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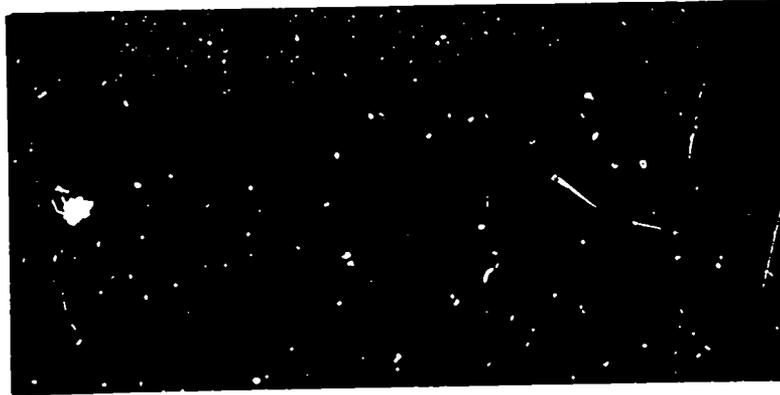
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EXECUTIVE SUMMARY

OF

THE EL SALVADOR EDUCATION SECTOR ANALYSIS

Paula Diebold de Cruz, Editor

July 1978

This report is based on the working documents and executive summary produced collaboratively by the offices and individuals referenced on the following page. This report has been completed under Work Order No. 34, Contract No. AID/afr-C-1131, between the Academy for Educational Development and LA/DR/EHR, Agency for International Development.

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## SECTION I

### OVERVIEW OF THE EDUCATION SECTOR ANALYSIS

The El Salvador Education Sector Analysis, carried out from 1973 through 1977, examined education from the perspective of the major goal of the Ministry of Education (MOE): to provide for the entire population the opportunity for a quality basic education (grades 1-9) within the limited resources available. The MOE's planning and organization office (ODEPOR) undertook the analysis, with the cooperation of AID and the U.S. Bureau of Census. The problems addressed in the analysis were those of access, efficiency, and relevance. The analysis concentrated on basic education and on the other levels of education insofar as they were affected by changes in transition rates in basic education. Topics addressed in the analysis were divided into "linked" (basic secondary and higher education) and "non-linked" (kindergarten, instructional television, non-formal education).

#### A. BASIC EDUCATION

The chief inequity in basic education exists in the rural zones, where only 43 percent of the school-age population is served, as contrasted with 125 percent coverage in the urban zones. Though this insufficiency of service is most clearly seen in the unequal distribution of school buildings, an equally serious problem is the shortage of teachers. At present the Normal School is not producing enough teachers each year to replace those who leave the system.

Poor retention rates in the rural zones (the topic of AWD No. 10)<sup>1/</sup> seem to be more related to insufficiency of access (incomplete schools) than to high opportunity costs or other socio-economic causes usually advanced to explain high dropouts in rural areas. In particular, repetition rates, which are as high as 28 percent in the rural grades, were examined and 70 percent of the repeaters were identified as voluntary repeaters or "repeaters/passers," meaning that they were repeating a grade even though they had passed that grade previously. If this situation alone were corrected, transition rates could improve by 25 percent. Corrective measures which would reduce the inequitable distribution of basic education resources (i.e., schools and teachers) would also reduce dropout, according to the analysis, so the ultimate flow of students through the three cycles of basic education could be as much as a 76 percent improvement over the present rates in both urban and rural zones.

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<sup>1/</sup> Throughout this summary, references are made to the working documents produced by ODEPOR, listed in the Bibliography of this document.

The principal measures suggested by the analysis to increase access within financial constraints are the construction and staffing of schools and the use of 90 percent of all schools and teachers on a double-shift basis in the rural zones to offer at least six grades of schooling. The last measure, double-shifting of classrooms and teachers when accompanied by a 40 percent increase in teachers' salaries, is a means of reducing cost per student and is recommended for both rural and urban zones. The ultimate savings to be effected through double-shifting and reduced repetition would more than balance the cost of necessary new construction and salaries for new teachers. Another recommended cost-saving measure is the replacement of rented urban school buildings with MOE-owned buildings. However, the most pressing constraint to this strategy is increasing the Normal School output of teachers.

The quality of education provided in a half-day session, as evidenced by student performance on the national exam, does not appear to differ greatly from the quality of whole-day schooling. Also, the quality of education, insofar as it could be measured by performance on the national exam, does not appear to be better or worse in rural areas. Rural students performed as well as their urban counterparts and in math, in particular, scored higher than urban students.

However, national averages on some parts of the exam indicate problem subject areas, especially mathematics. Measures recommended to improve the quality of education include a study of teaching methodologies, and a review of the math curriculum and the curriculum covering certain communication skills.

Improvement of the quality of teaching is related to the quantity of new teachers produced each year. An investigation of the best methods of training teachers to obtain the desired quality at the needed rates of output is recommended for immediate action, given the pressing need for more teachers if facilities are to be expanded. Some experimentation in training regular secondary graduates in teaching methods is taking place. The analysis of basic education summarized here is treated at length in Section IV.

## B. SECONDARY EDUCATION

Increase in access to nine grades of basic education will consequently increase demand for secondary education. At present, over half the secondary education enrollment is in private schools. Rural areas have very few high schools, which causes migration of rural students to urban schools.

The quality of secondary education as measured by the secondary school diploma qualifying exams does not appear to be as high as could be expected. The percentage of correct responses was surprisingly low for both public and private high school students.

Per pupil cost is much higher in the public schools than in private schools, and particularly in the recently introduced specialized vocational schools. Most public/secondary school buildings are utilized only half-day, although the recent addition of skills training courses for adults will cause some of these facilities to be used more.

High transition rates between last year of high school and first year of higher education (70 percent) indicate that although secondary schools do channel some students directly into the labor market, the majority of students are continuing their academic education.

Although using public secondary schools on a double-shift basis would increase access somewhat, and is recommended, it will not improve the geographical equity. In future projects designed to increase access to public secondary education, priority should be given to the rural areas, especially those areas where access to nine grades of basic education is increased.

Control of transition from ninth grade to tenth, as is assumed in the projections of the analysis, will depend on employment opportunities for ninth-grade graduates and upon MOE admissions policies, as two major factors. The second major assumption - that transition rates from twelfth grade to higher education will not increase over the next twenty years in either urban or rural zones, but will decrease slightly - will similarly depend on employment opportunities for high school graduates and restricted university enrollments. Section V contains a more detailed description of the study of secondary education.

### C. POSTSECONDARY EDUCATION

Public higher education's percentage of the national education budget has increased from less than 10 percent to 25 percent over the past 10 years. Although transition rates from last year of high school to first year of higher education averaged 70.2 percent from 1966 to 1975, only 29 percent of those students graduated, a dropout rate of 71 percent. Costs per graduate are consequently very high.

The majority of students are concentrated in the long-term (4-5 year) courses. Fewer than 20 percent of the students are enrolled in short-term (2-3 year) courses. This increases per-graduate cost. In addition, students are concentrated in specializations which do not seem to match the manpower needs identified in recent years.

In light of the expected increase in numbers of students enrolled in higher education, more effective systems of data collection and cost control are recommended, as well as new admissions policies which would channel enrollment into needed skill areas. Section VI offers a more detailed analysis of higher education.

#### D. KINDERGARTEN

While not a prerequisite for entry into first grade, kindergarten is provided by the public education system. Saturday-only (half-day) kindergarten was introduced in the rural areas as a means of expanding access to schooling. All kindergarten, whether Saturday-only or five days a week, serves 4, 5, and 6-year-olds. However, only 11 percent of the population in that age group is reached.

No studies have been carried out in El Salvador to determine whether or not kindergarten of either kind promotes first first grade adjustment and thus reduces repetition and dropout.

Week-long kindergarten costs as much per student as basic education. Saturday-morning kindergarten is much less expensive, in part because teachers' salaries are lower, and in part because classes are held in school buildings used for elementary grades during the week, while regular kindergarten has its own buildings and furnishings.

A study to determine the effectiveness of the various types of kindergarten is recommended. Based on the results of the study, kindergarten might be eliminated, or regular Saturday-morning only kindergarten expanded, depending on the costs and effectiveness of the alternatives.

#### E. INSTRUCTIONAL TELEVISION

During the first phase of the Educational Reform, El Salvador, with the assistance of foreign development funds, invested in an extensive educational television infrastructure. Studies carried out by Stanford University and others indicated that the add-on cost of TV was about 15 percent. Initial evaluations of student achievement under the system showed great advances over students not taught through TV. Later studies did not bear out the first promise of increased gains in performance. However, as a means of teaching subjects for which teachers are ill-prepared, and as a source of teacher training, television seems to be effective. It remains to be demonstrated whether or not television has enabled teachers to teach more students more effectively or even made it easier for teachers to teach double shifts. As a medium for adult basic education, television's potential is also yet to be explored, though El Salvador has begun programming for adult education.

The Sector Analysis did not include a final working document on instructional television, although such a study would be useful for planning, especially studies of the cost per student in recent years, of the uses of TV in teacher training, and of the effect of quality of programming on student performance. Section VII of this summary, which treats ITV in more detail, is based on separate studies and evaluations conducted between 1969 and 1976.

## F. NON-FORMAL EDUCATION AND TRAINING

The analysis of the problems of efficiency and relevance of non-formal education and training (NFE) was severely limited due to the lack of or inaccessibility of pertinent data such as enrollment, dropout, and graduation figures and, most particularly, cost information.

The analysis identified those approaches to NFE as most effective which emphasize the integration of a number of means of meeting basic human needs. It named as examples the programs Universidad Campesina and Fe y Alegría.

In the area of labor force skills training, the analysis was based on four studies carried out by the State University of California at San Jose and two other studies carried out directly by ODEPOR. One result of those studies was the urban and rural Occupational Skills Training Project, a MOE pilot project which was carried out between 1976 and 1978.

The scope of the project was recently greatly expanded by a loan of \$3 million from USAID, based on a review of the success of the pilot project.

The need for vocational training to meet existing manpower needs was identified in both the Health and Agriculture sector assessments.

Aside from the programs carried out by the MOE and those sponsored by private institutions, access to skills training is also sometimes available within private industry. Most of this training was on-the-job work experience training. Training seemed to be about equally distributed among professional and management workers, skilled and semi-skilled workers, and unskilled workers, with slightly more unskilled workers (36 percent, as opposed to about 20 percent for the others) receiving training.

A significant correlation identified by a Harvard University analysis of the worker/employer survey indicates that the more education employees had, the more training they were likely to receive.

Another study examined demand for information and training and here again higher levels of knowledge seemed to produce higher demands for information. Rural residents knew less about all areas except agriculture. Urban residents knew more about health, nutrition, jobs, education, culture, home economics, and recreation.

Both urban and rural dwellers had almost universal access to radios (95 percent) but urban residents chose television as the preferred source of information, while rural residents ranked radio first. Neither group mentioned schools as a source of information.

The analysis concluded that a system of data collection for both public and private NFE programs is needed for assessing the effectiveness of programs and as a basis for the design of new programs. In particular, priorities and institutional responsibilities should be determined and assigned in order to best utilize scarce resources. Section VIII provides more detail on non-formal education in El Salvador.

### G. EXTERNAL ASSISTANCE

Since 1963 El Salvador has utilized about \$15 million of USAID grants and loans to the education sector, primarily for construction of elementary schools and the development of the ITV system.

An additional \$45 million in assistance from other international donors, chiefly the World Bank, the Inter-American Development Bank (IDB) and the Organization of American States (OAS), was also used for education in such activities as school construction, assistance to higher education and labor force training.

Both USAID and the World Bank are considering major loans in the near future to improve basic education.

### H. MINISTRY OF EDUCATION STRATEGIES AND THE SECTOR ANALYSIS

The current MOE Five-Year Plan (1977-1982) is based on information from the ODEPOR/AID Sector Analysis. It should be noted that the MOE plan for expanding basic education in the rural areas calls for construction of 4,200 classrooms in the five-year period, almost twice as many as projected to be feasible by Statistical Working Document No. 13, and the plan makes little or no mention of improved quality or increased production of teachers.

Several important assumptions were built into the statistical projections and should be noted. The recommended projections contained in Statistical Working Document 13 assume:

1. Five percent of all teachers will be replaced each year, based on a twenty-year service period.
2. New classroom estimates include a 2.5 percent replacement factor, assuming a useful life of 40 years.
3. A linear decrease in repetition rates will take place between 1976 and 2002 and thus affect numbers of students in each grade (See Table X-7).
4. A linear increase in double shifting is built into estimates of classrooms and teachers needed. By 2002 urban double shifting will have increased from 40 percent to 95 percent and rural double shifting will have increased from about 20 percent to 90 percent.
5. A linear decrease in number of students per class will reduce the number to 35 per shift (70 per classroom) by 2002.
6. Classroom unit costs (¢27,000 or US\$10,800) are based on 1976 constant prices, as are school furnishing costs.<sup>1/</sup> It is assumed school furniture will be replaced at a rate of 10 percent per year.

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<sup>1/</sup> Exchange rate for El Salvador Colones is 2.5 to US\$1.00, wherever costs are expressed in Colones.

7. Teachers' annual salaries are estimated at ₺4,513 for Cycles I and II; and ₺6,152 for Cycle III. Additional salary for double shift is ₺1,800 at all levels.
8. The percent of rural students enrolled in urban schools is expected to decrease from 17 percent to 8 percent by 2002.
9. A 38 percent improvement in the dropout rate for rural secondary schools is part of the recommended strategy. No improvements are projected for secondary schools or higher education. Various assumptions were made concerning improvements in retention (mainly 38 percent, 76 percent, or 0 percent at different levels, producing a number of alternative strategies as well.
10. The proportion of the national budget allocated for education is expected to decrease slightly by 2002.

A major constraint appears to be the capability of the one national Normal School to train, graduate, and place sufficient numbers of teachers each year, especially in rural areas. A second consideration is the capability of the Division of Educational Architecture to plan and supervise the construction of over 600 classrooms per year.

## SECTION II

### BACKGROUND

El Salvador is the smallest and most densely populated country in the Western Hemisphere. The total population is approximately 4.2 million with a density of over 470 persons per square mile. The population has been expanding annually by 3.2 percent.<sup>1/</sup>

El Salvador is near the limit of the number of people that can be supported from its land base using present levels of technology and given the unequal distribution of ownership. About 60 percent of the economically active population is employed in agriculture, but current estimates are that unemployment and underemployment for the rural labor force may average as much as 47 percent per year. The 1975 Labor Force Survey showed that the literacy rate in the rural areas was 40.6 percent, while it was 75 percent for the urban population.<sup>2/</sup>

#### A. THE EDUCATION SYSTEM

In rural areas, 55 percent of the primary schools offer no more than three grades. Only 14 of the 863 secondary schools in El Salvador are in the rural areas. These are historic imbalances and, combined with a need to absorb the ever-increasing population in the labor market, they led to two major movements in the past twenty years. The first was the introduction of industrialization and marketing of products through Central American Common Market regional trade agreements and the second was the 1968 Educational Reform.

Although Salvadoran law requires all children to attend primary school, in the years preceding the 1968 Educational Reform fewer than one child in seven who began school ever graduated from the sixth grade. Nearly half a million students were enrolled in grades one through nine, but over half of them were in the first two grades.

High dropout and repeater rates which produced this imbalance were attributed to insufficiencies in the rural areas, punitive grading and promotion policies, inappropriate curriculum, rote memorization methods of teaching, lack of vocational training in the secondary schools and a sluggish, inefficient administrative apparatus.

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<sup>1/</sup> CONAPLAN, La Población de El Salvador por Sexo y Edad en el Período 1950-2000, San Salvador, Febrero 1976, p. 62.

<sup>2/</sup> USAID/El Salvador, Agriculture Sector Assessment, San Salvador, 1977, pp. 3-23.

In 1968, a comprehensive five-year reform plan was set forth. The major programs included:<sup>1/</sup>

1. Reorganization of the MOE.
2. Teacher retraining.
3. Curriculum revision.
4. Development of new teacher's guides and student workbooks.
5. Improvement of school supervision to provide "advice" instead of inspection.
6. Development of a wider diversity of technical training programs in grades 10-12.
7. Extensive remodeling and construction of schools.
8. Elimination of tuition in grades 7-9 and the extension of Basic Education to include grades 7-9.
9. Use of double sessions to teach more pupils (the single-session schedule of 7-11 a.m. and 1:30-4 p.m. was to be replaced by a morning shift of 7-12 and an afternoon shift of 1-6).
10. A system of oriented (automatic) promotion.
11. A "teachers' law" that standardized the number of classroom hours required of each teacher and set a new pay scale.
12. Installation of a national instructional television system.

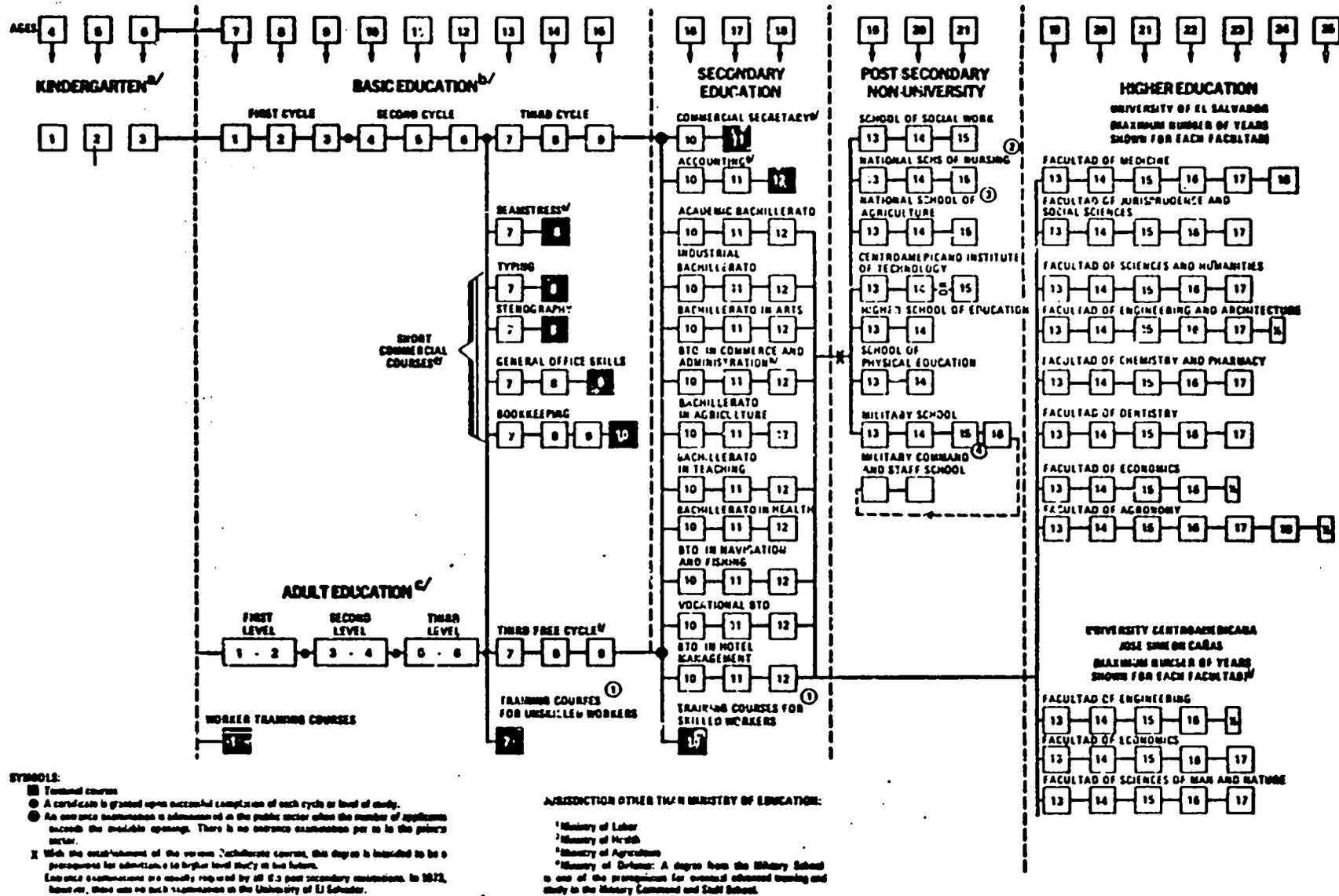
Charts II-1 and II-2 show some of the changes in the structure of the educational system before and after the reform.

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<sup>1/</sup> John K. Mayo et al., Educational Reform with Television: the El Salvador Experience, Stanford, California, Stanford University Press, 1976, Chapters 1 and 2.

CHART II.1

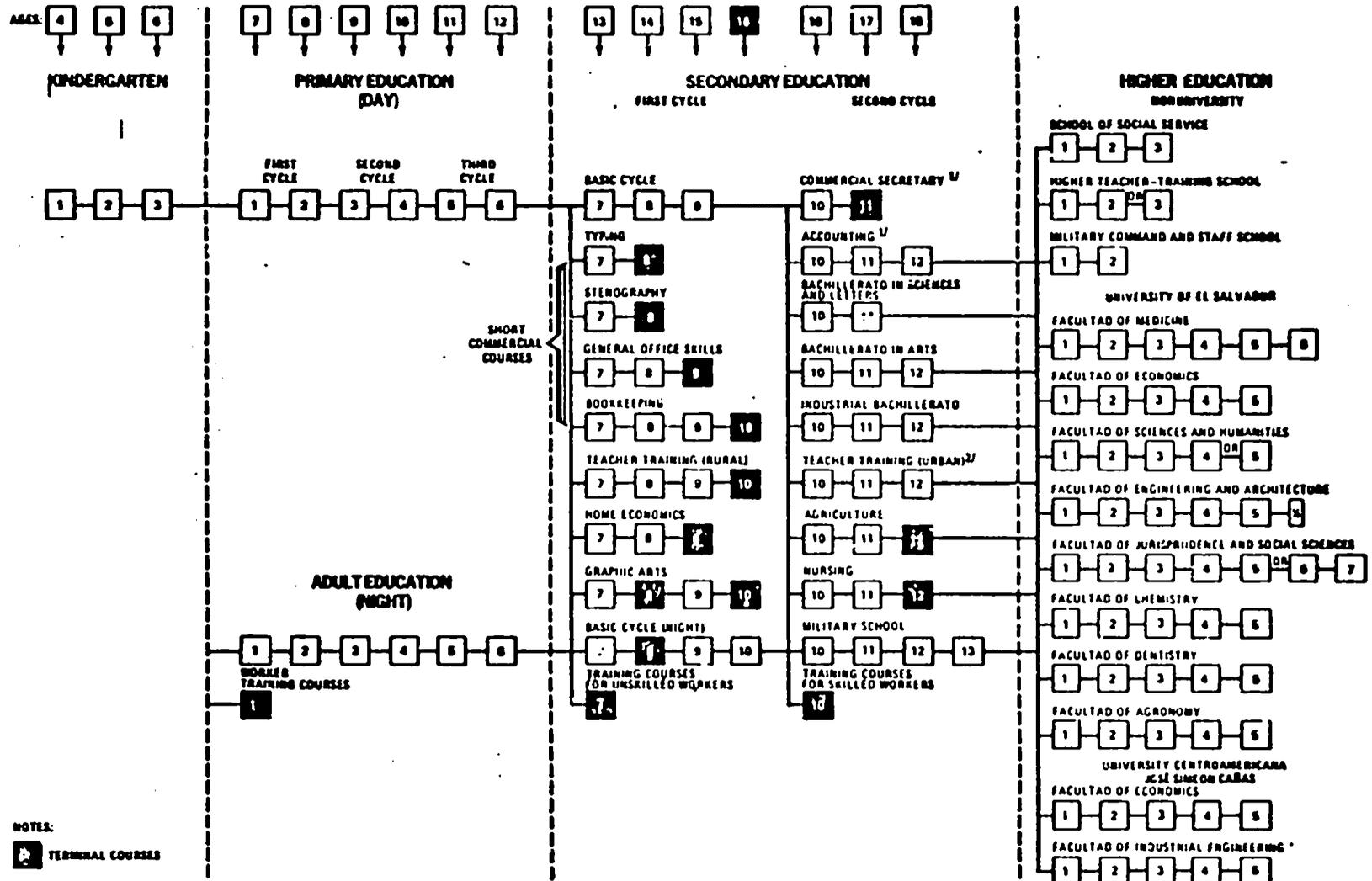
EDUCATIONAL SYSTEM OF EL SALVADOR (1973)



Source: AID Statistics for the Analysis of the Education Sector (El Salvador, 1973), pp. 137, 138 and 139.

CHART II.2

**EDUCATIONAL SYSTEM OF EL SALVADOR  
(BEFORE EDUCATIONAL REFORM: 1967)**



## EXPLANATORY NOTES

a. In an effort to maximize physical-plant utilization, Saturday sessions were recently instituted for those children unable to attend during the week. The regular kindergarten classes are also supplemented by a special program for the physically and mentally handicapped.

b. A special program covering the first two cycles of Basic Education provides continuing educational services for the physically and mentally handicapped.

Educational opportunities are also available in penal institutions, with the three cycles of Basic Education being offered. Should an individual choose to pursue his education upon leaving the penitentiary, the years of study he successfully completed while incarcerated are officially recognized.

c. The Adult Education program consists of three levels and is designed to allow an adult to complete the first two cycles (6-years) of Basic Education in 3 years. Each year is a level which corresponds to 2 years of regular study.

d. These courses are taught in private academies whose study programs are not controlled or supervised by the Ministry of Education. Most of these academies, however, in response to the creation of the Bachillerato in Commerce and Administration, are phasing out the courses in General Office Skills and Bookkeeping. The 2-year courses, Typing and Stenography, should continue to exist, as these skills will undoubtedly continue to be in demand in the future.

e. Similar courses in the public sector were abolished with the establishment of the Vocational Bachillerato.

f. The objective of the Third Free Cycle is to reach elements of the population who for some reason are unable to afford themselves of other educational services. Open to adults and to youngsters 15 years of age and over, it functions with three basic components: Educational television, especially-prepared textbooks, and consultation centers. The seventh grade began operating in 1973.

Educational television is presently being employed extensively in the third cycle of Basic Education, and its use was introduced on a limited scale in the fourth grade of the second cycle in 1973.

g. If taken at night each of these courses requires an additional year of study. In the public sector no new students were accepted from 1971 onward, when the Bachillerato in Commerce and Administration was established. In the private sector the first-year enrollment for these courses dropped from 4,995 students in 1970 to 123 in 1973.

In previous years accounting graduates enjoyed limited access to the institutions of higher learning. In the future the Bachillerato degree will be the prerequisite for admittance to higher-level study.

h. If taken at night this course requires an additional year of study.

i. All specializations require an additional year of study if taken at night.

## B. THE EDUCATIONAL SECTOR ANALYSIS

The Education Sector Analysis, officially begun in 1973, was an outgrowth of the ongoing processes of establishing goals, providing quantitative indicators for use in evaluation, and monitoring progress which had become ODEPOR's role in the years after the reform. The analysis had two basic objectives: 1) to obtain findings for increasing the efficiency, access, and relevance of the education and training sector; and 2) to develop the Ministry's capacity for data collection, data processing, and analytical interpretation aimed at continuous improvements in the formulation of policy and the allocation of resources.

### 1. Analytical Process and Collaborative Style

Throughout the period of the Sector Analysis, the technical assistance provided by USAID and the International Statistical Programs Center of the U.S. Bureau of the Census was part of the already ongoing process of planning in the Ministry of Education and contributed to its improvement by developing a more sophisticated host-country capability in sampling, data collection and processing, special surveys, and analysis and interpretation of data.<sup>1/</sup>

All analysis documents were written and published first in Spanish, as their primary purpose was for use by the MOE in its policy and planning decisions. Throughout the process, foreign technicians worked closely with the MOE personnel responsible for each area covered by the analysis, tailoring the methodology to fit the country's level of data collection, processing, and analysis.

### 2. Analytical Methodology

The methodology of the Sector Analysis was seen as part of the broader context of the development cycle which can be described as having five linked phases:

- Analysis.
- Formulation of policy (goal setting).
- Planning (project design).
- Implementation.
- Evaluation and consequent re-analysis.

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<sup>1/</sup> Noel McGinn et al., Educational Sector Analysis in El Salvador: Process and Impact, Harvard University, Center for Studies in Education and Development, Preliminary Draft, December 1977, pp. 45-50.

Because the sequence of this cycle is logical but not necessarily temporal, parts of it can be going on at the same time. The 1977-1982 Five-Year Plan, for example, was developed as the data collection and analysis were being carried out, the general goals were set by Ministry and other government officials and specific objectives were revised in the light of analysis. New projects, such as the Urban and Rural Occupational Skills Training Project, were initiated before the analysis was completed but were based on data produced by surveys which became part of the analysis. The outcomes of these projects will, in turn, be the subject of future evaluations and analysis.

The analysis was both quantitative and descriptive. Its most distinctive characteristic was its disaggregate nature. Geographic breakdowns were by urban and rural zones within departments. Schools were classified by area, single or double shift, number of grades taught, and by patterns of input or resources used. Educational levels of the population, broken down by age, occupation, and income, were treated individually, as were out-of-school training activities, then integrated to establish priorities, determine tradeoffs, and set realistic goals and enrollment targets for each level and activity. This approach permitted a closer look at the multiple factors, problems and their magnitudes, and relationships that are not easily discernable in more aggregate studies. For example, by locating and quantifying inefficiencies, insufficiencies, and variations in costs and learning achievement, more appropriate and effective corrective measures could be suggested at the regional and even local levels.

To the extent possible, the analysis at all educational levels was structured in terms of the following categories: efficiency, access, and relevance. These referred to the efficiency of educational services and training activities measured in terms of academic achievement, dropout rates, repetition rates, and cost per student; the corresponding access or coverage afforded the Salvadoran population was measured in terms of equitable distribution of human and material resources; and the relevance of the existing programs to personal needs and national development goals was measured in such terms as literacy levels, employment, income, fertility, and lifestyle.

Three general assumptions guided the analysis:

- There is a scarcity of resources available for education.
- In any sector there are multiple objectives, and in education in El Salvador they are to increase access, efficiency, and relevance.
- There are imperfections in the present system, which, if identified, can be corrected through change in what exists now and through estimation of future program needs.

It should be noted that it was in the context of these assumptions that all future targets were estimated. A simple expansion of the system without elimination of its major defects was never suggested, though the cost of such a policy was examined.

The process of disaggregation was further applied to the problems related to the goals of increasing access, efficiency and relevance. Once a problem was broken down into its sub-problems, baseline measures of it could be made and patterns and associations with other phenomena could be identified. From this specific diagnosis, specific corrective measures could be recommended.

### 3. Time and Cost Factors

The Sector Analysis effort began in 1973. By October 1977 all but one of the final Analytical Working Documents 1/ had been completed in Spanish. In the course of the analysis it was decided to eliminate or not to complete AWD No. 5, "Educational Television Costs"; No. 7, "Relations of National Exam Results and Combinations of Inputs and Other School Characteristics"; and No. 9, "Attitudes and Practices of Supervisors, Principals, and Teachers." These documents were not completed, either because of a lack of sufficient data or time, or because the information obtained was judged not useful in the analysis. The final document, No. 15, "Estimates of Resources Availabilities in 1986 and 2001 and Feasible Alternative Combinations of Enrollment Targets for the Five Kinds of Education to Increase Efficiency and Improve Relevance," was published in Spanish in June 1978.

Statistical Working Documents, on which the Analytical Working Documents were based, were published and in use in the MOE prior to 1977.

Methodological and General Working Documents describe the procedures followed and the general time frame and division of labor for the analysis effort.

In addition to the time of the Directors of the Departments of Planning, Statistics and Programming of ODEPOR, a special team of ten professionals from the MOE was assigned full time to the analysis. Other MOE staff members participated as the services of their departments were called upon. At least 26 foreign technicians worked with the MOE on the Sector Analysis, some full time for a period of three years, others for only a few months, sometimes in El Salvador, sometimes in Washington, D.C. Studies conducted by San Jose State College in California and Harvard University were also used in completing the analysis. It is difficult to determine the exact cost of the analysis because of the overlapping and multiple use of many of the surveys and other activities related to the project. For example, the effort involved in the construction, testing, administration, and item analysis of the national achievement exam was in part to provide a measure of efficiency for the Sector Analysis, in part to provide a national exam related to the new curriculum produced under the Reform. The San Jose State studies were funded as feasibility studies for an AID-financed occupational training project, not as part of the Sector Analysis,

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1/ A complete listing of Analytical Working Documents (AWDs), Statistical Working Documents (SWDs), and Methodological and General Working Documents (MWDs and GWDs) is contained in the Bibliography of this document.

but the data collected were used in the analysis. As evidence of the continuous nature of the analysis, the ten MOE staff members assigned to the analysis section have remained in that assignment to continue their work.

#### 4. Benefits

The El Salvador Education Sector Analysis has had far-reaching effects within the Ministry of Education. For example, the analytical findings concerning the greater overall efficiency of the half-day schools have led to the establishment of procedures for periodic disaggregate measurements of cost for use by the Division of Basic Education and ODEPOR as feedback for both planning and implementation. In addition, the experience of the process of analysis has led ODEPOR to publish a Methodological Working Document outlining the strengths and weakness of the methodology used and revising it to fit the Ministry's future needs.<sup>1/</sup>

The ODEPOR document ends with a list of priority areas for further investigation:

1. Costs:   ● of increasing the proportion of double-shift schools in the urban zones.  
          ● of renting school buildings in the urban zones.  
          ● of systems of salary and per-student cost control.
2. Investigation of the incidence of various causes of dropout.
3. Establishment of measures to correct causes of repetition inefficiencies.
4. Establishment of more exact procedures to calculate repetition.
5. Investigation in more depth of student achievement in mathematics and five other specific areas.

The applicability of the El Salvador methodology to other sector analyses in other countries remains to be tested.

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<sup>1/</sup> ODEPOR, Internal Document on Methodology of Sector Analysis, Julio Rosa Manzano, ed., 1978.

## SECTION III

### KINDERGARTEN

#### A. ACCESS

Two kinds of kindergarten are now provided in El Salvador: regular kindergarten, which operates five days per week, and Saturday-morning kindergarten. This section examines present access (base year 1974) as a basis for estimating expansion alternatives.

The present educational system provides very limited access to the population of 4, 5, and 6-year olds, as Table III-1 indicates. Urban areas fare considerably better than rural areas in kindergarten coverage. A breakdown by departments shows regular kindergarten to be concentrated in the departments of San Salvador and Santa Ana.

Saturday-morning kindergarten classes were created as a strategy to increase access of both rural and urban residents in all departments. One of the objectives of Saturday-morning kindergarten has been achieved: 88.8 percent of the population covered by it is in the rural areas. On the other hand, 93.9 percent of the enrolled urban population attends regular kindergarten. However, 70 percent of the total eligible urban population and 94.8 percent of the rural preschool-age population are not enrolled in any kindergarten at all.

In summary, the preschool age population that the system did not enroll represented 89 percent of the total eligible population, of 307,160 children.

#### B. EFFICIENCY

At present no measure is available of the efficiency of kindergarten education as a means of helping children adjust to the first grade and thus reducing repetition and dropout.

If coverage were to be increased to 100 percent of the existing need on the basis of the above untested assumption, controlled experimentation with alternatives should be carried out to assure effectiveness and minimize cost.

#### C. COST PER STUDENT

In 1974, the cost of operation for both kinds of kindergarten amounted to 1.9 percent of the total education budget, or c2.7 million. Regular kindergarten cost per student was c93.8, or as much as the cost for basic education. If the entire 4, 5, and 6-year old population had been enrolled in regular kindergarten in 1974, it would have cost around c32 million. The cost for 6-year olds alone would have been c11 million (Table 5, AWD No.11, p.9)

The cost of Saturday-morning kindergarten is c16.6 per student at the national level. The per student cost is so much lower because, for one thing, in the Saturday-morning classes all teachers, whatever their salary scale, earn the same overtime pay of c150 per month (AWD No. 11, p.8).

TABLE III-1

1974 PRE-SCHOOL POPULATION AND REGULAR AND SATURDAY-MORNING KINDERGARTEN  
POPULATION SERVED IN URBAN AND RURAL AREAS

	Pre-School Age Population	Regular Kinder. Pop. Covered	%	Saturday AM Kinder. Pop Covered	%	Total Pop. Covered in Area	Pop. not Covered	% not Covered
URBAN AREAS	114,223 (33%)	33,177	28.2	2,063	1.8	34,240	79,983	70.0
RURAL AREAS	230,876 (67%)	415	0.2	3,284	1.4	3,699	227,177	98.4
<u>TOTAL</u>	345,099 (100%)	32,592	9.4	5,347	1.5	37,939	307,160	89.0

Source: Tables 1 and 2, AWD No.11, pp. 1 and 2.

It should also be noted that the buildings and furnishing of the regular kindergarten system are used exclusively by children at this level while Saturday-morning kindergarten classes are held in buildings used on weekdays by primary students.

The cost of Saturday-morning kindergarten for all 6-year-olds at the unit costs prevailing in the base year would have been \$1.9 million (AWD No.11, Table 6, p.10), a sum lower than the 1974 cost budget for both systems.

Providing universal Saturday-morning kindergarten by 2002 for all 6-year olds and a modest amount of regular kindergarten to some 5-year-olds, would consume a smaller percentage of the 2002 public education budget than is presently needed to provide regular and Saturday-morning kindergarten to an enrollment representing around 26 percent of today's 6-year-olds.<sup>1/</sup> At 1976 constant prices, the 2002 operating costs for public kindergarten would be about \$9 million, an estimate that would constitute, in turn, about 1.5 percent of the estimated public education budget for the final target year.

#### D. CONCLUSIONS

In 1974, 89 percent of the population of 4, 5, and 6-year-olds did not have access to kindergarten education. The rural kindergarten-age population is twice that of the urban population of the same age group, but the greatest kindergarten coverage is in the urban areas. The cost of one student in regular kindergarten would cover approximately six students in the Saturday-morning kindergarten classes. No evidence is presently available regarding the efficiency or relevance of kindergarten as a means of enhancing first-grade learning or reducing dropout.

#### E. RECOMMENDATIONS

In order to measure the efficiency of the regular kindergarten system and the Saturday-morning kindergarten system, it is recommended that two kinds

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<sup>1/</sup> The National Planning Agency (CONAPLAN) has made high, medium, and low population projections for El Salvador based on three hypothetical rates of decrease in crude reproduction: 1) high, 20 percent reduction from the level of 3.23 of 1965-70 to 2.58 by 1995-2000; 2) medium, a 33 percent reduction to 2.15; and 3) low, a 50 percent reduction to 1.62. CONAPLAN recommends the medium reduction as most realistic. Enrollment targets and estimates of their financial implications were based on the CONAPLAN total population projections by sex and age. These projections included hypothetical international migration. (La Población de El Salvador por Sexo y Edad en el Período 1950-2000: Principales Indicadores Demográficos, por Alex A. Alens Z., CONAPLAN: San Salvador, El Salvador Feb. 1976, pp. 61 ff. and cuadro 31.A. pp. 88.)

A recently completed USAID study carried out by the University of Chicago projects a greater decline in rate of increase based on assumptions of likely fertility decline in view of socio-economic changes and current family-planning statistics. However, the CONAPLAN rates were used in the analysis as the GOES official rates used in planning.

of measurements be carried out: first, application of the same test to both categories. For this, the de Vindelman "Social Maturity Test" and the Laurence Philo "Reading Maturity Test" could be given. The second measurement would be a test of samples of first-grade students from three groups:

1. Children who did not attend kindergarten.
2. Children who attended regular kindergarten.
3. Children who attended Saturday-only kindergarten (AWD No.11, p.13).

Possible policy alternatives would be to discontinue the traditional system of three consecutive years of kindergarten for children aged 4 through 6, and create a system of one year of pre-primary Saturday education for children 5 1/2 and 6 years of age. Another alternative would be to not change those kindergarten centers that already exist for 4, 5, and 6-year-olds. Those to be created thereafter should serve only children between 5 1/2 and 6 years of age for one school year. It would also be possible to eliminate the existing sections for 4 and 5-year-olds in order to provide access to those 5 1/2 to 6 years of age for one year (AWD No. 11, p.12, and SWD No. 9).

## SECTION IV

### BASIC EDUCATION

#### A. ACCESS

During the period from 1950 to 1971, the literacy rate has been increased, the educational level of the population has been raised, and greater numbers of school-age individuals have been enrolled.

However, the population almost doubled during the same period, and the absolute numbers of illiterate and school-age persons not enrolled in school also increased, which indicates that the population still is not being serviced with total efficiency and that, particularly in the rural areas, the population growth surpasses the effort made (AWD No. 1, p. 16).

Physical space, enrollment, population between the ages of 7 and 15, the school space utilization rate, and teaching staff are used in this analysis for measuring actual and potential school access.

##### 1. Physical Space

Of the 3,022 basic education schools in El Salvador in 1973, 1,326 were incomplete (less than six grades). Of these, 1,266 were in the rural zone (AWD No. 2, p. 151)

The preferable standard of square meters per student is  $1.30 \text{ m}^2$ , as defined by the school architecture division of the MOE (AWD No. 4, p. 4). At optimal levels of use, the country would require only  $0.65 \text{ m}^2$  of physical space per student, since optimal is defined as the double use of school buildings on a half-day basis.

Figures on the number of classrooms provide a fairly good picture of the nature of the problems of overcrowding and school coverage equity in 1973. The equity index is defined as the number of square meters of existing classroom space in the base year of the analysis, divided by the corresponding department or sector's school-age population between 7 and 15. It is a good indicator of access to education as, all other things being equal, the amount of space determines exactly how many individuals a given school can accommodate. The equity index was set at 1.00, and is equivalent to  $0.68 \text{ m}^2$  of space per person. The equity indices vary significantly from one part of the country to another, from a low of 0.44 in the rural areas of San Miguel, to a high of 2.29 in the urban zone of the department of Usulután. This index never rises above 0.80 in rural areas and never falls below a level of 1.28 in urban areas (AWD No. 5, Table 5, p. 20).

Table IV-1, presented below, calculates the percentage of all children between the ages of 7 and 15 in each department and sector who could have been accommodated by the school system in 1973 if each such person<sup>2</sup> was apportioned 1 square meter of school space. This figure of 1.00 m<sup>2</sup> of space per head was selected as fairly close to the nation-wide average of 0.98 m<sup>2</sup> per student. For purposes of comparison, the number of students is expressed as a percentage of the school-age population within the area. Departmental zones are ranked from 1 to 28 to show least to highest percentage covered. No rural zone ever ranks above 14.

Urban schools were able to enroll over 100 percent of the area's total school-age population as a result of the daily commuting of rural residents to urban schools and, to a lesser degree, of the presence of persons over 15 years of age in urban basic education schools. Apparently, the percentage of children attending school varies as a function of available student space.

Growth of enrollment in urban areas is below the rate of growth of the school-age population (3.18 percent per year as compared with 4.59 percent), which means that "coverage" (enrollments divided by school-age population) is actually declining. On the other hand, in rural areas coverage is expanding since enrollment is increasing faster than the school-age population—8.9 percent per year as compared with 4.05 percent—(AWD No. 4, p. 31).

Between 1973 and 1976, three large-scale school construction programs sponsored by AID, IBRD, and FOCCO created more than 132,000 m<sup>2</sup> of new classroom space at the basic education level (AWD No. 4, p. 5). However, it is presently impossible to calculate the amount of net space obtained as a result of the construction of each individual new school building because of lack of other relevant data such as whether or not the new building replaces or is an expansion of an existing building (AWD No. 4, p. 6).

It can be determined, however, that of 611 buildings constructed by the IBRD, AID, and FOCCO between 1973 and 1976, 535 (87.5 percent) are located in rural areas. In at least 335 of these schools, each teacher and classroom is used to offer two different sections and grades during two different half-day class sessions (AWD No. 4, Table 10, p. 32).

In an attempt to increase access, a variety of types of double-shift schools have been introduced. Some schools are classified 2-2-4, meaning two classrooms, two teachers, and four grades taught in half-day sessions. Other schools are classified 3-3-6 (3 classrooms, 3 teachers, and 6 grades) and double 3-3-6 (6 classrooms, 6 teachers and 6 grades). These schools differ from regular two, three, or six-classroom buildings in that they operate on a double-shift basis.

Some schools may even offer a third, evening shift, as indicated by the ITV basic education programming schedule of broadcasts for grades 7, 8, and 9 (Cycle III) in the morning, evening, and night (MOE, Dirección de Televisión Educativa, Nuevo San Salvador, February 1978, p. 4).

TABLE IV-1

PERCENTAGE OF THE SCHOOL-AGE POPULATION WHICH COULD HAVE BEEN ACCOMMODATED IF EACH PERSON WERE ALLOCATED 1.00 m<sup>2</sup> OF SCHOOL SPACE AND PERCENTAGE OF THE POPULATION ACTUALLY ACCOMMODATED IN 1973, BY DEPARTMENT AND ZONE

Department and Zone		Percentage of School-Age Population Which Could be Accommodated Alloting 1 m <sup>2</sup> p/Individual	Rank	Percentage of the Population Actually Accommodated in 1973	Rank
TOTAL	Urban	110 %		112 %	
	Rural	43 %		4 %	
Ahuachapan	Urban	147 %	26	133 %	26
	Rural	29 %	1	29 %	2
Santa Ana	Urban	100 %	17	96 %	16
	Rural	52 %	12.5	54 %	13
Sonsonate	Urban	88 %	15	104 %	17.5
	Rural	31 %	3	41 %	7
Chalatenango	Urban	89 %	16	91 %	15
	Rural	42 %	7	42 %	8
La Libertad	Urban	123 %	24	121 %	21
	Rural	51 %	11	47 %	10
San Salvador	Urban	103 %	19	112 %	19.5
	Rural	50 %	10	66 %	14
Cuscatlan	Urban	120 %	25	126 %	24
	Rural	34 %	4	36 %	4
La Paz	Urban	121 %	23	123 %	22
	Rural	44 %	8	49 %	11.5
Cabananas	Urban	109 %	20	151 %	28
	Rural	35 %	5	33 %	3
San Vicente	Urban	101 %	18	104 %	17.5
	Rural	52 %	12	49 %	11.5
Usulután	Urban	157 %	28	135 %	27
	Rural	55 %	14	45 %	9
San Miguel	Urban	117 %	22	112 %	19.5
	Rural	30 %	2	38 %	5
Morazan	Urban	152 %	27	127 %	25
	Rural	47 %	9	27 %	1
La Union	Urban	115 %	21	125 %	23
	Rural	38 %	6	39 %	6

Source: AWD No. 4, Table 6, p. 22. Percentages calculated based on figures from Tables 4 and 5 presented in AWD No. 4. The estimated total population in 1973 between the ages of 7 and 15 used for purposes of these calculations was 967,957.

Apparently the rural school construction program, and particularly the construction of 3-3-6 schools, has been largely responsible for creating a greater demand for third-cycle courses. The introduction of second-cycle courses in many rural schools seems to have reduced the flow of rural students to urban schools, but no updated figures are available to support this hypothesis (AWD No. 4, pp. 34-37).

## 2. Teaching Staff

In 1973 there were approximately 15,540 persons receiving government salaries for performing teaching duties at the basic education level. A total of 2,030 (13.1 percent) of these teachers received overtime pay of ₡75 (US \$30) per month for working a second shift in the same or a different school. By 1976 the number of persons receiving overtime pay of ₡150 (US \$60) per month for working two shifts rose to 5,190 (34 percent), although the total number of teachers had dropped to 15,250 at the basic education and kindergarten levels.

The student/teacher ratio for the nation as a whole in 1973 was 42.9:1. In 1976 it was 47.9. Disaggregate analysis showed the 1976 ratio in urban areas to be 41.3 and in the rural areas 60.4 (AWD No.4, Table 12, p. 44).

These ratios represent the total average number of students taught by a given teacher, regardless of whether the teacher divides his or her day between one or two different sessions of students. Therefore, if every school operated on a half-day basis, with each faculty member teaching two different classes of children, then an average ratio of 60 students per teacher would actually mean 30 students per class session.

In a country with 15,000 teachers working an average span of 25 years, it would be necessary to produce 600 new teachers each year simply to maintain a constant supply of 15,000 teachers at the present level of double-shift teaching. In El Salvador the working life of a teacher is estimated at 20 years (AWD No. 4, p. 48), which means 750 new teachers are required each year to simply maintain the teaching force.

The number of new teachers graduating from Normal School on a countrywide level in 1973, 1974, and 1975 were 43, 98, and 63, respectively, a cumulative deficit of 2,046 teachers (AWD No. 4, p. 48). Recognizing the seriousness of this shortage of graduates, the Ministry introduced two additional teacher-training programs: one consisted of a third year of secondary-level education courses in a special teacher-training institution for students having completed two years of regular secondary-school academic courses, and the other was an even shorter course for secondary-school graduates with academic diplomas in non-teaching areas. These were emergency measures intended to offset the teacher deficit within one or two years by producing an annual total of about 400 graduates. In planning new teacher-training programs to cover the country's estimated future needs, the MOE was aware that aside from producing an additional 400 new teachers per year, it would also be necessary to increase the number of teachers working two shifts. However, this process cannot continue indefinitely.

### 3. Feasibility of Increasing Access

As part of the analysis a simulation exercise was carried out to determine the feasibility of providing access to schooling to the entire school-age (7-12) population.

It was estimated that in order to convert rural incomplete schools into complete schools (grades 1-6) during base year 1973, an additional 246,000 square meters (163,000 m<sup>2</sup> of classrooms and 83,000 m<sup>2</sup> of offices, shops, and laboratories) and an additional 6,500 teachers would have been needed (AWD No. 2, pp. 165-170 and AWD No. 10, p. 10 ff).

This calculation of additional classrooms and teachers was based on teacher and classroom utilization rates for 1973. Consequently, an expansion in the proportion of double shift schools in the rural areas, making possible a double utilization of classrooms and teachers, would result in a reduction of the above needed quantities.

#### a. Estimated Annual Cost

An estimate of the total annual cost (operating and capital amortization) was established, which included converting incomplete schools into complete schools and placing an additional 117,000 rural students in the rural zone. At a per-student amortization cost of ¢6 and an operating cost of ¢78.1 for 1973, a total figure of ¢9,839,700 was estimated. This figure represented a 14.6 percent of the total annual cost of basic education for the year 1973, and 8.6 percent of total funds used by the Ministry of Education in that same year (¢114,202,000) (AWD No. 10, pp. 10-12).

#### b. Estimated Effects and Benefits

All the children between the ages of 7 and 12 living in the rural areas in 1973 would have had the opportunity to complete the first 6 grades of basic education. Significant increases in the number of adult illiterates would be prevented.

The savings in teacher salaries could be c25.68 for each student transferred from whole-day to half-day school, provided the teachers teach two shifts. In 1973, 248,813 urban school students and 223,889 rural school students attended whole-day schools. Annual savings in salaries as a result of a complete changeover of all students in whole-day to half-day schools would amount to c12,396,044. Corresponding savings in depreciation costs could amount to c388,134. Total savings in basic education would thus represent 18.9 percent of the total costs for 1973. Increasing access over 1973 levels would of course redirect these "savings" into new construction and salaries, but "savings" from double shifting would still more than pay for providing access to all students. Although carrying out the suggested reforms in one year is an impossibility, the financial feasibility of the reforms was thus indicated.1/

## B. EFFICIENCY

Efficiency of basic education was analyzed in terms of four principal components: performance in achievement examination, (AWD Nos. 2, 6, and 8) dropout and repetition (AWD No. 10), and cost per student (AWD No. 3). The objective of the analysis of efficiency is to determine procedures for maximizing, or increasing to a desirable level, academic performance as measured by national tests, and for minimizing or reducing dropout, repetition, and cost per student, taking into account the interrelations among these four components.

### 1. Academic Performance as Measured by the National Exam

In order to determine the extent to which the cognitive objectives of the four major subjects of the official curriculum have been attained by basic education students, a national achievement exam was prepared and administered to approximately 55,000 elementary school students in October 1974.2/

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1/ The editor notes that the three large-scale school construction programs sponsored by AID, IBRD, and FOCCO between 1973 and 1976 created more than 132,000 square meters of new classroom space in 611 buildings, 535 located in rural areas. This increase in facilities should also be taken into account in future planning (AWD No. 4, pp. 5 and 32).

2/ The national exam was an experimental test, constructed specifically for this analysis. Because of time constraints, refinement of the test beyond a first and second pre-test was impossible. Reliability coefficients are very high, from +.91 to +.96, but criterion-related validities for individual questions are not as high, and measures resulting from the test should be interpreted with caution, especially in light of the unknowns surrounding the way in which the test was administered (Cf. David P. McNelis et al., Test Manual: La Prueba Nacional, El Salvador. A report prepared and distributed internally for USAID/El Salvador, ODEPOR, and International Statistical Programs Center, U.S. Bureau of the Census, undated).

The average of 58.9 percent correct answers for all subjects in all examined grades can be accepted as a general indication that the children attain, in good part, the cognitive objectives of the curriculum (AWD No. 8, p. 2, and AWD No. 2, p. 94). It can be said that approximately six of every ten relatively difficult questions were answered correctly by a representative sample of students of the second, third, fifth, sixth, eighth, and ninth grades. In general, academic performance does not appear to be a major factor of inefficiency in the basic education system. However, subject areas were identified in which students were comparatively weak.

The lowest average score on the national level was obtained in mathematics (AWD No. 8, p. 6). Rural students obtained higher averages than urban students in math, a circumstance possibly explained by the fact that the average age of students in rural schools is two years greater than the prescribed age; and in urban schools it is one year greater (AWD No. 6, p. 26). A review of the official mathematics program and a careful examination of the teaching methodology could provide information necessary for possible revisions of the curriculum and/or teacher training.

Rural and urban students seem to perform on a relatively equal level, overall, scoring average percentages correct of 61.6 and 58.2, respectively (AWD No. 8, pp. 3-4). The rural students who were three or more years older than the prescribed age for the grade had an average score which was higher than the other rural students; whereas the urban students who were three years older than the prescribed age had a lower score than the average urban score. This difference suggests that the older rural students had been delayed in their progress through the grades due to access difficulties, whereas their urban counterparts were delayed due to academic deficiencies (AWD No. 6, Table 5, p. 31).

Although there are differences among the various types of schools with respect to average scores, neither half nor whole-day school nor given structure of grades shows a significant difference (AWD No. 2, p. 124 and AWD No. 6, pp. 32-36).

## 2. Socio-Economic Factors

A household survey of a subsample of 2,500 students taking the examinations was conducted to determine what relationship, if any, exists between various cultural and socio-economic factors on the one hand, and student performance on the other. Scores were approximately the same for all income groups, with the exception of appreciably higher scores from students in urban areas from families whose head-of-household earned a monthly income of ₺500 or more (AWD No. 6, Table 20, p. 53).

The survey questionnaire also asked if students did homework at home every day, some days, or never. Test scores were then compared with the responses. For the sample group as a whole, home study was not associated with appreciable higher test scores. Students who were identified as repeaters the following year and who studied at home, however, scored 14 to 20 points higher than students from the same group who never studied. For students identified as drop-outs the following year, home study made no difference at all (SWD No. 34, p. 56).

The household survey also classified 82 percent of the students as "ill fed" (SWD No. 3a. p. 33). Furthermore, 4.7 percent (121 of a sample of 2,557) had not eaten at all before arriving at school the day of the interview. The test results for those groups were inconclusive, though students with poor diets did, in general, have slightly lower scores.

The analysis of the relationship between test scores and items on the household survey did not prove as fruitful as had been expected, though a great deal of information is now available as a result of the survey.

The national exam itself could provide a useful instrument for measuring and evaluating changes made in the education system.

### 3. Dropout or Enrollment Loss (Grades 1-6)<sup>1/</sup>

Enrollment loss represented between 18 and 20 percent of initial enrollment in grades one through six in 1973, or between 100,000 and 118,000 of an enrollment of 593,000. Through a variety of analytical processes described in AWD No. 2, this dropout was hypothetically broken down into four kinds and, as a result, a radically different view of the possible causes was obtained. It was concluded that the loss was heavily concentrated in the rural areas and was largely the result, not of insufficient demand for school services (the prevailing view before the analysis), but of insufficient supply of such services.

The dropout phenomenon has been disaggregated into sub-kinds which are represented and estimated below, using the lower total of 18 percent.

TABLE IV-2

#### Estimated Breakdown of Dropouts

Total Dropout	Within Grade Yearly Dropout	Between-Grade Inter-Year Dropout
18 percent	10 percent	8 percent
Permanent Dropout	Permanent Yearly Dropout	Permanent Inter-Year Dropout
13 percent	5 percent	8 percent
Non-Permanent Dropout	Non-Permanent Yearly Dropout	Non-Permanent Inter-Year Dropout
5 percent	5 percent	0 percent

Source: AWD No. 2, Table 27, p. 60 and AWD No. 10, Table 1, p. 7.

<sup>1/</sup> Please note that the analysis of enrollment loss is limited to the first six grades because it was possible to obtain reasonably accurate estimates of repetition for only those grades (AWD No. 10, p. 7).

Although within-grade or yearly dropout was being properly measured and recorded, between-grade or inter-year dropout was estimated only occasionally and the estimates were highly inaccurate. No effort had been made to distinguish between permanent dropout (the student who drops out and never returns) and non-permanent dropouts (the student who drops out during the school year and returns as a repeater the next year). The tendency to treat the loss of enrollment or dropout as an aggregate and uniform phenomenon helped conceal the various factors involved.

The following table examines the yearly dropout rates over a period of eight years. In the first three grades of basic education, the yearly dropout rates for rural and urban zones are not very different. If anything, yearly dropout rates are lower in the rural first grade.

TABLE IV-3  
YEARLY DROPOUT RATES ACCORDING TO  
GRADES AND ZONE, 1968-1975

Grade and Zone	Yearly Dropout Rates							
	1968	1969	1970	1971	1972	1973	1974	1975
First	13.4	18.1	16.2	22.0	12.9	13.7	9.6	11.9
Urban	16.9	19.1	16.7	23.3	13.4	17.7	13.6	13.7
Rural	9.9	17.2	15.8	20.8	12.4	10.2	6.3	10.5
Second	9.0	9.0	8.2	13.1	7.4	9.4	6.9	7.2
Urban	9.7	7.7	8.2	12.8	6.8	11.2	7.0	7.3
Rural	8.2	10.7	8.3	13.5	8.0	7.5	6.9	7.1
Third	9.6	9.7	7.9	13.4	6.1	9.6	7.8	7.2
Urban	9.7	8.6	7.4	12.2	5.4	10.3	6.9	7.2
Rural	9.5	11.6	8.8	15.5	7.3	8.4	9.0	7.2

Source: AWD No. 2, Table 20, p. 46, and Table 22, p. 49.

If within-grade enrollment loss is not higher in the rural areas, as the above table indicates, yet total rural enrollment loss is much higher than the urban, as indicated by the rural and urban education pyramids, (Graph No. 1), then most of the higher rural enrollment loss rate is attributable to inter-year (between grade) loss. The bulk of the loss is related to lack of access to services.

In the rural zone there are many incomplete schools. According to the hypothesis set forth in the Education Sector Analysis, the incomplete school could act as a disincentive in three ways: (1) students enter later; (2) there are absences of one or more years between grades (non-permanent, inter-year dropout); and (3) there are higher total dropout rates. The analysis showed that rural students do not enter later. They are older at first enrollment than urban students (AWD No. 2, pp. 63-79).

Non-permanent, inter-year dropout is higher in rural areas. In regard to the third manifestation—high yearly dropout rates—it is worth noting that rural schools with six or more grades had fewer dropouts than schools with less than six grades, a further indication that dropout could be force-out (AWD No. 2, Table 26, p. 58).

As indicated by Table IV-1 in the previous section on access, both the matriculation/population index of 125 percent in the urban zone and 43 percent in the rural zone were in close correspondence with the infrastructure in each zone.<sup>1/</sup> In a general way, this supports the hypothesis that children in both zones respond to educational opportunities and that the larger loss of matriculation in the rural zones constitutes a non-voluntary loss. Dropout, especially inter-year, can be seen as force-out.

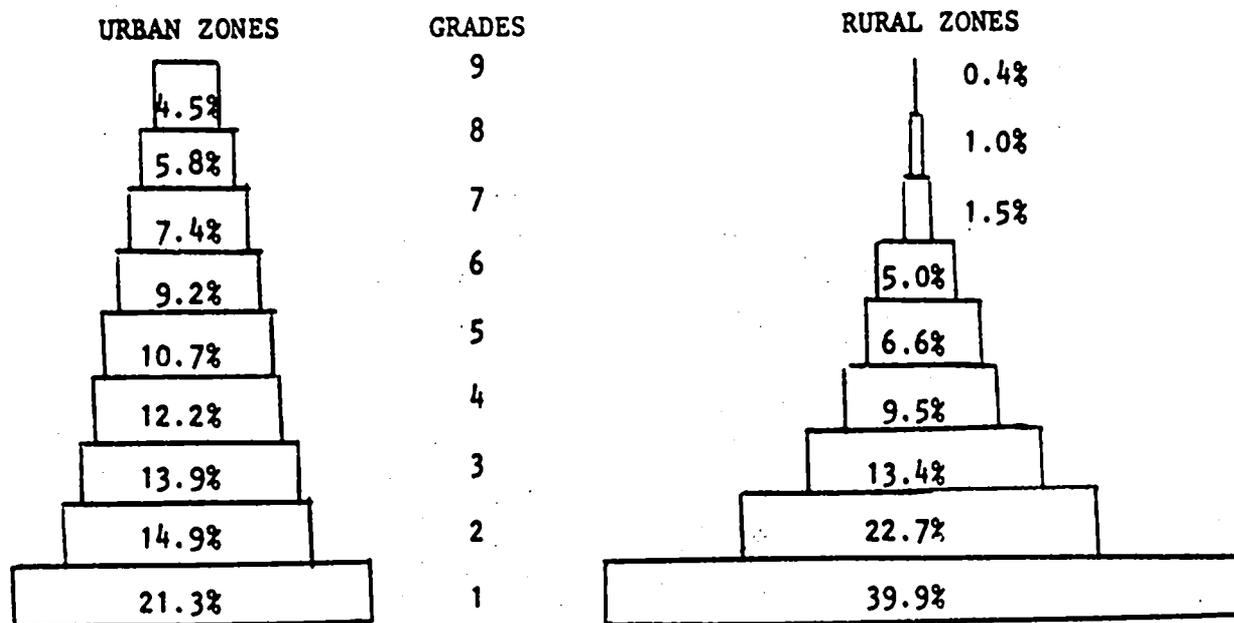
Graph No. 1, below, illustrates the consequent difference in urban and rural pyramids. While the educational pyramid in part reflects demographic growth, it appears very possible that the rural schools have seen themselves forced to reserve a large part of their space for the first grade. In other words, in order to provide entry to all the children desiring to enter school, more space is reserved for the first grade, thus reducing the supply of space in the higher grades. Second-grade space available in rural schools is probably 55 percent of first-grade space, as compared with a probable 71 percent in the urban schools. The relative shortage of space in rural second grade is a major factor accounting for the very high rate of "voluntary" grade one repetition, and for the large inter-year dropout between grades one and two (AWD No. 2, pp. 154-164).

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<sup>1/</sup> More than 100 percent of the population appears to be matriculated in the urban area because of the numbers of rural students who commute to attend school.

GRAPH NO. 1

PERCENTAGE DISTRIBUTION OF INITIAL MATRICULATION  
BY GRADE IN URBAN AND RURAL ZONES, 1973



Source: Files of the Statistics Department of the Ministry of Education (AWD No. 2, Graph 2, p. 155).

A change in the policies of grade distribution could increase the flow of students through the grades, but, due to the many incomplete schools in the rural areas, this would only increase access to lower grades and then only if structured to reduce voluntary repetition.

The main causes of within-grade yearly dropout are probably more varied. The explanations stressing socio-economic problems and curriculum irrelevance may have greater applicability to this proportion (over-half) of the total enrollment loss. But even here the shortage of classrooms and teachers may have some significance. Furthermore, dropout rates for half-day schools offering grades one through six are lower than the rates for whole-day schools that offer all six grades in the rural zone (AWD No. 2, Table 23, p.51). In urban half and whole-day schools this advantage of the half-day school is not so clear, except in grades one and two where dropout is lower (AWD No. 2, p.56). Reasons for the lower within-grade dropout in half-day complete schools should be further investigated.

Very roughly, half of the within-grade yearly dropout appears to be non-permanent: the students return the next year as repeaters (AWD No. 2, pp.62-63).

4. Repetition

Under the analysis, quantification of total repetition was made possible by the application of a new model to the population census data on schooling attainments. Estimates of new entrants into each grade for different

years were generated from the 1971 population census data. By subtracting new entrants from matriculants, estimates of repeaters were arrived at.<sup>1/</sup>

Prior to the analysis, reported first-grade repetition between 1972 and 1976 averaged 14.6 percent (AWD No. 2, Table 9, p.16). Under the analysis total repetition for all six grades has been estimated at 150,000, or 28 percent of the initial matriculation. It is highest in the first grade at an estimated 35 percent of initial matriculation (the average first-grade student matriculating 1.6 times) and drops steadily in each grade to 16 percent in sixth grade (AWD No. 2, Table 7, p.14, and AWD No. 10, p.30).

By relating the four hypothetical types of dropout and the revised estimates of repetition, it was possible to identify three kinds of repeaters:

- repeaters/failures;
- repeaters/dropouts;
- repeaters/passers.

Previously, the Ministry treated repetition as if there were only repeaters/failures and introduced a system of oriented (automatic) promotion to unclog the early grades of repeaters and thus reduce the numbers of dropouts. However, the policy has not had the desired effect (AWD No. 2, Table 11, p.21). Oriented promotion would not reduce the numbers of the repeaters/passers. A certain number of the repeaters/failures invariably choose not to return to school the next year and become dropouts.

When a dropout rate is applied to all students who failed to be promoted, the 1973 repeater/failures average only 3.5 percent of the initial 1972 enrollment (AWD No. 10, pp.32-35, based on AWD No. 2, Table 29, p.70). Repeaters/dropouts, according to these revised measures, represent 4.9 percent of the initial matriculation, and repeaters/passers, 19.7 percent.

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<sup>1/</sup> For an amplification of the methodology used, see AWD No. 2, pp. 1-26.

TABLE IV-4

ESTIMATED RATES OF TOTAL REPETITION:  
REPEATERS/FAILURES, REPEATERS/DROPOUTS, AND REPEATERS/PASSERS FOR  
1973 AS A PERCENTAGE OF INITIAL ENROLLMENT IN 1972, GRADES 1-6

	All Repeaters	Repeater/ Failures	Repeater/ Dropouts	Repeater/ Passers
National	28.1%	3.5%	4.9%	19.7%
Urban	24.0%	3.0%	4.4%	16.5%
Rural	34.2%	4.2%	5.6%	24.4%

Source: (AWD No. 10, Table 6, p.42).

From the above table it can be deduced that repeaters/passers account for approximately 70 percent of all repeaters in the first six grades of the basic education system. A revised record-keeping system could be used to verify the deduction.

5. Per-Student Cost

The total estimated cost to the public budget of the basic education subsector for 1973 was c67,464,814, with the total operating costs equal to c63,316,264 and total depreciation costs amounting to c4,148,556. Personnel costs were 99 percent (c62,793,584) of the total operating costs. For capital costs, the cost of buildings absorbs about 53 percent, furnishings a little more than 36 percent, and books account for about 11 percent (AWD No. 3, Table 7, p.10).

The total per-student cost (operating cost and amortization of capital) in the urban zone was c110.0 as compared with c84.1 in the rural zone. The lower student/teacher ratio in the urban area explains most of the greater cost per urban student.

The average monthly salary in 1973 for teaching either one whole-day or one half-day school was roughly c300.00. A half-day school teacher who takes on a second half-day school (or a teacher in a 3-3-6 school who performs teaches one grade in the morning and another in the afternoon) now gets a supplemental salary of c150. Based on a student-teacher ratio of 35:1, the annual per-student cost of teacher salaries, at the aforementioned rate, is c102.84 for a student attending both morning and afternoon sessions and c68.56 for a student attending a single session. In 1973, 248,813 urban school students (58 percent) and 223,889 rural school students (89 percent) attended whole-day schools (AWD No. 10, pp.52-56, based on AWD No. 3).

Cost per graduating student vary significantly from cost per student. Costs per graduating student are illustrated in the table below.

TABLE IV-5

COST PER GRADUATING STUDENT, GRADES 3 AND 6  
URBAN AND RURAL SCHOOLS, 1973

	National	Urban	Rural
Grade 3	₹ 494.51	₹ 461.50	₹ 546.58
Grade 6	1,230.77	1,038.77	1,802.02

Source: (AWD No. 3, Table 31, p. 40).

Despite lower annual costs, the higher cost per graduating student in the rural zone may be explained by considering the high rates of repetition and dropout which greatly increase the amount of time it takes to progress through the system, and the high percentage of whole-day schools.

Leased buildings comprise a significant part of all public school buildings. In the urban areas, the 210 leased buildings represent 22.5 percent of all urban public school buildings and service 26.0 percent of the student body registered in urban school. In the rural area, there are 352 leased school buildings comprising 20 percent of the school buildings in the whole area and covering 18.9 percent of the enrolled student body (AWD No. 3, p.42). Urban area rent cost per student of leased buildings is more than twice the estimated per-student cost of newly constructed buildings. In the rural zones the estimated construction cost was not found to be a saving because of the low building rent paid in this area (AWD No. 3, p.52).

C. RELEVANCE

The relevance of primary education is directly related to basic learning needs and whether or not the current education system is effective in meeting these needs. For adults who did not complete primary school, and at secondary and higher education levels, the question of relevance begins to be more related to the external efficiency of the education system, or its ability to respond to the skills demands of the economy.

A comprehensive design was not developed for analyzing relevance in the education sector in the same way that efficiency and access were approached. Nevertheless, several attempts were made to assess aspects of educational relevance.

The national achievement tests assess the relevance relationship between curricular objectives and cognitive learning. The test results provide some evidence that learning of the curriculum does take place at a reasonable level. In other words, the fact that students do perform successfully prescribed basic skills/tasks is evidence that the context in which they are taught is understandable (relevant). The national exam measures performance in the basic areas of verbal and communications skills and numeracy. Some test items were related to analytical (cause-effect) thinking, but not enough to serve as an effective measure of this skill. Social interaction skills, another assumed product of primary education, were not measured by the test.

Other assessments of relevance are needed to examine the relationships between national social or economic goals and curricular objectives, and between cognitive learning and performance of workers or citizens in the economy or society at large.<sup>1/</sup>

The data collection and analysis for El Salvador were in general limited to examining the relevance of education and training to economic outcomes, though there is an attempt to broaden one part of the analysis to assess the relationship between education and fertility.

Five surveys provided information on the relevance of education in El Salvador:

1. The Worker-Employer Study conducted by the Education Planning Office of the Ministry of Education (ODEPOR), which was intended to assess the relevance of training offered to workers within and outside firms.
2. The High School Follow-up Study which related the first year employment and earnings of 600 graduates to diversified bachiller programs.
3. The Audience for Non-Formal Education Programs, which was a market survey of potential clients of non-formal education.
4. The Manpower Study, a National Planning Council (CONAPLAN) study of 33,000 individuals, which was used to assess the relationship of educational attainment to economic and social outcomes and to provide a broad background to the issue of the relationship of education to economic performance and fertility.

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<sup>1/</sup> For a more thorough discussion of this concept of relevance and a suggested relevance assessment framework as well as an analysis of the four studies, see Part One of An Assessment of the Relevance of Education in El Salvador, Center for Studies in Education and Development, Harvard University, Cambridge, November 1977.

3. The National Achievement Exam Household Study which was administered to a sample of student households. Harvard University's Center for Studies in Education and Development analyzed the results of the first four studies.

The 1975 CONAPLAN work force study is the most appropriate for examining the effect on poverty by eliminating the rural schooling insufficiency and equalizing educational opportunities. The Household Study also yielded some information as to how education affects earnings (Harvard Relevance Study, Part IV, pp.1-54).

#### D. EDUCATION AND EARNINGS

The widespread poverty of El Salvador is partially indicated by the 1975 distribution of monthly earnings of the economically active population:

TABLE IV-6

#### 1975 DISTRIBUTION OF MONTHLY EARNINGS

<u>U.S.\$</u>	<u>% of Population</u>
4-20	23%
24-32	15%
36-48	22%
48-80	20%
84-120	10%
Over 120	10%

Source: Harvard Relevance Study, Table IV.6, p. IV.19.

The strong relationship between earnings and educational attainment is attested to by the following table, which shows 84 percent of the population with 0 to 1 years of schooling earning less than \$48 per month, and 95 percent of the population with 15 or more years of schooling earning more than \$124 per month.

TABLE IV-7

#### MONTHLY INCOME AND EDUCATION LEVEL

<u>Years of Education</u>	<u>Population (%)</u>	<u>% Earning \$ 4-48</u>	<u>% Earning \$ 48-120</u>	<u>% Earning Over \$ 124</u>
0-1	2,702 (33.9)	84%	17%	3%
2-5	2,377 (29.9)	69%	27%	4%
6-8	1,615 (20.3)	46%	46%	8%
9-11	690 ( 8.7)	17%	52%	31%
12-14	463 ( 5.8)	4%	45%	51%
15+	116 ( 1.5)	1%	4%	95%

Source: Harvard Relevance Study, Table IV-6, p. IV. 19.

Earnings vary less in rural regions than they do in urban regions, and the amount of formal schooling received by rural residents is less important for predicting what variation in earnings does exist. Residence has a stronger relationship to occupation than education does, which reflects the fact that most higher level occupations are in urban areas, and that 41.2 percent of economically active individuals are in agriculture (Harvard Relevance Study, Table IV-4, pp.IV-13-15).

The direct relationship of rural status on education, occupation, income, and possessions is one of the most powerful indications of the effect other variables have on the relevance of education to economic outcomes. Education is more strongly related to income (defined as earnings of head-of-household in the past month) and life style (household possessions, services, amenities) than to earnings alone.<sup>1/</sup>

#### E. WOMEN

The relationship of sex to education suggests that females have had slightly more access to professional occupations, although the data indicate that this is access to the lower rungs of the professions. Female status is related to slightly lower earnings but slightly higher possessions, a status often attributable to earnings of husbands, or the effects of two earners in the home.

One of every five households is headed by a female with no spouse present, and in half of these households the woman's income is less than \$32 per month, whereas only one-fourth of the male heads-of-household earn that little. One of every three members of the labor force is a woman. More women are self-identified illiterates (40 percent vs. 35 percent for the labor force), and less than 1 percent had some university education.

Women in urban areas come from families with higher income levels, live in better housing, are better educated, are more often employed and have higher status jobs. There are weaker indications that urban women earn more, have fewer children per year of fertility, have higher survival rates among children born, and first give birth at older ages.

For older workers (head-of-household) the direct effects of education on earnings is strong. Higher education levels are related to higher earning levels. For younger workers, though education does affect economic outcomes, their access to education and later economic benefits is more powerfully affected by the status of the household from which they come.

Education had the highest direct effect on fertility of any of the variables studied, according to both the Harvard study and the Salvador Demographic Association, as indicated in the following table.

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<sup>1/</sup> An Assessment of the Relevance of Education in El Salvador. (Relevance Study). Center for Studies in Education and Development, Harvard University, Cambridge, November 1977, p. IV-4.

TABLE IV-7

LEVEL OF EDUCATION AND 1974-75 FERTILITY RATE

Level of Education	1974-1975 Fertility Rate (Live Births per 1,000 women)
No Education	0.231
1-3 Grades	0.225
4-5 Grades	0.182
Primary Completed (6 years)	0.172
Secondary (1-3 years)	0.109
Secondary (4-6 years) + University	0.116

Source: Encuesta Nacional de Fecundidad y Planificación Familiar de El Salvador, April 1976, p.19.

The Harvard study asserts that the relation of education and fertility is not strong enough to suggest reliance upon education as the sole technique of lowering fertility rates and that other direct action in family planning would have to accompany the education policy.

F. ILLITERACY

The analysis has offered evidence that a six-grade schooling opportunity is not available to the great majority of rural residents. The fact that basic language and number skills are obtained with six grades of schooling requires any policy aimed at preventing illiteracy from growing to take into account the need to expand access.

One million adults are officially reported as illiterate. The Sector Analysis estimates the number as one and one-half million. The additional half-million represent individuals who have had one to two years of schooling and are therefore marked "literate" in the population census. The overwhelming majority of the adults who identified themselves as illiterate are those who stated that they have had no schooling. It seems highly likely that those who had completed only one or two grades lapse into illiteracy due to the lack of reinforcement in reading and writing skills (AWD No. 2, pp.30-35).

Changes in the census procedures require clear definitions of literacy, better questionnaire items, and the testing of responses through sampling.

Elimination of the rural schooling insufficiency will contribute to stopping the growth of illiteracy among younger generations.

One possible benefit of increased literacy among the rural majority would be a more capable, trainable influx of rural workers into the urban area. There is already a constant rural-to-urban migration in El Salvador, and other studies in this analysis indicate that industrial training provided by employees most often goes to those workers who already have a basic education.

It is assumed that another benefit of literacy is increased civic participation. Literate farmers, for example, are believed to be more likely to participate in "credit and technical assistance projects which assume that the producer can fill out simple application forms and absorb simple written materials."<sup>1/</sup>

#### G. CONCLUSIONS AND RECOMMENDATIONS

One of the stated goals of the Ministry of Education is the opportunity for a complete basic education for the entire school-age population. The Sector Analysis focused on three major objectives of the MOE which are means of accomplishing the goal: to increase access to basic education, to increase the efficiency of the school system, and to increase the relevance of education to basic human needs.

Problems associated with the accomplishment of these objectives were identified and the feasibility of various solutions was considered (AWD No.10). The following recommendations are based on the conclusion and recommendations of the Analytical Working Documents. For convenience sake, they are grouped according to the problems they address.

##### 1. Access and Efficiency

Insufficient access to schools, especially in the rural areas, contributes directly to problems of inefficiency. Solutions to problems of access should also contribute to improving efficiency in terms of minimizing enrollment loss or dropout, minimizing repetition, and minimizing per-student costs (AWD No. 10, pp.5-62). The recommended corrective measures are as follows:

a. Complete the Incomplete Schools, especially in the rural areas. In order to accomplish this task, these basic steps are proposed:

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<sup>1/</sup> Agricultural Sector Assessment, USAID/El Salvador, August 1977, p. 24.

- (1) Present whole-day schools should be gradually changed to double-shift half-day schools until 100 percent of the urban schools are double-shift and 90 percent of rural schools are double-shift. All new schools built should be double-shift and offer at least six grades. The 3-3-6 school seems not appropriate because under present circumstances per-student costs are lower in this type of school, based on a target ratio of 35 students per teacher per session.
- (2) New classrooms should be constructed to complete incomplete schools, to keep pace with population growth, to replace old buildings, to satisfy the presently unmet demand in the rural area, and to reduce overcrowding by gradually extending space allocated to each student from the present level of .98 m<sup>2</sup> to 1.30 m<sup>2</sup> per student per session. About 650 new classrooms a year from 1977 to the year 2002 would be needed to meet these needs (SWD No.13). The following measures should also be taken to support the planning of the school construction activities:
  - (a) Baseline measures which are calculated only once should be obtained from a survey of school buildings conducted by a team of professional interviewers who visit every school circuit and tabulate the number of schools, providing standardized, reliable measures of the number of classrooms and square meters of space in each classroom, as well as other indicators of adequate access, such as numbers of desks and chairs, books, televisions, chalkboards and other items.
  - (b) A simple system through which the above data could be constantly revised and kept up to date should be adopted. This system would require a channel of communication between the Division of Educational Architecture (DEA), the Office of Planning and Organization (ODEPOR), and the Department of Basic Education (DBE), through which the DEA would provide numerical data on the amount of space included in each new building constructed, and the DBE would update information on usable and utilized school space, the opening and operating schedule of each new school, and a listing of each school closed.
  - (c) An annual school survey should provide information on which school buildings are used on a whole-day or half-day basis, as well as those schools which are not used at all during a given academic year.
- (3) Distribute classrooms more equitably among the grades in each school. This requires the MOE to set forth guidelines for space distribution among the grades for use by school superintendents and principals. These guidelines should be based on a survey of student places in a sample of schools.

b. Replace rented premises in the urban areas. High rents in urban areas make replacement with Ministry-of-Education-owned buildings a cost-saving measure, since the analysis indicates that even with the depreciation costs of replacement buildings, it would be possible to save approximately ₺319,933 each year, based on 1973 costs (AWD No. 10, P.61).

c. Increase the quantity of teachers graduated and placed in service each year to keep pace with replacement needs and the additional needs created by the construction of new classrooms. The following measures would contribute to the accomplishment of the objective:

- (1) Conduct a study of the teacher-training programs presently in effect, focusing on what methods give a satisfactory level of training, what combination of methods produces the required quantity of new teachers each year, what method is more economic, and what other methods, if any, can help step up unsatisfactory production figures.
- (2) Investigate the problems associated with the assignment and retention of teachers in rural areas, including an investigation into the motivations and frustrations associated with rural education as a basis for devising new training strategies and career incentives, with special attention to the 3-3-6 schools.
- (3) Examine teacher salary scales to determine if increases or shifts in scale could provide more incentive to double-shift. This examination of salary scale should also consider the feasibility of carrying out the suggestion that the salary for the two shifts be equal, i.e., instead of ₺150 for the second shift and ₺350 for the first, ₺250 for each.

d. Maximize student performance and consequent transition from grade to grade. Specific measures could include carrying out the following activities:

- (1) Provide a minimum of one year of pre-primary education, if recommended by the analysis of the effectiveness of kindergarten.
- (2) Analyse the curriculum, especially in the area of mathematics, language skills, and science as a means of improving the national exam so that it closely reflects the goals and objectives of the curriculum and provides useful criteria for periodic evaluations of scholastic achievement.
- (3) Provide teachers with work sheets and other materials such as curriculum guides to enable them to teach the curriculum more effectively. Train them in the use of these materials through inservice workshops.

- (4) Analyze student socio-economic problems which may interfere with achievement or attendance, such as: improper diet, need to work, extent of parental contributions to educational services. Collaboration with the Ministry of Health to study the diets of rural school children could lead to programs to improve the nutrition of school-age children.
- (5) Identify, quantify, and locate deficiencies in the application of the system of student evaluation to determine its effect on the repetition rates.

e. Evaluate the effects of increasing access and efficiency. If access is increased to the degree recommended, the rural sixth-grade promotion rate could increase from approximately 20 percent to 60 percent total repetition for grade one would be reduced to a rate of 10 percent by 2002 and repetition for grades 2 through 6 to a level of 5 percent. Additional measurements of efficiency increase could be obtained by carrying out the following:

- (1) Collect and tabulate data on the number of classrooms added to incomplete schools, grade-specific initial and final enrollments, the number of students promoted at sixth-grade level, the total number of classrooms, as well as their distribution among the various grades, and the school-age population. Subsequent calculations of the correlations between these different variables can be used as partial measures of the effects of carrying out the proposed policy.
- (2) Improve the system of cost control, establishing procedures for obtaining more specific, accurate, and reliable periodic measurements of various indicators for the purpose of using those indicators to make better use of available resources.

SECTION V  
SECONDARY EDUCATION

A. ACCESS

Access was measured in terms of initial enrollment, transition rates between grades nine and ten, and physical facilities.

1. Initial Enrollment

Between 1960 and 1976 secondary school enrollment grew at an annual rate of 13 percent, from 8,000 to 59,000. Enrollment is about equally divided between public and private schools (AWD No. 12, Table 1, p.2). The ratio of enrollment to the population aged 16 through 18 increased (AWD No. 12, Table 4, p.6), but despite this increase, only 15 percent of the eligible age cohort graduated in 1976.

Prescribed age is not the only indicator of the population demanding services. Eligible ninth-grade graduates come not only from within the regular school system, but from other programs such as third-cycle night courses, informal study programs, accelerated courses for the basic cycle and basic education equivalency, all of which generally include students who are older than the prescribed age.

As a result of the education reform, specialized programs at the secondary level were introduced in 1971 in an attempt to provide the trained human resources needed for the country's socio-economic development. However, 57 percent of the 1975 enrollment remained in the academic programs, 34 percent in business and management, and the remaining 8 percent was distributed among eight other specializations (AWD No. 12, Table 8, p.10).

Public schools offer morning or night sessions. Private schools offer morning, night, whole day, and/or afternoon sessions. While day students outnumber night students by 75 percent, the rate of growth for evening sessions is slightly higher than that for day sessions (AWD No. 12, Table 10, p.12 and Table 14, p.20).

The expansion of high school opportunities has not been equally distributed geographically. Rural areas have very few high schools; consequently, urban centers such as the departments of San Salvador and Santa Ana have transition rates which exceed 100 percent, accounted for in part by the rural students who commute to urban high schools (AWD No. 12, Table 7, p.8).

2. Transition Rates

In contrast to initial enrollment data, transition data show a continuous decrease in first-year secondary school enrollment with regard to final ninth-grade enrollment, as illustrated in the following table:

TABLE V-1

TRANSITION RATE BETWEEN BASIC EDUCATION AND THE  
FIRST YEAR OF SECONDARY EDUCATION, 1965-1976

BASIC EDUCATION		SECONDARY EDUCATION		Transition Rate
Year	Final enrollment-Grade 9	Year	Initial Enrollment in 1st year courses	
1964	6852	1965	7389	108
1969	11100	1970	12979	117
1970	11471	1971	13954	121
1971	13267	1972	14652	110
1972	15847	1973	17101	107
1973	20386	1974	20045	98
1974	24495	1975	23555	96
1975	31639	1976	25817	89

Source: ODEPOR Statistics, Ministry of Education  
(AWD No. 12, Table 5, p. 7).

Apparently, access to third-cycle basic education is expanding more rapidly than access to secondary education, although secondary enrollment increases have been accompanied by increases in physical facilities.

3. Physical Facilities

Lack of data on number of classrooms and square meters of student space makes it impossible to know whether or not the proportional increases in institutions and enrollments illustrated below represent a progressive increase in overcrowding, although that conclusion appears likely.

TABLE V-2

NUMBER OF SECONDARY SCHOOLS AND ENROLLMENT,  
BY SECTOR, 1960-1976

Year	Public			Private		Average Enrollment per School
	No. of Schools	Total Enrollment	Average Enrollment per School	No. of Schools	Total Enrollment	
1960	--	3,825	--	--	4,402	--
1965	40	6,928	173	68	8,286	122
1970	57	8,805	154	106	16,837	159
1973	64	21,278	332	107	23,422	219
1975	65	23,399	360	117	28,332	242
1976	67	26,010	388	119	33,069	279

Source: 1. Data 1960-65-70: Dept. of Statistics, Ministry of Education.  
2. Data 1974-75-76: Guide to Public and Private Secondary Schools.  
(AWD No. 12, Table 2, p. 4.)

As was the case with the enrollment data, transition data by department indicate a progressively decreasing percentage of the ninth-grade student population entering the first year of secondary school as distance increases from the department of San Salvador.

## B. EFFICIENCY

Academic achievement, annual dropout, and per-student cost were examined as components of efficiency.

### 1. Academic Achievement

The national secondary-school diploma qualifying examinations given in 1974 were used as a measure of academic achievement. The examinations cover general subject areas--arts and sciences--and specialties.

The general exams showed no significant difference between public and private schools, though both groups' average percent of correct responses was surprisingly low: 50.6 percent correct in liberal arts and 36.5 percent in science (AWD No. 12, Table 11, p.15).

It is difficult to say if the low scores are attributable to course content, teaching, and/or test construction, although the high school graduate follow-up study students expressed most dissatisfaction with math and science courses (Harvard Relevance Study, Table II-8, p.II-12).

Students enrolled in industrial courses and teacher-preparation programs obtained the highest scores on the general exams, and students enrolled in hotel management and tourism, business and management, and vocational courses scored the lowest (AWD No. 12, Table 13, p.19).

Half-day students attending either morning or evening classes seemed to do as well as or better than whole-day students, although it cannot be determined whether or not it is the type of session which exerts the influence over test scores (AWD No. 12, pp.20-21), or other variables.

In contrast to general examination scores, specialized examinations showed private-school students had a higher overall score than public-school students, especially in business and management courses where private-sector students outscored public-sector by a margin of 29 percentage points (AWD No. 12, Table 16, p.22). Socio-economic status information was not available for the two groups, but this factor should not be discounted as a possible explanation for the differences in scores.

### 2. Dropout

Information was available only for annual dropout (the difference between initial enrollment and final enrollment in any given year) for the period from 1971 to 1976. Repetition is not permitted in secondary schools. Course failure implies dropout.

TABLE V-3

ANNUAL DROPOUT RATES, 1974-1976,  
BY PROGRAM OF STUDY

Program of Study	1974 (%)	1975 (%)	1976 (%)
ACADEMIC	6	14	5
AGRICULTURE	4	5	3
ART	10	10	8
BUSINESS & MANAGEMENT*	10	13	7
INN-KEEPING & TOURISM	-3	-	3
INDUSTRIAL	4	2	3
EDUCATION	2	2	0
NAVIGATION & FISHING	11	4	10
HEALTH	6	3	8
VOCATIONAL	10	4	8
TOTAL	7%	12%	6%

Source: ODEPOR statistics, Ministry of Education (AWD No. 12, p.26).

\*Includes accounting and secretarial students.

Viewed across specialties as shown in the table above, the lowest dropout rates were among students registered in inn-keeping and tourism courses and, to a lesser extent, in industrial, education and agriculture programs. Art, business and management, and navigation and fishing courses had the highest dropout rates. Navigation and fishing, however, have a very low enrollment, so even a slight change would be registered as a high percent.

Average dropout rates in 1975 were higher for evening students (17 percent) than for day students (11 percent) (AWD No. 12, Table 21, p.30).

### 3. Per-Student Cost

The cost analysis for secondary education focused on operating costs: salary costs of teaching staff, salary costs of administrative staff, and overhead costs in the base year 1975. Cost information was obtained for 70 of 116 private high schools and for all 64 public high schools and is summarized in the table below.

TABLE V-4

ESTIMATED OPERATING EXPENSES IN 1975 FOR  
ALL PUBLIC SCHOOLS AND 70 PRIVATE SCHOOLS

SECTOR	# of Schools	# of Students	Salary : Teachers	Salary : Admin.	Overhead	TOTAL
Public	64	23,399	\$4,987,618	\$1,145,708	\$ 331,165	\$ 6,464,491
Private	70	23,535	2,599,966	502,400	1,342,143	4,444,509
TOTAL	134	46,934	\$7,783,092	\$1,601,141	\$1,427,149	\$10,811,383

Source: Public Schools: Department of Secondary Education, payroll register for regular teachers and schedules of class hours. ODEPOR Statistics, Secondary School Curricula and Program of Study, Department of Procurement and Supplies.

Private Schools: ODEDOR Statistics (AWD No. 12, Table 22, p. 32).

Average per-student operating cost was approximately \$190 for private schools and \$277 for public schools. This difference in cost is reduced when the comparison is limited to college preparatory and commerce and administration courses, the two specializations accounting for the bulk of private-school enrollment. In these specializations, public-school per-pupil operating cost was \$234 compared to \$190 for private schools (AWD No. 12, Table 23, p.33).

The public-school career specializations have widely varying per-student costs. Part of this variation is due to fluctuations in enrollment numbers. Navigation and fishing is most costly at \$828 per student, and business and management, least expensive at \$220 per student. Their respective enrollments are 169 and 3,757 (AWD No. 12, Table 24, p.34). However, overhead costs are 33 percent higher for navigation and fishing. Since the specialized schools represent higher per-student costs, an intensified study of them, including tracer studies of graduates, would seem warranted.

Although information on capital investment and amortization costs was not obtained, the fact that most public high schools are utilized only half-days, suggests a way of expanding services without additional construction costs, for a few years at least.

Public high school is now a small part of the education budget. At present about 15 percent of the national cohort of 1968 17-year-olds is graduating from high school. The year 2002 target proposed in the Sector Analysis is 30 percent, which will mean a larger public bill for high school. The Ministry of Education will have to begin taking measures not to provide for this increased flow of students.

### C. RELEVANCE

Assessment of relevance was based on a tracer or follow-up study of a 770 sample of the 1974 graduating class of 13,100 students. A sample weighting was used in order to assure an adequate representation of the first group of graduates from the new specialized programs. The graduates were interviewed in November 1975, one year after leaving school.

#### 1. Transition to University

Part of the analysis concerned the relationship between secondary education and further study at the university level. While no significant statistical association was found between performance in high school and admission to higher education, the link between secondary school and higher education specializations was more positive. Graduates in industry, health, commerce and administration, and agriculture who entered higher education tended to demonstrate continuity in their fields, with large proportions enrolling in engineering, medicine, nursing, business, economics, and agriculture (Harvard Relevance Study, Part II, Table 45, p.77). The college preparatory programs (science and humanities), industrial electricity, hotel management and tourism, and health were more likely to produce graduates that go on studying rather than entering the work force immediately (Harvard Relevance Study, Part II, Table 26, pp.34 and 36).

#### 2. Education and Employment

The shortest time between high-school graduation and employment was for those who specialized in hotel management. Within two to three months, 30 percent of the graduates had found work. Students in the other specializations took from four to eight months to find employment (Harvard Relevance Study, Part II, p.44).

While teachers tended to take longer to find work, they were the only group with no unemployment ten months after graduation. Employment after high school graduation was also more likely for students who worked during high school as part of their program (Harvard Relevance Study, Part II, pp. 37 and 61).

Graduates of high school do, in the main, find employment. But their unemployment rates (over 14 percent) are high enough to conclude that one of the original objectives of the specialized vocational high-school programs, reduction of educated unemployment, may be only partially achieved (Harvard Relevance Study, p.VI-8). It should be noted, however, that this study was based on the first group of students to complete the new program.

#### 3. Education and Income

Parents' income appears to have had a stronger influence than education on the salaries of men, although the complex relationship of parental income and children's education may mask some of education's impact. The three most important factors affecting the salaries of women appear to be age, marital status, and field experience. Employers apparently looked

favorably on high school work experience but were indifferent to its field or content (Harvard Relevance Study, Part II, p.69).

#### D. CONCLUSIONS AND RECOMMENDATIONS

The amount and range of data available for a study of secondary education were far more limited than those used in the analysis of basic education. Given the limited data, it is still possible to draw some conclusions.

The percentage of secondary-school-age population attending high school has more than doubled over the past 16 years. However, geographic distribution of students is highly skewed in favor of urban students, particularly in the department of San Salvador. Most public secondary schools are used only half-day, with the exception of those schools used for the Occupational Skills Training Program of the MOE Division of Adult Education. Per-student cost is considerably higher in the public than in the private sector. In particular, the new specialties seem to have very high administrative overhead costs. However, with a few exceptions, dropout rates for the new specialties seem to be lower than for the older traditional courses. Neither academic performance nor course of study followed seems to have a correlation with admission to the University or level of salary.

The following needs and recommended actions emerge, based on the analysis of the available data on access, efficiency, and relevance:

1. There is a need to achieve greater geographic equity. In future projects designed to increase access, preferential treatment should be accorded to departments outside of San Salvador. Principal among these departments are: Ahuachapán, LaPaz, Cuscatlán, Chalatenango, Cabañas, Morazón, and La Unión.
2. As a cost-saving measure, existing public education facilities which are used only in the morning or evening should be put to full-time use, preferably morning, afternoon, and evening, although this should be consistent with the geographic decentralization recommended in 1.
3. Teacher schedules should then be examined to determine whether or not teaching two shifts is feasible.
4. Budgetary expansion of new specialized programs should not take place until evidence is obtained that their present unit costs can be reduced and that they are more relevant in terms of employment and earnings than has been demonstrated to date.
5. Periodic tracer studies of high school graduates should be carried out to determine the continued relevance of the specializations.
6. Detailed cost information should be continuously collected to achieve cost control.
7. Tabulation and analysis of final exam test scores should be carried out on a yearly basis.

SECTION VI  
HIGHER EDUCATION

A. ACCESS

Access, viewed as entry of the eligible population (high school graduates) into a higher education institution, can be considered fairly high in El Salvador. Transition rate from high school to university averaged 70.2 percent from 1966 to 1975. In contrast, the U.S. transition rate is roughly 50 percent.

Initial enrollment has increased over the last 16 years from 2,229 students enrolled in one university in 1960 to 29,344 students enrolled in 13 institutions of higher education in 1976, for an annual growth rate of 17 percent (AWD No. 13, Table 1, p.3).

The acceleration of demand for higher education is recent. Between 1966 and 1970, 34 percent of the high-school graduates were enrolled in college. From 1970 to 1975, the transition rate was 89 percent (AWD No. 13, Table 2, p.5). Between 1970 and 1971, the transition rate increased by 28 percent. During 1972, the National University was closed because of internal problems. The following year an open admissions policy was adopted. As a consequence of this policy and the unsatisfied demand during the year before, rates exceeded 150 percent of the 1973 and 1974 high school graduates (AWD No. 13, p.5).

Of the 29,343 students enrolled in 1976, 24,061 (82 percent) were enrolled in the National University and 3,202 (11 percent) in the private Central American University. The remaining 2,081 students (7 percent) were enrolled as follows in non-university higher education institutions: 809 in the Central American Technological Institute, 310 in the School of Agriculture, 275 in the School of Nursing, 197 in the School of Higher Education (preparation of high school teachers), 178 in the Technological Institute of San Salvador, 102 in the School of Social Work, 100 in the Central American Institute of Telecommunications, and less than 50 students each in the schools of art, inn-keeping, tourism, and physical education (AWD No. 13, Table 1, p.3).

Based on population projections and present patterns of enrollment, this analysis estimated that 10.7 percent of the college-age cohort would be enrolled in 1977 (SWD No. 13, p.124). The social demand for access to higher education is not likely to diminish. The number of high school graduates demanding higher education is bound to increase greatly as a result both of population growth and increase in the transition rate at the lower levels of education.

Planning policies to handle increased demand for higher education will have to consider various strategies to either reduce the high transition rate or channel enrollment into presently under-enrolled institutions. Increased job market demands for high school graduates would possibly reduce the transition rate. Channeling students into shorter technical streams is another possibility, as is establishing screening policies for over-enrolled fields of study.

Examination of access as an index of equity reveals clearly that rural students do not have access to higher education, not only because there are no universities in the rural areas, and only limited access to secondary education, but also because rural incomes are lower, and work is an often necessary alternative. A study of university students' places of birth and permanent residences would possibly indicate numbers of rural students attending the urban institutions of higher learning, but these data are not available at present.

The question of access and equity for women also cannot be answered from the information available in the Education Sector Analysis, but the Health Sector Assessment information on students enrolled in the Schools of Medicine, Pharmacy and Dentistry in the 1975-1976 academic year indicates that 49.3 percent of the students enrolled in the School of Medicine, 74.2 percent in the School of Chemistry and Pharmacy, and 65.2 percent in the School of Dentistry are women (Health Sector Assessment, El Salvador, May 1978, Appendix B, Tables 5 and 6).

## B. EFFICIENCY

Due to the lack of needed information, the analysis of the efficiency of higher education focused mainly on costs and dropouts at the National University. Even in these areas, information gaps and a lack of disaggregate data made it difficult to explain variations in costs or to identify the areas of waste.

Access does not seem to have the same relationship to inefficiency at the higher education level as it does for basic education. Many institutions are under-enrolled.

### 1. Dropout

Analysis of university dropout requires determining where the dropout is taking place. Minor changes and additions in the University's data-processing procedures would make the information available, but at present there is no reliable way to calculate National University dropout on a disaggregate basis. However, a global estimate can be made for the 1966-1976 period: Of the 1960-1970 entrants into the university, 29 percent graduated between 1966 and 1976--a dropout rate of 71 percent. Of the 1966-1970 new entrants, 22 percent graduated between 1972 and 1976--a dropout rate of 78 percent (AWD No. 13, Table 2, p.5, and Table 6, p.31).

The average yearly dropout rates were also estimated for four of the five largest technological institutes: The annual dropout rate of the School of Social Work was 64 percent; the School of Agriculture, 39 percent; the School of Nursing, 29 percent; and the Central American Technological Institute, 29 percent (AWD No. 13, pp.50-51).

## 2. Repetition

Information was not available on levels of repetition in higher education. Repetition at this level must also be distinguished from part-time status. Available data on course registration for the 1975-1976 academic year made it possible to estimate one indicator of efficiency: full-time status. A full-time student is considered to be operating at 100 percent efficiency because he completes his degree requirements in a minimum of time. A percentage measure was obtained of the average course-load for each of the eight University Schools. The highest course-load average was 78 percent in the School of Medicine; the lowest was 60 percent in Arts and Sciences (AWD No. 13, Table 5, p.29). In terms of course-load carried by students, the schools are fairly efficient. Lack of data specific to each specialty area within the schools makes it impossible to determine the efficiency of those departments.

## 3. Graduates

While it was not possible to assess dropout or repetition within the National University specialities, it was possible to determine how many students graduated in each area in the ten-year period from 1966 to 1976. Of the 49 specializations offered at the University, only 3, law, civil engineering, and medicine, graduated more than 40 students each year. Twenty-two of the areas graduated fewer than five students per year and the remaining specializations graduated from five to 27 (AWD No. 13, Table 6, pp.31-33). The technical institutes, although they serve only 7 percent of the higher education enrollment, graduate a larger number of students each year (390 in 1973) than the National University which serves 82 percent of the enrollment and graduated 302 students in 1973 (AWD No. 13, pp.50-51 and Table 6, p.31). Production of graduates and time spent obtaining a degree are directly related to questions of cost per student: The technical institutes generally offer shorter term specialization than the universities.

## 4. Cost per Student

Higher education has consumed a greater share of the national education budget each year over the past ten years. In 1964 the higher education budget represented less than 10 percent of public education; in 1975 it was almost 25 percent of the public education budget (AWD No. 13, Table 7, p.37 and Table 8, p.38).

Projected enrollment increases illustrate the probable continued increase in enrollment and budget. The following table shows enrollment increases based on 78 percent increases in transition rate into high school; a 38 percent increase in the rural zone rate; and no improvement in present transition rates for either zone into higher education. If high schools are established in the rural zone and a portion of these graduates enter higher education, the urban transition rate would have to decrease in order to hold the transition rate constant.

TABLE VI-1

PROJECTED IMPROVEMENTS IN TRANSITION  
RATES, 1977-2002

	<u>Matriculation</u>		<u>New Entrants and Graduates as % of Age Cohort</u>			
	1977	2002	1977		2002	
Grade 6/Rural	17,956	91,433	21.0		75.8	
/Urban	40,610	98,956	58.8		90.3	
Grade 9/Rural	3,219	59,029	5.7		54.3	
/Urban	35,741	91,794	64.4		91.8	
Grade 12/Rural	0	12,729	0.0		12.9	
Urban	16,242	45,880	31.5		49.4	
Higher/Rural Education/Urban	0 34,795	0 127,689	<u>Entrants</u> <u>Graduates</u>		<u>Entrants</u> <u>Graduates</u>	
			0.0 21.3	0.0 2.5	0.0 37.9	0.0 8.0

Source: SWD No. 13.

The proportion of the education budget expended for higher education would increase from 26.7 percent in 1977 to 37.4 percent in 2002 (SWD No. 13, p. 132) due to the much greater per-pupil costs at these levels.

In 1976, the National University utilized c31,090,560 (20.8 percent) of the funds allocated for public education operating expenses and produced 398 graduates.

The full-time equivalent per-student operating cost for 1976 ranged from a low of c880 (\$352) per year in the School of Business and Economics to a high of c5,286 (\$2,114) yearly in the School of Agronomy (AWD No. 13, Table 10, p.40). With full course-load, university program completion takes an average of five and one-half years. Non-university technical courses take from two to three years to complete. An examination of the 1975 enrollment by area of study and specialization revealed a high concentration of students in the longer term courses. In health-related specializations, for example, only 16 percent of the 5,240 enrollments were in shorter technical programs or nursing; the remaining 84 percent were in long-term programs such as medicine or dentistry.

This pattern was repeated in each of the major areas. In no field of study were more than 20 percent of the students enrolled in short-term programs (AWD No. 13, Table 3, pp.8-19). Out of a total student body of 23,652 in 1975, only 2,813 were enrolled in short-term courses of study.

In addition, it is probable that the overall dropout is not evenly distributed among schools, departments, or specializations; therefore, the variations in cost per graduate may be even greater than the cost per enrolled student.

The present lack of information concerning entrants, graduates, repeaters, and dropouts by department and specialization stands in the way of effective cost accounting and cost control. Much of this information could be obtained through fairly simple changes in the University's data processing procedures.

### C. RELEVANCE

The relevance problems of higher education are complex. In terms of this analysis the focus is on the high-level manpower needed for development and the extent to which the universities are (a) helping determine these needs within the social and economic sectors; (b) helping to inform employer demand; and (c) supplying or planning to supply short-and long-term need and demand.

The 1975 CONAPLAN Manpower Survey identified 30,900 persons in El Salvador with some higher education; 22,367 (72.4 percent) were economically active, representing about 2.7 percent of the labor force. Only 7,500 of this group (24.3 percent) had more than four years of university-level studies. The remaining 23,400 (75.7 percent) had between one and four years of post-secondary education, an indication that most of them had dropped out of the University (AWD No. 13, pp.53-54). The following table is based on the distribution of the economically active professionals and technicians in the sectors of the national economy.

TABLE VI-2  
PERSONNEL REQUIREMENTS OF EACH SECTOR OF THE  
ECONOMY FOR TARGET YEAR 1982, BASED ON THE RATE  
OF GROWTH WITHIN EACH SECTOR

SECTORS OF THE ECONOMY	Personnel 1974		% of Total	Economic Rate of Growth	Personnel 1982	
	1-4 Yrs.	Over 4 Years			1-4 Yrs.	Over 4 Years
1. Agriculture	881	488	6	0.035	1,128	625
2. Mining	0	0	0	0.070	0	0
3. Industry	1,809	714	11	0.053	2,576	1,017
4. Construction	238	119	2	0.064	360	180
5. Electric, Water, Sanitation	119	119	1.5	0.093	208	208
6. Transportation, Warehousing and Communication	119	0	0.5	0.043	160	0
7. Business	3,200	476	16	0.032	4,019	598
8. Finance	927	119	5	0.086	1,565	201
9. Service Sector	7,741	5,298	58	0.056	11,209	7,672
TOTAL	15,034	7,333			21,225	10,501

Source: Personnel 1974: 1975 Manpower Survey, Ministry of Planning, Economic Rate of Growth: Central Reserve Bank (AWD No. 13, Table 13, p. 54).1/

While the estimates in Table VI-2 are very general, a comparison of projected manpower needs and present enrollment patterns in institutions of higher education leads to the conclusion that long-term courses are heavily over-enrolled.

1/ Personnel 1982 = rate of economic growth x number of workers x number of years 1974-1982 + number of 1974 workers. Growth rate over the eight-year period was not compounded, and therefore 1982 personnel requirements are underestimated.

The area of greatest enrollment is economics, commerce, and administration, with 25 percent of total enrollment. Health services follows with 22 percent of enrollment, then engineering and architecture with 21 percent. Humanities, which claims 11 percent of the total, includes teacher preparation. Law and social sciences have 9 percent of the total; agricultural sciences, 7 percent; and natural science and mathematics, 6 percent (AWD No. 13, Table 3, pp.8-19).

It should also be noted that the manpower needs projected above are based on present employment patterns, not on projections of new areas of economic and social development.<sup>1</sup>

As an example of one area where more manpower is needed, the health sector is also concerned that the output of professionals be related to need and demand.

The El Salvador Health Sector Assessment identified manpower needs in the area of health services and examined health manpower training as a response to those needs. Increased emphasis is to be placed on the recruitment and training of primary health workers for the rural areas, but there are other manpower shortages which offset health care distribution and equity. The nation as a whole has only 1.9 doctors per 10,000 persons. Although less striking, similar imbalances exist for nurses, social workers, dentists and technicians, and public health administrators. (El Salvador Health Sector Analysis, pp.138-142 and Appendix B, Human Resources).

#### D. CONCLUSIONS AND RECOMMENDATIONS

Higher education consumes about 25 percent of the national education budget. Data available indicate very high dropout rates and therefore low efficiency, particularly in specialized areas of study with very high per-student cost. Enrollment patterns do not seem to match development needs nor demand for technicians and professionals, but both manpower studies and student-distribution information are insufficient to draw firm conclusions. The following recommendations are therefore made:

1. Use tracer studies of specialized graduates to obtain information concerning their incorporation into the job market.
2. Develop further screening mechanisms for entry into post-secondary education.
3. Manpower studies, such as those presently being conducted by the Government of El Salvador, should be used to determine university admission, recruitment, and curriculum policies.

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<sup>1</sup>/ For a treatment of the discrepancy between needs and demands for high-level personnel and the university's role in resolving this problem, see High-Level Manpower in Colombia: A Market Analysis, W. Bowman Cutter et al, Ford Foundation, 1968, pp. 179-180.

4. Conduct studies to determine why enrollment in post-secondary two-to-three-year technical training institutions is so much lower than other higher education enrollment.
5. Plan and institute data gathering procedures in all institutions of higher learning to assure accurate information on enrollment, dropout, repetition, and graduates on a disaggregate basis.
6. On the basis of the aforementioned data base, annually review the higher education institution budgets and program projections to eliminate wasteful areas, especially in the case of the National University.

SECTION VII  
INSTRUCTIONAL TELEVISION 1/

A. ACCESS

The educational reform initiated in 1969 included the introduction of instructional television as one of its primary support systems. The curriculum reform, retraining of teachers, and new printed instructional materials for teachers and students of grades 7, 8, and 9 were all developed in relation to their use with ITV.

In 1966, before the reform began, there were fewer than 22,000 students matriculated in public seventh, eighth, and ninth grades and some 23,000 in the private schools, 22 percent of the appropriate age group. By 1973, more than 65,000 students were enrolled in Cycle III, 34 percent of the total number of 13- to 15-year olds.<sup>2/</sup> This increase in enrollment was in part brought on by the elimination of tuition in 1971. By 1973, television lessons were reaching at least 70 percent of all Cycle III students.<sup>3/</sup>

By 1977, 170,000 students in Cycles II and III (grades 4, 5, 6, 7, 8, and 9) were served by ITV, according to the MOE, which constituted an increase of 38 percent. The actual number of classrooms and teachers this represents and their geographical distribution in urban and rural zones were not available. The Sector Analysis did distinguish between schools with and without ITV for purposes of comparing test scores, but information on whether or not the school is double-shift and how many teachers, students, and TV sets are in each school was not tabulated. This information is collected each year by the Division of Educational Television, but had not been completed at the time of this summary.

Access to ITV is not limited to basic education classes. As part of a recent expansion of its activities, ITV now transmits cultural programs intended for the general public. These programs include shows for pre-schoolers and teenagers, as well as an adult education series. As a result of a UNICEF project, the ITV Center also produces educational 16mm films on applied science, child guidance, community development, and nutrition.

Plans for expansion of ITV programs include the development of programs for secondary students, but at present there are no plans to extend ITV to the first three grades.

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<sup>1/</sup> Most of the data in this section are drawn from the Stanford University Reports prepared for USAID between 1969 and 1974. Some supplementary information was obtained by the editor from interviews and reports received in El Salvador in April 1978 and from Statistical Working Document No. 11.

<sup>2/</sup> John K. Mayo et al., Educational Reform with Television: The El Salvador Experience, Stanford University Press, 1976, p. 41.

<sup>3/</sup> Ibid., p. 83.

Lack of data on the extent and kind of ITV coverage in rural versus urban areas makes it impossible to draw conclusions as to the effectiveness of ITV as a means of increasing class size or introducing the double-shift without quality loss. The Stanford University studies concluded that "television was probably the only resource that was apportioned equally between rural and urban classrooms under the reform."<sup>1/</sup> This trend offers some hope that where unequal learning performance is mostly the result of an unequal provision of resources, in the long run ITV may help to equalize that performance.

## B. EFFICIENCY

### 1. Academic Performance

Reports of the success of El Salvador's use of instructional television vary. Quantitative analysis carried out during the introduction of ITV showed that students in ITV classrooms realized overall gains in basic skills of from 15 to 25 percent above those of peers who studied in traditional classrooms or in reformed classrooms without ITV.

Learning was influenced strongly by student background variables such as family wealth and level of parents' education, and somewhat less strongly by school and community variables. But among the latter, ITV was more important than any other community or classroom variable in predicting student learning.<sup>2/</sup>

In contrast to the Stanford studies, the National Exam administered in 1974 as part of the Education Sector Analysis showed no conclusive differences between the test scores of students in schools with ITV and schools without. As a whole, students without ITV did better on the exams than students with ITV, although there was little or no difference between schools with and without ITV in the rural areas (SWD No. 11, pp.37-38).

### 2. Teacher Retraining

As part of the educational reform and the introduction of ITV between 1969 and 1972, over 1,000 teachers participated in full-year retraining courses at San Andres, the national normal school.<sup>3/</sup> Expansion

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<sup>1/</sup> John K. Mayo et al.; Educational Reform.

<sup>2/</sup> Ibid, p. 83.

<sup>3/</sup> Ibid., p. 123.

of ITV into Cycle II classes, which were far more numerous than Cycle III classes, meant the retraining of many more teachers. Saturday television workshops conducted by the circuit supervisors and summer sessions replaced the year-long training.

An evaluation of the effectiveness of this new system of training would seem to be in order, both from the evidence of the National Exam results and evaluative observations made in 1971. The 1971 Stanford study concluded that new system teachers (with a full-year's retraining) performed much better than old system teachers, even though the old system teachers had had more general education and advanced teacher-training. None of the old system teachers had received a full year's retraining. "That fact casts doubt on the notion that previous advanced training and education, coupled with minimal retraining, can be counted on to produce changes in classroom behavior."<sup>1/</sup> The problem merits further study and a reexamination of assumptions regarding the length of retraining required for teachers with advanced professional training, not only with regard to retraining teachers for ITV but also in terms of the retraining implied in an increase in double-shift teaching.

### 3. Cost Per Student<sup>2/</sup>

Cost per student, estimated by dividing the educational television budget by the number of pupils served, decreased from \$163.60 per student in 1969 to \$10.03 in 1977. Table VII-1 gives a cost breakdown for the initial years (Informe de la Direccion de Television Educativa al Seminario Nacional sobre Reforma Educativa, February 1978, p.35, and Speagle, p.11).

The introduction of ITV in El Salvador was accompanied by a sharp increase in class sizes and teaching loads (40 percent more classroom hours), with only a 20 percent increase in teacher's pay. These changes tended to affect the add-on costs of ITV. As enrollments increase, the cost per student of the ITV system continues to decrease, whereas the non-ITV cost per student is not likely to change appreciably.<sup>3/</sup>

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<sup>1/</sup> Judith A. Mayo, "Teacher Observation in El Salvador," A.I.D. Studies in Educational Technology, January, 1971, p. 25.

<sup>2/</sup> Several cost studies were made of the El Salvador ITV project. Most of the information in this section was taken from Richard E. Speagle's work, as it was the most thorough study available and was conducted independently of the Stanford studies. Other studies consulted are listed in the Appendix. Richard E. Speagle, Educational Reform and Instructional Television El Salvador: Costs, Benefits, and Payoffs. A summary of the Report, October, 1972.

<sup>3/</sup> John K. Mayo et al., Educational Reform, p. 159.

TABLE VII-1

ANNUAL COSTS PER STUDENT OF ITV PROGRAMS FOR CYCLE III SCHOOLS  
1969-1972

Item	1969	1970	1971	1972*
<u>Operating Costs</u>				
Overall Cost of ITV Programming	\$292,000	\$344,000	\$388,000**	\$396,000
Number of Students in Teleclasses	2,000	10,000	25,000	40,000
Annual Operating Cost per Student	<u>\$146</u>	<u>\$35.40</u>	<u>\$15.60</u>	<u>\$10</u>
<u>Recurrent Capital Costs</u>				
Transmission Facilities:				
Annual Depreciation Assuming 10-Year Life	\$32,800	\$32,800	\$32,800	\$208,000
Annual Cost per Student	<u>\$ 16.40</u>	<u>\$ 3.20</u>	<u>\$ 1.20</u>	<u>\$ 5.20</u>
Receiving Sets:				
Annual Depreciation Assuming 5-Year Life	\$2,800	\$10,800	\$10,800	\$30,800
Annual Cost per Student	<u>\$ 1.20</u>	<u>\$ 1.20</u>	<u>\$ 0.43</u>	<u>\$ 0.80</u>
<u>Total Annual ITV Cost per Student</u>	<u>\$163.60</u>	<u>\$38.80</u>	<u>\$17.20</u>	<u>\$16.00</u>
<u>Total Annual Cost per Student at Junior High School, not including ITV</u>	\$ 92.40***	\$96.00***	\$101.20***	\$104.00

\* Estimated.

\*\* Total outlay prorated between ITV and special programs.

\*\*\* Does not include capital costs, for which data were not available.

Source: Spaegle, Educational Reform, p. 11.

As compared with the total cost of public education, operating costs of ITV come to less than 2 percent of the total budget of the Ministry of Education. A preliminary estimate, based on accounting data of the 1972 budget is that the ITV Cycle, III program raises cost per student by 15 percent. Expansion of ITV due to the spreading of fixed costs should reduce the cost per student, as illustrated in Table VII-1.<sup>1/</sup>

In addition, cost efficiency is improved by reductions in the cost of inputs to education made possible by ITV. Teacher retraining is one area of cost savings, as illustrated in Table VII-2 below:

TABLE VII-2

COMPARISON OF THE COSTS OF RETRAINING JUNIOR HIGH SCHOOL TEACHERS, BY TRADITIONAL SYSTEM AND BY ITV

Item	Traditional System: Two Years of Study	ITV System: One Year of Study*
Number of teachers enrolled	1,153	1,153
Training costs, Normal School (US\$780 yearly per student)	\$1,800,000	\$ 900,000
Salaries paid trainees (US\$1,200 yearly per student)	<u>\$2,768,000</u>	<u>\$1,384,000</u>
Total	<u>\$4,568,000</u>	<u>\$2,284,000</u>
Savings over traditional system		<u>\$2,284,000</u>

\*Implemented 1969-1971; assumed no direct training and therefore no costs for second year.

Source: Speagle, Educational Reform, p. 17.

A new study which would examine the present benefits of ITV in terms of its cost-effectiveness in producing learning gains relative to the costs and benefits of other instructional inputs would seem appropriate. A simple follow-up study of the per-student costs of ITV since 1972 could verify whether or not costs have gone down.

<sup>1/</sup> Speagle, Educational Reform, p. 23.

### C. RELEVANCE

The relevance of ITV can be examined from a number of perspectives: its relationship to the national goals, the relationship to Ministry of Education goals, and the relationship to economic and social advances of students participating in ITV programs.

No current studies are available for the purpose of examining these relationships. A few observations can, however, be made. Although one of the national goals is control of population growth, the programming policies of the Division of Educational Television do not allow for the broadcast of family planning information. On the other hand, adult education courses via TV are being developed, with an emphasis on health, nutrition, family life, and employment skills training.

In terms of the Ministry of Education's internal goals, the role of ITV in teacher-training beyond the initial stages of the reform has not been as fruitful as had been hoped. A productive working relationship has not developed between the San Andres normal school and the ITV Center.1/ As a motivating force for students in the classroom, the effect of ITV has waned, but the positive regard of ITV students for English, in contrast to a general dislike for the subject among non-ITV students, indicates that the loss of interest is not inevitable. The El Salvador project may verify the notion that television is best used to present material that the teacher cannot present as well.2/

As a result of teacher evaluations of the teleseries, the number of classes broadcast per week was reduced in some subjects to give the teachers more time for direct work with the students. Some teachers, feeling in competition with the TV, simply turn it off; others use it as a baby-sitter.3/

The quality of the telecast lessons is very uneven and there is apparently little coordination or communication between the evaluation, curriculum, and production units of the ITV Center (Burditt, pp.25-28 and Johnson p.8).4/

Students' employment and/or further education and their aspirations, a more intangible output of ITV, were studied as part of the overall evaluation of the first years of ITV. The first group of students to finish three full years of schooling in November 1971, under the Educational Reform

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1/ John K. Mayo, et al., Educational Reform, p. 33.

2/ Ibid., p. 99.

3/ Arthur K. Burditt, "ITV, Reform and Investment Priorities for Formal Education in El Salvador," Woodrow Wilson School of Public and International Affairs, January 1976, p. 21.

4/ Susan L. Johnson, "Educational Television in El Salvador," a Peace Corps final report, March 1977.

program, was the subject of a follow-up study. A full 86 percent of the graduates studied were continuing their education. A significantly lower proportion of graduates from the rural areas were in the "full-time" student category and a greater proportion of them in the group who were "neither studying nor working."

TABLE VII-3

DISTRIBUTION OF ACTIVITIES IN WHICH GRADUATES WERE INVOLVED,  
BY LEVEL OF URBANISM (PERCENTAGES) (N=392)

	San Salvador (N=82)	Other Large Cities + Towns (N=106)	Med. Cities + Towns (N=88)	Small Towns and Villages (N=116)
Studying	88	90	90	77
Studying and working	4	2	6	4
Only working	6	3	1	6
Neither working nor studying	2	5	3	13

Source: Henry T. Ingle, "Television and Educational Reform in El Salvador: Follow-up Study on the First Group of Ninth Grade Graduates," A.I.D. Studies in Educational Technology, June 1973, p. 7.

Of the 336 TV-educated graduates continuing their education, about half were unable to enroll in a school in the same city or town where they finished their Cycle III education. The other 50 percent either had to commute to other cities and towns on a daily basis (26 percent) or had to establish their residence in new locations (24 percent), conditions which set an urban migration pattern.<sup>1/</sup> This pattern is not unusual, due to lack of rural high schools.

Students expressed dissatisfaction with the quality of TV lessons, the lack of adequate library facilities, and the scarcity of equipment for science laboratories in most of the schools.<sup>2/</sup> Half of the students continuing their education were enrolled in the traditional bachillerato programs leading to the university, and thus apparently wanted professional careers rather than the mid-level technical jobs the reform's planners had wanted to promote.<sup>3/</sup>

<sup>1/</sup> Henry T. Ingle, "Television and Educational Reform in El Salvador: Follow-up Study on the First Group of Ninth Grade Graduates," A.I.D. Studies in Educational Technology, June 1973, p. 7.

<sup>2/</sup> Ibid., p. 27.

<sup>3/</sup> John K. Mayo et al., Educational Reform, p. 120

#### D. CONCLUSIONS AND RECOMMENDATIONS

The ITV program in El Salvador continues to produce and broadcast TV lessons, to print and distribute classroom materials, to train teachers, to carry out periodic internal evaluations, to expand its audience, and to consume 2 percent of the annual education budget. As exemplified by its omission from the original Sector Analysis, integration of ITV into the general planning of the Ministry of Education seems to be lacking. More systematic feedback and communication between teachers, curriculum planners, and ITV staff is needed. The following recommendations are based on the reports used in constructing this section and on the gaps in information or analysis noted by the editor.

1. Establish more regular quality control, evaluation, and feedback processes in the school system, including coordination of ITV data collection with ODEPOR analysis efforts.

2. Prepare a follow-up report to update the traditional education and ITV cost data in order to verify the cost-reduction predictions.

3. Carry out a careful comparison of the test performance of ITV and non-ITV students.

4. For the purpose of maintenance and improvement of learning quality and the estimation of relative cost-effectiveness of different factor inputs, priority should be given to such activities as:

- Pre-testing of ITV teleseries on student samples.
- Exchange of information between teacher training, evaluation, and teleseries production units.
- Annual testing and evaluation of ITV and non-ITV student progress and use of these evaluations to determine if ITV should be expanded to cover all schools.

5. Establish a means of coordinating the non-formal education activities of ITV with the goals of other sectors.

6. Conduct a study to determine the feasibility of using ITV-assisted teacher-training to help alleviate the teacher shortage.

7. Coordinate the efforts of the national normal school and the ITV teacher-training unit.

## SECTION VIII

### NON-FORMAL EDUCATION AND TRAINING

For purposes of this analysis, non-formal education and training (NFE) includes any systematic, organized educational activity which is conducted outside the formal school system with an intent to impart specific types of learning to specific subgroups within a given population of adults and children alike (Coombs and Ahmed, 1974).

The ongoing development of a country's human resources in order to contribute to the satisfaction of basic human needs is the goal of non-formal education.<sup>1/</sup> For both individuals and society, the lower level or more "basic" needs are less likely to be satisfied if the higher level needs are ignored and left unattended.

Comprehensive approaches to NFE seek to integrate a number of means of meeting basic needs. The analysis describes two experiments in education in El Salvador in which the emphasis seems to be on the use of comprehensive approaches rather than piecemeal efforts. Universidad Campesina is a project including activities in the field of health, nutrition, and community development. Furthermore, its educational component actually results in the creation of infrastructure for the benefit and use of the entire community, such as bridges, streets and roads, community centers, schools, churches, lavatories, vaccination units, and first-aid stations. Fe y Alegria goals are to educate and provide training for economically marginal segments of the population of El Salvador and to provide comprehensive training to program recipients. Though it is a non-formal system, it has an open approach which includes formal education activities (AWD No. 14, p.27).

In recognition of the need to meet the broadest range of human needs, non-formal education entities and programs are extremely varied in both the public and private sectors of El Salvador. Information available for this analysis was focused almost completely on labor force skill training, one segment of many possible NFE activities.

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<sup>1/</sup> The identification and hierarchization of basic needs was first proposed by Maslow (1954) and later modified by Root (1970) and Gage (1975). The satisfaction of these needs leads to self-actualization. The list of needs can be roughly grouped into categories as follows: (1) need to survive; (2) need for security; (3) need to "belong" to some social group; (4) need for self-esteem; (5) need for communication, social expression; (6) need for knowledge; (7) need for understanding of larger systems; and (8) esthetic needs, appreciation of order, balance, beauty, love. The first four needs are most intense when they are least satisfied; the last three become more intense when more satisfied. The need for communication partakes of both characteristics (AWD No. 14, pp. 16-17).

## A. ACCESS

The programs studied can be divided into two major groups:<sup>1/</sup> (1) firm-level programs which are carried out in or for the firm and are, therefore, almost all privately funded; and (2) large scale programs which are broader in scope and can be subclassified as follows:

- Programs carried out by the Ministry of Education.
- Programs carried out by other public-sector institutions.
- Programs carried out by private institutions.

Measurement of present NFE access or coverage is rudimentary at best. There is a serious shortage of data concerning the programs carried out by the MOE. It is difficult to assess the costs and benefits of the nine GOES/NFE programs because data are not available on initial enrollments, participants, and graduates.

Although enrollment statistics are available for the accelerated primary-education program for adults and the Cycle III education program through TV and Saturday-morning counseling, which grant school-level diplomas, what appears to be a low enrollment level cannot be classified as such without some estimate of the number of individuals who are in need of and qualify for such programs. Data are also lacking on access to MOE programs which focus on skills training, such as the Zapotitan roads and irrigation project.

The Urban Labor Force Training project, which is an MOE pilot program sponsored by USAID, has recently reviewed its progress from 1976 to 1978, and some valuable data can be derived from that review, although they were not available at the time of the analysis. One point to be noted is that occupational skills training classes are conducted in public secondary schools in both afternoon and evening, thus increasing both access and efficiency.

During 1977, 2,416 adults and youths from rural and urban areas were trained in seven different skill areas. Course content and the number and variety of courses are modified periodically based on job market analyses and information from a system of local Education/Trade Councils established as part of the program.

Twelve other public and private NFE labor force skills training programs were studied but could not be analyzed because of insufficient data. They are described in Analytical Working Document No. 14, and the services provided are listed in the following table.

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<sup>1/</sup> Four studies were carried out by the State University of California at San Jose, under the guidance of ODEPOR, and two other studies, one on workers and employers and one a survey of citizens concerning their preferences for NFE programs, were carried out by ODEPOR analysts (AWD No. 14, p. 34).

TABLE VIII-1

NFE PROGRAMS, COVERAGE, AND SERVICES

Coverage/Services	Fe y Alegría	CREPAL	FUNPROCOOP	Universidad Campesina	FEDECACES	CGS	SUTC	NAC	CENAP	FOCCO	ASISTEM	INSAFOCOOP
National level	X			X		X	X	X		X	X	X
Regional level			X		X							
Local Level		X							X			
Official curriculum	X											
Accelerated courses including participant evaluation								X	X			
Accelerated courses with no evaluation system	X	X	X	X	X	X	X	X	X	X	X	X
Specific training courses	X		X	X	X			X	X	X	X	X
Special vocational-oriented workshops									X			
Programmed sequence of activities	X							X				
On-the-job training					X			X		X	X	X
Community services	X	X	X	X	X			X		X		X
Tracer system	X			X				X				

Source: AWD No. 14, p. 58.

Sixteen additional NFE programs are listed but not described, including the Ministry of Health School of Nursing and two community education programs of the Ministry of Agriculture (AWD No. 14, pp.56-57). However, the Health Sector Assessment completed in 1978 describes in detail both manpower needs and existing and planned training programs to meet those needs.

The Agriculture Sector Analysis (1977) points out the insufficiency of trained technicians to meet the needs of the private and public sector agricultural institutions, as well as the fact that "no school exists in El Salvador--or Central America for that matter--to train home economics agents, and neither the University nor the vocational school train technicians in extension methodology or practice" (Agriculture Sector Assessment, pp. vi and 10-11). The Sector Analysis also describes the establishment of a school for extension training within the National Center for Agricultural Training (CENCAP) which will include a home economics curriculum designed to upgrade the training of presently employed extension agents (p.81). The extension programs themselves are not described.

Access to skills training projects within private industry was measured in part by the ODEPOR worker-employer survey. Almost all workers and employers (1,500 interviewed) stated they had received or given employment training. A very large part of this was simply supervision on the job. The following table lists the types of training received.

TABLE VIII-2

EMPLOYMENT TRAINING IN PRIVATE INDUSTRY

<u>TYPE OF TRAINING</u>	<u>PERCENT WORKERS RECEIVING</u>
Work-experience training	91%
Job-rotation training	29%
Course participation	26%
Conferences	12%
Seminars	6%

Source: An Assessment of Relevance of Education in El Salvador, Center for Studies of Education and Development, Harvard University, Cambridge, 1977, Part I, p.31.

Eighty percent of the training was on company premises, and twenty percent outside. The employees who received training were grouped as follows: professional and top management (22 percent); white collar workers (23 percent); skilled, and semi-skilled workers (20 percent); and unskilled workers (36 percent) (Harvard Relevance Study, Part I, pp. 42 and 56).

The amount of duration of access to training is high correlated with education. The more education employees had, the more training they were likely to receive; employers apparently select for training those candidates whose "certificates" (formal education and years of experience) indicate they would improve with training (Harvard Relevance Study, Part I, p.118). Among the sampled workers who got training, two-thirds were males and one-third females, which suggests a preference toward employment of males (Harvard Relevance Study, Part I, p.44). The generally lower education levels of women combined with their predominance in unskilled positions make access to training much less likely for them.

#### B. EFFICIENCY

Measurement and comparisons of the efficiencies of NFE programs will require major efforts in data collection, processing, and analysis. Some assessment through sampling training results would also be desirable.

#### C. RELEVANCE

In an attempt to examine relevance of the relationships between skills training received, worker productivity, and salary increase, the worker-employer survey was analyzed.

Skills to be acquired through training were categorized as follows: social, analytical, clerical, relationship, perception, and physical dexterity. Skilled and unskilled workers were provided more training than white collar and professional/management employees, especially in social skills such as the spirit of cooperation and service, loyalty to the firm, and dedication to work.

Analytical skills were the least likely to be acquired inside the firm. These skills were most frequently acquired through instruction outside the firm.

Insofar as the acquisition of skills was rewarded by raises in salary, social and relationship skills seemed most likely to be rewarded, although the connection cannot be demonstrated conclusively (Harvard Relevance Study, Part I, p.47).

The raise as a measure of productivity increase brought about by training does not seem to be particularly useful. The analysis concluded that other ways of testing the model should be found (Harvard Relevance Study, Part I, p.89). The worker-employer survey was a first step in the development of methods for examining the relevance of firm-level training programs, and possibly large-scale public and private NFE skills training programs.

An attempt was made to evaluate training programs in terms of their relevance to meeting manpower needs. However, the manpower need projections, as described in the section on higher education, were not sufficiently disaggregate to be applied to the great variety of skills training programs: There is a need for some GOES institution to be charged with the responsibility for ongoing manpower studies and planning.

The duplication of effort is a very real possibility. During the negotiation of the 1978 Loan from USAID to the MOE for the Occupational Skills Training Project, the Minister of Education, in a letter dated 2 August 1977, assured the Acting Director of USAID/ES that the MOE would use its best efforts to avoid duplication; "at the present time an entity is being created which will assure the coordination of the skills training efforts of the ministries involved" (quoted in AID Project Paper: El Salvador 519-0172, p.12).

The "Audencia" study was an attempt to estimate demand for NFE programs and to measure the relevance of existing programs in order to better plan new programs.

For the survey, 7,000 individuals were questioned about: (1) their present knowledge of subjects in various areas; (2) their desire for more information; (3) their access to and preferences for the media that might be utilized to convey this information.

ODEPOR carried out a descriptive analysis of the data, broken out by selected demographic factors (SWD No. 1, Audiencia). Harvard University's Center for Studies in Education and Development further analyzed the data to "determine what factors influence current knowledge and desire for more information and the way these factors influence how and where Salvadoreans want to learn" (Harvard Relevance Study, Part III, p.3).

The sample population was concentrated in the urban area (73.3 percent) and about evenly divided between sexes (Relevance Study, Part III, p.11). Questions were asked regarding current knowledge and desire for more information about 15 subject areas grouped in 8 general areas: (1) Health; (2) Preventive Medicine and Public Health; (3) Foods and Nutrition; (4) Agriculture; (5) Work and Training; (6) Home Economics; (7) Education and Culture; and (8) Recreation (Harvard Relevance Study, Part III, p. 5). In general respondents felt they had "little" to "no" knowledge of the 15 content areas, but their demand for information was fairly high.

Although knowledge was greatest about foods and nutrition, preventive medicine, home economics and recreation/participatory sports, demand for information was greatest in those same areas, except recreation/spectator sports. Apparently, higher levels of knowledge lead to higher demands for information. Knowledge was least about jobs--all categories--(Harvard Relevance Study, Part III, p.22).

Residence made a difference in knowledge for all 15 indexes, as did sex and level of education attained. Urban residents knew more about health and nutrition, jobs, education, culture, home economics, and recreation. Rural residents knew more about agricultural matters only. Higher educational attainment results in more knowledge and higher demand. Males have greater knowledge about all indexes except home economics, where female demand is greater, and males demand more information about jobs (Harvard Relevance Study, Part III, pp.24-31).

With respect to learning sources and preferred media, 95 percent of the respondents had access to radios and over 50 percent of the population had access to the remaining media, namely, telephone, TV, magazines, and newspapers, in that order (Harvard Relevance Study, Part III, p.33). Schools were available to 92 percent of the population, public address vehicles to 89 percent, and hospital health units to 75 percent.

As sources of information, urban residents listed in preferred order TV, library, and radio, while rural residents gave radio, church, and TV. Schools were not ranked in the first category by a single one of the adult respondents (Harvard Relevance Study, Part III, p.39).

#### D. CONCLUSIONS AND RECOMMENDATIONS

Although there are substantial numbers of NFE programs in El Salvador, both public and private, little information is available from which to assess access, efficiency, or relevance. The studies conducted by ODEPOR were important first steps in analyzing NFE. Because of the more decentralized character of non-school education, educational analysis and planning confront more difficulties than formal schooling. The following recommendations are an attempt to resolve some of the difficulties in analyzing NFE.

1. Design, test, and implement a system of data collection for NFE programs in both public and private sectors. The process should begin with the large-scale public sector programs. If a comprehensive NFE policy is desired, a national or central depository for the storage, retrieval, and dissemination of information is an inescapable need (AWD No. 14, pp.72-73).

2. On the basis of data collected, assess the access, efficiency, and relevance of NFE programs, especially those proposed for additional funding or expansion.

3. If specially designed experimental NFE programs are to be carried out, data collection relevant to assessment and analysis should be part of the project design.

4. The Audiencia survey and others like it should be redesigned for use as aids for determining needs and designing effective adult literacy programs and related teacher-training programs. They should include as indicators of learning need and intent to participate in educational activities such items as dissatisfaction with one's current status or situation, inability to solve a problem, and motivation to accomplish a task or reach a goal. An attempt to relate preferred media to specific content area, and selection of a more representative and precise sample are also advisable.

5. A system for continuous communication and information exchange among individuals pursuing similar objectives through non-formal education should be established, possibly through seminar/workshops and follow-up activities as described in AWD No. 14, pp.69-72, or through the entity for coordination mentioned by the Minister of Education.

6. Determine and assign priorities and institutional responsibilities in order to best utilize scarce resources, based on a systematic needs assessment (AWD No. 14, pp.73-79).

## SECTION IX

### EXTERNAL ASSISTANCE TO THE EDUCATION SECTOR

El Salvador's commitment to the expansion of education and improvement of its quality are long-term goals which require heavy investment in infrastructure, curriculum reform, and training of personnel. Some of this investment has been or will be assisted by grants and loans from international assistance agencies.

#### A. AGENCY FOR INTERNATIONAL DEVELOPMENT

In September of 1963, USAID made a loan (519 L-003) of \$2,400,000 to the GOES for the construction of primary schools or 1,600 classrooms. The last disbursement under this loan was made in 1967.

In November 1969, a \$1,900,000 loan (519-L-013) assisted with costs of equipment and services necessary to revise the curricula in the public schools and the costs of establishing an instructional television facility. The last disbursement was made in 1975.

In February of 1971, a loan (519-L-014) of \$8,200,000 was made to continue assistance to the education reform through construction of schools and expansion of the ITV system.

A 1976-1979 grant (519-670-170) for \$404,000 funded a feasibility study and pilot project for a Fundamental Education and Skills Training Program. In 1978 a loan (519-0172) was signed for \$3,000,000 as assistance for the expansion of the Occupational Skills Training Project.

The AID Annual Budget Submission for Fiscal Year 1979 for El Salvador, dated June 1977, proposes a loan of \$12.5 million to improve and expand primary rural education, grades 1 through 6. In addition to this proposed loan, other sector grant and loan proposals are related to education. An information and data management project would increase the capabilities of the various ministries to coordinate data collection and analysis to improve planning and decision-making, a need identified in the Education and Health Sector Analyses. The agricultural sector assessment proposes the establishment of a school for extension training within the National Center for Agricultural Training (CENCAP), which will include a home economics curriculum. As part of the Rural Health Improvement Project, the AID Mission proposes an expansion of the MOH Escuela de Capacitación to enable the school to provide health training to various public agencies and to health education workers, nurses, and other mid-level skilled personnel. A proposed population education project suggests using the ITV project to incorporate more information on population and family planning into the school curricula.

The Peace Corps in El Salvador is providing technical assistance to the Music School and the National Museum, instruments for music teaching, concert organization, historic art design, and organization of museum exhibits. Assistance committed for the period from 1974 to 1980 totals about \$64,000. The Peace Corps also contributes technical assistance to the Livestock National School (1973-1974) and to the National University in the Science Department (1968-1979). These two programs amount to about \$71,500 in assistance.

#### B. OTHER INTERNATIONAL DONORS

Education I was a \$4.9 million World Bank (IBRD) 1969-1973 loan for construction of 36 academic and vocational high schools and buildings for the National Agricultural School. The secondary schools included 10 Plan Básico (grades 7-9) schools, now known as Basic Education Cycle III schools.

The World Bank has two current education assistance projects in El Salvador. Education II (Loan 1007-ES, 1974) provides for construction and equipment, furnishing of rural schools, refurbishing of older schools, teacher training for 500 teachers and some equipment for a non-formal rural training project. The total project cost is \$24,200,000, with a donor cost of \$17,000,000. Of 143 new basic education schools built under the project, 130 were to have two classrooms, offering the first four grades on a double-shift basis. Access to the higher grades of basic education would be extended through the provision of 13 centrally located schools which would also offer grades 5 to 9. Replacement of 299 schools included the construction, equipment and furnishing of 194 two-classroom schools for grades 1 to 4 in rural areas and 89 centrally located rural schools for grades 1 to 6 or 1 to 9. Another 16 schools would be replaced in urban areas. Extension of 121 schools included the extension of 22 existing rural schools by 1 to 3 classrooms to provide grades 5 to 6. Further, 39 rural and 60 urban schools would be extended with workshops and laboratories; 18 of these in rural areas would also receive additional classrooms for grades 5 to 9.

A Non-Formal Agricultural and Industrial Training Project is part of Fiscal Year 1979 programming. This loan was signed in June 1978. Donor cost is \$12,000,000. The agreement is with the Ministries of Agriculture and Labor to provide agricultural training through three fixed training centers, ten mobile training units, and a central administration unit. Technical assistance is also provided under the project, totalling about 40 man/years of training and specialist services.

A fourth World Bank Project, Education III, is presently being studied to assist the Government to implement a phase of its long-term strategy to equalize education and training opportunities in urban and rural areas and expand the role of rural community schools, non-formal training, and curriculum improvements in basic education.

The Inter-American Development Bank (IDB) in 1977 loaned \$9 million (ES-0017) to El Salvador to expand university education in the Central American University Jose Simeon Canas (UCA). A \$2 million loan from IDB in 1970 enabled UCA to carry out the first stage of expansion. The project includes student loan provisions which will double the number of low-income students to 30 percent of the student body. The loan also includes construction and equipping of new buildings. The estimated completion date is 1982.

The IDB also granted \$76,000 to El Salvador in 1976 to carry out a study of the supply and demand for human resources at the middle- and higher-education levels in El Salvador. The technical cooperation was extended to the Ministry of Planning (CONAPLAN) from the Social Progress Trust Fund, which the Bank administers for the U.S. Government.

The OAS, from 1976 through 1978, has funded or provided technical assistance to a variety of teacher-training activities, including a \$30,000 project to create a learning resource center in the Normal School, \$38,000 for a Master's Program in Educational Administration at the National University, and a \$51,000 project to restructure the administrative systems of the MOE. A special project in educational technology in El Salvador, Costa Rica, Guatemala, Honduras, Mexico, and Nicaragua included a \$20,000 contribution for an investigation of teacher-training alternatives in 1978.

The United Nations Development Program/UNESCO provided \$76,635 in technical assistance to the MOE from May 1975 to June 1976. A January 1975 to December 1976 grant for \$47,285 provided an expert in library services. In the area of non-formal education, UNICEF from 1974 to 1977 provided \$81,000 for the training of juvenile leaders and strengthening juvenile activities in urban and rural areas. UNFPA provided \$79,000 between 1975 and 1978 for technical assistance in family and sex education group training and equipment. UNESCO also provided \$9,700 in assistance to the Casas de la Cultura and \$110,000 for teacher training.

The United Kingdom provided assistance to higher education from 1967 through 1977, including staff for the economics department of Jose Simeon Canas, faculty of agricultural engineering at the Instituto Tecnológico Central Americano (ITCA), advisors on mathematics, and the establishment of the university farm of the University of San Salvador. Total U.K. assistance was \$131,123.

Japan in 1976 provided technical assistance amounting to \$7,500; to the National Center of the Arts.

## SECTION X

### STRATEGIES: 1977-2002

#### A. MOE FIVE-YEAR PLAN: 1977-1982

The National Five-Year Plan identified six major areas in education to be developed or continued as part of the ongoing educational reform. These programs were based on the diagnostic document prepared by ODEPOR. Information from the Education Sector Analysis was used throughout the document. Education was identified as one of the primary factors of social development. The criteria for its evaluation are equity, efficiency, and relevance (National Five-Year Plan, pp.77-79).

The six projects are as follows:

1. Modernization and expansion of educational services in the rural zone through construction of 4,200 classrooms, provision of books and materials, incentives for rural teachers, assistance for low-income students, and a system of information for teachers, parents, and communities. In cooperation with other ministries, these additional programs were proposed: expansion of rural labor force training programs and a school nutrition program for Cycle I (Five-Year Plan, pp.81 and 137).

2. Improvement of regional universities and technological centers through expanded enrollment of high school graduates in a broader choice of careers, creation of an open system of higher education, and establishment of an organization for coordinating higher education and student subsidies and educational credit (Five-Year Plan, pp.82 and 136).

3. Preservation and enrichment of the national culture through establishment of regional libraries, construction of zoos, restoration and maintenance of historic monuments, publication of archeological investigations, purchase of archeological sites, establishment of casas de la cultura, foundation of a school of modern art, and improvement of parks and museums (Five-Year Plan, pp.83 and 140).

4. Enlargement of the program of adult education through reorientation, evaluation, and reformulation of programs of adult education, use of mass media, training of personnel, promotion of the participation of private industry, and use of mobile training centers (Five-Year Plan, pp.84 and 138).

5. Promotion and development of private education through the provision of training, technical assistance, and financing for the creation, amplification, and equipping of educational centers, particularly through a system of educational credit and scholarships for low-income students (Five-Year Plan, pp. 85 and 141).

6. Promotion of sports through construction of gymnasium and parks in San Miguel and Santa Ana, establishment of a school of physical education, and construction of a sports center and playing courts (Five-Year Plan, pp. 86 and 142).

The six broad areas outlined above are described more specifically in the MOE Diagnóstico, especially the plan for the extension of basic education into rural areas and a proposal for evaluation and coordination of ITV (Diagnóstico, pp.45-48, 63-68).

B. EDUCATION AND TRAINING TARGETS AS ESTIMATED BY THE SECTOR ANALYSIS:  
1982 - 2002 <sup>1/</sup>

The access, efficiency, and relevance conclusions that emerged from the analysis are here translated into hypothetical targets corresponding to the GOES five-year planning periods: 1977-1982, 1983-1987, 1988-1992, 1993-1997, and 1998-2002.

Although the Ministry of Education budget in 2002 cannot be calculated precisely, it is possible to estimate rough orders of magnitude which facilitate the setting of targets. It should be kept in mind that these are hypothetical targets, subject to change as the circumstances of El Salvador change.

1. Bases of Estimates

The estimate of the MOE budget and all subsequent year price estimates are in 1976 (base year) constant prices. The annual GDP growth rate was set at 5 percent, based on GNP historical growth rates in El Salvador (AWD No. 15, p. 22). General revenues for the 25-year period decreases linearly from 15.5 percent of GDP in 1976 to 14.0 percent in 2002 (AWD No. 15, Section B.2, p. 25). The MOE budget as a percentage of general revenues decreases from 25.6 percent in 1976 to 22.0 percent in 2002 (AWD No. 15, p. 24). This decrease is based on the assumption that other social development sectors, such as agricultural and health, will in the future claim a larger share of general revenues.

Based on the above hypothetical projections, the MOE budget could increase from ₡216,290,000 (US\$86,516,000) in 1976 to ₡598,358,000 (US\$239,343,200) in 2002 (AWD No. 15, p.17). This would represent an average annual increase in the MOE budget of only 4 percent.

Population increase projections are based on CONAPLAN 1976 recommended estimates that crude reproduction will decrease from the 1965-70 level of 3.23, to 2.15 by 1995-2002.<sup>2/</sup>

2. Distribution of Funds for Public Education

Ministry of Education activities can be divided into two categories:

Those activities linked to one another by accreditation and entry prerequisites, and those non-linked activities which are generally in support of the others (AWD No. 15, p.18), as listed below.

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<sup>1/</sup> This chapter is based on data contained in Statistical Working Document Nos. 13 and 13a and an unpublished Spanish-language draft of Analytical Working Document No. 15. References therefore may not always correspond to final versions printed after this summary.

<sup>2/</sup> CONAPLAN. La Población de El Salvador por Sexo y Edad en el Período 1950-2000. San Salvador, February 1976, Section III, p. 24.

● Public Education Activities

- | <u>Linked Activities</u>  | <u>Non-Linked Activities</u>                     |
|---------------------------|--|
| 1. Cycle I (grades 1-3)   | 1. General Administration and Technical Services |
| 2. Cycle II (grades 4-6)  | 2. Instructional Television                      |
| 3. Cycle III (grades 7-9) | 3. Youth, Culture, and Sports                    |
| 4. High School            | 4. Non-Formal Education                          |
| 5. Higher Education       | 5. Kindergarten                                  |

Expenditures for the five non-linked activities in 2002 will be about 14.3 percent of the total MOE budget. The remaining 85.7 percent would be used for the five linked activities (AWD No. 15, pp.18-28).

a. Non-Linked Activities

The following table provides an overall view of the budget allocations projected for the non-linked activities.

TABLE X-1

NON-LINKED MINISTRY OF EDUCATION ACTIVITIES,  
BUDGET PROJECTIONS, 1976-2002

<u>Activity</u>	<u>1976</u>	<u>% of Total</u>	<u>2002</u>	<u>% of Total</u>	<u>Increase in Yearly Expenditures</u>	<u>Annual Growth Rate</u>
Total MOE Expenditures	226,314,185	100%	598,358,000	100%	372,043,816	3.8%
Recurrent	185,463,247	81.9%	-	-	-	
Capital	40,850,938	18.1%	-	-	-	
Expenditure-Five Non-Linked Activities	51,726,017	22.8%	85,774,000	14.3%	34,047,983	2.0%
Recurrent	33,693,870	14.9%	70,454,200	11.8%	36,760,330	2.9%
Capital	18,032,147	7.9%	15,319,800	2.5%	-2,712,347	-
General Administrative and Technical Services	15,331,752	6.8%	38,893,000	6.5%	23,561,248	3.6%
Recurrent	12,178,466	5.4%	31,114,400	5.2%	18,935,934	3.7%
Capital	3,153,286	1.4%	7,778,600	1.3%	4,625,314	3.5%
Educational Television	3,791,488	1.7%	7,779,000	1.3%	3,987,512	2.8%
Recurrent	3,791,488	1.7%	6,223,200	1.0%	2,431,712	1.9%
Capital	-	-	1,555,800	0.3%	1,555,800	N.A.
Youth, Culture, and Sports	26,780,150	11.8%	21,427,000	3.6%	-5,353,150	-
Recurrent	12,001,289	5.3%	17,141,000	2.9%	+5,140,310	1.5%
Capital	14,778,861	6.5%	4,285,400	0.7%	-10,493,461	-
Non-Formal Education	2,467,515	1.1%	8,500,000	1.4%	6,032,485	4.9%
Recurrent	2,367,515	1.0%	6,800,000	1.1%	4,432,485	4.1%
Capital	100,000	0.1%	1,700,000	0.3%	1,600,000	11.5%
Kindergarten	3,355,112	1.5%	9,175,000	1.5%	5,819,888	3.9%
Recurrent	3,355,112	1.5%	9,175,000	1.5%	5,819,988	3.9%
Capital	-	-	-	-	-	-

Source: AWD No. 15, Table 17, p. 22.

Although there may be significant economies of scale in General Administration and Technical Services, the proposed increase in activity is intended to (1) provide funding for continuing research and analysis, and (2) provide additional MOE professional resources required for program design, monitoring, and evaluation.

The reduction in the percentage share of ITV from 1.7 to 1.3 percent is based on the consideration that the large investment costs are past, and on the expectation that although future reception costs (purchase and maintenance of TV receivers) may increase somewhat, production and transmission costs will not (AWD No. 15, p.25).

During the last seven years, there has been considerable investment in infrastructure for Youth, Culture, and Sports. Therefore, the 2002 projected expenditures are considerably less (3.6 percent as compared to 11.8 percent) (AWD No. 15, p.25).

An annual growth rate of 4.9 percent for Non-Formal Education may be over-estimated, but the issues raised in the non-formal education section and the numbers of illiterate and/or unemployed youths and adults would seem to warrant an expansion of services (AWD No. 15, p.35).

The estimate for Kindergarten is intended to provide Saturday-morning kindergarten to all 6-year olds and regular kindergarten to a portion of 5-year-olds (AWD No. 15, p.26).

The foregoing estimates are the basis for determining what financial resources will be available for meeting the goals established for the MOE-linked activities.

#### b. Linked Activities

The estimated availability of funds and numbers of students were the two major constraints in determining feasible combinations of schooling level targets for the rural and the urban zones for every year in a 25-year planning period. By subtracting the estimate of requirements for the non-linked activities from the estimated MOE budget in 2002, the financial limitation was determined. Numbers of first-grade, first-time entrants were based on CONAPLAN population projections.

Computer models were designed to both reflect and alter relationships quantified by the analysis. 1976 data on enrollments, costs, and flows were used to generate future enrollment in all grades and calculate the capital and recurrent costs of the five linked activities, including quantities of teachers, teachers working overtime, new buildings, new furniture, books, and materials needed for any given year (AWD No. 15, p.27).

Key efficiency improvements were built into the computer model, i.e., reduction of repetition in grades 1 to 6 as a result of expansion and increases in double-shifting of teachers and classrooms. Gradual increases in the proportion of double-shifting were also built in (See footnote to Table X-5 p. 84 of this document).

The computer model, using these improvements in efficiency and given the future school-age population and the available budget, was used to determine the highest rate of improvement (increase) in transition which could be achieved by 2002.<sup>1/</sup> The highest possible uniform (across all grades) transition rate or increase was 38 percent.

However, given the considerable variations in present transition rates from grade to grade and the variations from zone to zone identified in the cross-sectional analysis, a uniform rate of improvement was judged not the most desirable. Also, present and future transition rates reflect three different phenomena: (1) access, (2) dropout, and (3) admissions policy regarding entry into a level.

Therefore all the possible low (no improvement), medium (uniform 38 percent improvement), and high (76 percent improvement) combinations for all five school levels were computer-estimated for rural and urban and combined (nation) zones, including calculations of enrollment, resources required, and capital and recurring costs.

In the process of selecting feasible combinations, priority was given to rural zones and to basic education. A financially feasible combination of targets that would greatly increase school-level attainment rates in both rural and urban zones is displayed in the following table:

TABLE X-2

SELECTED HYPOTHETICAL TARGETS FOR RATE OF TRANSITION INCREASE,  
1976-2002

<u>Zone</u>	<u>Cycle I</u> <u>Grades</u> <u>1-3</u>	<u>Cycle II</u> <u>Grades</u> <u>4-6</u>	<u>Cycle III</u> <u>Grades</u> <u>7-9</u>	<u>Secondary</u> <u>Grades</u> <u>10-12</u>	<u>Higher</u> <u>Education</u>
Rural	76%	76%	76%	38%	0%
Urban	76%	76%	76%	0%	0%

Source: AWD No. 15, Tables 23 and 24, pp. 43 and 44.

<sup>1/</sup> A number of different improvement rates were tested for feasibility. For a more complete treatment of these hypotheses and their resulting costs, see Statistical Working Document Nos. 13 and 13a, and Analytical Working Document No. 15.

The implications of these increases in transition rates for enrollments in the final grade of each level in 1976 and 2002 appear in Table X-3.

TABLE X-3  
ENROLLMENT INCREASES BASED ON SELECTED IMPROVEMENTS IN TRANSITION RATES  
1976-2002\*

<u>Zone</u>	<u>Year</u>	<u>Cycle I Grade 3</u>	<u>Cycle II Grade 6</u>	<u>Cycle III Grade 12</u>	<u>Secondary Grade 12</u>
Nation	1976	106,392	56,182	35,352	13,927
	2002	226,197	190,389	150,819	58,609
Rural	1976	47,218	16,533	2,780	-0-
	2002	117,466	91,433	59,025	12,729
Urban	1976	59,174	39,649	32,572	13,927
	2002	108,731	98,956	91,794	45,880

\* The 1976 population of El Salvador will more than double by 2002.

Source: AWD No. 15, Table 20, p.52 and SWD No. 13, pp. 100, 111, and 122.

Improvements in transition (reduced dropout) also translate into the following cohort achievement levels.

TABLE X-4  
PERCENTAGE OF COHORT REACHING GRADE

	<u>Grade 3 1976-2002</u>		<u>Grade 6 1976-2002</u>		<u>Grade 9 1976-2002</u>		<u>Grade 12 1976-2002</u>		<u>Graduate 1976-2002</u>	
<u>Nation</u>	64.66	91.85	38.37	82.76	33.90	72.31	14.65	30.65	1.19	3.94
<u>Urban</u>	72.62	93.94	57.91	90.93	61.90	91.81	29.20	49.44	2.02	8.00
<u>Rural</u>	57.43	90.00	13.81	75.88	5.77	54.37	0.00	12.94	0.00	0.00

Source: AWD No. 15.

TABLE X-5

ESTIMATES OF BASIC EDUCATION CLASSROOMS  
AND TEACHERS NEEDED 1982-2002\*

YEAR	CYCLES I AND II				CYCLE III			
	TOTAL 1/ CLASSROOMS	TOTAL 2/ TEACHERS	NEW 3/ CLASSROOMS CONSTRUCTED	NEW TEACHERS 4/ (PUBLIC & PRIVATE)	TOTAL CLASSROOMS	TOTAL TEACHERS	NEW CLASSROOMS CONSTRUCTED	NEW TEACHERS (PUBLIC & PRIVATE)
1977-1982	14,653	14,754	3,971	6,134	2,521	2,803	896	1,407
1983-1987	15,942	16,016	3,185	5,269	3,365	3,594	1,203	1,714
1988-1992	17,088	17,168	3,199	5,473	4,320	4,491	1,421	2,032
1993-1997	18,055	18,177	3,153	5,613	5,407	5,526	1,681	2,420
1998-2002	19,014	19,253	3,263	5,928	6,596	6,687	1,922	2,826

\* See footnotes on following page.

Source: SWD No. 13, p. 130; for urban-rural breakdown, pp. 108 and 119.

● Footnotes, Table X-5

- 1/ Because of insufficient data on new construction since 1973, the number of classrooms in use in 1976 was estimated, based on the assumption that the student-per-room ratio of 1972 was maintained (AWD No. 4, Table 7, p.25). A linear decrease in number of students per classroom was assumed until a level of 35 students per classroom section (70 per classroom) is reached in 2002 (AWD No. 15, p.37). Therefore, information on available school space and its use, to be found in the forthcoming ODEPDR survey, should be used to revise these estimates. Costs of meeting these needs are estimated in Table X-6.
- 2/ A linear increase in double-shifting affects both numbers of teachers and numbers of classrooms needed each year. It is assumed that by 2002, 95 percent of the teachers and 100 percent of the classrooms in the urban area (versus 1976 37 percent and 40 percent respectively) and 90 percent of teachers and classrooms in rural areas (versus 1976 37 percent and 24 percent) will be used for two shifts of pupils (AWD No. 15, p.56).
- 3/ New classrooms to be built are estimated for public schools only. Estimates are based on an assumption of a 2.5 percent replacement factor (1 out of 40 classrooms each year), and a progressive reduction in the rate of population increase. A linear decrease in repetition rates from 1976 to 2002 was also built into the program (AWD No. 15, Table 18, p.29).
- 4/ SWD No. 13 gives year-by-year estimates of teachers needed for both public and private schools because all teachers are trained in the public national normal school. It was assumed that 5 percent of all teachers would be replaced each year, with each teacher serving an average of 20 years.

The high transition increase target for basic education should not be difficult to reach in the rural zone. In the urban zone, a 76 percent improvement is more difficult to achieve, requiring a reduction in genuine dropout as well as remedy of dropout caused by overcrowding.

### 3. Implications for Secondary and Higher Education

Elimination of the insufficiency in Cycles I and II and a reduction of the insufficiency in Cycle III will bring about large increases in demand for enrollment in high school and higher education, even if transition rates into and within these higher levels do not increase.

Conceivably, the GOES could maintain the present basic education insufficiency by increasing classrooms and teachers at a rate no higher than the population growth rate, and in this way preserve the present shape of the education pyramid.

Another option would be to eliminate the basic education insufficiency and to establish testing procedures and admissions requirements at the high school- and higher-education levels and thus control the number of entrants.

Proper planning for a large increase in basic education, high school, and higher-education graduates calls for exploration of various political, social, and economic issues, as well as educational issues.

### 4. Estimated Material and Human Resource Increases Based on Targets

The following tables are drawn from the computer-based estimates of resources required to serve school population increase targets.

TABLE X-6  
COSTS OF BASIC EDUCATION  
1977-2002\*  
(In Colones)

CYCLES I AND 'I

CYCLE III

YEAR	<u>CYCLES I AND 'I</u>					<u>CYCLE III</u>				
	<u>CLASSROOMS AND</u> <u>RELATED CONSTRUCTION</u> 1/	<u>FURNISHINGS</u> 2/	<u>SALARIES</u> 3/ (rounded)	<u>BOOKS</u> 4/	<u>MATERIALS</u> 5/	<u>CLASSROOMS AND</u> <u>RELATED CONSTRUCTION</u>	<u>FURNISHINGS</u> 2/	<u>SALARIES</u>	<u>BOOKS</u>	<u>MATERIALS</u>
1977-1982	107,186,224	15,453,789	447,933,000	4,079,635	3,008,479	24,194,000	3,668,618	105,566,000	685,395	545,213
1983-1987	86,006,184	14,487,649	428,733,000	5,211,372	3,864,605	32,453,116	4,507,538	117,671,000	1,069,665	821,088
1988-1992	86,350,272	15,266,399	478,060,000	7,169,120	5,344,717	38,362,046	5,589,736	151,666,000	1,748,682	1,322,893
1993-1997	85,118,304	15,844,280	525,232,000	9,381,582	7,010,652	45,388,011	6,860,613	192,926,000	2,695,959	2,026,386
1998-2002	88,118,784	16,607,722	573,386,000	11,869,800	8,893,976	51,911,897	8,175,927	240,585,000	3,935,944	2,952,260

\* See footnotes on following page.

Source: SWD No. 13, p. 131.

● Footnotes to Table X-6

- 1/ Classroom unit cost in 1976 constant prices is US\$10,800, based on the approximate cost per classroom of recent IBRD construction in El Salvador. Classrooms are assumed to have a useful life of 40 years.
- 2/ Furnishings and equipment for one classroom: Cycles I and II, \$1,632; Cycle III, \$1,982 (AWD No. 15, p.36). It is assumed that school furniture will be replaced at a rate of 10 percent per year. Cost information on school furniture came from the Division of Educational Architecture.
- 3/ Salary per teacher: Cycles I and II, \$4,513; Cycle III, \$6,152. Additional salary for double-shift, all levels, \$1,800 (AWD No. 15, p.36). The rate of double-shifting, and therefore overtime, increases steadily from 1976 through 2002.
- 4/ Book cost per student: rural zone, ¢0.5; urban zone, ¢0.6. In 1976 prices, the cost of books is assumed to increase to ¢1.5 by 2002 (AWD No. 15, p.36).
- 5/ Materials costs were set at ¢0.8 for 1976 and are programmed to increase to ¢2.0 by 2002 (AWD No. 15, p.36).

In Statistical Working Document No. 13, these tables are disaggregated for each year and for rural and urban zones. The percent of rural students enrolled in urban schools is expected to diminish from 17 percent in 1977 to 8 percent in 2002, as access increases in rural areas (Saalfeld, unpublished notes on AWD No. 13, p.5; and AWD No. 15).

Repetition rates are expected to decrease markedly over the 25-year period, and this rate is also built into the cost model. The following reductions in repetition rates are expected.

TABLE X-7

ASSUMED REPETITION RATES,  
1976-2002, RURAL AND URBAN ZONES  
(Percent)

ZONE	GRADE	1	2	3	4	5	6	7	8	9
RURAL	1976	41	30	29	27	28	36	1.6	1.4	2.8
	2002	10	5	5	5	5	5	2	2	2
URBAN	1976	29	29	27	19	15	16	1	0.8	0.8
	2002	10	50	5	5	5	5	2	2	2

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Source: AWD No. 15, Table 18, p.29.

5. Secondary and Higher Education Costs

Secondary and higher education costs were calculated by multiplying a per-student unit cost by the estimated enrollment. A more disaggregate approach for secondary and higher education was impossible due to the less detailed analysis of the components of educational expenses at these levels. The 1976 cost per student is held constant for all years to 2002: high school, \$565; higher education, \$1,480 (AWD No. 15, p.38).

A 38 percent increase in the transition rate for rural secondary education is built into the model to be achieved through the establishment of a limited number of high schools in the rural areas. No improvement is projected for urban schools or for higher education.

Higher education was treated as if it were a single grade; students returning the following year were considered "retained" rather than "repeaters." The 1976 retention level was 88.2 percent of the matriculation of the previous year. This level was reduced linearly to 75 percent in 2002 to reflect the assumptions of a redistribution of enrollment in short-term courses; more full-time students and less repetition; and a reduction of the present high levels of higher education enrollment (AWD No. 15, p.33). The following table shows costs for these levels in five-year periods.

TABLE X-8

COSTS OF SECONDARY AND  
HIGHER EDUCATION, 1977-2002  
(in Colones)

<u>YEAR</u>	<u>SECONDARY</u>	<u>HIGHER EDUCATION</u>
1977-1982	121,009,000	404,766,000
1983-1987	141,135,000	505,873,000
1988-1992	203,316,000	620,577,000
1993-1997	285,416,000	736,345,000
1998-2002	393,168,000	854,140,000

Source: SWD No. 13, p. 132.

6. Cost Comparison of Alternatives

Statistical Working Document Nos. 13 and 13a offer enrollment and cost projections for different levels of improvement in school dropout rate with the built-in improvement in repetition rate and utilization of classrooms and teachers, and without the built-in (assumed) improvement (see also AWD No. 15, pp.54-74).

The estimate of an available \$13 million in 2002 made it possible to select the most feasible goals for each zone (AWD No. 15, p.41). A comparison of the costs of the possible targets is shown below.

TABLE X-9

COSTS IN 2002 OF HIGH, LOW, MEDIUM, AND A  
SELECTED COMBINATION OF GOALS FOR IMPROVED TRANSITION  
RATES IN THE RURAL AND URBAN AREAS, ALL LEVELS  
(in millions of Colones)

<u>GOAL</u>	<u>RURAL</u>	<u>URBAN</u>	<u>NATION</u>
High <sup>1/</sup>	269	518	787
Low <sup>2/</sup>	55	263	318
Medium <sup>3/</sup>	109	376	485
Selected <sup>4/</sup>	138	342	480

NOTE: These totals are from the corrected tables of SWD No. 13.

- <sup>1/</sup> SWD No. 13, pp. 77, 88, and 99.
- <sup>2/</sup> SWD No. 13, pp. 11, 22, and 33.
- <sup>3/</sup> SWD No. 13, pp. 44, 55, and 66.
- <sup>4/</sup> SWD No. 13, pp. 110, 121, and 132.

At present, the distribution of funds available for the five linked activities or levels is approximately 28 percent for the rural zone and 72 percent for the urban zone (AWD No. 15, p.41). The selected improvement targets disaggregated by zone do not change this distribution greatly, but the El Salvador commitment to expansion of education in the rural areas is reflected in the emphasis on rural basic education in the current Five-Year Plan. The higher proportion of funds in the urban area is due almost entirely to the cost of higher education, which exists in the urban areas only.

If increase in access to secondary education brings an increase in numbers seeking higher education, the consequent increased costs of higher education could make even the selected combination of goals unfeasible. In fact, attainment of the goals requires a reduction in the transition rate from grade 12 to higher education on the national level (AWD No. 15, p.46).

#### 7. Assumptions

The achievement of the selected goals of increased transition rates depends in great part on the assumption that rates of repetition will decrease due to increased access to schools. Other assumptions on which estimates were based are footnoted in the tables in this Section.

The MOE presently plans to construct 4,200 rural classrooms between 1977 and 1982,<sup>1/</sup> and thus an opportunity to test these assumptions exists if accurate and efficient data collection accompanies the project. Attainment of the targets selected require certain efficiency improvements which were built into the feasible target model.

1. Numbers of repeaters-passers in expanded schools will decrease.
2. Numbers of teachers teaching two shifts will increase.
3. Double-shift use of school buildings will increase.
4. Numbers of students per session will decrease (reduction of overcrowding).

The accomplishment of these improvements depends upon the adopting and implementation of new MOE policies to require expanded schools, to prohibit persons from repeating, to shift to double-shift teaching and double-shift use of school buildings. Without these improvements, especially double-shifting of classrooms and teachers, a progressively larger number of classrooms will be needed to keep pace with population growth and continued high repetition in the lower grades. The transition pyramid will not improve at all (AWD No. 15, pp. 65 and 78).

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<sup>1/</sup> The analysis assumed a slower rate of classroom construction: 4,094 new rural classrooms in a ten-year period (SWD No. 13, p. 108).

Another related assumption is that the national normal school will be able to attract, train, and graduate enough teachers to fill the new rural classrooms in a five-year period. Evidence described in the analysis indicates that present levels of teacher production (98 new teachers in 1974) are not sufficient even to meet replacement needs (AWD No. 15, p.91).

A further assumption is that sufficient numbers of teachers will be assigned and retained in the rural areas. A possible long-range solution may be found in the increased numbers of secondary-education graduates in the rural areas if sufficient numbers of these choose pedagogical training.

A final consideration is the increase in costs of higher education and the consequent reduction in funds available for basic education if enrollment is not somehow moderated (AWD No. 15).

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| AWD No. | 2  | Conclusions about Repetition, Dropout and National Achievement Examination Results in Basic Education                                     |
| DAT No. | 2  | Conclusiones sobre Repetición, Deserción y Resultados de la Prueba Nacional en Educación Básica   |
| AWD No. | 3  | Costs of Basic Education  |
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| AWD No. | 4  | Current Access to Basic Education, the Utilization of its Physical Plant, and its Teaching Personnel                                      |
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