Accelerated Educational Development

by

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January 1990

This publication series serves as an outlet for background products from the ongoing work program of policy research and analysis of the Education and Employment Division in the Population and Human Resources Department of the World Bank. The views expressed are those of the author(s), and should not be attributed to the World Bank.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY.</td>
<td>1</td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1. Education and Development</td>
<td>1</td>
</tr>
<tr>
<td>2. Educational Reform in Industrial Countries</td>
<td>2</td>
</tr>
<tr>
<td>3. The Stagnation of Educational Progress in Developing Countries</td>
<td>4</td>
</tr>
<tr>
<td>4. Structure of the Paper</td>
<td>4</td>
</tr>
<tr>
<td>II. THE EDUCATION AND TRAINING GAP</td>
<td>5</td>
</tr>
<tr>
<td>5. Dimensions of the Gap</td>
<td>5</td>
</tr>
<tr>
<td>6. Slowing Enrollment Growth</td>
<td>5</td>
</tr>
<tr>
<td>7. Low Academic Achievement</td>
<td>7</td>
</tr>
<tr>
<td>8. Low Efficiency of Student Flows</td>
<td>9</td>
</tr>
<tr>
<td>9. Skill Shortages</td>
<td>9</td>
</tr>
<tr>
<td>10. Expanding School-age Population</td>
<td>10</td>
</tr>
<tr>
<td>11. Inadequate and Inefficient Resource Allocation</td>
<td>11</td>
</tr>
<tr>
<td>12. Conclusion</td>
<td>12</td>
</tr>
<tr>
<td>III. REVERSING THE TREND</td>
<td>13</td>
</tr>
<tr>
<td>13. The Need for Action</td>
<td>13</td>
</tr>
<tr>
<td>14. The Priorities</td>
<td>15</td>
</tr>
<tr>
<td>15. Integrating Education into Macroeconomic Policies</td>
<td>18</td>
</tr>
<tr>
<td>16. Cost and Finance</td>
<td>19</td>
</tr>
<tr>
<td>17. Conclusion</td>
<td>23</td>
</tr>
<tr>
<td>IV. CONSTRAINTS ON BANK LENDING FOR EDUCATION</td>
<td>24</td>
</tr>
<tr>
<td>18. Evolution of Bank Lending</td>
<td>24</td>
</tr>
<tr>
<td>19. Lending Procedures and Practices</td>
<td>29</td>
</tr>
<tr>
<td>20. Impact in Selected Countries</td>
<td>30</td>
</tr>
<tr>
<td>21. Sectoral Constraints</td>
<td>31</td>
</tr>
<tr>
<td>22. Institutional Constraints</td>
<td>32</td>
</tr>
<tr>
<td>23. Conclusion</td>
<td>33</td>
</tr>
<tr>
<td>V. A CALL FOR ACTION</td>
<td>34</td>
</tr>
<tr>
<td>24. Taking the Lead</td>
<td>34</td>
</tr>
<tr>
<td>25. Conclusion</td>
<td>36</td>
</tr>
</tbody>
</table>
TABLES

Table 1: Out-of School 6 to 11 Year-Olds in Low- and Lower Middle-Income Countries (in millions) ........................................ 6
Table 2: Number of School Years Needed to Produce One Fifth-Grade Completer .............................................................. 9
Table 3: Public Expenditures on Education (as a Percentage of GNP) .......................................................... 12
Table 4: Recurrent Expenditures for Primary Education (as Percentage of GNP) .......................................................... 20
Table 5: World Bank Lending for Education Projects, FY63-88 .......................... 25
Table 6: World Bank Education Lending, By Level of Education ................................. 26
Table 7: World Bank Lending for Education and Training, FY79-87 ........................................ 28
Table 8: Comparative Flow of Education Aid, 1980-1986 ($ millions) .................. 28

FIGURES

Figure 1: Primary and Secondary School Enrollment Rates, 1960-1985 .......................... 5
Figure 2: Females as a % of Total Enrollment, 1984 .................................................. 8
Figure 3: School-Age Population, 1985 and 2000 (projected) ...................................... 11
EXEUCUTIVE SUMMARY

i. Hit hard by a decade of economic adversity, and facing a pernicious combination of high population growth and limited financial resources, many developing countries must struggle merely to maintain present levels of educational quality and access. But once missed, the opportunities for investing in the education of children and adolescents are lost -- perpetuating the human capital weaknesses that constrain economic growth and development throughout the Third World.

ii. Investments in education and training contribute directly to economic growth. Labor becomes more productive. Individuals earn more and have more job mobility and better entrepreneurial skills. And perhaps most important, technological innovation is more likely. Investments in education and training also contribute indirectly to economic growth. These indirect effects, as important as the direct, stem particularly from female participation in schooling, and include reduced population growth and better health and nutrition practices. All effects accumulate from one generation to the next: children of educated parents grow up in a better learning environment, and well-fed, healthy students take better advantage of educational opportunities.

iii. Industrialized countries, recognizing the critical importance of education to the productivity of labor, are launching educational reforms to prepare students better for a rapidly changing economy. In addition to supporting training to upgrade the work force, employers especially are looking more and more to education -- to develop the broad cognitive and problem-solving skills and personal characteristics that make workers trainable.

iv. The newly industrialized nations -- Korea, Taiwan, and Singapore -- are moving in this direction, too. These East Asian success cases, though weak in natural resources, are rich in the human resources so crucial for economic efficiency and competitiveness. These and other rapidly developing middle-income countries built effective education and training systems early in their development. They also keep up their investments in education and training to improve schooling even more, particularly in science and technology.

v. Most developing countries lag behind, however. And what is most alarming: the gap between developing and industrial nations in the academic and technical skill levels of the labor force and, consequently, in their capacity to take advantage of new technologies and new production processes, is not only vast but widening. As a result, developing countries are less able to compete in international markets, and less able to improve the quality of life for their poor.

vi. Making the predicament of developing countries even worse is the stagnation of international aid flows to education in the 1980s. Narrowing the education and training gap between industrial and developing nations will thus require a determined effort of developing countries supported by the international donor community to reform educational policy and to increase funding.
For three decades, heavy investments by governments and international agencies effected substantial educational progress in developing countries. Educational systems extended their reach to previously unserved areas, and enrollments grew at an unprecedented rate. In recent years, however, educational development has slowed and developing nations are lagging farther and farther behind. To reverse this trend several major, interrelated problems must be confronted:

- **Slowing enrollment growth.** Between 1960 and 1980, school enrollments at all levels expanded rapidly. But since 1980 education budgets as a percentage of GNP have declined and enrollment growth has slowed considerably. With the school-age population continuing to increase, enrollment ratios have stabilized and in some countries even declined. The outcome: more than 100 million school-age children who should have been in primary school in 1985 were not. And 60 percent of these out-of-school children are the girls through whom many of education's indirect benefits are captured.

- **Low academic achievement.** Compounding the problem of numbers is the problem of poor quality. Schools in developing countries seldom teach students effectively. Students from industrial countries consistently outperform students from developing countries by far on standardized achievement tests in reading, math, and science.

- **Inefficient student flows.** When the quality of instruction is poor, students test poorly and progress slowly through the system. The high drop-out and repetition rates produce tremendous waste. In 1984, low-income countries took an average nine years of educational inputs to produce one fifth-grade completer. The cost of this inefficiency is as much as 20% of the education budget in some countries.

- **Skill shortages.** In response to increasing international competition and scientific and technological advances, industrial countries devote tremendous resources to training and upgrading their labor forces. In many middle-income industrializing nations, the supply of skilled workers at the craft level is reasonable but shortages of higher-level skills persist, making it difficult for these countries to compete. Low-income countries face even greater problems. With a narrow industrial base, their production processes rely much more on skilled workers than on technology. But they lack adequately trained manpower and they have far too few enterprises to make in-plant training feasible.

- **Demographic trends.** Rapid population growth aggravates the burden on educational systems. Now about one billion, the developing world's school-age population will increase by 200 million by the year 2000. More than half that increase will be in the poorest countries in Africa and Asia. In many, particularly in Sub-Saharan Africa, enrollment growth must substantially outstrip population growth to reduce the number of children out of school. That is a tall order for poor countries with few resources.
Inadequate and inefficient resource allocation. Despite their commitment to education and their greater shares of school-age children, many developing countries do not spend as much for education as developed countries. For example, low-income countries allocated less than 3% of their GNP to education in 1984, compared with more than 5% for high-income countries. And the gap in per-pupil expenditure is widening. In 1960 industrial countries spent 14 times more per student than developing countries; in 1980 they were spending 50 times more. Making the impact of the spending gap even worse is the inefficient allocation of resources. Too much goes to salaries, too little to textbooks, laboratory supplies, and in-service teacher training, despite the demonstrated positive impact of these inputs on student achievement.

Reversing the Trend

viii. In the wake of the global slowdown in economic growth and the international debt crisis, the social sectors have had to bear much of the financing shortfall, at the expense of many countries' human capital base. This has disproportionately affected the poor, excluding them from income-raising education and training. And it has put the long-term development prospects of many lower- and middle-income countries at risk, thwarting the very purpose of the adjustment process. Reversing this trend and preventing a further widening of the gap between developed and developing countries will require policy changes and increased resources.

ix. Each country will have to develop a specific policy package. The emphases will differ, but three priorities are almost universal:

- improving the quality of primary education;
- expanding and improving science and technology education;
- developing effective training systems.

The cornerstone of most country strategies will be improving primary education to increase the number of students -- especially girls -- attaining acceptable learning standards. Improving the quality of schooling increases access, since quality improvement increases the efficiency of student flows through the system. This more efficient flow frees up resources that can then be used to provide a place to children who are out of school. Improved basic education also lays the foundation for improvements in secondary and higher education. Especially critical at these levels are improved science and technology education which will help countries absorb the new technologies by enhancing the trainability of the labor force. Combined with effective training systems, this will make them more productive and competitive in international markets.

x. Educational policy reforms will be most effective if adjustments in related human resource policies reinforce them. First, especially in Sub-Saharan Africa, high fertility rates critically strain the ability of many governments to improve the quality of human resources, and efforts to slow down the population growth rate must be intensified. Second, better health and nutrition will improve the performance of children in school and prevent the nutritional deficiencies that can impede cognitive development in early childhood. Third, special measures to promote the enrollment, attendance, and
retention of girls in school will increase the opportunities for schooling and the possibilities for sociocultural change -- particularly if curricula have units on health and nutrition.

xi. Effective reforms of education policy also require that human resource development be a central element of a country's development strategy. Educational spending must be treated not as luxury or welfare spending but as investment in human capital, complementing investment in physical capital and technological innovation. Policy reforms on the supply side will need to be matched with reforms on the demand side of the labor market, focusing on wages, employment, and incentive structures.

xii. Almost all countries will need to spend more on education. What will it take to provide a place in an effective school for all school-age children in low-income countries (excluding China and India, where, based on projected slowing population growth, providing access to all school-age children should no longer be a financial problem)? Additional capital expenditures will be required roughly equivalent to 1% of GNP, plus an increase in recurrent expenditures of about 1% of GNP to provide students with books, teaching aids, and teachers. In other words, many low-income countries will need to increase spending on education from 2-3% of GNP to the 4-5% of GNP that is common in many developed countries.

xiii. In addition to mobilizing more resources opportunities must also be exploited to contain cost. The key is to eliminate waste and inefficiency by improving teaching and learning processes. This will usually mean increased spending per student, but lower cost per graduate. It is particularly important to:

  o reduce repetition and drop-out rates to move students more efficiently through the system;
  o deploy teachers more effectively and use them more intensively;
  o apply new educational technologies and distance education techniques in secondary and higher education and in vocational and technical training;
  o reduce subsidies for student living expenses in secondary and higher education and spend that money for educational purposes.

xiv. In addition, sources of funding must be diversified. In many countries an increased public effort will be essential, but it will rarely be enough. Almost everywhere resources will need to be and can be mobilized from outside the public sector. Middle- and upper-income parents should be asked to contribute to their children's education. The business sector should be urged to support the cost of training. However, these national efforts will rarely be enough and international donors should increase their aid and deploy it more effectively to provide the much needed assistance.

Constraints on Bank Lending for Education

xv. The Bank has found it difficult to respond vigorously to this deepening crisis in education. Within the Bank's lending program, the education sector is small -- accounting for only about 4% of Bank lending.
Training has been supported through components in both education and non-education projects, and more recently through free-standing training projects. Total lending for education and training together accounted for somewhat more than 6% of total Bank lending in 1979-1987. Education operations have been smaller and more staff-intensive than the Bank average. Moreover, since education has not generally been considered a "directly productive sector" or a suitable target for structural adjustment lending, it has occasionally been crowded out of lending programs. Nonetheless, the Bank has been the leading provider internationally of capital funds for educational development since the early 1970s -- providing about 15% of all official external aid to education, which totals about $4 billion a year -- and a major source of policy advice on education.

xvi. Education lending in the Bank started in 1963 and expanded rapidly during the 1960s and early 1970s. The chief objective initially was to provide physical infrastructure for secondary education and for technical and vocational training. In the early 1970s the emphasis shifted to include basic education programs -- adult literacy, nonformal training, and primary education. In the 1980s lending for education further diversified and began to support the development of a capacity for research and development in science and technology in several middle-income countries.

xvii. Procedures for preparing and appraising education projects were mostly patterned after those of the infrastructure sectors, which dominated Bank lending in the 1960s. These procedures served the sector well as long as infrastructure development was a major objective of education lending. In fact, Bank lending has been instrumental in developing in many countries a strong capacity for implementing infrastructure projects in the education sector. Until the 1987 Reorganization, Bank staffing patterns reflected these traditional strengths.

xviii. In the late 1970s, education lending began to aim increasingly at changes in sectoral or subsectoral policy. The traditional project was, however, found to be a cumbersome instrument for implementing such changes. This led to the introduction in the early 1980s of "sector investment loans" as more effective lending instruments. These loans -- used mainly with middle-income countries in Asia and Latin America -- typically provide financing for a time slice of a broad subsectoral investment program, focus on policy and institutional objectives, and delegate the responsibility for detailed project design and implementation to the borrower. In countries with a severely distorted sectoral policy environment -- mainly in Africa -- support has been channeled through sectoral adjustment loans.

xix. Bank lending has significantly increased access to education throughout the developing world. Furthermore, the Bank has effectively supported broad sectoral development programs in several countries. Successful interventions were based on strong analytical work, concentrated on a few critical policy objectives, and grounded in a persistent commitment to support, financially and analytically, the implementation of policy change over a decade or more, through a series of lending operations.

xx. Educational development -- especially changes in the quality of education -- is socially and technically complex and politically sensitive.
It is by its nature highly context-bound, involving changes in the behavior of thousands of teachers and administrators. It is essentially an incremental process depending heavily on sound management to flexibly adapt programs and create the capacity to monitor and evaluate program cost and effectiveness. Such programs must be sensitive to the political feasibility of proposed policies, attentive to the design of change strategies, and focused on developing the institutional capacities required to plan, manage, and evaluate change. Assisting borrowers in the design of operations that support the implementation of these programs represents a critical challenge for the Bank.

To deal with the country-specific complexities of qualitative change, sector work and the preparation of investment programs will need to be carried out increasingly by national specialists. The role of the Bank should be increasingly to facilitate and to offer analytical advice. If the Bank is to play this role effectively, it is essential to ensure that the education sector staff is prepared to tackle its new role.

The Bank's Response

xxii. The Bank's 1980 World Development Report, examining poverty and human development in the context of adjustment, concluded prophetically that deferring human development would have devastating consequences, and that when austerity programs are necessary, donors and governments should pay attention to the need for investment in the human development of the next generation. The international community -- including the Bank -- has not heeded this advice. The price of inaction has already been high. The educational gap between developed and developing countries has widened, and millions of children have not had the opportunity to take part in education and training programs and thereby lead a more productive working life. In the meantime, the quality of the human resource base has continued to deteriorate, particularly in the poorest countries.

Reversing the trend of the 1980s and effectively assisting human resource development will mean that the international community joins efforts for a program of Accelerated Educational Development (AED). The AED program would be designed to improve the policy framework for educational development, strengthen key institutions in the sector, and provide an adequate resource base for the strategically important investment programs, focusing on the three priorities defined in para ix.

xxiv. The program for accelerated educational development would have to be a joint effort of the developed and developing world. The international community should be prepared to underwrite the program financially, but its ultimate success will be determined by the extent to which developing countries will take advantage of the program to put into place a policy and institutional framework that will sustain the gains. The international community should be willing not only to increase levels of aid but also to coordinate their efforts better so that aid programs are mutually supportive and reinforcing. The AED program would provide the framework for such coordination.
ACCELERATED EDUCATIONAL DEVELOPMENT

I. INTRODUCTION

1. A country's human resources are essential to its growth, prosperity and effective use of physical capital. Investments in human resources increase the productivity of the labor force and improve the quality of life by:

- slowing down population growth rates;
- reducing the number of premature deaths and the severity of illness and malnutrition;
- increasing people's skills and capabilities.

Investments in education are central to the development of human resources. They contribute directly to economic growth and further the effectiveness of investments in family planning, health, and nutrition. While important in their own right, all the elements of human resource development are inextricably linked and mutually reinforcing. This paper focuses on education because educational progress in the developing world has slowed dramatically in the 1980s and has suffered from the adjustment processes that economic crises have forced on many countries. To reverse this trend, education professionals and policy-makers in the developing countries and the international aid community will need to address a broad set of sector-specific issues.

Education and Development

2. A well-educated labor force is critical to the success of economic policies promoting international competitiveness and sustained development. General education and vocational training both play a crucial role in this regard. General education develops the broad capabilities that enable individuals to function effectively in society and on the job. Training provides the more specialized learning to enter the labor market or to increase productivity once in the work force.

3. Education and training contribute directly to economic growth through their effects on:

- the lifetime earnings of individuals;
- the physical productivity of workers;
- the ability of workers to move into more productive sectors and occupations;
- entrepreneurial skills;
- technological innovation.

4. Equally important are education's indirect effects of development - mainly realized through the education of girls -- through:

- reduced fertility;
- better health care and nutrition;
cumulative intergenerational effects, whereby children of educated parents grow up in a learning environment that favorably affects the next generation's health, fertility, and cognitive development.

5. Education also contributes to a more equitable distribution of income. Theodore W. Schultz made this point forcefully in his 1979 Nobel lecture:

...the decisive factors of production in improving the welfare of poor people are the improvement in population quality and advances in knowledge.

Supporting Schultz's view is an expanding body of compelling evidence which demonstrates that the private and social benefits from incremental outlays on both quantity and quality of education are highest in the poorest countries. It is precisely in these countries, however, that the economic crisis has hit hardest, has caused educational development to stagnate, and has its most devastating implications.

6. The Bank has emphasized the need for targeted efforts to include disadvantaged groups in the development process. Programs to address issues related to safe motherhood, population, women in development, and the alleviation of poverty have been proposed to the international community. The sustainability and long-term effectiveness of these programs hinges on the quality of the educational opportunities available to these groups. Of special importance is the education of girls who are often faced with socioeconomic and cultural obstacles that make attending school difficult for them. A failure to recognize education as a pivotal element of these priority programs will jeopardize the broader economic development efforts, especially in the lower-income countries.

Educational Reform in Industrial Countries

7. The industrialized nations recognize the critical importance of increasing the education level of their labor force. The United States, the United Kingdom, Japan, and the Soviet Union, among others, are launching educational reforms to prepare students better for a rapidly changing society and to upgrade and retrain the work force. These reforms aim at increasing the level of general education and strengthening technical and vocational training programs.

8. In the United States seven major reports on education were issued in the last five years. Each has pointed out the threat to national prosperity posed by mediocrity in education. Recommendations have included tightening academic standards and improving "mathematical and scientific literacy." Several of these reports advocate a partnership between government and business to fund the increases in educational spending on developing and implementing of programs to improve quality.

9. In the United Kingdom efforts to increase competition between schools by decentralizing and privatizing management should result in better education. The technological base of secondary education is to be
strengthened by developing a national curriculum and technology colleges. Reforms in higher education aim to "serve the economy more effectively, pursue basic scientific research and scholarship in the arts and humanities (and develop) close links with industry and commerce."

10. In Japan a recent government report argued that to remain competitive in the modern world of high technology, the country must develop long-range plans to restructure research and development policies and to train human resources. In response, the National Council on Education Reform has proposed a reform of the education system. It seeks to diversify Japan's educational structure by loosening uniformity and central control, allowing schools to develop their own identities and exercise independent initiative and creativity.

11. In the Soviet Union, educational reform is a visible component of the Gorbachev administration's efforts to shore up the sagging economy. The wide-ranging reforms include an additional year of primary education, the introduction of computer education in secondary schools, and increases in teacher salaries.

12. Much of the impetus of these educational reforms, especially in the United States, has come from the private sector, which is concerned about the quality of entrants into the labor force. Employers look to education to establish broad cognitive and problem-solving skills and the personal characteristics -- innovativeness, risk-taking, creativity -- that increase labor mobility and trainability.

13. In addition to increasing expenditures on the preparation of entrants to the labor force, industrial nations are investing heavily in the on-the-job and off-the-job training of those already in the labor force, as part of their efforts to improve industrial productivity. In the United States, corporate investment in education and training now approximates the total investment in the nation's 3500 colleges and universities. In most industrial nations, industry is becoming increasingly involved in the financing and governance of the training of skilled workers, technicians, and engineers. Skills training in Japan takes place almost entirely on the job.

14. Newly industrialized nations -- Korea, Taiwan, and Singapore -- are also investing to increase work force productivity through better general education and skill training. These East Asian countries are weak in natural resources but rich in the human resources that undergird economic efficiency and competitiveness. These countries, as well as other industrializing middle-income nations (such as Costa Rica, Jordan, and Turkey), have developed effective systems with a large variety of programs to train skilled workers. Investments in education and training in these countries are comparable to those in the developed world and aim at further improving quality, particularly in science and technology education.
The Stagnation of Educational Progress in Developing Countries

15. In low-income countries, the quality of general education has been poor, and in many cases is deteriorating in the wake of severe constraints on public financial resources. This especially jeopardizes the schooling of girls, for whom the opportunity cost of schooling often is high and who tend to drop out more often and earlier in their school careers than boys. In addition, the training of skilled workers is mostly inefficient, of poor quality, and oriented toward modern sector employment, which has a limited capacity to absorb labor. Even in many middle-income countries, science and engineering programs remain inadequate, and growth in industrial and agricultural output is constrained by shortages of technicians and engineers. Throughout the developing world, the human capital to complement inputs of financial capital and technology remains in short supply.

16. The industrial and the newly industrialized countries are thus investing heavily in educating and upgrading their labor force. Progress in the rest of the developing world toward key objectives of educational development -- universal access to primary education, effective acquisition of basic literacy and numeracy skills, and preparedness for an increasingly technological society -- is stagnating, especially in the lower-income countries. The gap between developed and developing nations in the academic and technical skill levels of the labor force and, consequently, in their capacity to take advantage of new technologies and new production processes is widening. As a result, developing countries are increasingly unable to compete in an international economy that is changing rapidly due to trade liberalization, technological innovations, and the emergence of newly industrialized nations. Low-income countries are lagging farther and farther behind. The implications of inaction are devastating. The growing shortfall in financial resources available for investment in human capital is endangering the long-term development prospects of low- and middle-income countries, threatening to widen the prosperity gap between developing and industrial countries even further.

Structure of the Paper

17. This paper proposes an action program to accelerate educational development in the developing world in the 1990s. It proposes that the international donor community -- including the Bank -- makes a special effort to support this endeavor, by increasing the volume and effectiveness of its education lending program. Section II of this paper explores the different dimensions of the increasing education and training gap. Section III discusses the urgent need for and cost of educational development strategies that aim to reverse this trend toward an increasing gap. Section IV analyzes the nature, achievements, and limits of traditional approaches to education lending. Section V offers specific recommendations for a program for Accelerated Educational Development.
II. THE EDUCATION AND TRAINING GAP

Dimensions of the Gap

18. The stagnation in the 1980's of educational progress in developing countries, especially low-income ones, has several dimensions. Perhaps the most visible symptom is the slowdown in the growth of school enrollments. Equally important are the consistently low level of students' learning achievement and the inefficiency of student flows. In addition, specific skill shortages have in many instances reduced the effectiveness of investments in physical capital in agriculture and industry. Many developing countries have found it difficult to address these issues because of the pernicious combination of high population growth and systematic under-financing of the sector. The dimensions of the education and training gap are reviewed in detail below.

Slowing Enrollment Growth

19. Considerable investments in education during the last three decades by both governments and international donor agencies have led to an impressive expansion of enrollments throughout the developing world at all levels of education (Figure 1). In the lowest-income countries, the gross enrollment ratio at the primary level rose from 38% in 1960 to 65% in 1980. Underlying this expansion was annual growth in enrollment of about 7% in the two decades between 1960 and 1980. In middle-income countries, primary school enrollment grew at a slower pace of 5% for the lower middle and about 2% for the upper middle-income countries.

Figure 1: Primary and Secondary School Enrollment Rates, 1960-1985

20. Despite the impressive expansion of enrollments in developing countries, the gap between the lowest-income countries and other countries widened during 1980-85 (see Figure 1). During this period, the growth rate of primary school enrollments in the low-income countries slowed while their
school-age populations continued to increase rapidly. By 1985, more than 100 million school-age children in developing countries were not in school. About 70% of these out-of-school children were in the lowest-income countries, with another 17% in lower middle-income countries. South Asian countries accounted for 45% of the out-of-school primary level children while Sub-Saharan Africa accounted for 30%. About 60% of these out-of-school children were girls.

Table 1 lists the 10 developing countries with the largest populations of out-of-school children in 1985 and their projected out-of-school populations for the year 2000, based on two scenarios of enrollment growth. In 1985, these 10 countries together comprised 31% of all children 6-11 years old -- but 61% of the world's total out-of-school population of that age. To reduce the number of out-of-school children in these countries, enrollment growth will have to outstrip the growth of population in absolute numbers. For many poor countries, that is a tall order.

Table 1: Out-of School 6 to 11 Year-Olds in Low- and Lower Middle-Income Countries
(in millions)

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<tr>
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<th>1985</th>
<th>2000</th>
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<tr>
<td></td>
<td>(actual)</td>
<td>(projected)</td>
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<tr>
<td></td>
<td>1985</td>
<td>2000</td>
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<tr>
<td>Total Out-of-school</td>
<td>87 (21%)</td>
<td>129 (25%)</td>
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<td>Selected countries:</td>
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<tr>
<td>India</td>
<td>22.5 (25%)</td>
<td>12.6 (12%)</td>
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<tr>
<td>Pakistan</td>
<td>11.0 (70%)</td>
<td>19.0 (76%)</td>
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<tr>
<td>Bangladesh</td>
<td>6.7 (45%)</td>
<td>6.1 (35%)</td>
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<tr>
<td>Ethiopia</td>
<td>5.5 (81%)</td>
<td>9.7 (87%)</td>
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<tr>
<td>Nigeria</td>
<td>4.1 (26%)</td>
<td>14.6 (50%)</td>
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<tr>
<td>Afghanistan</td>
<td>2.7 (85%)</td>
<td>4.8 (89%)</td>
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<tr>
<td>Sudan</td>
<td>2.3 (68%)</td>
<td>4.4 (77%)</td>
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<tr>
<td>Egypt</td>
<td>2.3 (33%)</td>
<td>2.8 (30%)</td>
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<tr>
<td>Tanzania</td>
<td>2.0 (46%)</td>
<td>4.9 (64%)</td>
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<tr>
<td>Uganda</td>
<td>1.4 (49%)</td>
<td>2.9 (60%)</td>
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</table>

* Numbers in parentheses refer to out-of-school children as a percentage of the population of primary school-age (6 to 11 years).

Table 1 projects an enrollment growth of 2% a year in one scenario, slightly less than their average enrollment growth rate during 1980-85, and 5% in the other, which approximates their average growth rate from 1960 to 1980. Both scenarios assume a population growth in each country based on the official Bank population growth projections. For India, Bangladesh, and Egypt, where significant declines in fertility are occurring or expected to occur, growth of primary school enrollment of 2% a year until the year 2000

6
will be sufficient to reduce the proportion of the school-age population not in school. In the other countries, a 2% enrollment growth rate will not be adequate. Unless population growth slows considerably, sustaining even a 5% growth rate narrows but does not close the primary level enrollment gap. In the poorest countries (Ethiopia, Tanzania, Pakistan, and Sudan), the number of out-of-school children would increase.

23. The enrollment gap between lower- and higher-income countries is even more evident at higher levels of education. At these levels, enrollment rates in industrialized countries have increased rapidly. In 1985, the enrollment rate at the secondary level for high-income industrial countries was 85% compared with 19% in low-income countries, 41% in lower middle-income countries, and 64% in upper middle-income countries. At the tertiary college and university level, enrollment ratios range from 2% in low-income countries and 13% in lower middle-income countries to 17% in upper middle-income countries. The corresponding ratio in high-income industrial countries was 32%. These numbers indicate the vast difference in higher education participation rates between developing and developed countries. They also illustrate that even within the developing world the gap between low- and middle-income countries is wide. It will continue to increase as upper middle-income and newly industrialized countries devote greater resources to expanding and improving their secondary and higher education systems.

24. The gap between the low- and middle-income countries is most ominous when comparing the education of females. Although the past growth in enrollments has benefited girls as well as boys, the participation rates of girls in poorer countries remain relatively very low. In 1985 the enrollment ratio of girls in low-income countries was only 60% at the primary level, and 11% at the secondary level. These low enrollment ratios result in the unequal distribution of male and female students, most notably in low-income countries (Figure 2). Particularly striking is the dramatic drop in the proportion of females enrolled in secondary and higher education in low-income countries as compared with middle- and high-income countries.

Low Academic Achievement

25. Compounding the problems of developing countries is the poor quality of education. The schooling gap between developing and industrial nations is not limited to quantitative differences in enrollment rates and attainment levels. In many low-income countries enrollment growth has stretched managerial, professional and financial resources beyond the limits of minimal effectiveness.

26. Several international studies, comparing and analyzing differences in student achievement across many countries, provide evidence for what is perhaps the most serious problem facing schools in developing countries: their apparent inability to teach students effectively. The studies show that students from industrial countries greatly outperform students from developing countries on standardized achievement tests in reading, mathematics, and science.
First, on the basis of data from the early 1970s, Heyneman and Loxley (1983) compared the achievement in science of students in 15 low- and middle-income developing countries and 14 developed countries. They found that students in the developing countries performed significantly worse than students in industrial nations. The mean score of students in the developing countries was in the bottom 5-10% of student scores in the industrial world.

Second, the Second International Mathematics Study (1981) of the International Association for the Evaluation of Educational Achievement (IEA), analyzed achievement in mathematics in 18 countries, among them three developing countries (Nigeria, Swaziland, and Thailand). Students from the three countries achieved the lowest average scores, with students in the two African countries getting a little over 30% of the items correct, and students in Thailand doing better with 42%. In contrast, students in the 10 European countries got half the items correct.

Third, the Second International Science Study (1983), also by the IEA, included 10 developing and 14 developed countries. Students from two middle-income developing countries that have devoted considerable resources to educational development--Korea (4.8% of GNP) and Thailand (3.7% of GNP)--scored as well as or better than students from industrial nations. Students from the Philippines, where educational development remains underfunded (1.3% of GNP), scored lowest of all countries on the test.

Other Bank-supported research mirrors the disappointing results for low-income countries. In 1986, for example, a mathematics test administered routinely to all incoming fifth-grade students in France was given to fifth
graders in the Central African Republic (where the curriculum and medium of instruction are French). Although the CAR students came from schools in the capital city, which might be expected to be better endowed than most schools in the country, their responses on the 40 test items were no better than if they had guessed at all the answers. French students of the same age scored consistently higher on the same items.

31. Similarly, in Malawi, IEA reading comprehension and science tests were administered to students on average six years older than those in the 1981 IEA sample. The Malawian students' reading achievement was half that of the average student in the IEA sample and about 84% of the average in science. This score is all the more disturbing because the Malawian educational system is highly selective, and students in the twelfth grade represent fewer than 7% of the age cohort.

Low Efficiency of Student Flows

32. When the quality of instruction is poor, not only do students test low on achievement, they progress inefficiently through the system. In many developing countries 15-20% of the students enrolled are repeaters. Many student repeat several times and 50-60% of any group of students entering primary school drop out before completing fifth grade.

33. Because of higher drop-out and repetition rates in developing countries, it takes many more school years to produce a fifth-grade completer. This low throughput results in tremendous waste. As Table 2 indicates, nine years of school inputs were needed in 1984 to produce a fifth-grade completer in the lowest-income countries, as compared with 5.4 years in industrial countries. In Malawi, Bangladesh, Cameroon, and Brazil, for example, it took over 10 years of school inputs. The cost of inefficient student flows is in many instances as much as 20% of the education budget. Moreover, the gap between low- and high-income countries has widened since 1975.

Table 2. Number of School Years Needed to Produce One Fifth-Grade Completer

<table>
<thead>
<tr>
<th>1975</th>
<th>1980</th>
<th>1984</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income</td>
<td>8.8</td>
<td>8.6</td>
</tr>
<tr>
<td>Lower middle-income</td>
<td>7.5</td>
<td>7.4</td>
</tr>
<tr>
<td>Upper middle-income</td>
<td>6.5</td>
<td>6.4</td>
</tr>
<tr>
<td>High-income</td>
<td>6.0</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Skill Shortages

34. In the industrial nations, scientific and technological change is rapidly transforming production processes and many occupations. The demand for workers with advanced training in such diverse fields as computer science, robotics, laser technology, and biochemistry is increasing. Scientific under-
standing and technical skills are essential to the transformation of production processes. Both the public and private sector are investing heavily in the training and upgrading of workers in the manufacturing and service sectors.

35. In middle-income developing countries, similar trends toward upgrading the labor force can be found. An adequate supply of skilled workers at the craft level has by and large been established, but shortages of higher-level skills (technicians and engineers) persist. In these countries, making labor more productive and becoming more competitive internationally by adapting and applying new technologies and improved management are critical development priorities.

36. In low-income countries with weak industrial bases, production processes are developed less well and rely more on skilled workers than on technology. Macroeconomic constraints and imperfect labor markets often prevent the efficient use of skilled workers. Enterprises are small and inefficient. Management is weak and high-level skills are in short supply. Training systems remain fragmented and oriented toward the modern sector. Training for small-scale industries and the informal sector, where the bulk of new jobs in low-income countries develop, has been neglected. Financial constraints and weak employer participation have prevented training institutions from developing the training programs needed to prepare trainees for employment in either the modern or the informal sectors.

37. These weak training systems constrain the implementation of strategies for industrial revitalization, especially in small countries in Sub-Saharan Africa. The Bank and other international investors have experience of the large skills gap between developing and developed nations. Managerial and skill deficiencies are consistently identified as the dominant causes of problems in project implementation. Maintenance of existing industrial plant and equipment is abysmal: UNIDO estimates that 40% of the manufacturing capacity of Sub-Saharan Africa is not functioning at any one moment. A similar situation prevails with much of the infrastructure — roads, power, telecommunications — essential for economic growth.

38. Data on the prior training of the work force in developing countries are not widely available. Nor is information on training provided by enterprises and on non-formal training schemes operated by government and major employer associations. Data are available on differences in enrollment in general and vocational education at the secondary and tertiary levels across countries at different income levels, and on the percentage of the work force in industrial employment. These data show a strong positive relationship between investments in general and vocational education on the one hand and both country incomes and the percentage of the work force in industry on the other hand.

Expanding School-age Population

39. A rapidly increasing school-age population exerts considerable pressure on scarce educational resources, and poorer countries experience this pressure most intensely. Over 30% of the population in a typical developing
country is between the ages of 6 and 17 years, as compared with 17% in industrial countries. About 55% of this school-age population in the world lives in low-income countries, and another 18% resides in lower middle-income countries.

40. Figure 3 compares the projected school-age populations in the year 2000 in lower- and higher-income countries. The developing world's population of 6-to-17-year-olds of about 1 billion in 1985 will have increased by more than 200 million by the year 2000. Over half this increase will be accounted for by the lowest-income countries in Africa and Asia. Lower middle-income countries will contribute another 36% of the increase. In other words, 86% of the increase in the school-age population will be children of the world's poorest 79 countries. Sub-Saharan Africa alone will account for 41% of this total increase; the school-age population there will be growing at the rate of over 3% every year.

Figure 3: School-Age Population, 1985 and 2000 (projected)

Inadequate and Inefficient Resource Allocation

41. Despite the commitment of many developing countries to education, they are not spending as much for education as are more developed countries (see table 3), even though the proportion of their school-age population is 75% higher. Thus, in industrial nations, a larger resource base serves a much smaller group. As a percentage of GNP, public expenditures of low-income countries on education come to only about 3% compared with between 4 and over
5% for higher-income countries. These percentages increased between 1975 and 1980, and significantly decreased by 1984 for all categories of developing countries. As a result, the gap in educational spending that was narrowing around 1980 has again broadened.

Table 3: Public Expenditures on Education
(as a Percentage of GNP)

<table>
<thead>
<tr>
<th></th>
<th>1974</th>
<th>1975</th>
<th>1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income</td>
<td>3.0</td>
<td>3.3</td>
<td>2.9</td>
</tr>
<tr>
<td>Lower middle-income</td>
<td>4.2</td>
<td>4.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Upper middle-income</td>
<td>4.3</td>
<td>4.5</td>
<td>3.6</td>
</tr>
<tr>
<td>High-income</td>
<td>5.6</td>
<td>5.3</td>
<td>5.1</td>
</tr>
</tbody>
</table>

42. Developing countries spend less per student than developed countries. In 1960 the OECD countries spent 14 times more per student than low-income developing countries eligible for IDA loans. By 1970 the gap had grown: they spent 22 times more. By 1980, industrial nations were spending 50 times more per student than low-income developing countries.

43. The under-financing of education is not only a matter of total expenditures. The effect of the expenditure gap is exacerbated by an inefficient allocation in many developing countries of available resources between salary and non-salary inputs. Especially damaging is the declining share of the recurrent education budget available for non-salary expenditures, despite the demonstrated effectiveness of textbooks and other educational materials in enhancing student achievement. In addition, a significant proportion of the higher education budget in many countries goes to such non-educational expenditures as student living subsidies.

44. The underfinancing of non-salary inputs hurts teaching and learning. Empirical studies demonstrate that the impact of such inputs (as books, materials, teacher education, and teaching skills) on student achievement is much greater in developing countries than in industrial countries, where family, social characteristics, and home environment account for much of the difference in student achievement. However, budget allocations rarely reflect these educational priorities. Salaries take up an average 70% of the recurrent budget for education in much of Sub-Saharan Africa and as much as 95% in some of the poorest countries. Few resources are left to assure that other inputs to instruction are available in sufficient quantity and quality, or that the existing physical infrastructure is adequately maintained.

Conclusion

45. Despite greatly expanded school enrollments throughout the developing world in the 1960s and the 1970s, the outlook for education is bleak in many countries. Access to schooling has produced a meaningful education for only a minority of children in the developing world. In many low-
income countries, repetition and drop-out rates remain high and the number of
school-age children out of school is increasing. Furthermore, students who do
graduate achieve at much lower levels than do students in the developed world.
The lag in female schooling is particularly worrisome. It means that the
productive potential of much of the labor force remains underused. It also
limits the extent to which countries can capture the indirect benefits of
schooling through improved family planning, health, and nutrition practices.
The persistently high growth rate of the school-age population, the under-
financing of education, and the sub-optimal allocation of available resources
have constrained the ability to deal with these issues in many developing
countries, especially the poorest. This inability has limited the
contribution of education to economic development, which in turn has weakened
education's claim on the resources required for improved performance.
Breaking this vicious circle is critical for sustained human resource
development.

46. The poor quality of education, combined with increased demands on
parents to contribute to the cost of schooling, may well jeopardize the future
of public education, particularly in the poorest countries. Both poor and
rich parents may consider withdrawing their children from the public school.
Low-income parents may increasingly put their children to work because the
benefits of schooling no longer outweigh the opportunity cost. And middle-
class parents may enroll their children in private schools because they are
dissatisfied with the public educational system. Reports from countries such
as Togo and Pakistan indicate that this may already be happening.

47. In addition, in nearly all developing countries the low skill level
of the work force often aggravated by inappropriate labor market polices
constitutes a major obstacle to increased productivity. Potential returns on
physical investments often cannot be captured fully, since the necessary level
of technical skills is unavailable. Needs and appropriate intervention
strategies differ with different economies. In the middle-income countries,
too few technicians and too low a level of scientific and technical knowledge
limit the ability to introduce new technologies effectively. In the low-
income countries, the problem is often too few craftsmen and workers skilled
in the basic trades.

III. REVERSING THE TEND

The Need for Action

48. Slow global economic growth, expected to prevail well into the
1990s, is likely to worsen the resource constraints faced by many developing
countries. Continued adjustment will thus be required at the same time that
strategic decisions on education development for the remainder of the century
can no longer be postponed.

49. The social sectors have already had to assume a significant part of
the adjustment burden, at the expense of the human capital base. Programs to
reduce the public deficit have, in many instances, disproportionately affected
education, not only curtailing growth, but hurting the operation of the system. Undifferentiated measures to control recurrent expenditures through across the board hiring freezes and reduction of budget allocations have been especially damaging to the education sector where typically 90% of annual public spending on education is absorbed by recurrent expenditures and only 10% covers capital investment. This reflects the high recurrent costs arising from capital investments in education. New schools need teachers (who must be trained), a regular supply of teaching aids and learning materials, appropriate maintenance of buildings and equipment, and administrative and supervisory services.

50. The economic and social cost of such undifferentiated adjustment policies could be considerable, especially in the longer term. Without investments in human resource development, economic policy reforms and investments in physical capital are unlikely to yield their potential returns. Moreover, it is largely through its impact on education that the burden of adjustment falls disproportionately on the poor, by excluding them from access to (income-raising) education and training. The effects of a missed education are largely irreversible and have a long-term impact on worker productivity and earnings. Human resource investments should thus be protected, far more than they have been, from the effects of macroeconomic fluctuations and adjustment processes.

51. Reversing the trend toward an increasing education and training gap represents a major challenge for developing countries, particularly the poorest ones. Meeting the challenge will require determination and persistence. Success will depend first and foremost on the establishment of an institutional and policy framework in which a system of self-improving schools can flourish. Such a framework should at least include the following elements:

- adequate financial and political support from public and private sources;
- sound resource allocation systems and policies;
- competent and professional policy and planning institutions;
- staff and career policies that deploy and motivate teachers and administrators;
- an explicit top-level commitment to high quality in education.

52. There are limits to what can be achieved by educational investments alone. The impact of policy change in the education sector will be greatly reinforced when it is supported by complementary programs focusing on the non-educational aspects of human resource development. Particularly important in many low-income countries is the slowing of the population growth. For example, the rapid population growth in many countries in Sub-Saharan Africa makes it exceedingly difficult to increase the number of well-educated people. Conversely, the slowing of growth in the school population in a number of Asian countries is creating favorable conditions for educational development. Poor health affects the performance of children in school and the productivity of workers on the job. Malnutrition in young children may irreversibly affect cognitive development. The health and nutrition problems of students add to the problems which schools in developing countries have to face if they want
to educate students up to expected standards of performance. In turn, including population, health, and nutrition units in the curricula will reinforce the impact of human resource development programs.

The Priorities

53. Each country must identify its own strategy for developing an education and training system, but three themes should guide the development of educational policies and strategies almost universally:

- improving the quality of basic education;
- improving science and technology education;
- establishing effective training systems.

54. Improving the quality of basic education is a priority in almost every low- and middle-income country. Although the relationship between education and socioeconomic growth is complex, the evidence clearly shows that a basic education generates substantial benefits. In its analysis of development indicators, the 1980 WDR concluded that increases in literacy contributed to increased productivity, better health, and reduced fertility. Recent research in Kenya and Tanzania has more specifically examined the links between education and labor productivity in order to disentangle the effects of innate ability, years of schooling, and acquired cognitive skills. The study has found that workers with cognitive skills draw a premium in the labor market and that developing these skills requires a combination of innate talent and effective schooling.

55. Many schools in developing countries have thus far been ineffective in teaching students cognitive skills. Over the past thirty years developing countries have created at considerable expense the basic infrastructure necessary for education. Schools have been built and equipped and teachers recruited and trained. Yet, many of these resources are substandard and/or inefficiently deployed. Investments in the quality of education can provide the marginal resources (e.g., in-service training, books, improved physical facilities) necessary to tap the productive potential of the existing system and transform poor schools into effective ones.

56. In addition to budget allocations for these resources (which in many countries will represent additional expenditures), transforming ineffective schools into effective learning institutions will generally require: (i) instituting a policy framework that sets clear performance standards; (ii) taking advantage of new and traditional technologies that make teaching and learning more effective and delivery systems more efficient; and, (iii) establishing incentives to use available resources well. Most important, effective schooling demands good school management. Well-managed schools display an orderly environment, emphasize academic achievement, set high expectations for student performance, and are run by principals who actively encourage good teaching. Too few schools in the developing world demonstrate these characteristics.

57. Investments in quality education (i.e., effective schools) serve three purposes. First, they increase the average level of student
achievement. Second, they reduce wastage and inefficiency in the flow of students throughout the system. Third, they have important spill-over effects by reducing the need for remedial teaching thereby providing opportunities for quality improvement at higher levels of the system. Thus, such investments are not only valuable from an educational perspective, but they also make tremendous sense economically.

58. **Achievement.** Improving the quality of education means increasing the number of students who meet the achievement standards specified in the curriculum. In countries, mainly the middle-income ones, where a large number of students meet the standards, the priority is to gradually increase the standards of learning specified in the curriculum, emphasizing analytical and problem solving skills as well as the ability to communicate effectively in written and spoken language.

59. **Efficiency.** Effective schools improve the efficiency of student flows by reducing the considerable drop-out and repetition caused by poor academic performance. Presently, repeaters occupy about 60 million of 400 million primary and secondary school places. As much as 20 percent of education budgets is spent to teach repeaters and future dropouts. The educational merits of repetition have never been convincingly demonstrated. Improvements in the quality of instruction would in many instances pay for themselves through associated gains in the efficiency of student flows.

60. **Spill-over effects.** An effective elementary education provides children with the literacy and numeracy skills that are necessary for all further education and training. The educational process in secondary schools and universities in many developing countries is severely handicapped by the inadequate preparation of students at the lower levels of the system. The need for remedial teaching leads to an increase in the number of years of schooling required to complete the cycle. For example, the average student in Ghana spends 11 years—compared to the international average of six years— in secondary school before entering university, at a cost of 10 percent of the government's recurrent budget for education.

61. Although investments in quality improvement generally increase cost per student, they reduce cost per graduate and consequently improve the efficient utilization of available resources. Quality improvement is also closely linked with increased access. First, the prospect of an effective education provides an incentive to parents to enroll their children. Second, elimination of waste and inefficiency will free resources that can be used not only to teach students presently enrolled, but also to provide a place in school to children who are not enrolled.

62. **Improving science and technology education,** especially at secondary and higher levels, is imperative if the developing world is to take advantage of the opportunities provided by the technological revolution and to remain internationally competitive. Low achievement in science and math and unfamiliarity with basic scientific concepts severely hamper a country's technological development. Technological development is not only acquiring existing technical knowledge, it involves developing the ability to assess, choose, and adapt such knowledge. Studies have found that the immediate
economic benefits of an innovation are generally less than the cumulative benefits of its subsequent improvements.

63. The accelerating pace and increasing complexity of technological change create threats as well as opportunities for developing countries. Although technological progress improves a country's productivity and provides a comparative advantage, it also poses new threats to developing countries as the second generation industrial production processes--based on mechanical power and product standardization--are becoming rapidly obsolete and environmentally hazardous, and are being replaced by new technologies based on information science, electronics, and biotechnology.

64. Developing countries will need to master these science-based technologies by (1) training an increasing number of scientists and engineers to adapt and further develop new technology, and (2) making their workforce "trainable." Trainability, based on a familiarity with basic scientific and technological concepts and generally developed during a secondary education, may in fact be more important for entrants to the labor force than specific vocational skills.

65. In middle-income countries, technological development will require strengthening graduate training programs in science and engineering and building a research capacity in promising priority areas. Low-income countries will first have to concentrate on improving the quality of science and math teaching at the secondary level. Second, they will need to make a determined effort to explore the potential of new educational technologies that simultaneously improve the quality of instruction and overcome the shortages of qualified science and math teachers at reasonable cost. Third, they will need to make more widely available distance education, which can help satisfy the excess demand for secondary places by providing opportunities for self-study to large numbers of students outside the education system. Finally, they will need to tap systematically the potential of traditional "low-tech" technologies (e.g., radio and audio-cassettes) which can enrich and improve the quality of instruction in an orderly classroom. Expansion of enrollments at the secondary level will be largely contingent on the effective application of these technologies.

66. Developing effective training systems to enhance the scientific understanding, technical skills, and managerial ability of the work force is critical for success in the technological and economic environment of the 1990s. In the middle-income countries, training investments should support the introduction of new technologies and continuous industrial restructuring -- which means upgrading the general knowledge and specific skills of the labor force. General education programs will usually take place off-the-job, but much of the skill training can be industry-based. For this purpose also, technologies have been developed in recent years using advances in the electronic media that greatly increased the effectiveness of skill training. Few developing countries are adequately exploiting the potential of these technologies.

67. The low-income countries -- with weak enterprises and stagnant demand for skills -- will require a different training strategy. Pre-
employment training will be more important, as enterprises do not yet have training capacity and are less able to adapt technologies. Enterprises are likely to rely more on low-cost skilled labor and intermediate technologies. Training of the current work force will often need to be done on a contract basis in non-formal training centers. Pre-service training programs will emphasize generic skill training, training for self-employment, and entrepreneurship.

68. These three priorities complement and mutually reinforce one another. A rapidly changing economic and technological environment calls for flexibility in the deployment of labor and for mobility to move human and capital resources from low to high productivity sectors. This requires a system based on an effective elementary education that combines a solid secondary level education with emphasis on the sciences and on- and off-the-job training. Over the past three decades governments have tried to relate secondary education to employment by providing specific skills training in technical schools or pre-employment training in general secondary schools. Neither approach has responded effectively to the constantly evolving needs of employers. As the pace of change increases, secondary and higher education systems need to rethink their instructional objectives and methods and focus on developing the skills and characteristics that enable students to adapt to a changing labor market.

Integrating Education into Macroeconomic Policies

69. Education and training are not luxury or welfare items. Spending on education is primarily an investment in human capital that complements investments in physical capital, rather than current consumption. Although this is widely accepted in the research literature, it is not commonly reflected in the design of lending operations or in economic and sector work. Adjustment strategies usually do not take into account the fact that private and public spending on education, as an investment, substantially add to national savings, even if they are ignored in national accounting.

70. Education expenditures should be treated as investments and fully integrated in public investment programs. Congruence between educational and macroeconomic policy -- between supply and demand side policies for investments in human capital -- is essential to fully realize the long-term returns to education and particularly important in four areas:

(a) **Intersectoral resource allocation.** The share of public resources allocated to education in many countries is clearly inadequate and often produces low levels of student achievement.

(b) **Labor market distortions.** Government intervention in the labor market interferes with the efficiency of resource use within the education sector. Structural adjustment programs have promoted the liberalization of capital and product markets, but have generally not dealt with labor markets. Under these conditions wages often do not reflect relative scarcities, and the demand for education and training is misdirected.
(c) **Technology choices.** Technological innovation and human capital formation are complementary and cannot efficiently proceed independent from each other. The human resource implications of capital investment projects should always be thoroughly evaluated, starting with the quality of existing human capital and the potential of existing educational and training institutions.

(d) **Relative factor cost.** Trade policies, fiscal incentives, and direct subsidies often encourage capital-intensive production that is uneconomical and contributes to artificially low labor absorption rates. Equalizing incentives to invest in human capital would be conducive to more human-capital-intensive production, increase employment opportunities, and maximize the returns to education investments.

Sustained, efficient, and equitable economic development requires efficient human capital formation as a centerpiece of development strategy. It calls for much greater attention on the part of the Bank and other donor agencies to these four complementary issues so that wage, employment, and incentive structures yield rewards for those individuals who invest in quality education. Success in dealing with them would increase the returns to education investments and the effectiveness of Bank education lending.

**Cost and Finance**

71. **The cost of providing all children with access to good education** is considerable, yet the goal is within reach. Table 4 shows expenditures for the year 2000 for 100% enrollment of children aged 6-11. Table 4 suggests the magnitude of financial resources needed to achieve this goal based on 1985 recurrent expenditures per student in low-income countries (excluding China and India /*/ ) and lower middle-income countries. But these are partial estimates, which under-estimate actual costs. They do not include capital outlays for the construction of new schools and teacher training colleges that expanded enrollment would require. Nor do they include the financial contributions households make. Moreover, the percentage of the 6-to-11-year olds that will actually be enrolled will depend on how much more efficiently the educational system can move students up through the grades.

72. Given a package of investments and policy measures, a reasonable target of 100% enrollment capacity would include enrollment of 95% within the age group and a 5% provision for over-age pupils. To raise enrollment capacity to this level, low-income countries will have to increase their spending on recurrent expenditures alone to an average 2.2% of their GNP, up from 1.3% in 1985. Improving the quality of instruction and the efficiency of

/*/ In these countries, which enroll more than two-thirds of the world's primary students, the growth of the school-age population is projected to slow down and access should no longer be a financial problem.
student flows will require additional expenditures, for teaching materials and in-service teacher training, and increased teacher salaries.

Table 4: Recurrent Expenditures for Primary Education
(as Percentage of GNP)

<table>
<thead>
<tr>
<th>Countries</th>
<th>1985 (Actual)</th>
<th>2000 (Projected at 100% enrollment capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income (excl. China and India)</td>
<td>1.3</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Lower middle-income</td>
<td>2.2</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.9</td>
</tr>
</tbody>
</table>

/ To compute these projections, it is assumed that GNP will grow in low-income countries (excluding China and India) at 3.2% a year, and at 3.0% in the middle-income countries, and that per-student costs are at the 1985 level.

73. Lower middle-income countries already have the capacity to enroll more than 90% of the children of school age. Increasing this to 100% will require a growth in the number of school places of 2.5% per annum. Table 4 shows that, given a projected growth of GNP of 3.2% per annum for these countries and assuming improvements in the efficiency of student flows can be realized, the target of providing all children of school age with a good basic education can be reached within the level of financial resources presently allocated to primary education.

74. In low-income countries, expenditures on teaching materials in primary and secondary education declined (in 1983 dollars) from $2.60 (6.0% of total per pupil expenditure or TPPE) in 1975 to $.67 (2.3% of TPPE) in 1985. For the lower middle-income countries, these expenditures fell from $4.21 (4.8% of TPPE) in 1975 to $2.29 (2.1% of TPPE) in 1985. Upper middle-income countries consistently spent about $6 per pupil a year on educational materials from 1975 to 1985. Table 4 assumes a cost of $4 per student a year, for educational materials for primary education, the amount spent in such middle-income countries as Thailand and Korea. Assuming that educational materials last about three years, every child would have $12 worth of instructional materials, or even more by sharing. These improvements increase the resource requirements of primary education to about 2.4% of GNP in the low-income countries and 1.9% in the lower middle-income countries. Raising expenditures on primary education from 1.3% to 2.4% of GNP means that education budgets would need to increase about 7% a year in real terms -- about 3-4% more than the projected growth of GNP.

75. Universal primary education (UPE) will require providing a place in school not only for the 100 million school-age children who are presently out
of school, but also for another 100 million who will come of school age during the decade. Providing them with access to schooling will require significant expansion of the physical infrastructure. Expansion of the physical infrastructure would cost about $20 billion, or $2 billion a year, during the 1990s -- roughly 1% of the projected GNP of low-income countries for that period. In low-income countries, providing a place in school for 95% of school-age children could require spending of up to 3.5% of GNP over a 10-year period for primary education alone.

76. Financing such spending levels from national public funds alone is within the ability of few governments. Public and private resources will have to be mobilized in a joint effort supported by the international community. In many countries, the tradition of community involvement in building schools can be capitalized upon. Evidence of public commitment to quality in education will be a powerful incentive for mobilizing community support. In addition, countries will need to explore ways to use available human and physical resources more intensively through such strategies as double shifts, multiple-grade teaching, peer instruction, and distance education. Moreover, staffing policies in the education sector are often inefficient. They should be revised to reduce reliance on pre-service training and certification and emphasize instead in-service training, career development, and performance incentives.

77. The brunt of the efforts to increase access to schooling will have to be borne by the low-income countries in South Asia and Sub-Saharan Africa. Almost 70% of the children 6 to 11 who remain out of school are in these countries. Enrollments rates are low -- in many countries less than 50% -- and levels of student achievement are among the lowest in the world.

78. In Sub-Saharan Africa many countries allocate more than 20% of their government budget to education. As a percentage of GNP education spending levels are often equivalent to those in industrial countries. Resource utilization issues are particularly critical in many countries of that region. A recent World Bank policy paper proposes a three-part strategy to tackle education problems in that part of the world, combining policies of adjustment, revitalization and selective expansion. More efficient policies for allocating available resources and diversifying the resource base are essential for expanding and improving education in Sub-Saharan Africa.

79. In South Asia the dominant issue is the under-financing of education. Total public expenditures on education -- around 2% of GNP -- are inadequate to fund an educational system capable of producing a labor force educated and skilled enough to meet the demands of sustained economic growth into the twenty-first century.

80. The situation in China and India is different from the other low-income countries. In China, the enrollment capacity already exceeds the number of children of school age by about 30%. In India, rapid decline in the growth rate of the school-age population will make it possible to enroll the 22 million out-of-school children within present budgetary allocations. In fact, at present unit cost levels, the percentage of GNP spent on primary education (1% in 1984) could drop as much as 20% to 40%. However, per student
costs are very low ($23) in India and must be increased if education is to be improved.

81. In middle-income countries, development needs at the elementary level are highly varied. In several countries all children of primary school age are enrolled. The overriding priority in these countries is to implement quality improvement programs. In other middle-income countries, the educational system remains in disarray and pockets of low enrollment require specially targeted efforts. In general, the resource constraints are less extreme than in the low-income countries. With an appropriate policy and institutional framework supported by adequate transfers of knowledge and skills, sustained progress in basic education will require only moderate increases in budget allocations, and will be feasible nearly everywhere.

82. Strategies for moving towards universal primary education will vary considerably from country to country and not all countries may reach the target by the year 2000. For three reasons quality improvement should nearly always be emphasized as a first step in the process. First, poor instruction results in repetition and drop-outs, wasting scarce resources. Second, what has often been viewed as lack of demand for education may in fact be a rational response to the supply of a poor quality product. Third, efforts to mobilize private resources for educational development will be much more successful if the education offered is of high quality.

83. The costs of improving science and math education and of developing training systems are hard to estimate with any precision. The total number of students at the secondary and higher levels was about 200 million in 1984. Of this, three-quarters were in the low- and middle-income countries. Education expenditures at these levels totaled around 2% of GNP. To improve secondary and higher education and expand enrollments -- especially in science, math, and engineering -- additional spending will be required, but the amount of additional resource requirements will depend very much on the impact of reforms in admission and cost recovery policies.

84. In low-income countries the emphasis at the secondary and higher level will usually need to be on quality improvement; the need to expand enrollments is less pronounced than for basic education. Quality improvement at the secondary level will need to emphasize first the professional ability of the 2-3 million teachers of science and math and second, providing teaching materials. Building expensive laboratory facilities will rarely be necessary, certainly not at the lower secondary level. Expansion will need to take place within the normal framework of budgetary growth, through efficiency measures and the application of distance education technologies. In many cases there is a need -- especially in higher education -- for expansion and improvement in scientific and technological programs while tightly controlling enrollment growth in the humanities. In many upper-income countries where access to good elementary schools is commonly available, the thrust of educational development will be at the secondary and higher level. It will often require substantial investments in facilities and staff training at the university level, including graduate training and research programs.
85. The cost of training new and current workers will be considerable. Much of it can be funded by the private sector. In the low-income countries, there is, however, often a need for joint funding by the public and the private sector -- for example, through earmarked taxes or contract training. This should keep public spending manageable, although some public subsidies may be required to support training for small-scale enterprises.

86. In sum, it is clear that many developing countries will need to increase educational expenditure significantly, in many instances to 4-5% of GNP (2-2.5% for primary and about 2% for secondary and higher education), which is common in many industrial nations. In the lowest-income countries, expenditure levels will need to be even higher if the goal of good quality universal primary education for all children is to be realized. This presents a considerable challenge to developing nations, especially low-income nations, whose capacity to raise revenue is more limited. Private sources will need to complement public budgets, in support of an educational development strategy that combines efficiency measures, and development of alternative delivery modes that take advantage of emerging technologies.

Conclusion

87. Reversing the trend toward an increasing education and training gap between developed and developing countries is a priority that few low- or even middle-income countries can ignore, lest they compromise their long-term prospects for economic growth and development. Yet the task is a daunting one, requiring considerable financial and intellectual resources. The most immediate priorities are the improvement of the quality of and increased access to basic education in the lower-income countries; improved science, math, and technology instruction in middle- and upper-income countries; and better training opportunities across the spectrum in developing nations. The biggest challenge will be to provide universal and effective primary education in the lowest-income countries. To tackle these issues successfully, most developing nations will have to make human resource development a critical priority in their overall development strategy. They will have to implement efficiency measures, increase public spending on education, and mobilize additional private resources. They will also have to institute policy reforms that address distortions in the demand for labor, including wage, employment, and incentive structures.

88. Opportunities to increase efficiency and contain spending must be exploited fully. First, increased spending on teaching materials and in-service teacher training will improve teaching and reduce wastage. Thus, increases in cost per student will then be followed by decreases in cost per graduate. Second, effective deployment and more efficient use of teachers and changes in career and salary structures will, in many countries, improve quality without increasing the cost per student. Third, in secondary and higher education and in vocational and technical training, new educational technologies and distance education will provide opportunities to improve the quality of instruction in an affordable way.

89. Only in a few countries will the implementation of efficiency and cost containment measures yield the resources necessary for sustained
educational development. Additional funding will be needed in almost all
countries. Many -- especially in South Asia and Latin America -- will need to
increase the public effort. In addition, resources can be mobilized from
outside the public sector nearly everywhere. Middle- and upper-income parents
should be asked to contribute to the education of their children and
businesses should be urged to support the cost of training and upgrading the
work force.

90. Educational and financial policy measures may not be enough,
however, to reverse the deleterious consequences of the economic crisis on
female enrollment. The opportunity costs of the enrollment of girls are often
considerable -- especially among the poor -- and social barriers to school
attendance remain formidable in many countries. Consequently, girls are
usually the first to drop out when a family faces economic problems. This has
a negative effect on the productivity of an important group in the labor
force. It also reduces significantly the possibility of effective action in
related areas of human resource development, including slowing population
growth and improving health and nutrition. Many countries will need to take
special measures to help overcome the social and economic obstacles which
girls face in trying to acquire a basic education. These will usually combine
broad public education programs and targeted policies at the school level to
address parental safety concerns and social customs.

91. Finally, the inter-relationship between the different components of
human resource development are significant. Healthier and better fed children
will do better in school. Better educated people will adopt more easily good
family planning, health and nutrition practices -- especially if the school
curriculum includes special units in these fields.

IV. CONSTRAINTS ON BANK LENDING FOR EDUCATION

Evolution of Bank Lending

92. The first Bank education loan was approved in FY63. Since then,
the Bank has lent a total of almost $8 billion for education and training,
representing about 4.4% of total Bank lending during that period.
Table 5 shows Bank lending for education from 1963 through 1987.
In FY85, the Bank lent $937 million (6.5% of total Bank lending) for
education, more than ever before. Lending for education declined to $840
million (5.1%) in FY86 and $440 million (2.5%) in FY87. In absolute terms,
lending in FY87 was lower than in any year since 1979 and, as a percentage of
total Bank lending, was lower than in any year in the 1970s or 1980s. For
FY88, education lending has recovered significantly. It totalled $864
million, or somewhat more than 4.5% of total Bank lending. For FY90-92,
education lending is projected to total $5 billion representing about 6% of
total projected Bank lending (base case) during that period. While these
projections need to be discounted since many unexpected events lead to delays
and cancellations, they do reflect the increased visibility of the sector
following the reorganization, a potential demand for education loans, and a
willingness of the Bank to respond. Nonetheless, lending is unlikely to soon reach the FY85 level as a percentage of Bank lending.

### Table 5: World Bank Lending for Education Projects, FY63-88

<table>
<thead>
<tr>
<th>Period</th>
<th>TOTAL $millions</th>
<th>% of Bank Lending</th>
<th>IDA $millions</th>
<th>% of IDA</th>
<th>IBRD $millions</th>
<th>% of IBRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY63</td>
<td>5.0</td>
<td>.7</td>
<td>5.0</td>
<td>1.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FY64-66</td>
<td>81.1</td>
<td>2.3</td>
<td>72.3</td>
<td>8.2</td>
<td>8.8</td>
<td>0.3</td>
</tr>
<tr>
<td>FY67-69</td>
<td>157.8</td>
<td>4.1</td>
<td>74.4</td>
<td>8.8</td>
<td>83.4</td>
<td>2.8</td>
</tr>
<tr>
<td>FY70-72</td>
<td>368.2</td>
<td>4.8</td>
<td>114.1</td>
<td>5.2</td>
<td>254.1</td>
<td>4.6</td>
</tr>
<tr>
<td>FY73-75</td>
<td>670.5</td>
<td>4.9</td>
<td>247.8</td>
<td>6.2</td>
<td>422.7</td>
<td>4.4</td>
</tr>
<tr>
<td>FY76-78</td>
<td>961.8</td>
<td>4.4</td>
<td>237.9</td>
<td>4.5</td>
<td>723.9</td>
<td>4.3</td>
</tr>
<tr>
<td>FY79-81</td>
<td>1,684.0</td>
<td>5.0</td>
<td>703.8</td>
<td>6.8</td>
<td>980.2</td>
<td>4.2</td>
</tr>
<tr>
<td>FY82</td>
<td>526.4</td>
<td>4.0</td>
<td>98.0</td>
<td>3.7</td>
<td>428.4</td>
<td>4.2</td>
</tr>
<tr>
<td>FY83</td>
<td>547.9</td>
<td>3.8</td>
<td>251.5</td>
<td>7.5</td>
<td>296.4</td>
<td>2.7</td>
</tr>
<tr>
<td>FY84</td>
<td>701.9</td>
<td>4.5</td>
<td>210.7</td>
<td>5.9</td>
<td>491.2</td>
<td>4.1</td>
</tr>
<tr>
<td>FY85</td>
<td>936.8</td>
<td>6.5</td>
<td>421.9</td>
<td>13.9</td>
<td>514.9</td>
<td>4.5</td>
</tr>
<tr>
<td>FY86</td>
<td>839.5</td>
<td>5.1</td>
<td>261.8</td>
<td>8.3</td>
<td>577.7</td>
<td>4.4</td>
</tr>
<tr>
<td>FY87</td>
<td>439.8</td>
<td>2.5</td>
<td>266.3</td>
<td>7.6</td>
<td>173.5</td>
<td>1.2</td>
</tr>
<tr>
<td>FY88</td>
<td>864.0</td>
<td>4.5</td>
<td>209.1</td>
<td>4.7</td>
<td>654.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Total (FY63-88)</td>
<td>8,784.7</td>
<td>4.5</td>
<td>3,174.6</td>
<td>6.7</td>
<td>5,610.1</td>
<td>3.8</td>
</tr>
</tbody>
</table>

93. A recent analysis of patterns of Bank and IDA education lending revealed three major tendencies:

(a) For both IDA and IBRD, there is a strong inverse correlation between the annual proportion of lending to education and to "non-project" operations -- essentially SALs.

(b) Allowing for that correlation, there remains a clear positive trend in the allocation of IDA resources for education. There is no such trend in IBRD lending.

(c) Education lending is more important in IDA than in IBRD (7.1% versus 3.7% over the last decade), but IDA's share in total Bank lending has declined steadily from about 30% in the early 1980s to about 20% now.

94. The average size of Bank loans for education is significantly smaller than for other sectors, particularly in IBRD operations. Over the
last 10 years, IDA credits for education averaged $24.3 million per project, i.e., about 20% less than the overall IDA average credit size ($30.6 million, excluding non-project credits). But the average size of IDA education credits underwent a relative increase throughout the period, reaching parity with non-education credits in recent years. By contrast, the average IBRD education loan ($41.5 million) was only about half the average size of IBRD loans overall in the same period ($73.6 million, excluding non-project lending). More importantly, however, this comparatively low ratio has not changed. The size of the Bank loan average increased steadily from $46.4 million in FY78 to $107.2 million in FY87, but the average size of education loans fluctuated between $24.4 million in FY78 and $64.1 million in FY85, dropping to $34.7 million in FY87. This discrepancy may reflect a constraint on lending for education emanating from the large recurrent cost implications of capital expenditures in the sector (see para. 49).

95. In the 1960s the Bank restricted its educational financing largely to hardware -- buildings and equipment -- for secondary, technical and vocational education. The focus of Bank lending broadened in the early 1970s to include basic education programs -- primary education, adult literacy, and non-formal training. Table 6 shows the shift from secondary to primary education (mainly in the lower-income countries) and to higher education (in the middle-income countries).

Table 6: World Bank Education Lending, By Level of Education

<table>
<thead>
<tr>
<th></th>
<th>FY63-76</th>
<th>%</th>
<th>FY77-87</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ millions</td>
<td>%</td>
<td>$ millions</td>
<td>%</td>
</tr>
<tr>
<td>Primary</td>
<td>239</td>
<td>15</td>
<td>1,747</td>
<td>28</td>
</tr>
<tr>
<td>Secondary</td>
<td>775</td>
<td>49</td>
<td>1,160</td>
<td>18</td>
</tr>
<tr>
<td>Post-secondary</td>
<td>357</td>
<td>23</td>
<td>2,447</td>
<td>39</td>
</tr>
<tr>
<td>University</td>
<td>194</td>
<td>12</td>
<td>1,929</td>
<td>31</td>
</tr>
<tr>
<td>Non-university</td>
<td>163</td>
<td>10</td>
<td>518</td>
<td>8</td>
</tr>
<tr>
<td>Non-formal</td>
<td>209</td>
<td>13</td>
<td>955</td>
<td>15</td>
</tr>
<tr>
<td>Literacy</td>
<td>23</td>
<td>1</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>Vocational</td>
<td>186</td>
<td>12</td>
<td>928</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>1,580</td>
<td>100</td>
<td>6,309</td>
<td>100</td>
</tr>
</tbody>
</table>

96. Lending for curriculum reform, development and production of textbooks and instructional materials, teacher training, and the strengthening of examination and testing systems became increasingly important during the 1970s, as lending for "hardware" project components declined. In recent years, education lending has further diversified. It has begun to support stronger research and development capacity in science and technology in such middle-income countries as Korea, Portugal, and Brazil. It has also begun to
focus more on sectoral policy issues and institutional strengthening. For example, in FY87, 10 of the 14 education loans had significant policy content, with three explicitly addressing issues of sectoral adjustment.

97. Many of the "software" components financed by education projects (e.g., curriculum development, teaching materials, and teacher training) would figure in the recurrent budget if they were domestically financed. The evolving policy of the Bank concerning the financing of recurrent cost facilitated this change in strategy. Incremental recurrent cost represented about 11% of total Bank lending for education in the period FY85-87, compared to only 6% in FY79-81.

98. Training has been supported by the Bank through components in education projects, through project-related training in other sectors, and more recently through free-standing training projects. Total lending for training has typically represented more than 50% of total lending for education and training. In line with general policies, in the 1960s and 1970s the Bank invested primarily in the construction and equipment of individual training institutions and school-based training. Toward the end of the 1970s, the Bank began to emphasize increasingly the development of national training systems and industry-based training, and promoted industry financing of training costs.

99. In the larger countries, the Bank has in recent years turned to free-standing training projects. These support the establishment of a training institution to serve the needs of a given sector or subsector of the economy. In Indonesia, for example, current projects are developing training institutions for the ports and maritime sector, the tree-crops estate subsector, and the construction industry.

100. Much of the Bank's investment in work force development has gone to project-related training (PRT). These are small components in sectoral projects that mostly support the provision of trained manpower necessary for project-supported institutions. Table 7 includes figures on PRT since 1979. PRT lending has totalled $2 billion (1.6% of total Bank lending) since 1979, representing 20-25% of total lending for education and training.

101. Taking all lending modes together, lending for education and training has averaged about 6.3% of total Bank lending since 1970.

102. The Bank became in the 1970s the largest single provider of external funding for educational development, providing approximately 15% of all official external aid to education. Since much of the bilateral aid is in the form of technical assistance, the Bank is by far the dominant provider of funding for capital investments. In many countries the Bank has become the major source of policy advice on education, and other agencies increasingly follow the Bank lead in this regard. The importance of the Bank internationally is shown in Table 8.
### Table 7: World Bank Lending for Education and Training, FY79-87

<table>
<thead>
<tr>
<th>Period</th>
<th>Total lending for education and training $millions</th>
<th>% of total bank lending</th>
<th>Education Sector $/ Project-related training % of total bank lending</th>
<th>% of total bank lending</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY79-81</td>
<td>2,257.8</td>
<td>6.7</td>
<td>1,763.1</td>
<td>5.2</td>
</tr>
<tr>
<td>FY82-84</td>
<td>2,553.9</td>
<td>5.9</td>
<td>1,868.8</td>
<td>4.3</td>
</tr>
<tr>
<td>FY85-87</td>
<td>3,155.6</td>
<td>6.5</td>
<td>2,330.2</td>
<td>4.8</td>
</tr>
</tbody>
</table>

$/$ Includes education project lending and education components in non-education projects.

### Table 8: Comparative Flow of Education Aid, 1980-1986 ($ millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Education lending $millions</th>
<th>% of total lending</th>
<th>Aid to education $millions</th>
<th>% of total aid</th>
<th>Aid to education $millions</th>
<th>% of total aid</th>
<th>Aid to education $millions</th>
<th>% of total aid</th>
<th>WB % of total education aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>440.1</td>
<td>3.8</td>
<td>256.7</td>
<td>5.8</td>
<td>3,394.8</td>
<td>13.9</td>
<td>4,091.6</td>
<td>10.2</td>
<td>16.8</td>
</tr>
<tr>
<td>1981</td>
<td>747.9</td>
<td>6.1</td>
<td>296.4</td>
<td>5.9</td>
<td>2,595.9</td>
<td>11.4</td>
<td>3,640.2</td>
<td>9.1</td>
<td>20.6</td>
</tr>
<tr>
<td>1982</td>
<td>526.4</td>
<td>4.0</td>
<td>468.1</td>
<td>8.7</td>
<td>2,542.6</td>
<td>11.1</td>
<td>3,537.1</td>
<td>8.6</td>
<td>14.9</td>
</tr>
<tr>
<td>1983</td>
<td>547.9</td>
<td>3.8</td>
<td>498.9</td>
<td>8.2</td>
<td>2,755.7</td>
<td>11.7</td>
<td>3,802.5</td>
<td>8.6</td>
<td>14.4</td>
</tr>
<tr>
<td>1984</td>
<td>701.9</td>
<td>4.5</td>
<td>331.3</td>
<td>4.8</td>
<td>3,213.6</td>
<td>12.2</td>
<td>4,246.8</td>
<td>8.7</td>
<td>16.5</td>
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<tr>
<td>1985</td>
<td>936.8</td>
<td>6.5</td>
<td>338.2</td>
<td>5.4</td>
<td>4,997.7</td>
<td>13.0</td>
<td>4,125.5</td>
<td>9.7</td>
<td>14.9</td>
</tr>
<tr>
<td>1986</td>
<td>839.5</td>
<td>5.1</td>
<td>453.8</td>
<td>6.8</td>
<td>2,858.9</td>
<td>10.9</td>
<td>4,702.9</td>
<td>9.6</td>
<td>20.2</td>
</tr>
</tbody>
</table>

$/$ Includes African Development Bank, Asian Development Bank, Inter-American Development Bank, Islamic Development Bank, UNICEF and UNESCO.

$/$ Includes loans, grants, etc. (excludes contributions to multilateral organizations).

The total flow of aid for education in the 1980s fluctuated around $4.0 billion a year. These funds have probably not been deployed as effectively as needed to halt the decline in educational development. Primary education in particular has been neglected; aid disbursement for this level of education was only 5% of total disbursement for education in the 1981-1987 period. Available data on aid to education suggest that the bulk of assistance is directed toward higher levels of education. For example, in Sub-Saharan Africa, only 7% of all direct aid to education in the early 1980s was used to finance primary education, whereas 34% went to the tertiary level. The results in terms of per-
student expenditures are disturbing. Direct aid to primary education amounted to $1.10 per student; to secondary education, $11; to secondary technical education, $182; and to higher education, $575. Among bilateral donors, the lack of balance is even more dramatic. Less than 4% of bilateral aid was channeled to primary education while 42% was allocated to higher education.

104. The distribution of aid by expenditure category is notable for the small proportion dedicated to financing operating costs. Only 11% of external aid went to operating costs in Sub-Saharan Africa in the early 1980s, while 17% of aid supported fellowships for study abroad, and no less than 44% was devoted to technical assistance. The predilection for technical assistance is most marked in the case of bilateral donors, especially France. Bilateral agencies also allocate a smaller percentage of their direct education aid to system management and to capacity-building activities than do the multilaterals.

105. Information on international aid to education must be viewed cautiously because of the different ways donor agencies define educational assistance, in which they often do not include education and training in projects outside the education sector. One must also allow for discrepancies in time between allocation of resources and actual disbursement, and data inaccuracies that result when current prices are converted into real terms without the benefit of a deflator tailored to the peculiar cost components and structure of education. Given these caveats, however, Table 8 suggests that international aid to education has been stagnant from 1980 to 1985, both in dollars and as a percentage of total aid flows. Not only has the total amount not increased in the 1980s, but critical priority areas such as primary education and institutional development have been neglected. In addition, there has been little coordination between donors, and decisions on aid allocations have rarely been made in the context of a coherent sectoral development program.

Lending Procedures and Practices

106. When the Bank began lending for education, the development and appraisal of education projects were patterned after those of the infrastructure sectors, which dominated Bank lending at that time. These procedures served the sector well while infrastructure development was a major objective of education lending. In fact, Bank lending has been instrumental in developing in many countries a strong capacity for infrastructure projects in the education sector. Bank staffing patterns reflected these traditional strengths. Specialist educators and facilities specialists represented more than one-third of the education sector staff until the reorganization (Table 9, page 34).

107. Beginning in the late 1970s it became obvious that the traditional project approach to education lending was, in many instances, a cumbersome way of dealing with issues of sectoral policy. These issues determined the effectiveness and efficiency of educational services and were moving increasingly to the fore of the Bank's lending objectives. This shift led in the early 1980s to the introduction of "sector loans" in the sector. These loans, which typically provide financing for a time-slice of a broad (sub)sectoral investment program, focus on policy and institutional objectives and delegate responsibility for detailed project design and implementation to the borrower.
108. The sector lending instrument has been used mainly in Asia and Latin America, with mature borrowers, when the macro policy environment was sound. The benefits from sector lending can be substantial. A recent review concluded: "Substantial agreements have been reached on policy and institutional changes... (sector lending) institutionalizes development planning... it strengthens decision-making capability; and it applies more objective criteria to wider government investments in education."

109. In many African countries, where education systems face an increasingly distorted policy environment, sectoral policies -- resource allocation and mobilization policies as well as service delivery -- need to be adjusted to the new macroeconomic conditions. The Bank is providing support for these adjustment policies through education sector adjustment loans and credits. In FY87 three such operations were approved, and several more are under preparation.

110. Bank investment in training is, with few exceptions, through traditional project lending. It has focused on the expansion of training capacity rather than on the establishment of a positive policy environment and strong systems and institutions. This has contributed to the fragmentation and ineffectiveness of training systems in low-income countries. The record of project-related training (PRT) investments has not been encouraging. Few have led to sustained training capacity. The high levels of expert staff input required for effectiveness have been difficult to marshal. More promising is the experience with free-standing training projects. In general, these have been better prepared, more effective for institution building, and better implemented than PRT components.

Impact in Selected Countries

111. Bank lending for education has been most successful where it has focused consistently on a few critical policy and institutional objectives over an extended period of time. Two examples are Korea and Ethiopia. The Bank has provided to Korea about $300 million through six education lending operations approved between 1969 and 1984, representing more than 5% of Bank lending to Korea and almost 50% of Korea's external borrowing for education during that period. Two-thirds of the amount lent was channeled through two sector loans, raising the amount of education lending as a percentage of total Bank lending to Korea to over 8% from 1980-84. A third sector loan is currently under preparation. Bank support has been instrumental in putting into place an impressive array of institutions devoted to the training of manpower to undergird an export-oriented economic development strategy. In addition to helping create a network of technical and vocational training institutes, the Bank has supported the development of training programs. These include technical and vocational training and university-level training for scientists, engineers, and managers, and research programs in science and technology. Most important, Bank support has resulted in the development of strong institutions responsible for designing and implementing subsectoral and related investment programs. Examples include the Educational Facilities Bureau, the Korea Educational Development Institute, the National Institute for Education Research and Training, and the Korean Vocational Training Management Agency. The two sector
loans allowed the Bank to focus on policy and institutional objectives while delegating the responsibility for the detailed design and implementation of education projects to these institutions.

112. Since 1968, the Bank has lent more than $150 million for educational development in Ethiopia through seven projects, representing 14% of total Bank lending to Ethiopia. The early projects focused on national institutions in charge of educational planning, school construction, curriculum development, and textbook and materials production and distribution. These institutions laid the foundation for the effective implementation during the last decade of a comprehensive education reform program, which combines quantitative and qualitative policy objectives. No sector loans have formally been made to Ethiopia, but over the years the Bank has increasingly delegated responsibility for the detailed implementation and supervision of projects to Ethiopian agencies.

**Sectoral Constraints**

113. Development of the education sector poses special difficulties because of its social and political complexity. Because education molds attitudes and affects social class and income, it figures prominently on the agenda of both individuals and political and economic interest groups. Consequently, most decisions on educational policy must be evaluated in terms of their varied impact on such groups. Educational systems are also large and centralized, often employing the largest and most politically conscious work force in a country's modern sector.

114. Improving education raises important technical questions. In developed countries, research has influenced the design of educational reform. Most research in the industrial countries is context-bound, and research on education in the developing world has been limited in scope. There remain major gaps in knowledge about teaching and learning processes, school management, and student achievement in the developing nations. So, educational development programs will need to be deliberately designed as step-by-step learning processes. Sound planning and management combined with a capacity to monitor and evaluate program outcomes and costs, are essential in adapting programs to local conditions and revising their designs in light of unanticipated outcomes.

115. The institutional characteristics of educational systems in most developing countries do not facilitate such an approach to change. Most systems are conservative. The curricula and teaching methods often reflect, and may be inherited from, the pre-independence era. Senior officials are better at administering the status quo than at managing programs of improvement and many are insufficiently sensitive to issues of cost. Planning capacity has only recently been established in most systems. It focuses more on infrastructure (reflecting a preoccupation with rapidly growing school enrollments) than on qualitative improvement (which requires the carefully orchestrated planning of curriculum design and development and the related training of principals and teachers). Finally, most developing countries lack competent research and development institutions capable of adapting new practices and approaches to the specificities of the national school system.
116. The combination of a frail knowledge base and weak local institutional capacity severely constrains the development of the education sector. Closing the knowledge gaps and strengthening institutional capacity are critical to building the analytic capability necessary for designing effective educational development policies and programs -- and to addressing the diverse educational needs among developing countries. A strong analytic capability will also facilitate wider application of the new lending instruments which demand analytical sector work and state-of-the-art knowledge.

117. Helping countries design and appraise educational development programs that are implementable and affordable presents a unique challenge to the Bank. Program designs must be sensitive to political feasibility, give attention to strategies for change, and focus on developing the institutional capacities to plan, manage, and evaluate development programs. To deal effectively with these context-bound complexities, sector work will need to be carried out increasingly by national specialists. The role of external agency staff will evolve to facilitation and analytical advice.

Institutional Constraints

118. Within the Bank, education has remained one of the smaller sectors, often neglected in critical country economic analyses and dialogue. Four factors contribute to this.

119. First, the sector's strong project tradition puts a premium on the efficient preparation and appraisal of specific investment projects. Policy issues typically are those that directly affect the project. Sector-wide policy and institutional issues are often not analyzed in depth and are considered outside the scope of the project.

120. Second, prior to the 1987 Reorganization, contacts between education staff and macroeconomists in the programs divisions were limited. Education sector staff were concerned mainly with the design of specific investments and the viability of specific schools or training centers. The sector traditionally employed few professional economists, except for a few microeconomists and manpower planners. And few economists outside the regional Population and Human Resource Divisions (PHR) divisions have been trained in the economics of the social sectors and feel comfortable supporting investment in those sectors. Education sector work has focused heavily on issues related to the internal functioning of the sector. It has often not been in tune with the dominant issues of country macroeconomic policy and has often neglected demand side issues. The education sector was thus often ineffective in making its case and when economic crises hit many developing countries in the late 1970s, lending programs emphasized "directly productive activities" and structural adjustment lending. Not surprisingly, education operations were rarely integrated into the adjustment process.

121. Third, the education sector has been slow to adopt sector and sector adjustment lending as mechanisms to deal with policy and institutional issues. One of the consequences has been the relatively small average size of education projects, especially in IBRD countries. Traditional education lending has thus
been expensive for the Bank in required staff input per dollar lent, yet insufficient to help countries overcome the impact of economic adversity.

122. Fourth, the in-house educational expertise available in the Bank may be inadequate. About one-third of the education staff of the PHR sector are labeled education specialists, but several have been trained in social science or other social sciences. Institutional incentives favoring operational work have militated against longer-term staff development goals. Many of the education specialists have been with the Bank for a decade or more and have not had adequate opportunities for continuous professional development. Consequently, many staff have not been able to adapt to the demands of a changing operational environment. Furthermore, since the education sector has grown little for about a decade, external recruitment has been limited.

123. The gaps in the knowledge base, the strong project tradition, and the staffing constraints discussed above have hampered the ability to undertake the analytical sector work necessary to maintain a high-quality dialogue with borrowers and design sectoral investment programs that support high priority reform programs. A 1986 review of education sector work found major weaknesses in links with country macroeconomic issues, analytical methods, and institutional assessment.

124. The Bank has found it difficult to deal effectively with training issues in non-education projects. Coordination was difficult under the old structure, and training rarely received adequate attention. Before the Bank reorganized, some education divisions had begun to build a capacity to support project-related training (PRT) components and set up small regional training units. The process was interrupted by the reorganization. In principle, intersectoral coordination is easier in the reorganized Bank, but several regions have yet to focus on training issues. One reason they have not is that there are fewer staff with specific responsibility for PRT, and they are widely dispersed. But even under the old arrangements, PRT components rarely focused on policy and institutional issues. Free-standing training projects have been somewhat more successful but have generally remained narrow in their policy focus.

125. The reorganization provides the opportunity for the sector to strengthen its links with country economic work and with training needs in other sectors. In a number of cases, these links have significantly improved. In others, progress is slower, especially since many of the regional PHR sector divisions are small and do not have the channels for professional interaction among staff. In some regions, PHR staff allocations are below CAM demand and staff are spread too thinly to take advantage of the opportunities offered by the new organizational structure.

Conclusion

126. Internationally the Bank is the leading provider of funding for educational development, but the education sector has remained marginal in the Bank. Lending for education and training has averaged only 6.3% of total Bank lending since FY63, and the average size of education projects remained considerably smaller than the average size of projects in other sectors.
Lending for education has declined since FY85. Training components in non-education projects have been small and fragmented.

127. Development of the sector poses special difficulties. Debates about education are highly political and socially complex; technical considerations are frequently of secondary importance. Educational development requires sound management and planning capable of affecting implementation at the school level. Such a capability is lacking in most developing countries.

128. Furthermore, institutional factors in the Bank have constrained lending for education and training. A strong project tradition has resulted in operations that require substantial Bank inputs for project development, are narrowly focused on specific investments, and have frequently neglected sector-wide policy and institutional issues. Having few macroeconomists within the sector and, until recently, little interaction with country economists, the education sector has focused on issues internal to the sector and the findings of sector work have rarely been integrated into macroeconomic discussions. Moreover, because education has not generally been considered a "directly productive" sector or a suitable target for structural adjustment lending, it has often been crowded out of lending programs. Finally, much education sector work was narrowly focused and insufficiently analytical.

129. Yet, the Bank has contributed significantly to educational development in many countries. It provided much-needed support to expansion of the educational infrastructure during the 1960s and the 1970s. In others it has effectively assisted the implementation of broad improvement policies. In many countries it is the leading source of policy advice. The most successful strategies have included at least three elements: in-depth analysis of sector issues, concentration on a few policy and institutional objectives, and a persistent commitment to these over an extended period of time. They also have delegated more responsibility to the borrower for project development and implementation. The reorganization provides an organizational structure that allows much more effective integration of human resource issues in the overall country macroeconomic policy framework and dialogue. To take full advantage of these opportunities, the sector staff will need to have the opportunity to focus more effectively and intensively on policy and organizational issues.

V. A CALL FOR ACTION

Taking the Lead

130. The widening education and training gap between industrial and developing nations puts at risk the prospects for sustained economic and social development, particularly in the lower-income countries. The urgency of the situation calls for a determined effort on the part of the donor community to reverse the trend, by helping developing countries restore and strengthen their human capital base. It is time to pay more than lip service to the fundamental importance of human capital formation. On the eve of structural adjustment lending, the Bank's 1980 World Development Report, dealing with poverty and human development in the context of adjustment, concluded prophetically:
Human development is not something that can be deferred: what is done now -- or not done -- will have an influence for a long time to come. When austerity programs are necessary (as will be the case for a number of countries over the next few years), attention should be given to the need for investment in the human development of the next generation. When economic difficulties originating in the workings of the world economy or economic mismanagement cause cutbacks in human development programs, children pay heavily -- in loss of future income or health, and in some cases with their lives.

131. Even the Bank staff has not heeded this warning over the past eight years. Lending for education has declined in recent years and, with notable exceptions, recommendations for educational policy reform have not been well integrated in the country macroeconomic dialogue. Other donors have not done much better. In the meantime, the quality of the human resource base has continued to deteriorate, particularly in the poorest countries.

132. Few developing countries currently have the resources or capacity to develop and implement effective educational programs on their own. They will require access to a strong international knowledge base on which to draw in designing national intervention strategies and a strengthened local capacity for policy analysis and implementation. Furthermore, they will require external funds to complement the national resources allocated for educational development, especially since quality improvement programs in education require several years to implement and the associated efficiency gains take even longer to materialize. Meeting these needs exceeds the ability and mandate of any individual agency and can be tackled only through a joint effort of the international donor community and developing countries. Although additional external resources are important, the ultimate success of educational development programs will be determined by the extent to which developing countries will take advantage of these programs to put into place a policy and institutional framework that will sustain the gains. The international community should be willing not only to increase levels of aid but also to coordinate their efforts better so that aid programs are mutually supportive and reinforcing.

133. Efforts should be concentrated on a few priorities which are the central focus of a program of Accelerated Educational Development (AED). The AED program would be designed to improve the policy framework for educational development, strengthen key institutions in the sector, and provide an adequate resource base for strategically important investment programs, focusing on the three priorities defined in section III (paras. 53-68).

134. The AED program strategy will require international assistance to simultaneously focus on policy and institutional issues, bolster support for the testing of innovations in education delivery systems, and expand lending for education. Taking these actions will require for nearly all donors, including the Bank, difficult choices and demand shifts in the analytical priorities,
operational practices, and staff attitudes. Such significant changes do not happen overnight; they will require a tooling-up period for almost all agencies.

Conclusion

135. The case for a stepped-up international effort for education is compelling. The stagnation of educational progress in the developing world jeopardizes the long-term development prospects of developing nations, especially the poorer ones. If the international community wants to help the developing world build a human resource base appropriate for the 21st century, it should expeditiously launch a program for Accelerated Educational Development.