 2367261 | 2473776 | 2584627 | 2699978 | 2820000 | 2944870 | 3074770 | 3255301 | 3397199 | 3592933 | 3797429 |
| Grade á | 2 | 1405497 | 1457547 | 1544272 | 1635577 | 1731691 | 1832848 | 1939298 | 2051300 | 2206204 | 2331596 | 2503499 |
| Brade 3 | 3 | 1159193 | 1210716 | 1262227 | 1344163 | 1430903 | 1522714 | 1619873 | 1722676 | 1831434 | 1979821 | 2102965 |
| Grade (| 4 | 1038355 | 1101693 | 1152585 | 1202580 | 1282223 | 1366635 | 1456087 | 1550862 | 1651259 | 1757595 | 1902540 |
| Grade S | 5 | 883885 | 940301 | 1004294 | 1058337 | 1110941 | 1191486 | 1277452 | 1369190 | 1467068 | 1571479 | 1682842 |
| Total | | 6854192 | 7184033 | 7548004 | 7940635 | 8375758 | 8858553 | 9367481 | 9949329 | 10553163 | 11233424 | 11989275 |

Primary Boys N.W.F.P

Base Line Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------|---------|---------|---------|---------|---------|---------|-----------------|-----------------|-----------|-----------|
| Grade | 1 | 538534 | 554690 | 571331 | 598471 | 606125 | 624309 | 643038 | 662329 | 682199 | 702665 | 723745 |
| Grade | 2 | 218511 | 239325 | 248969 | 259003 | 269441 | 280299 | 291595 | 303347 | 315571 | 328289 | 341519 |
| Grade | 3 | 174802 | 202035 | 222386 | 232505 | 243084 | 254145 | 265709 | 2777 99 | 2 9 0439 | 303655 | 317471 |
| Grade | 4 | 158267 | 169731 | 196366 | 216362 | 226433 | 236973 | 248003 | 25 95 47 | 271628 | 284272 | 297504 |
| Grade | 5 | 141770 | 152392 | 163921 | 190213 | 210211 | 220656 | 231620 | 243128 | 255208 | 267889 | 281199 |
| Total | | 1231888 | 1318174 | 1402974 | 1486554 | 1555295 | 1616382 | 1679965 | 1746150 | 1815047 | 1886769 | 1961439 |

R

Primary Boys Punjab

| Grade | | 1990-91 | 1991-92 | 1 992- 93 | 1993-94 | 1 994 -95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|--------------------|---|----------------|---------|------------------|---------|------------------|---------|---------|---------|---------|-----------|-----------|
| Grade | 1 | 1070764 | 1140918 | 1214317 | 1291093 | 1371383 | 1455328 | 1543076 | 1680189 | 1777368 | 1927041 | 2084095 |
| ¹ Grade | 2 | 810920 | 821105 | 882776 | 948024 | 1017035 | 1090004 | 1157136 | 1248645 | 1371833 | 1464237 | 1601829 |
| 6rade | 3 | 670800 | 700878 | 713229 | 770632 | 831729 | 896736 | 965880 | 1039399 | 1117548 | 1233940 | 1323642 |
| Grade | 4 | 60 5760 | 644612 | 674189 | 586756 | 742770 | 802460 | 866045 | 933755 | 1005834 | 1082540 | 1196482 |
| Grade | 5 | 514800 | 549000 | 588301 | 619602 | 635570 | 692220 | 753083 | 818444 | 888610 | 963905 | 1044675 |
| Total | | 3673044 | 3856513 | 4072813 | 4316107 | 4598487 | 4936749 | 5295220 | 5720433 | 6161192 | 6671863 | 7250723 |

Primary Boys Sindh

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|-----------------|---------|---------|-----------------|---------|---------|-----------|-----------|
| Grade 1 | 454184 | 467810 | 481944 | 496299 | 511188 | 526524 | 542319 | 558589 | 575347 | 592607 | 610385 |
| Grade 2 | 287794 | 302759 | 314960 | 327653 | 340858 | 354594 | 368884 | 383750 | 399215 | 415304 | 432041 |
| Grade 3 | 246681 | 240064 | 253609 | 265358 | 277432 | 290056 | 303254 | 317052 | 331478 | 346561 | 362330 |
| Grade 4 | 217824 | 232112 | 226111 | 239297 | 250436 | 262093 | 274292 | 287060 | 300422 | 314405 | 329040 |
| Grade 5 | 183309 | 194170 | 207940 | 2035 7 7 | 216526 | 227738 | 23 953 0 | 251933 | 264978 | 278698 | 293129 |
| Total | 1390292 | 1436914 | 1484665 | 1532185 | 1596440 | 1661004 | 1728280 | 1798384 | 1871440 | 1947576 | 2026926 |
| R | | | | | | | | | | | |

Primary Boys Balochistan

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|----------------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Arade 1 | 207387 | 213608 | 220016 | 226617 | 233415 | 240418 | 247430 | 255050 | 242711 | 270502 | 270710 |
| Grade 2 | 62410 | 67027 | 69729 | 72539 | 75462 | 78503 | 81667 | 84958 | 88382 | 91943 | 95649 |
| Grade 3 | 44892 | 46414 | 50097 | 52377 | 54760 | 57252 | 59857 | 62581 | 65428 | 68405 | 71518 |
| Grade 4 | 34951 | 35051 | 36275 | 39193 | 41018 | 42927 | 44925 | 47016 | 49205 | 51495 | 53892 |
| Grade 5 | 26831 | 27398 | 27614 | 28721 | 31187 | 32802 | 34500 | 36287 | 38165 | 40142 | 42220 |
| Total | 376471 | 3 89499 | 403732 | 419447 | 435842 | 451902 | 468579 | 485901 | 503891 | 522578 | 541989 |

R

Primary Boys F.A.T.A.

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 19 98-9 9 | 1999-2000 | 2000-2001 |
|---------|---------|---------|----------|---------|---------|---------|--------------|---------------|------------------|-----------|-----------|
| Grade 1 | 8446 | 5 8446 | 5 84465 | 84465 | 84465 | 84465 | 84465 | 84465 | 84465 | 84465 | 84465 |
| Grade 2 | ! 1874 | 8 1962 | 1 19817 | 20016 | 20216 | 20418 | 20655 | 20829 | 21037 | 21247 | 21459 |
| Grade 3 | 1474 | 7 1394 | 3 14665 | 14886 | 15110 | 15337 | 15568 | 15803 | 16040 | 16282 | 16527 |
| Grade 4 | 1446 | 7 1254 | 7 11875 | 12503 | 12704 | 12908 | 13115 | 13326 | 13540 | 13757 | 13979 |
| Grade 5 | 1069 | 9 1074 | 9359 | 8893 | 9401 | 9590 | 978 3 | 9 98 0 | 10181 | 10386 | 10595 |
| Total | 14312 | 14132 | 5 140182 | 140763 | 141895 | 142718 | 143554 | 144402 | 145263 | 146137 | 147025 |

Primary Boys Islamabad

Base LineEnrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---|---------|--------------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 1 | 11927 | 12285 | 12653 | 13033 | 13424 | 13827 | 14241 | 14669 | 15109 | 15562 | 16029 |
| Grade | 2 | 7115 | 7710 | 8020 | 8344 | 8680 | 9030 | 9393 | 9772 | 10166 | 10575 | 11002 |
| Grade 3 | 3 | 7267 | 73 83 | 8040 | 8405 | 8788 | 9188 | 9606 | 10043 | 10500 | 10978 | 11477 |
| Grade | 4 | 7085 | 7639 | 7768 | 8468 | 8862 | 9274 | 9706 | 10158 | 10631 | 11126 | 11643 |
| Grade : | 5 | 5977 | 6593 | 7158 | 7330 | 8046 | 8479 | 8936 | 9417 | 9925 | 10459 | 11023 |
| Total | | 39371 | 41609 | 43639 | 45579 | 47799 | 49798 | 51883 | 54059 | 56330 | 58700 | 61174 |

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.

Total Pakistan Girls (FANA not included)

Base line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 1465380 | 1310222 | 1346909 | 1380581 | 1408193 | 1434949 | 1460778 | 1485611 | 1509381 | 1533531 | 1556534 |
| Grade 2 | 676384 | 760407 | 708909 | 756002 | 804130 | 851417 | 900882 | 952577 | 1006551 | 1062852 | 1122627 |
| Grade 3 | 555911 | 577616 | 651810 | 610041 | 653970 | 699239 | 744226 | 791575 | 841364 | 893672 | 948575 |
| Grade 4 | 472185 | 492134 | 511802 | 577960 | 540982 | 580705 | 621720 | 661926 | 705664 | 751026 | 798751 |
| Grade 5 | 390444 | 409262 | 428304 | 446996 | 507520 | 478072 | 514854 | 553053 | 590815 | 635059 | 675014 |
| • Total | 3560305 | 3549642 | 3647734 | 3771582 | 3914795 | 4044382 | 4242460 | 4444742 | 4653775 | 4873106 | 5101500 |

R

Primary Girls N.W.F.P. Base Line Enrollment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|----------------|---------|---------|---------|----------------|-----------|-----------|
| Crado 1 | 162776 | 152026 | 15034/ | | | | | | | | |
| oraue 1 | 100//0 | 133730 | 130640 | 100003 | 100447 | 109240 | 1/1952 | 1/4042 | 177335 | 180175 | 182875 |
| Grade a | 61248 | 64219 | 61338 | 63686 | 6 593 1 | 67922 | 69905 | 71875 | 7 38 28 | 75759 | 77741 |
| Grade 3 | 49650 | 57064 | 60131 | 57721 | 60530 | 62665 | 64881 | 67108 | 69344 | 71585 | 73825 |
| Grade 4 | 36817 | 42367 | 48744 | 51415 | 49404 | 51603 | 53743 | 55643 | 57668 | 59650 | 61638 |
| 6rade 5 | 29082 | 31814 | 36795 | 42543 | 45098 | 43551 | 45717 | 47851 | 49790 | 51861 | 53911 |
| Total | 339572 | 349401 | 365254 | 377568 | 386111 | 394332 | 405871 | 417020 | 427966 | 439027 | 449990 |

R

Primary Girls Punjab

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 1033252 | 885547 | 910342 | 933101 | 951763 | 969847 | 987304 | 1004088 | 1020153 | 1036476 | 1052023 |
| Grade 2 | 461712 | 517477 | 465679 | 502654 | 540981 | 579390 | 619919 | 662631 | 707591 | 754858 | 805282 |
| Grade 3 | 387545 | 396973 | 447144 | 404397 | 438689 | 474500 | 510730 | 549188 | 589962 | 633141 | 678812 |
| Grade 4 | 336829 | 347518 | 356329 | 401764 | 363719 | 394956 | 427624 | 460275 | 495924 | 533276 | 572879 |
| Grade 5 | 270165 | 283140 | 293586 | 302534 | 342816 | 311905 | 340385 | 370382 | 400656 | 433846 | 468855 |
| Total | 2489502 | 2430656 | 2473080 | 2544450 | 2637968 | 2730598 | 2885962 | 3046564 | 3214286 | 3391597 | 3577851 |

Primary Girls Sindh

Base line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|-----------------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 200313 | 200510 | 206124 | 211277 | 215502 | 219597 | 223550 | 227350 | 230988 | 234683 | 238204 |
| Grade 2 | 130328 | 111-00 | 155450 | 161401 | 167090 | 172136 | 177161 | 182153 | 187103 | 191997 | 197020 |
| Grade 3 | 100679 | 103474 | 122683 | 12405/ | 130076 | 135334 | 140119 | 144930 | 149759 | 154597 | 159435 |
| Grade 4 | 83350 | 35663 | 88129 | 104598 | 106383 | 111119 | 115/26 | 119817 | 124179 | 128445 | 132728 |
| Grade 5 | 80103 | 81765 | 84118 | 86625 | 102917 | 104778 | 109551 | 114208 | 118364 | 122795 | 127141 |
| Total | 594773 | 625171 | 656509 | 6885 5 8 | 721969 | 742964 | 766107 | 788459 | 810392 | 832518 | 85452a |
| R | | | | | | | | | | | |

Primary Girls Balochistan

Base line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 40463 | 41275 | 42431 | 43492 | 44362 | 45205 | 46018 | 46801 | 47549 | 48310 | 49035 |
| Grade 2 | 12696 | 14002 | 14998 | 16189 | 17423 | 18660 | 19965 | 21341 | 22789 | 24311 | 25935 |
| Grade 3 | 11958 | 11228 | 12446 | 13397 | 14533 | 15719 | 16920 | 18194 | 19545 | 20975 | 22488 |
| Grade 4 | 7699 | 9077 | 9226 | 10236 | 11030 | 11977 | 12967 | 13958 | 15039 | 16171 | 17372 |
| Grade 5 | 5765 | 6267 | 7426 | 7585 | 8458 | 9160 | 9996 | 10877 | 11766 | 12741 | 13767 |
| Total | 77680 | 81850 | 86526 | 90899 | 95806 | 100720 | 105867 | 111170 | 116687 | 122508 | :28599 |

Primary Girls F.A.T.A.

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997 -98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|-----------------|---------|-----------|-----------|
| Grade 1 | 18228 | 18308 | 18821 | 19291 | 19677 | 20051 | 20412 | 20757 | 21091 | 21428 | 21750 |
| Grade 2 | 4237 | 4402 | 4642 | 5011 | 5393 | 5776 | 6180 | 6606 | 7054 | 7525 | 8028 |
| Grade 3 | 1490 | 3151 | 3290 | 3487 | 3783 | 4045 | 4404 | 4736 | 5087 | 5460 | 5854 |
| Grade 4 | 1669 | 1432 | 3031 | 3168 | 3361 | 3650 | 3952 | 4253 | 4583 | 4928 | 5294 |
| irade 5 | 894 | 1091 | 940 | 2000 | 2101 | 2240 | 2444 | 2660 | 2877 | 3116 | 3367 |
| otal | 26519 | 28384 | 30724 | 32957 | 34315 | 35808 | 37392 | 39014 | 40692 | 42457 | 44292 |

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Primary Girls Islamabad

| rade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------|---------|---------|---------|---------|---------|---------------|---------|---------|-----------|-----------|
| Grade | 1 | 10349 | 10646 | 10944 | 11218 | 11442 | 11660 | 11870 | 12071 | 12265 | 12461 | 12648 |
| Grade | 2 | 6163 | 6546 | 6802 | 7062 | 7311 | 7532 | 7752 | 7970 | 8187 | 8401 | 8620 |
| Grade | 3 | 5489 | 5725 | 6111 | 6382 | 6659 | 6928 | 7173 | 7420 | 7667 | 7914 | 8162 |
| Grade | 4 | 5821 | 6076 | 6344 | 6779 | 7085 | 7401 | 7708 | 7980 | 8271 | 8555 | 8840 |
| Grade | 5 | 4436 | 5186 | 5440 | 5708 | 6130 | 6439 | 67 6 0 | 7075 | 7362 | 7668 | 7971 |
| Total | | 32258 | 34179 | 35641 | 37149 | 38628 | 39960 | 41262 | 42516 | 43750 | 44999 | 46241 |

Pakistan Middle School Boys Base Line Enrolment Projection

1990-91 1991-92 1992-93 1993-94 1994-95 1995-96 1996-97 1997-98 1998-99 1999-2000 2000-2001 Grade ----Grade 6 779466 829297 885582 933508 979407 1050847 1127113 1208517 1295388 1388078 1486958 Grade 7 630164 690596 738439 792390 840225 886232 955556 1029955 1109784 1195423 1287280 Grade 8 539148 583056 641525 **686490** 738704 783960 828388 894983 964810 1039777 1120249 1948778 2102948 2265546 2412388 2558336 2721039 2911058 3133455 3369982 Total 3623278 3894487

N.W.F.P Middle School Boys

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Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 19 97- 98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|----------------|---------|---------|---------|---------|---------|------------------|---------|-----------|-----------|
| Grade 6 | 121922 | 131057 | 140972 | 163583 | 180782 | 189764 | 199193 | 209090 | | 230384 | 241831 |
| Grade 7 | 90981 | 111504 | 120458 | 130219 | 151860 | 168666 | 177931 | 187706 | 198018 | 208896 | 220371 |
| Grade 8 | 81277 | 88340 | 108375 | 117195 | 126818 | 148043 | 164590 | 173805 | 183536 | 193813 | 204664 |
| Total | 294180 | 3309 01 | 369805 | 410997 | 459460 | 506472 | 541714 | 570601 | 601033 | 633093 | 666867 |

Punjab Middle School Boys

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|----------------|---------|---------|---------|-----------|----------------|
| Grade 6 | 463320 | 494100 | 529471 | 557642 | 572013 | 62 2998 | 677775 | 736600 | 799749 | 867514 | 940207 |
| Grade 7 | 382800 | 409750 | 439167 | 472959 | 500613 | 516082 | 564893 | 617633 | 674594 | 736090 | 802453 |
| Grade 8 | 322200 | 344865 | 369522 | 396437 | 427368 | 452809 | 467268 | 511973 | 560332 | 612621 | 6691 36 |
| Total | 1168320 | 1248725 | 1338160 | 1427038 | 1499994 | 1591889 | 1709935 | 1866206 | 2034675 | 2216225 | 2411796 |

Sindh Middle School Boys

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Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 152561 | 161161 | 172590 | 158969 | 179717 | 189023 | 198810 | 209104 | 219932 | 231320 | 243297 |
| Grade 7 | 123212 | 130522 | 138568 | 149138 | 146739 | 156853 | 165799 | 175256 | 185252 | 195819 | 206989 |
| Grade 8 | 109030 | 118283 | 126606 | 134411 | 146155 | 143804 | 153715 | 164141 | 173504 | 183400 | 193861 |
| Total | 384803 | 409966 | 437765 | 452518 | 472610 | 489679 | 518325 | 548502 | 578688 | 610539 | 644147 |

Balochistan Middle School Boys

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 24148 | 24658 | 24852 | 25849 | 28068 | 29522 | 31050 | 32658 | 34349 | 36128 | 37998 |
| Grade 7 | 18083 | 22570 | 23165 | 23461 | 24524 | 26763 | 28289 | 29903 | 31608 | 33411 | 35317 |
| Grade 8 | 14228 | 17196 | 21484 | 22070 | 22377 | 23415 | 25577 | 27063 | 28636 | 30299 | 32059 |
| Total | 56459 | 64424 | 69499 | 71380 | 74970 | 79699 | 84917 | 89624 | 94593 | 99838 | 105374 |

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F.A.T.A Middle School Boys

Base Line Enrolment Projection

| Grade | 1990-91 | 1991 -92 | 1992-93 | 1993-94 | 1 994 -95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|-----------------|---------|---------|------------------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 10164 | 10211 | 8891 | 8449 | 8931 | 9111 | 9294 | 9481 | 9672 | 9867 | 10065 |
| Grade 7 | 9566 | 9295 | 9385 | 8213 | 7843 | 8332 | 8543 | 8758 | 8979 | 9206 | 9438 |
| brade 8 | 7557 | 8905 | 8662 | 8754 | 7669 | 7331 | 7796 | 8000 | 8211 | 8426 | 8647 |
| Total | 27287 | 28412 | 26939 | 25416 | 24443 | 24774 | 25633 | 26240 | 26865 | 27499 | 28151 |

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Islamabad Middle School Boys

| Grade | | -1990-91- | 1991-92 | -1992-93- | -1993-94- | -1994-95- | -1995-96- | -1996-97- | -1997-98- | _1998-99 | -1999-2000. | 2000-2001 |
|---------|---|-----------|---------|-----------|--------------|-----------|-----------|-----------|-----------|----------|-------------|-----------|
| Grade 6 |) | 7351 | 8109 | 8804 | 9015 | 9896 | 10429 | 10991 | 11583 | 12208 | 12865 | 13558 |
| Grade 7 | 7 | 5523 | 6945 | 7699 | 8401 | 8645 | 9537 | 10102 | 10699 | 11332 | 12002 | 12712 |
| Grade 8 | | 4855 | 5467 | 6875 | 762 2 | 8317 | 8559 | 9442 | 10001 | 10592 | 11218 | 11882 |
| Total | | 17729 | 20521 | 23378 | 25038 | 26858 | 28526 | 30535 | 32283 | 34131 | 36085 | 38152 |

Pakistan Middle School Girls Base Line Enrolment Projection

| 6rade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Grade 6 Grade 7 Grade 8 | 331812 278016 220462 | 347345 298720 252219 | 362448 313746 274033 | 376460 330077 290283 | 428844 343150 307955 | 404795 394261 322804 | 436033 373510 374226 | 468486 405614 357559 | 500583 437326 391769 | 535617 471094 426162 | 572172 504527 463134 |
| Total | 830289 | 898284 | 950227 | 996819 | 1079948 | 1121860 | 1183769 | 1231659 | 1329677 | 1432873 | 1539833 |

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N.W.F.P Middle School Girls

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------------|---------|---------|---------|---------|---------|---------|---------------|-----------|---------------|
| Grade 6 | 14541 | 15907 | 18397 | 21271 | 22549 | 21776 | 22859 | 23925 | 24895 | 25930 | 26 955 |
| Grade 7 | 16308 | 12545 | 13930 | 16352 | 19190 | 20648 | 20239 | 21564 | 22909 | 24195 | 25579 |
| Grade 8 | 11787 | 13141 | 10311 | 11678 | 13983 | 16738 | 18370 | 18366 | 19960 | 21629 | 23300 |
| Total | 42636 | 415 93 | 42638 | 49301 | 55722 | 59162 | 61467 | 63855 | 677 64 | 71755 | 75835 |

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Punjab Middle Schools Girls

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|----------------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 229640 | 240669 | 249548 | 257154 | 291394 | 265119 | 289328 | 314825 | 340558 | 368769 | 398527 |
| Grade 7 | 187790 | 206676 | 216602 | 22708 9 | 234010 | 268085 | 243910 | 269075 | 292787 | 320124 | 346643 |
| Grade 8 | 151060 | 172256 | 191096 | 201875 | 213343 | 221605 | 255901 | 234690 | 260975 | 286245 | 315475 |
| Total | 568490 | 619601 | 657247 | 686120 | 738748 | 754806 | 789138 | 818589 | 894320 | 975138 | 1060645 |

Sindh Hiddle School Birls

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|---------------------------|---------------------------|----------------------------|
| Grade 6 Grade 7 Grade 8 | 75297 65893 50715 | 76859 68520 59231 | 79071 70710 62209 | 81428 72745 64839 | 96742 74914 67372 | 98491 89003 70074 | 102978 91597 84085 | 107356 95770 87401 | 111262 100914 92297 | 115428 104586 98228 | 119512 108502 102820 |
| Total | 191905 | 204611 | 211990 | 219012 | 239027 | 257568 | 278660 | 290527 | 304473 | 318242 | 330834 |

8

Balochistan Middle School Girls

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 6572 | 7145 | 8465 | 8647 | 9642 | 10442 | 11395 | 12400 | 13413 | 14524 | 15696 |
| Grade 7 | 3958 | 5376 | 5904 | 7065 | 7289 | 8209 | 8978 | 9896 | 10876 | 11882 | 12995 |
| Grade 8 | 3577 | 3849 | 5235 | 5754 | 6892 | 7118 | 8024 | 8785 | 9693 | 10663 | 11662 |
| Total | 14106 | 16371 | 19604 | 21466 | 23823 | 25768 | 28398 | 31081 | 33982 | 37070 | 40354 |

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F.A.T.A Middle School Girls

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 199 9 -2000 | 2000-2001 |
|---------|---------|-------------|---------|---------|---------|---------|---------|---------|---------|--------------------|-----------|
| Grade 6 | 572 | 698 | 602 | 1280 | 1344 | 1434 | 1564 | 1702 | 1841 | | 2155 |
| Grade 7 | 172 | 45 8 | 586 | 518 | 1126 | 1210 | 1319 | 1471 | 1634 | 1768 | 1914 |
| Grade 8 | 167 | 165 | 440 | 569 | 502 | 1093 | 1186 | 1292 | 1441 | 1618 | 1750 |
| Total | 911 | 1321 | · 1628 | 2366 | 2973 | 3736 | 4069 | 4465 | 4917 | 5380 | 5819 |

Islamabad Hiddle School Girls

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| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 6 | 5190 | 6067 | 6364 | 6579 | 7172 | 7534 | 7909 | 8278 | 8613 | 8972 | 9326 |
| Grade 7 | 3895 | 5144 | 6014 | 6309 | 6650 | 7109 | 7468 | 7837 | 8205 | 8538 | 8893 |
| Grade 8 | 3156 | 3577 | 4743 | 5567 | 5863 | 6177 | 6650 | 7024 | 7403 | 7779 | 8127 |
| Total | 12241 | 14789 | 17121 | 18554 | 19655 | 20820 | 22036 | 23141 | 24221 | 25289 | 26346 |

Pakistan Lower Secondary School Boys Base line Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997~98 | 1998~99 | 1999-2000 | 2000-2001 |
|----------------|---------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Grade Grade | 9 10 | 403332 287915 | 431723 324282 | 473123 349391 | 503504 384872 | 540377 409303 | 567086 442378 | 592676 466697 | 639981 493473 | 689186 532180 | 734144 578888 | 790282 617229 |
| Total R | | 691246 | 756005 | 822514 | 888376 | 9496(11 | 1009464 | 1059373 | 1133454 | 1221366 | 1313032 | 1407511 |

N.W.F.P Lower Secondary Boys

Base line Enrolment Projection

| Grade | 1990-9 | 1 1991-98 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------------|-----------------|----------------------|----------------|----------------|----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Grade Grade | 9 609 10 410 | 58 65371 63 54868 | 79114 58834 | 84380 71994 | 90041 76786 | 103630 81937 | 115213 95339 | 121664 107148 | 128476 113147 | 135669 120767 | 143265 128885 |
| Total R | 1020 | 21 120234 | 137948 | 156374 | 166827 | 185567 | 210552 | 228811 | 241623 | 256436 | 272150 |

Punjab Lower Secondary Boys

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|--------------------|--------------------|------------------|------------------|---------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Grade 9 Grade 1 | 238428 0 163440 | 251751 177290 | 269751 189069 | 289399 | 311979 217049 | 326023 237104 | 331760 247777 | 363501 255455 | 397836 279896 | 428835 310312 | 468395 334491 |
| Total | 401868 | 429041 | 458820 | 491713 | 529028 | 563126 | 579537 | 618956 | 677731 | 739147 | 802886 |

Sindh Lower Secondary Boys

Base line Enrolment Projection

| irade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|----|---------|----------|-----------|------------|----------|---------|---------|---------|---------|-----------|-----------|
| Grade | 9 | 80682 | 87530 | 93688 | 98120 | 106693 | 104977 | 110675 | 118182 | 124923 | 130214 | 137641 |
| Grade | 10 | 70919 | 73421 | 79652 | 86193 | 90271 | 98158 | 97628 | 102928 | 109909 | 117427 | 122401 |
| Total | | 151601 | 160950 | 173340 | 184314 | 196964 | 203134 | 208304 | 221110 | 234831 | 247641 | 260042 |
| R | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | Balochis | itan Lowe | er Seconda | ity Boys | | | | | | |
| | | | Base lir | e Enrol | ent Proje | ection | | | | | | |
| | | | | | | | | | | | | |

Balochistan Lower Secondary Boys

Base line Enrolment Projection

| Grade | 1 | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1907-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------------|---------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| Grade Grade | 9 10 | 11952 5427 | 14273 8024 | 17832 9678 | 18097 12213 | 18349 12306 | 18966 12478 | 20718 13086 | 21651 14295 | 22908 14939 | 24239 16036 | 256/ 3 16968 |
| Total | | 17379 | 22297 | 27510 | 30310 | 30656 | 31444 | 33804 | 35946 | 37847 | 40275 | 42615 |
| Q | | | | | | | | | | | | |

F.A.T.A Lower Secondary Boys

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------------|-------------------|----------------|--------------|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Grade Grade | 7 5214 10 3285 | 6145 5 4954 | 5890 5837 | 5953 56 55 | 5215 5715 | 4912 5006 | 5223 4715 | 5360 5014 | 5419 5146 | 5561 5202 | 5707 5339 |
| Total | 8500 | 11098 | 11728 | 11608 | 10930 | 9918 | 9938 | 10375 | 10565 | 10763 | 11046 |

Islamabad Lower Secondary Boys

k

| Grade | _ | 1790-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade | 9 | 6097 | 6653 | 6847 | 7554 | 8100 | 8579 | 9087 | 9624 | 9625 | 9626 | 9627 |
| Grade | 10 | 3780 | 5732 | 6321 | 6505 | 7176 | 7695 | 8151 | 8633 | 9143 | 9144 | 9145 |
| Total | | 9877 | 12385 | 13168 | 14058 | 15276 | 16275 | 17237 | 18257 | 18768 | 18770 | 18771 |

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Lower Secondary School Girls Base Line Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1 99 8-99 | 1999-2000 | 1002-2001 |
|----------------|---------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Grade Grade | 9 10 | 170256 134132 | 194202 153952 | 211543 177118 | 219075 193123 | 240749 201586 | 254998 222480 | 312516 237122 | 320306 290223 | 360411 299601 | 404927 338224 | 463794 382144 |
| Total | | 304388 | 348154 | 388661 | 412199 | 442335 | 477478 | 549638 | 610529 | 660012 | 743151 | 845938 |
| R | | | | | | | | | | | | |

N.W.F.P Lower Secondary Girls

Base Line Enroleent Projection

| Grade | 1 | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------------|---------|--------------|--------------|--------------|--------------|--------------|---------|---------------|---------|----------------|----------------|-----------|
| Grade Grade | 9 10 | 8728 6175 | 9785 7070 | 8016 8024 | 9038 6573 | 8247 7411 | 10647 | 16467 8837 | 21844 | 27293 18349 | 33830 23199 | 41455 |
| Total | | 14904 | 16855 | 16040 | 15611 | 15658 | 17492 | 25305 | 35676 | 45642 | 57029 | 70210 |

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Punjab Lower Secondary Girls

| 6rade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 9 | 111784 | 127469 | 143322 | 151407 | 162141 | 170636 | 199603 | 185405 | 208780 | 231859 | 258690 |
| Grade 10 | 900 90 | 101724 | 117272 | 131856 | 140809 | 150791 | 160398 | 187627 | 176135 | 198341 | 222584 |
| Total | 201874 | 229193 | 260594 | 283264 | 302950 | 321427 | 360001 | 373032 | 384914 | 430199 | 481274 |

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Sindh Lower Secondary Girls

Base Line Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1 99 7-98 | 1998-99 | 1999-2000 | 2000-2001 |
|------------|----|---------|---------|---------|----------------|---------|---------|---------|------------------|---------|-----------|-----------|
| Srade | 9 | 42092 | 48771 | 50817 | 52546 | 64037 | 66774 | 86569 | 101235 | 111232 | 124889 | 139083 |
| Grade | 10 | 33973 | 38724 | 44869 | 46751 | 48342 | 59555 | 62100 | 80509 | 95161 | 105670 | 118644 |
| Total R | | 76065 | 87495 | 95686 | 992 9 7 | 112379 | 126329 | 148669 | 181745 | 206393 | 230559 | 257727 |

Balochistan Lower Secondary Girls

Base Line Enrolment Projection

| 6rade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|--------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Grade 9 Grade 1 | 3004 0 1588 | 3277 2374 | 4184 2621 | 4113 3347 | 4037 3290 | 4188 3270 | 6553 3393 | 7940 5373 | 9060 6590 | 10117 7519 | 20167 8499 |
| Total R | 4592 | 5650 | 6805 | 7460 | 7327 | 7458 | 9945 | 13313 | 15650 | 17637 | 28665 |

Balochistan Lower Secondary Girls

Base Line Enrolment Projection

| Grade | 1 | 990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|----------------|---------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|---------------|---------------|
| Grade Grade | 9 10 | 3004 1588 | 3277 2374 | 4184 2621 | 4113 3347 | 4037 3290 | 4188 3270 | 6553 3393 | 7940 5373 | 9060 6590 | 10117 7519 | 20167 8499 |
| Total | | 4592 | 5650 | 6805 | 7460 | 7327 | 7458 | 9945 | 133 13 | 15650 | 17637 | 28665 |

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Islamabad Lower Secondary Birls

Base Line Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Grade 9 Grade 10 | 4532 2268 | 4787 3988 | 5058 4260 | 1815 4502 | 2132 1634 | 2408 1919 | 2750 2167 | 3187 2503 | 3226 2900 | 3265 2936 | 3266 3004 |
| Total | 6799 | 8775 | 9319 | 6317 | 3766 | 4327 | 4918 | 5690 | 6126 | 6201 | 6269 |

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Total Enrollment Pakistan Boys

Optimal 1" Variant on Best Case Enrollment Total Boys Pakistan

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade | 1 | 1526514 | 1595292 | 1665208 | 1734907 | 1809761 | 1887840 | 1968822 | 2052964 | 2140384 | 2231201 | 2325540 |
| Grade | 2 | 1381936 | 1059603 | 1142463 | 1230722 | 1324325 | 1424972 | 1532827 | 1647983 | 1757213 | 1873701 | 1997938 |
| Grade | 3 | 1162963 | 1193164 | 919448 | 996702 | 1079496 | 1167913 | 1263352 | 1366164 | 1476504 | 1501337 | 1693636 |
| Grade | 4 | 1035439 | 1102387 | 1132427 | 875949 | 950484 | 1030476 | 1116054 | 1208456 | 1308093 | 1415126 | 1516793 |
| Grade | 5 | 881844 | 936265 | 1004035 | 1038284 | 809288 | 883968 | 964655 | 1051586 | 1145986 | 1248410 | 1359133 |
| Total | | 5988696 | 5886711 | 5863582 | 5876563 | 5973354 | 6395170 | 6845711 | 7327153 | 7828180 | 6349775 | 8893039 |

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N.W.F.P Boys

Optimal 1 Variant Best Case Enrolment Projection

| Grade | 1 | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---|---------|---------|---------|---------|---------|-----------------|---------|---------|---------|-----------|-----------|
| Srade : | 1 | 205661 | 214693 | 224082 | 233842 | 243842 | 254527 | 265481 | 276863 | 288690 | 300977 | 313741 |
| Grade 2 | 2 | 198646 | 133680 | 150285 | 168062 | 187074 | 207 26 5 | 229074 | 252207 | 593050 | 274256 | 285928 |
| Grade 3 | 3 | 179772 | 188886 | 127747 | 144334 | 162213 | 181467 | 202059 | 224436 | 248336 | 260278 | 272753 |
| Grade 4 | • | 158267 | 174553 | 183586 | 124287 | 140565 | 158135 | 177081 | 197373 | 219451 | 243062 | 255005 |
| Grade 5 | 5 | 141770 | 152392 | 168578 | 177834 | 120754 | 13697 8 | 154563 | 173600 | 194074 | 216430 | 240435 |
| Total | | 884116 | 864204 | 854278 | 848358 | 854447 | 938373 | 1028258 | 1124479 | 1213570 | 1295002 | 1367863 |

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Punjab boys

Optimal 1 Variant Best Case Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1 77 2-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------|---------|------------------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade | 1 | 831780 | 868157 | 905967 | 945265 | 986105 | 1028545 | 1072644 | 1118463 | 1166066 | 1215518 | 1266888 |
| Grade | 2 | 806475 | 641262 | 682692 | 726674 | 773358 | 822907 | 875489 | 931287 | 990489 | 1053298 | 1119927 |
| 6rade | 3 | 670278 | 696494 | 556580 | 595502 | 637036 | 681352 | 728631 | 779065 | 832860 | 890235 | 951420 |
| Grade | 4 | 603405 | 641606 | 667367 | 533838 | 571741 | 612229 | 655474 | 701657 | 750975 | 803634 | 859854 |
| Grade | 5 | 513953 | 545965 | 584594 | 612323 | 493235 | 531953 | 573611 | 618427 | 666635 | 718485 | 774248 |
| Total | | 3425890 | 3393483 | 3397201 | 3413601 | 3461475 | 3676986 | 3905849 | 4148899 | 4407025 | 4681170 | 4972337 |

Sindh boys

Optimal 1 Variant Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1792-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|------------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 34958 | 0 364847 | 380737 | 397253 | 414416 | 432252 | 450784 | 470040 | 490045 | 510828 | 532417 |
| Grade 2 | 28860 | 9 240617 | 261136 | 283464 | 307590 | 333715 | 362000 | 392622 | 425769 | 461645 | 500472 |
| Grade 3 | 24603 | 8 240116 | 201198 | 219479 | 239390 | 261064 | 284653 | 310324 | 338257 | 368648 | 401710 |
| Grade 4 | 21875 | 8 232499 | 227129 | 190498 | 208024 | 227123 | 247934 | 270607 | 295306 | 322209 | 351510 |
| Grade 5 | 18380 | 9 195390 | 209117 | 205717 | 173747 | 191060 | 210062 | 230914 | 253795 | 278899 | 306437 |
| Total R | 128677 | 3 1273469 | 1279358 | 1296410 | 1343167 | 1445213 | 1555433 | 1674507 | 1803172 | 1942230 | 2092547 |

Balochistan boys

Optimal 1 Variant Best Case Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|--------|---|---------------|---------|----------------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade | 1 | 90760 | 94730 | 78855 | 103143 | 107600 | 112230 | 117042 | 122042 | 127236 | 132632 | 138238 |
| Grade | 2 | 5235 9 | 30181 | 32760 | 35555 | 38581 | 41858 | 45406 | 49246 | 53404 | 57904 | 62774 |
| ·Grade | 3 | 44823 | 46305 | 22523 | 24570 | 26799 | 29226 | 31866 | 34740 | 37867 | 41270 | 44971 |
| Grade | 4 | 335 26 | 33570 | 34714 | 16902 | 18457 | 20152 | 21998 | 24010 | 26201 | 28588 | 31188 |
| Grade | 5 | 24047 | 23601 | 2 379 7 | 24781 | 12150 | 13361 | 14689 | 16148 | 17748 | 19503 | 21429 |
| Total | | 255515 | 228386 | 212650 | 204951 | 203587 | 216826 | 231002 | 246186 | 262456 | 279897 | 298599 |

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F.A.T.A Boys

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Optimal 1 Variant Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1 99 7-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|------------------|---------|-----------|-----------|
| Grade 1 | 43560 | 47445 | 49910 | 49503 | 51642 | 53865 | 56174 | 58573 | 61066 | 63656 | 66346 |
| Grade 2 | 18683 | 10383 | 11762 | 12868 | 13273 | 14401 | 15621 | 16942 | 18373 | 19921 | 21596 |
| Grade 3 | 14784 | 13930 | 7780 | 8857 | 9739 | 10096 | 11008 | 12001 | 13081 | 14256 | 15535 |
| Grade 4 | 14399 | 12520 | 11808 | 6605 | 7523 | 8280 | 8592 | 9378 | 10234 | 11166 | 12182 |
| Grade 5 | 12289 | 12325 | 10791 | 10249 | 5770 | 6955 | 7339 | 7669 | 8429 | 9263 | 10177 |
| Total | 103715 | 96603 | 92051 | 88079 | 87947 | 93263 | 98734 | 104564 | 111183 | 118263 | 125837 |

Islamabad Boys

Optical 1 Variant Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 5193 | 5420 | 5656 | 5902 | 6156 | 6421 | 6697 | 6983 | 7280 | 7589 | 7909 |
| Grade 2 | 7164 | 3480 | 3778 | 4100 | 4449 | 4827 | 5236 | 5679 | 6159 | 6678 | 7239 |
| Grade 3 | 7267 | 7434 | 3629 | 3959 | 4319 | 4710 | 5135 | 5598 | 6102 | 6650 | 7247 |
| Grade 4 | 7085 | 7639 | 7822 | 3823 | 4174 | 4558 | 4975 | 5430 | 5926 | 6466 | 7054 |
| Grade 5 | 5977 | 6593 | 7158 | 7380 | 3632 | 3994 | 4391 | 4827 | 5306 | 5830 | 6406 |
| Total | 32686 | 30566 | 28043 | 25164 | 22731 | 24510 | 26435 | 28518 | 30772 | 33213 | 35856 |

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Total Enrollment Pskistan Girls Optimal 1 Variant on Best Case

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------|---------|---------|---------|---------|---------|---------|---------|----------------|-----------|-----------|
| Grade | 1 | 956517 | 1060998 | 1131858 | 1206014 | 1304304 | 1407406 | 1537485 | 1674101 | 1817531 | 2064063 | 2125985 |
| Grade | 5 | 637105 | 515658 | 592979 | 655495 | 723426 | 810049 | 904651 | 1022474 | 1139620 | 1266844 | 1473509 |
| Grade | 3 | 525486 | 513398 | 420331 | 484580 | 537102 | 594433 | 667571 | 747820 | 847905 | 949845 | 1061226 |
| Grade | 4 | 437105 | 431867 | 422468 | 346656 | 399845 | 443416 | 491014 | 551738 | 618420 | 701605 | 786598 |
| Grade | 5 | 367355 | 358439 | 359230 | 354055 | 302424 | 349956 | 389393 | 432688 | 4879 37 | 548922 | 625111 |
| Total | | 2923567 | 2880360 | 2926866 | 3046799 | 3267102 | 3605260 | 3990113 | 4428820 | 4911413 | 5531278 | 6072428 |

N.W.F.P Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | 1990- 91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|-----------------|---------|---------|-----------------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 135782 | 150614 | 160673 | 171200 | 185153 | 199788 | 218254 | 237647 | 258008 | 293004 | 301794 |
| Grade 2 | 62720 | 88259 | 105430 | 1 20 505 | 136960 | 157380 | 179810 | 207341 | 225765 | 245107 | 278354 |
| Grade 3 | 35329 | 41580 | 58804 | 70596 | 81093 | 92627 | 106970 | 122826 | 142341 | 155764 | 169954 |
| Grade 4 | 34550 | 28292 | 33331 | 47184 | 56703 | 65200 | 74548 | 86177 | 99050 | 114902 | 125863 |
| Grade 5 | 29642 | 30491 | 25142 | 29828 | 42521 | 51457 | 59582 | 68601 | 79858 | 92430 | 107973 |
| Total | 298022 | 339235 | 383280 | 439312 | 502430 | 566452 | 639162 | 722592 | 805021 | 901206 | 983938 |
| R | | | | | | | | | | | |

Punjab Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 19 92- 93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---|---------|---------|------------------|---------|---------|---------|---------|---------|--------------------------|-----------|-----------|
| Grade 1 | 1 | 515674 | 572001 | 610203 | 650181 | 703171 | 758755 | 828882 | 902535 | 979860 | 1112769 | 1146152 |
| Grade 2 | 2 | 422676 | 234175 | 270144 | 299713 | 332124 | 373559 | 419212 | 476276 | 539340 | 608970 | 719234 |
| Grade 3 | 3 | 356267 | 334080 | 186016 | 215661 | 240463 | 267798 | 302715 | 341408 | 389820 | 443644 | 503424 |
| Grade 4 | • | 305244 | 289513 | 271755 | 151465 | 175779 | 196190 | 218711 | 247475 | 279386 | 319323 | 363776 |
| Grade S | 5 | 247350 | 235389 | 224821 | 212509 | 119272 | 139387 | 156662 | 175868 | 200390 | 227814 | 262201 |
| Total | | 1847211 | 1665159 | 1562939 | 1529528 | 1570808 | 1735690 | 1926182 | 2143561 | 2 388 79 7 | 2712520 | 2994788 |

Sindh Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------|---|---------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade | i | 218150 | 241979 | 258140 | 275052 | 297469 | 320984 | 350650 | 381808 | 414520 | 470745 | 484868 |
| 6rade | 2 | 128613 | 165249 | 185132 | 199471 | 214666 | 234482 | 255548 | 281958 | 310082 | 340015 | 389997 |
| Srade | 3 | 117775 | 119451 | 154245 | 173668 | 188055 | 203392 | 223279 | 244554 | 271178 | 299718 | 330293 |
| Grade | 4 | 83350 | 100209 | 101737 | 131502 | 148209 | 160648 | 173923 | 191119 | 209540 | 232584 | 257319 |
| Grade | 5 | 9010 3 | 81765 | 98401 | 100002 | 129388 | 145973 | 158382 | 171641 | 188801 | 207205 | 230555 |
| Total | | 627992 | 708653 | 797655 | 879696 | 977768 | 1065478 | 1161781 | 1271081 | 1394120 | 1550267 | 1692699 |
| R | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Balochistan Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------------|-----------|--------------------|
| Grade 1 | 56285 | 62433 | 66605 | 70966 | 76750 | 82817 | 90471 | 98510 | 106950 | 121457 | 125100 |
| Grade 2 | 12696 | 19292 | 22256 | 24692 | 27362 | 30775 | 34536 | 39238 | 44433 | 50169 | 59253 |
| Grade 3 | 9016 | 9154 | 13980 | 16208 | 18072 | 20127 | 22751 | 25659 | 29297 | 33343 | 37835 |
| Grade 4 | 6771 | 6508 | 6615 | 10113 | 11736 | 13099 | 14602 | 16523 | 18653 | 21320 | 24288 |
| Grade 5 | 5396 | 5169 | 5004 | 5121 | 7884 | 9213 | 10355 | 11624 | 13245 | 15058 | 17331 |
| Total | 90163 | 102557 | 114457 | 127100 | 141803 | 156031 | 172716 | 191554 | 21257 9 | 241346 | 26380 0 |
| R | | | | | | | | | | | |

F.A.T.A Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 19 96-9 7 | 1 99 7-98 | 1998-99 | 1999-2000 | 2000-2001 |
|-------------|---------|---------|---------|----------------------|--------------|---------|------------------|------------------|---------|-----------|-----------|
| Grade 1 | 27331 | 30317 | 32341 | 34460 | 37269 | 40215 | 43932 | 47835 | 51934 | 58978 | 60747 |
| Grade 2 | 4237 | 6538 | 7542 | 8 36 7 | 927 2 | 10429 | 11703 | 13297 | 15057 | 17001 | 20079 |
| Grade 3 | 1611 | 3406 | 5283 | 6124 | 6829 | 7605 | 8597 | 9695 | 11070 | 12599 | 14296 |
| Grade 4 | 1369 | 1269 | 5686 | 4170 | 4840 | 5402 | 6055 | 6814 | 7692 | 8792 | 10016 |
| Grade S | 428 | 429 | 400 | 853 | 1333 | 1558 | 1752 | 1966 | 2240 | 2547 | 2931 |
| Total | 34976 | 41959 | 48252 | 53975 | 59543 | 65209 | 72005 | 79607 | 87993 | 99916 | 108070 |

Islamabad Girls

Optimal 1 Variant on Best Case Enrolment Projection

| Grade | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-2001 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Grade 1 | 3295 | 3655 | 3899 | 4154 | 4493 | 4848 | 5296 | 5766 | 6260 | 7110 | 7323 |
| Grade 2 | 6163 | 2146 | 2476 | 2747 | 3044 | 3423 | 3842 | 4365 | 4942 | 5581 | 6591 |
| Grade 3 | 5489 | 5725 | 2003 | 5353 | 2590 | 2884 | 3260 | 3677 | 4199 | 4778 | 5422 |
| Grade 4 | 5821 | 6076 | 6344 | 5555 | 2579 | 2878 | 3209 | 3631 | 4099 | 4685 | 5337 |
| Grade 5 | 4436 | 5196 | 5461 | 5742 | 2026 | 2367 | 2661 | 2987 | 3403 | 3869 | 4453 |
| [otal | 25204 | 22798 | 20183 | 17188 | 14731 | 16401 | 18267 | 20426 | 22904 | 26055 | 29126 |

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