

PROJECT EVALUATION SUMMARY (PES) - PART I

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|--|------------------------------------|----------------------------------|--|--|
| 1. PROJECT TITLE Rural Primary School Expansion Project | | | 2. PROJECT NUMBER 519-0190 | 3. MISSION/AID/W OFFICE USAID/EI Salvador |
| 5. KEY PROJECT IMPLEMENTATION DATES | | | 4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 85-2 | |
| A. First PRO-AG or Equivalent FY 79 | B. Final Obligation Expected FY | C. Final Input Delivery FY 85 | 6. ESTIMATED PROJECT FUNDING A. Total \$ 8,074,000 B. U.S. \$ 4,400,000 | |
| | | | 7. PERIOD COVERED BY EVALUATION From (month/yr.) July 26, 1979 To (month/yr.) November 30, 1984 Date of Evaluation Review | |

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

| A. List decisions and/or unresolved issues: cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.) | B. NAME OF OFFICER RESPONSIBLE FOR ACTION | C. DATE ACTION TO BE COMPLETED |
|--|---|--------------------------------|
| The Office of Education and Training of USAID/EI Salvador is monitoring the implementation of recommendations under the follow-on project No. 519-0295 Education System's Revitalization. The actions which resulted from the evaluation's recommendations were accepted by the Mission and are stated as follows: | | |
| - A single entity will be formed within the Ministry of Education with responsibility for both overall coordination and day-to-day implementation of future school construction projects. Sufficient manpower will be allocated to this agency to ensure that responsibilities are carried out effectively. | Leopoldo Garza | Nov. 8, 1985 |
| - A more rigorous selection process for the choosing of supervision and construction firms will be initiated. | Leopoldo Garza | Nov. 6, 1985 |
| - Ministry of Education will take direct responsibility for furniture delivery or include delivery as a criterion in selecting a furniture manufacturing firm. | Leopoldo Garza | Nov. 6, 1985 |
| - Local communities' involvement in school construction programs will be in the form of maintenance of constructed works rather than in the construction itself. | Leopoldo Garza | June 6, 1985 |

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|---|---|---|---|--|--|
| 9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS 519-0295 | | | 10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT | | |
| <input type="checkbox"/> Project Paper | <input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network | <input type="checkbox"/> Other (Specify) | A. <input type="checkbox"/> Continue Project Without Change | | |
| <input type="checkbox"/> Financial Plan | <input type="checkbox"/> PIO/T | | B. <input type="checkbox"/> Change Project Design and/or | | |
| <input type="checkbox"/> Logical Framework | <input type="checkbox"/> PIO/C | <input checked="" type="checkbox"/> Other (Specify) | <input type="checkbox"/> Change Implementation Plan | | |
| <input checked="" type="checkbox"/> Project Agreement 519-0295 | <input type="checkbox"/> PIO/P | 519-0295 Construction Plans & Design | C. <input type="checkbox"/> Discontinue Project | | |

| | | | |
|--|--|--|--|
| 11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles) | | 12. Mission/AID/W Office Director Approval | |
| Jaleh de Torres, Project Officer, USAID/EI Salvador | | Signature: <i>RB Schout</i> | |
| Leopoldo Garza, Director, OET, USAID/EI Salvador | | Typed Name: Robin Gomez, Mission Director | |
| Prof. José Alberto Buendía Flores, Minister of Education | | Date: 12/31/85 | |

| A. List decision and/or unresolved issues; cite those items needing further study. | B. Name of Officer Officer Respon- sible for action | C. Date Action to be Completed |
|---|---|--|
| - Institutional strengthening through training and technical assistance will continue to be a part of future programs. | Leopoldo Garza | October 15, 1985 |
| - Pit toilets will be redesigned to include ventilation tubes, shorter doors, and high windows, thereby improving ventilation and reducing odors. Odors in existing units can be reduced through periodic use of quicklime. | Leopoldo Garza | October 15, 1985 |
| - Flush toilets will be better maintained by the construction of a single tank, out of the reach of children which serves all toilets and is flushed at regular intervals during the day. | Leopoldo Garza | October 15, 1985 |
| - Water systems and protection fences will be an integral part of future school construction programs. | Leopoldo Garza | October 15, 1985 |
| - Design flaws such as outward opening doors, narrow corridors, and insufficient overhangs, will be corrected in future projects. | Leopoldo Garza | October 15, 1985 |
| - Inverted triangular beams (thrust) will be used rather than "C"-type support beams. | USAID/MOE | May 1, 1984 |
| - Maintenance will be considered as an integral part of school construction programs and budgeted for accordingly. | USAID/MOE | April 18, 1985 |
| - An integrated construction program that includes not only scholastic needs but also health, administrative and recreational needs, and anticipates future school utilization will be considered. | USAID/MOE | (To be contemplated in future programs). |

PART II - SUMMARY

Overall Quality of the Contractor's Report

Juarez and Associates, Inc. was contracted to carry out this EOP evaluation. Their response to USAID's needs within the required timeframe for evaluation was immediate and positive. The evaluation team consisted of Dr. Ray Chesterfield, Chief of Party and Ing. Jorge Avalos, the engineer. Dr. Chesterfield's overall capability and experience in evaluations contributed a great deal to effective team work and a satisfactory end product.

The contractor followed the Project Evaluation Summary (PES) format and delivered the final report a week ahead of the required schedule. The language of the report, though basically technical, is fluent, easy reading, and concise.

Acceptance of Recommendations made by the Evaluation Team

All recommendations of the evaluation team were accepted and all but one have already been implemented. As referred to in Part I of the PES, on April 18, 1985 a new agreement (Education Systems's Revitalization Project No. 519-0295) was signed between USAID/El Salvador and the Government of El Salvador through the Ministry of Education. This new Project is in the total amount of \$50,600 (\$37,600 AID Grant and \$13,000 counterpart funds) and covers a project implementation period from April 18, 1985 through September 30, 1989. The evaluation's recommendations were shared with the Minister and Vice-Minister of Education, as well as Special Management Unit (SMU) of the new Project for appropriate action.

Adequacy of Executive Summary

The Executive Summary (P.1-3) is complete in itself and reflects the major aspects of the project. The style is very clear, brief, and simple. One revision to be made is on pages 2 under Project Outcomes in the Executive Summary and 17 under Construction Completed, the number of sanitary services should read seventy-six instead of sixty-nine.

Quality and Accuracy of the Development Impact and Lessons Learned

The analyses made under Sections (Beneficiaries P. 23-25)) and (Lessons Learned P.27-30) are comprehensive. Approximately 26,500 children who are benefitting from the expanded services under the project contribute to the achievement of AID's overall objective to help educate and train Salvadorans and more specifically to restore the primary education system.

Additionally, as a result of the construction of 395 classrooms at 147 different sites throughout the country, 13 construction and 9 supervision firms participated in the completion of physical works which benefitted approximately 2,650 people including 750 nonqualified local workers. This helped to contribute to AID's long-term objective to support the private sector economy that can absorb the workforce.

CONTRACT NO. 519-0168-0-00-5473-00

EVALUATION OF RURAL PRIMARY
SCHOOL EXPANSION PROJECT NO. 519-0190

FINAL REPORT
SEPTEMBER 13, 1985

Prepared for:
Office of Education and Training
USAID/El Salvador

Prepared by:
Juárez and Associates, Inc.
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Los Angeles, California 90064
Ray Chesterfield, Chief of Party

Acknowledgements

Many individuals provided input to this evaluation. We would like to acknowledge their contributions and extend our sincere appreciation for their cooperation.

First, we would like to thank all of those individuals associated with the Ministry of Education who aided our efforts. Individuals who took time out of their busy schedules to provide information include Ing. Julio Samoyoa, director of the DCM, and his technical staff, Professors Luis Conde and Elías Menjivar of the directorate of basic education, Lic. Carlos Antonio Burgos, director of ODEPOR, and his technical staff, Lic. Carlos León, director of ORI, Lic. Escalante, Srs. Molina and Menjivar, and Ing. Maldonado of the legal, financial, and computer sections of the MOE, respectively, Arq. Quintanilla and Prof. Avelar of APRE, and Arq. Hidalgo, former coordinator of the project within the Ministry. Also, we greatly appreciate the time and energy expended by the directors, teachers, and community members at the rural school sites in cooperating with our study.

We would also like to acknowledge the assistance provided by Dr. Leo Garza and his staff of the office of education and training, USAID/El Salvador. Special recognition must go to Ms. Jaleh de Torres for her technical assistance and Ms. Beatrice Peralta for logistical support.

While the conclusions are the authors own, to the extent that this evaluation provides useful information in enhancing the rural schooling effort in El Salvador, all these people must be given full credit.

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Annexes

I. EXECUTIVE SUMMARY

In August of 1985, USAID/El Salvador contracted with Juarez and Associates, a Los Angeles based management consultant firm, to conduct an evaluation of its Rural Primary School Expansion Project No. 519-0190 over approximately a one-month period. The purpose of the evaluation was to assess the performance of the project, especially since its reactivation in 1982, in each of its major components: 1) rural school expansion through a loan component using a Fixed Amount Reimbursement (FAR) system for construction and furnishing of classrooms; and 2) institutional strengthening through a grant component which funded training and equipment for personnel in the Ministry of Education's (MOE) Office of Planning and Organization (ODEPOR) as well as training for personnel of the MOE's computer center. In addition to determining the efficiency with which each component of the project was implemented, the evaluation was to recommend future courses of action for projects of a similar nature.

A. Project Background

The project, totalling US\$4,400,000.00 (\$4,200,000.00 for the loan component and \$200,000.00 in grant funds), was carried out between July 26, 1979 and November 30, 1984. Owing to increasing violence in the northeast, the major target area of the project, and changes in national policies and priorities, the project was suspended in August, 1980. It was reinstated in March of 1982 with an adjusted scope that included the construction and equipping of 395 rural classrooms throughout the 14 departments of the country. In addition, the grant component financed the procurement of equipment and training for ODEPOR which was designed to aid the creation of a decentralized administration system within the Ministry of Education.

B. Evaluation Design

The evaluation was carried out by an engineer and an educator, each with extensive experience in Latin America rural education projects. A multimethod approach including the critical review of project documents, interviews with key informants within the Ministry of Education and AID, and site visits to a sample of the rural schools was employed. The strategy of triangulation, in which the investigators pursued the same topics of information through different data sources and analyzed all information from their different methodological perspectives, was used to ensure the consistency of the findings.

C. Principal Findings

1.- Project Inputs. The FAR method of reimbursement proved effective once it had been modified to include a Loan Working Capital Fund which provided GOES with sufficient funds to implement the project. Host country direct contracting of supervisory and construction firms was found to be an efficient way of implementing the project, given the existing social unrest

in the country. Other counterpart contributions by the MOE consisted of construction of some sanitary services, terracing, increases in furniture and construction costs over that of the FAR amount, and the reinvestment of construction savings in ancillary works. The MOE and community participation in transportation of furniture and construction of exterior works was also to be part of the counterpart contribution. The sporadic nature of this participation, however, made estimates of this type of contribution difficult.

Because of the multiple entities providing inputs to the coordination of the project, some lack of communication occurred during project implementation. The division of the DCM assigned to implement the project was severely understaffed to adequately oversee the work of the supervisory firms. This, combined with time pressures, and the relative inexperience of the supervisory firms led to some design and construction flaws such as the location of sanitary services too close to classrooms, outward opening doors with hinges of an insufficient size, narrow corridors, insufficient overhangs to keep rain out of the classrooms, inadequate support beams, and insufficient steel reinforcement. Coordination of teacher placement in the new classrooms was carried out as part of the normal functions of the basic education division of the MOE.

2.- Project Outcomes. As a result of the project, 395 rural classrooms were constructed in two phases at 147 different sites throughout the country. Sixty-nine additional sanitary services were built with counterpart funds and external works such as sanitary services, water systems, drains, and protection walls were constructed in 18 schools. Classrooms were highly utilized and generally served the first to sixth graders for whom they had been designed. Training courses on educational planning and administration were conducted for 131 technicians and administrators as well as courses on data processing and programming for approximately 100 technicians in data management. These courses also reached an additional 4,000 school personnel through a series of television seminars.

3.- Beneficiaries. A total of 3,001 children were enrolled in the 68 classes that met in the 42 new classrooms of the sites visited. If these enrollment figures hold true for the country as a whole, 26,500 children are benefiting from the expanded services. Teachers and directors were generally satisfied with the new classrooms but identified protection fences, water systems, lights, and additional classrooms and desks as existing needs. Parents were also seen as satisfied with the classrooms and approximately 750 local residents throughout the country had benefited economically as unskilled workers in the construction of the classrooms.

D. Recommendations

- ° A single entity should be formed within the Ministry of Education with responsibility for both overall coordination and day-to-day implementation of future school construction projects. Sufficient manpower should be allocated to this agency to ensure that responsibilities are carried out effectively.
- ° A more rigorous selection process for the choosing of supervision and construction firms should be initiated.
- ° MOE should take direct responsibility for furniture delivery or include delivery as a criterion in selecting a furniture manufacturing firm.
- ° Local communities' involvement in school construction programs should be in the form of maintenance of constructed works rather than in the construction itself.
- ° Institutional strengthening through training and technical assistance should continue to be a part of future programs.
- ° Pit toilets should be redesigned to include ventilation tubes, shorter doors, and high windows, thereby improving ventilation and reducing odors. Odors in existing units can be reduced through periodic use of quicklime.
- ° Flush toilets can be better maintained by the construction of a single tank, out of the reach of children, which serves all toilets and is flushed at regular intervals during the day.
- ° Water systems and protection fences should be an integral part of future school construction programs.
- ° Design flaws such as outward opening doors, narrow corridors, and insufficient overhangs, should be corrected in future projects.
- ° Inverted triangular beams (thrust) should be used rather than "C"-type support beams.
- ° Maintenance should be considered as an integral part of school construction programs and budgeted for accordingly.

- ° An integrated construction program that includes not only scholastic needs but also health, administrative and recreational needs, and anticipates future school utilization should be considered.

The remainder of this report details the results of the evaluation. Findings are presented in the AID Project Evaluation Summary (PES) format and accompanied by explanatory information presented in annexes.

II. EVALUATION METHODOLOGY

The evaluation was designed as a final evaluation with the overall objectives of assessing the performance of the project and making recommendations for future projects of a similar nature. Specifically, the evaluation examined the success of the MOE in working with the FAR system of loan disbursement in constructing and equipping rural primary school classrooms, and the effectiveness of the grant component of Rural School Expansion Project No. 519-0190 in strengthening planning and data management elements of the MOE.

A two-member team consisting of an engineer with extensive experience in construction projects for rural areas of Latin America and an educator who is a specialist in the evaluation of Latin American rural primary school programs carried out the evaluation. A multimethodological approach was used in conducting the evaluation. Various sources of information including documents, key informants within MOE and AID, and school teachers, directors and community members at local sites, were identified and data collection strategies designed for each. The strategy of triangulation, in which both investigators examined all pieces of information from their individual technical perspectives and in which the same topics of information were investigated through different sources, was employed to ensure the consistency of the data collected.

A. Review of Documents

A critical review of AID documents including the project paper, implementation letters, and site visit reports, MOE documents such as periodic reports, reports on counterpart funding and construction plans, and documents of local contractors such as inventories and requisition orders, was made. Historical sequencing of events and changes in external factors affecting the project were extracted from these documents. Tabulations of the installations completed in different time periods were made and site visit data on construction and furnishing procedures were reviewed to verify information gathered from other sources.

B. Interviews with Key Informants

Through discussions with AID personnel involved in the project, a list of key informants was developed. The principal criterion in developing the list was to choose individuals who were directly involved in the implementation of the project. Key informants included administrative and technical personnel from the Office of Planning and Organization (ODEPOR), the Department of Construction and Maintenance (DCM), the Office of International Relations (ORI), the Department of Research and Physical Infrastructure (DIIE), the judicial department, the directorate of basic education, the financial section, and the computer center within the MOE, as well as AID personnel and heads of construction and supervision firms for the project. In-depth interviews covering the areas of involvement of each set of

informants were developed. The interviews were in a topical format that was broad enough so that the areas of common knowledge of the informants overlapped thereby providing multiple perspectives on the same phenomenon. A total of twenty individuals from the different organizations involved were interviewed.

C. Site Visits

Site visits were made to thirteen rural schools containing 42 classrooms that had formed part of the project. These represented approximately 10 percent of the 147 schools and 395 classrooms which made up the total project. Schools from those areas of the country where access was permitted by the security office of the U.S. embassy were selected proportionally from each phase of the project. Within a phase, a purposive sample which provided the maximum variation possible in the type of construction (augmenting existing facilities, substituting new classrooms for existing facilities, or constructing completely new classrooms), the number of classrooms constructed, and the municipalities in which sites were located was chosen. The final sample included at least two sites of each construction type and a range of from one to six constructed classrooms distributed over 10 municipalities. (See Annex A for list of evaluation sites.)

Interview schedules were developed for both school directors and teachers. Those designed for directors focused on general information about the student population, utilization of the new classrooms, and levels of community participation, as well as individual satisfaction with the new facilities. Teacher interviews dealt with student attendance and construction or maintenance problems that interfered with the day-to-day process of teaching and learning. A total of 13 directors, or individuals serving as interim directors, and 16 teachers were interviewed. Observations were also made of the installations at each site. The design, materials and construction of the classrooms, sanitary services, and external works were examined for their utility and engineering adequacy.

D. Methodological Constraints

The primary methodological constraint to the evaluation was the elimination of areas of conflict from the sampling frame for reasons of security and personal safety. This made direct assessment of utilization of classrooms and other facilities constructed in the eastern and northern parts of the country impossible. Site visit reports completed by AID personnel provided some information on project performance in these geographical regions, and these data were incorporated into the analysis. Findings related to satisfaction with and utilization of facilities cannot, however, be considered generalizable for the country as a whole. A second constraint was the unavailability of certain documents; for example, those related to the early stages of the project and to its reorganization had been put in storage.

Similarly, information such as the assignment of teachers to the project schools was not always readily available within the MOE and could not always be gathered in the short time span over which the evaluation was carried out. Finally, the distance of homes from the school sites limited the data gathered from community members to such a small number of cases that assessment of community satisfaction was limited largely to the opinions of school directors, teachers, and other knowledgeable informants.

III. EXTERNAL FACTORS

A number of external factors affected the implementation of the project. Of primary importance was an escalation of violence in the northeastern part of the country which was to have been the major target area for the project. The increasing violence, combined with the loss of experienced management and teaching personnel within the MOE, and a redefinition of national policies and priorities, led to a suspension of the project in August, 1980. After several independent analyses were carried out and recommendations made for reshaping the project, it was reactivated in March of 1982. Through mutual agreement between AID and GOES, the project scope was adjusted and construction efforts were to focus on building rural school classrooms in areas that were relatively free from violence. During the project, three sites originally selected had to be changed owing to the potential for violence in the areas in which they were located. Despite these alterations, it appears that the project still reached the target population for which it was designed. This is a result of the extensive need for rural schooling throughout the country and of the large displacement of members of the rural poor from areas in conflict to those of relative safety where the school construction project was also taking place.

The situation also placed severe economic pressure on the GOES which created difficulties in allocating funds for project implementation when it was reactivated. Thus, the FAR system had to be modified to include a Loan Working Capital Fund which enabled the MOE to initiate work. This adjustment, however, does not appear to have altered the original intent of the FAR method of reimbursement.

IV. INPUTS

This section of the report summarizes the major inputs to Rural Primary School Expansion Project No. 519-0190 and assesses their effectiveness in meeting project goals. Three types of inputs are examined: funding inputs; organizational aspects or management inputs made to the project; and inputs made in the form of materials or services provided to the project.

A. Funding

1.- The FAR (Fixed Amount Reimbursement) System. This system of reimbursement was the vehicle used for disbursement of the loan component of the project. Through this system, the amount of reimbursement was based on reasonable estimates of the costs for both construction and furniture. Unforeseen costs above the fixed amount were borne by GOES whereas amounts saved through reduced construction costs were to be used by the MOE to finance additional construction. Reimbursement was made only upon the satisfactory completion of a classroom which included delivery of furniture. This system has an advantage over traditional loan reimbursement systems in which reimbursement is made at fixed periods of time in accordance with estimates and bills submitted by the borrower. The advantage in construction projects results from a reduction in the accounting and auditing procedures necessary and in the guarantee of a finished product as a result of the loan monies provided.

Owing to a severe cash shortage confronting the GOES at the time of project implementation, however, the FAR system could not be utilized as planned. Instead, a modified system was developed in which AID established a Loan Working Capital Fund in the amount of C5,300,000.00, or one half of the total loan allocation, to meet the anticipated local currency expenditures for construction. Despite problems, such as the size of the advances provided to contractors combined with the unanticipated speed with which a large number of classrooms were completed, and the transferring of a portion of the working capital fund to serve as a guarantee for furniture, all of which depleted the fund and caused severe delays in payments, the FAR system in its modified form was generally viewed as effective by informants.

In a similar form, a Grant Working Capital Fund was established for that component of the project. These funds permitted the MOE to begin implementation of grant activities, after which time monthly reimbursement requests were submitted to allow the MOE to continue to implement activities programmed for subsequent months. No problems were reported with the system of reimbursement for the grant component.

2.- GOES Contracts. The government of El Salvador made inputs to the program through the contracting of construction firms to build the schools and architectural/engineering firms to supervise the work. As originally planned, construction was to

be carried out through force account construction in which the execution of the work was to be undertaken by manpower already existing within MOE. Informants were unanimous in their agreement that this system of construction would have been inappropriate for the Rural Primary School Expansion Project. Reasons given were a lack of infrastructure within the institution and the lack of incentives among MOE personnel to finish the project rapidly. School construction program GOES 310 was given as an example of this type of program which had failed to meet either its original construction or cost goals.

Host country direct contracting, despite the amount of paperwork involved, was seen as a more efficient means of school construction. The principal reason cited was the profit motive for the contractors involved which led to the rapid completion of school construction. This was especially true in those areas in conflict where in addition to profit, personal safety was a consideration in maximizing the speed with which classrooms were built. As mentioned above, however, owing to depleted reserves, rapid completion of a construction job did not always ensure rapid payment.

3.- Counterpart Contributions. A third funding input was other counterpart contributions by the MOE in addition to those related to contracting supervisory and construction companies. These were principally in the form of the construction of a number of sanitary services, terracing for classroom construction, and increases in construction and furniture costs above FAR amounts. Monies saved during construction that were used to build ancillary works such as drains, water systems, and protection fences were also considered counterpart funds. Informants stated that all such funds had not been spent at the end of the project and that approximately C400,000.00 remained to be implemented. Community participation in the construction of the exterior facilities and in the transportation of furniture was also to be considered part of the counterpart contribution. The sporadic participation of the community and ambiguities in the responsibility for transporting furniture, to be detailed subsequently in this paper, appear to have made estimates of the extent of this type of contribution difficult, as such estimates were not found in any of the documents reviewed by the evaluation team.

B. Organizational Aspects

1.- Coordinating Bodies. During most of the life of the project, ODEPOR (Oficina de Planeamiento y Organización) had overall responsibility for the coordination of the project within the MOE. It had the function of interacting directly with the Minister of Education's office and with AID. Thus, its primary responsibility was to make sure that funds were available and accessible to implement the project. The DCM (Dirección de Construcciones y Mantenimiento) had the direct responsibility for implementing the construction project through a division created

especially for that purpose. (See Annex B: Organizational Structure Chart).

ODEPOR appears to have been relatively successful in carrying out its primary mission through the first two years of the project. In the third year of the project, however, the agency omitted AID funds for phase II from the national budget, thus creating a serious problem that had to be resolved through the creation of extraordinary funds to carry out the second phase. A second problem was that at times there was a lack of a clear-cut chain of command between ODEPOR, DCM, and the GOES-AID implementation unit of the DCM. Contradictory directions were received from the different agencies, raising questions about procedures and causing some delays while contradictions were resolved. Similarly, at one point in time, funds were transferred by ODEPOR to provide a guarantee for the furniture company which caused checks issued by the GOES-AID unit to contractors to be returned for insufficient funds.

After the elections of 1984, ORI (Organización de Relaciones Internacionales), a permanent government agency established within the MOE to procure funding from international sources and renegotiate existing agreements, replaced ODEPOR as overall project coordinator. This agency appears to have directed its component of the project successfully during the last six months of phase II construction.

The most serious problem in the coordination of the project by the Ministry of Education seems to be the severe understaffing of the GOES-AID implementing unit. Although the division originally had a coordinator and five technicians, four of the technical staff were transferred to the division of projects during the implementation of the Rural Primary School Expansion Project. Thus, a coordinator with a single technician had the responsibility for coordinating and overseeing all of the construction activities of the project. This understaffing made adequate overseeing of the supervisory firms impossible and thereby contributed to a number of the construction flaws discussed below.

An additional coordination problem suggested by informants was the necessity of using existing MOE divisions such as the financial and legal divisions in executing the project. As personnel in these divisions had to deal with their normal work load as well as the Rural Primary School Expansion Project, processing of paperwork was at times slow.

2.- Contracting Arrangements. The selection of supervision and construction firms was another one of MOE's inputs to the project. Given the time pressures encountered in reactivating the project, MOE did not follow an open bidding procedure in choosing contractors. Rather a "purification" of an existing list of contractors was performed. This consisted of eliminating firms no longer in business and choosing a group of the remaining companies to participate in bidding for the contracts. Thus, new

firms which may have been highly qualified to carry out the work had no chance of entering in the competition.

The terms of the contracts were those traditionally used in El Salvador and were considered adequate by informants. These included: an advance equal to 20 percent of the total contract backed by a bank guarantee for this amount; a retainer of 5 percent of each estimate as a guarantee for finishing the work; and a "moral guarantee" that the contractor would repair construction defects for a period of 24 months.

The selection of supervisory firms followed the same process. Competition was, however, opened to new firms to ensure a sufficient number of qualified candidates.

Informants suggested that there were some irregularities in the bidding process in that the same firms entered with more than one name or used subsidiary companies to control the bidding. However, no substantial proof was provided. The final selection consisted of 11 construction firms to carry out 14 subprojects in phase I of the construction and 7 supervisory firms each with responsibility for two subprojects. Phase II was carried out by two construction firms and two supervisory firms.

3.- Supervision of the Construction Effort. The supervision of the construction of the new classrooms was perhaps the least efficient input to the project. Under the terms of the supervision contracts, a topographic study of the sites was a requirement to be met prior to initiating work. This, in some cases, did not occur leaving contractors, who were ready to start work, without adequate plans that showed contour lines. Thus, contractors had to delay work until supervisors could provide them with sufficient survey data to begin excavations. Similarly, the provision of information on soils was part of the supervisors' contracts. In some cases, however, such information was not available and owing to time constraints, the firms did not undertake the necessary analyses themselves.

The review and adaptation of construction and structural plans was generally limited to a tacit acceptance of existing MOE plans. Thus, a number of design and construction flaws which might have been rectified with a more careful review, were incorporated into the new structures. These included architectural design problems such as location of sanitary services too close to classrooms, lack of space for recreation, limited room for further additions, and reduction in the length of overhangs and the width of corridors. Structural flaws such as the use of "C" beams as roof supports also occurred. These proved to be too weak and buckled under excessive weight or wind pressure. Conceptual errors such as outward opening doors with exterior locks which could cause serious injury in the former case and permit a child to keep an entire class prisoner for an indeterminate period of time in the latter, as well as small door hinges which could not support the weight of the doors also escaped notice.

In addition, during the supervision process of the phase II construction a serious error resulting from insufficient supervision resulted. This was the use of reinforcing bars that did not actually meet the 3/8" specifications required by the construction firms' contracts. This happened during a period of scarcity of construction steel, at which time unscrupulous suppliers began to sell reinforcing bars of different weights among the fourteen bars making up a "Quintal", resulting in contractors buying bars that were less than 3/8" in diameter. Although some contractors realized the situation and added an extra bar to compensate for the lack of steel, the problem was not generally recognized by either the contractors or the supervisors. When the situation was uncovered by an AID engineer, a detailed investigation followed. It was determined that the classrooms were structurally sound but as the stipulations of the contract had been violated, contractors had a certain amount of their payment reduced based on the weight of the missing steel reinforcement.

When asked to explain these difficulties in the supervision of the construction effort informants generally gave two reasons. The first was the lack of time and manpower involved in the supervision, in that a single supervisory firm had too many sites to visit to check all construction details. The second was that the relative inexperience of many of the firms in handling projects of this magnitude contributed to problems.

4.- Assignment of Teachers. No special inputs were provided by MOE in the assignment of teachers to the sites. Teachers were assigned to the new classrooms as part of the general teacher assignment procedures of the basic, or primary, education directorate of the Ministry of Education. Thus, no special training was provided to the teachers assigned to project classrooms. No problems were encountered in recruiting teachers for the new classes as all construction was in secure areas and owing to displacement from zones in conflict, there existed a large pool of unemployed teachers looking for work. Informants suggested, however, that when recent graduates were hired, they were generally sent to the rural areas and encouraged to accept double sessions as a condition for employment. It was also suggested that teachers should be trained to deal with the realities of rural areas but, that as such training must be coordinated with curriculum reform, an undertaking of such a scope was at present beyond the economic capabilities of the MOE.

C. Provision of Materials and Services

In addition to the inputs made in the form of project management, the MOE was to contribute to the project through the provision of a number of goods and services. These included: providing the land for the project; building structures such as sanitary services, water systems, drainage ditches and protection walls, which in the second phase of the project were to be completed through a collaborative effort with local communities; transporting furniture to the new classrooms, again by promoting

local participation; and providing didactic materials for use in the classrooms.

1.- Provision of Land. The provision of land seems to have been adequate and timely enough to meet the needs of the Rural Primary School Expansion Project. This appears to be the result of the fact that the program was largely one of expansion and reconstruction. Thus, the MOE already had title to many of the sites where classrooms were built. Informants suggested that if this had not been the case, the legal department of the DCM would have been severely understaffed to meet the needs of the project. It was stated that, as it was, a number of minor delays occurred as a result of the attention that had to be given to land acquisition for other MOE school construction programs and to other international donor construction programs.

The need to work with donated lands was also seen as creating delays as the legal processes involved were longer than with outright purchase of land. In addition, informants from the legal, engineering and basic education departments of the MOE all mentioned the quality of the land as being poor as a result of it being received through donation. Common problems identified were high slopes, uneven terrain, and lack of accessibility. Informants, while realizing that the program called for donated land, felt that building costs were often elevated by these factors to the extent that purchasing good quality land would be more economical.

The construction of classrooms on Agrarian Reform lands in the second phase of the project improved the quality of the donated land. It, however, created a problem in establishing clear title to the land. As expropriated land remains in the hands of the Instituto Salvadoreño de Transformación Agraria (ISTA) until it is fully paid for by farming cooperatives, and one governmental agency cannot transfer land to another, the MOE will not have official title to the land until it has been fully paid for by the community. (Annex C describes land acquisition procedures.)

2.- Provision and Delivery of Furniture. The provision of furniture appears to have been relatively efficient owing to contracting procedures which resulted in a standing fixed price order between the MOE and Central de Industrias, the largest manufacturer of school furnishings in El Salvador. As this company was able to demonstrate an existing inventory which could be tapped immediately to furnish AID schools, they were selected to provide furniture for the project. Informants in the provision section of MOE stated, however, that future contracts will be subject to open bidding among manufacturers and that the entire process of furniture provision could take up to nine months to complete (see Annex D for description of the steps in the process). This could have severe implications for future AID projects employing the FAR method of reimbursement if completion of furnished classrooms is a prerequisite to reimbursement as it was in the Rural Primary School Expansion Project. Some delays

caused by funding problems within the MOE, did exist however, as informants reported that at one point in time the furniture manufacturer refused to provide more furnishings until payment guarantees were met. The lack of available funds within MOE necessitated the shifting of one million colones from funds targeted to pay contractors to a guarantee for the furniture manufacturer, thus resulting in some construction delays.

The ambiguity in the delegation of responsibility for delivering the furniture was a greater impediment to maximizing efficient project implementation. Although the MOE had overall responsibility for this component of the project as part of its counterpart contribution, an attempt was made to involve local communities by delegating the responsibility of transporting the furniture to the school directors. The inability of most schools to pay for transportation from their existing budgets caused delays in the completion of constructed classrooms. A review of reimbursement requests received by AID verifies the lag time between classroom construction and furnishing. These documents show that there was a three- to five-week lag time between construction and furnishing the first 75 classrooms and that the final 62 classrooms took from 8 to 15 weeks to furnish after they had been built.

The difficulties in providing transportation for the furniture led to a number of strategies by the different schools. In some cases, vehicles were borrowed from the MOE or from local community members and school directors paid fuel costs out of their own pockets. In others, the contractors aided in the delivery of the furniture to speed up their own payment. The military also transported some furniture, particularly in those areas in conflict. An attempt was made to decentralize the process of distribution by sending some classroom furniture to a warehouse in San Miguel. However, after furniture supplied by this facility was sent to the wrong schools and had to be retrieved, this practice was discontinued. AID reallocated some funds to aid in the furniture delivery, but as this was not a budget item for MOE, additional paperwork was required and it took some time for the funds to become available. Informants also reported cases in which furniture destined for schools built by other international donors was placed in AID schools to fulfill the reimbursement obligations. The evaluation site visits verified that two of the AID schools had desks with formica tops which a representative of the furniture manufacturer stated were built especially for another international donor. Finally, despite guarantees of sufficient inventory on the part of the manufacturer, at least one case of school representatives arriving to pick up their merchandise and being turned away because of insufficient supplies on hand, was recorded. In this case, the manufacturer delivered the furniture approximately two weeks later.

3.- Ancillary Construction. As with the transportation of furniture, MOE was to encourage the participation of local community members in the construction of complementary works, funded by savings in the classroom construction. Informants

agreed that, although all ancillary construction was completed, involvement of the community was minimal. It was felt that families were willing to participate, but had to do so at their own pace, owing to the extreme poverty of most of the rural communities where schools were being built. Time and labor had to be donated within the responsibilities of making a living and thus did not usually coincide with construction schedules.

An additional factor cited was that the type of contribution that local families are willing to give may not be consistent with construction goals. It was suggested, for example, that members of Agrarian Reform cooperatives may be far more willing to cooperate through monetary donations than with labor, especially during planting and harvesting seasons. Thus, to plan on community input in the form of labor in school construction projects may be somewhat overly optimistic, given the displacement of persons and rural poverty which exists in the country at present.

4.- Teaching Materials. No special didactic materials had been provided to the teachers in the newly constructed classrooms. Teachers were, in fact, unanimous in their complaints about lack of materials furnished by the MOE. Existing teaching materials had generally been purchased by the teachers out of personal funds or bought with funds supplied by the community.

V. OUTPUTS

A. Construction Completed

As a result of the project, 395 classrooms were constructed in 147 rural sites located in the 14 departments of the country. These classrooms were completed in two phases with 364 being constructed at 137 sites during the first phase and 31 being built at 10 additional sites during the second phase. Each classroom was furnished with 20 two-person desks for students, a teacher's desk, and its accompanying chair. In addition, 69 sanitary services were built with counterpart funds and these also served to partially finance the completion of ancillary construction work at 18 of the sites. 76

B. Classrooms in Operation

Site visits showed a relatively high utilization of the classrooms that had been constructed under Rural School Expansion Project No. 519-0190. All of the classrooms visited had teachers assigned to them and in only four cases were classes not being held as planned. Each of these cases was the result of an excused absence by the teacher to attend a school-related activity. All of the classrooms were not being used to their utmost potential, however, as classes were held in only 39 of the 42 classrooms in the morning and 29 of 42 were in operation in the afternoon. If these numbers hold true for the country as a whole, approximately 82 percent of the new classrooms are being used to their maximum potential.

A number of reasons were given for not making complete use of the expanded classroom space, with the most common explanation being that the teacher assigned to a classroom had not qualified for the professional category which would allow him/her to teach a double session. Other reasons given were that in one case, classrooms were located so close to the highway that noise impinged on the concentration of small children and in another, that a classroom served as a combined director's office and storage facility.

C. Institutional Strengthening

The grant component of the project appears to have been highly effective. All of the training activities programmed had been carried out and associated office and training equipment had been purchased.

In the area of computer training, courses in design of applications, COBOL programming, BASIC programming, operating systems and data processing took place between September, 1983 and April, 1984. This was somewhat longer than the date of March 3, 1984 originally programmed for such courses. Informants stated that delays were a result of the time needed for selection

of trainers and for these individuals to prepare their programs of instruction. As the same instructors were often involved in teaching more than one course and at times also participated in certain courses as students, it was felt that the original schedule of conducting the seminars concurrently or in rapid succession had been overly ambitious. In addition, some courses, such as BASIC programming which had been originally scheduled for a two-week period, was extended over a longer period of time. Similarly, the television seminars which were to have been developed and shown concurrently with the other seminars had to be developed later as a result of the intensive involvement of technical staff in the program as well as an underestimation of the production difficulties involved in developing this component of the training. Thus, the three seminars developed on the use of computers in decision-making were offered in November, 1984 rather than in February and March as originally anticipated. In general, the number of individuals who participated in each of the courses or seminars was consistent with that which had been planned. No technical assistance took place under this section of the grant component as all technical assistance funds had been reprogrammed into training through mutual agreement between the MOE and AID. Informants, however, stressed the need for long term technical assistance in the form of a specialist in micro-computers who could aid in the MOE's decentralization efforts.

Informants found the courses to be highly positive, especially in their contribution to the development of a computerized administrative system for the MOE. The majority of the approximately 100 participants in the different courses aimed at Ministry technical staff were said to still be employed by the MOE and involved in some capacity in this project. An additional benefit from the training was that materials developed as part of the project were to be used for additional courses planned for October, 1985.

Those interviewed also expressed a high degree of satisfaction with the training provided to approximately 130 planners, technicians, administrators and General Directorate personnel associated with ODEPOR. Informants felt that the courses given by a Salvadorean firm contracted to carry out the training provided the orientation needed for the first steps in a participatory decision-making structure involving local school personnel. It was stated that through the training, the television seminars developed for approximately 4,000 school directors and other regional and local personnel, and the planning manuals developed by the technical staff, technical responses to the planning needs of local school administrators were available for the first time. Also, it was felt that local administrators had begun to understand the function of ODEPOR's technical staff. At least 90 percent of training participants were said to be continuing in their positions within the Salvadorean educational structure and most of these were seen as satisfied with the training received. To continue the evolution of participatory decision-making, how-

ever, informants felt that teachers, students and community members had to be incorporated into the planning process, especially as applied to curricular reform.

Although it could not be verified directly by the evaluation team, informants stated that all equipment purchased as part of the grant component had been delivered and was facilitating the planning decentralization process. The videocassettes obtained through grant funds were seen as especially important in aiding the timely development of the television seminars.

The training was seen as having had the unforeseen benefit of making both MOE technicians and school directors more aware of the information needs of the computerized information system being implemented within the MOE. In addition, the teleseminars have been seen by other institutions interested in improving their planning procedures and have generated work for the Salvadorean consulting firm that conducted the training.

VI. PURPOSE

As originally designed, the purpose of the project was to expand and improve the rural primary education system, with emphasis on El Salvador's poorest regions. Three project components were to provide the target group with greater access to, and increased quality in, primary education services. These components were: 1) rural delivery system improvement, aimed at increasing the MOE's capacity to plan, deliver, and support rural education by providing training and both long and short term technical assistance; 2) rural school expansion, designed to add an estimated 600 classrooms in participating communities and encourage community participation in construction through loan funds to be disbursed using the FAR system of reimbursement; and 3) rural teacher training and placement which was to improve training staff, training curriculum and materials production as well as increase supervision of teachers through short term technical assistance and training and support for materials and equipment funded by a combination of grant and loan funds.

As a result of external factors including increasing violence in the northeast, losses of administrative and classroom personnel and changes in national policies and priorities, the project was suspended and later reactivated with an adjusted scope. That part of the original loan component dealing with planning, organization and administration was eliminated, and that concerned with rural teacher training was terminated. The MOE was, however, to finance training for teachers assigned to new classrooms and support the development and dissemination of teaching materials through its own funds.

The specific loan agreement called for the reprogramming of the total loan amount of \$4,200,000.00 for the rural school expansion component of the project. This amount was to finance construction and furnishing of 395 classrooms. In addition to providing trained teachers for the classrooms, the MOE was to manage the project and to hire contracting and supervision firms to carry out the construction rather than undertake the work itself as had been originally planned. The Ministry was also to encourage local communities to participate in the transportation of the school furnishings and the construction of external features, but the extensive involvement of local communities in all aspects of the construction was not part of the reactivated project.

Given the change in the scope of the project, the overall end-of-project status condition related to increased access to primary education has been reached through the increased number of rural classrooms. End-of-project status in the quality of education has not been met, however, as no special training for teachers has been given. Also, owing to the changes in contracting arrangements which led to minimal involvement by local communities, a community-based mechanism for expanding rural education has not been developed. Grant funds have provided the Data Management and Planning Divisions with increased technical expertise which is being applied to developing a computerized management system. This system is, however, not yet in place as was planned in the project paper.

VII. GOAL/SUBGOAL

The socio-economic goal of the project was to increase the well-being of El Salvador's rural poor. The subgoal was to increase primary education opportunities for the target group of rural children between the ages of 7 and 15, in support of the GOES long term goal of providing universal primary education in El Salvador. Progress is being made toward the subgoal in that access to primary education has been made available to approximately 26,500 children through the project. In addition, approximately 750 individuals in the rural areas where the project was carried out were benefited indirectly through employment in the construction activities.

VIII. BENEFICIARIES

A. Student Beneficiaries

The newly constructed classrooms appear to be benefiting the maximum number of students possible when in operation. A total of 3,001 children were enrolled in the 68 classes that met in the new classrooms of the schools that were visited. This suggests an over-utilization of some classrooms as the average number of enrollees was 44, and 47 of the 68 classes had more than the 40 children for which the classrooms had been planned, enrolled. If these enrollment figures and classroom utilization patterns hold for the project as a whole, approximately 26,500 children are benefiting from the expanded services. Enrollment figures may not reflect actual attendance, however, for although 56 students placed generally three to a desk, were observed in attendance in one first grade classroom, the average number of students actually attending classes in those classrooms visited was 31. Teachers suggested that attendance was somewhat lower than normal as schools had been visited during planting season when children were needed to help their parents in the fields, and, in some cases, attendance was lower on Mondays because of special activities during the weekend.

Classrooms were generally being used by the first through sixth grades for which they had been targeted. Eleven of the 68 classes, however, were not being conducted with this population. Eight of these classrooms were being used for preschool children and three contained classes of seventh or eighth grades. Teachers suggested that students were pleased with the new classrooms and cited examples of students attempting to change schools because of the new structures.

Thus, it appears that the project has been relatively successful in serving the student population for which it was designed. The new classrooms have not however, met the needs of the existing student population as this was consistently said to be three or four times the number of enrolled students at all sites. Slightly more efficient use of some classrooms could be made by returning administrative or storage spaces to classroom use and by shifting classes so that older primary children with greater powers of concentration would be placed in those classrooms which are relatively noisy. Greater utilization of the majority of the approximately one sixth of sample classrooms not presently under double session would require additional training for the teachers now assigned to the sites or reassignment of teachers in a higher professional category who were willing to work a double session.

B. Teacher Satisfaction

Both teachers and directors were generally favorable about the new classrooms, stating that the additional space allowed them to serve a greater proportion of the student population. A common construction flaw identified by all teachers was that the overhangs on the rear of the classrooms did not extend far enough to prevent rain from entering and soaking children in inclement weather. The design of the classroom doors which opened outward in phase I schools was seen as dangerous to passer-bys and the hinges on these doors had to be replaced a number of times. Teachers in those classrooms serving large numbers of young children such as first graders also complained about the quality of the desks, stating that a number of the screws securing the tops had worked loose. In some schools, the classrooms were compared disparagingly to those constructed by other international donors which had been built with light fixtures and spaces for community gatherings.

The principal priority at many sites was a security wall which it was felt would protect the facilities from animals and human passer-bys and prevent overuse of the sanitary services. Other common high priorities were better sanitary facilities, a water source within the school, additional desks for many classrooms, especially those housing first and second grades where children were often forced to sit three to a desk, and additional classrooms to serve more children.

Teachers' willingness to work a double session was found to vary by the location of the school in which they were employed. Most teachers in the rural areas were working or willing to work a double session, whereas many teachers in schools located in areas peripheral to cities where other employment options existed, were not. All of the teachers and directors interviewed, however, thought the additional pay of C139 after taxes, on a base salary of C675 per month for teaching one session, was inadequate. Teachers did not expect double pay for teaching a second session. There was, however, a general agreement that C300 would be just.

The additional classrooms do not appear to have encouraged the placement of teachers close to their homes. Only 9 of the 128 teachers working in the 13 sites visited lived close enough to the schools to walk to work and many had to travel for two hours on up to three different busses to reach their place of employment.

C. Community Satisfaction

Among teachers and the few community members who were interviewed, there was a general consensus that local residents were satisfied with project classrooms. In most cases parents were said to be pressuring for additional classrooms. Displaced persons from conflictive zones in other parts of the country were mentioned as having swelled the local population and contributed

to a large out-of-school age population at each site. It was stated that parents were asked to contribute monetarily to the schools, and that they gave what they could. Labor was, however, seen as the principal way in which community members demonstrated their satisfaction with the school, and parents were observed to be working in construction projects at four of the schools visited.

D. Local Beneficiaries

Respondents agreed that local labor had been used by the contractors at all sites. Such labor was limited to unskilled work, however, as locals were not seen to be qualified for skilled or semi-skilled positions. Respondents estimated that between four and six locals were hired at each site and a review of reports of site visits made during 1983 by AID personnel verified this estimate, as an average of five local individuals were employed at the sites visited at that time. Thus, it can be estimated that approximately 750 unskilled local workers were among the 2,650 identified in AID reports as benefiting directly from employment in construction activities throughout the country.

Local businesses were also said to have benefited from the construction projects. These were largely limited to the areas of food for the construction personnel and occasional assistance with the transport of materials, as the materials themselves were brought from San Salvador. No estimate was made by informants of the number of businesses benefited in this way.

IX. UNPLANNED EFFECTS

An unanticipated effect of the program may have been to drive up school enrollment to above normal levels at those sites with new classrooms. Various informants stated that more children were coming to their schools because they found the new classrooms attractive. The accuracy of these statements could not, however, be verified.

It was also not anticipated that there would be extensive savings in construction costs during the project. Despite the construction of additional facilities, surplus funds in the range of C 400,000.00 were said to exist. Thus, the implementation of these funds remains to be carried out.

Finally, an unplanned economic benefit was received by the Salvadorean consulting firm that carried out the training for ODEPOR. The television seminars developed as a part of the training package were seen by at least one organization which hired the firm to develop a management training seminar for its employees as a result of having viewed this product.

X. LESSONS LEARNED

A number of lessons for future school construction projects can be learned from this evaluation. They can be divided into two main areas. The first is concerned with project organizational structure and other inputs that should be taken into consideration in the development of new school construction projects. The second relates to design and construction problems identified by informants and observed by the evaluation team during site visits.

A. Organizational Structure and Inputs

The occasional communication problems found among the different coordinating agencies involved with the project together with delays encountered by the additional demands made on some departments within the MOE suggest that a different type of coordinating structure might be appropriate. This could take the form of a single entity within MOE with responsibility for overall coordination and day-to-day implementation of the construction. If appropriate, this agency might also have its own legal and financial staff to reduce the burden placed on existing departments by new international projects. Sufficient manpower should be made available within this agency to assure that the project is carried out efficiently.

Results of the evaluation suggest that host country direct contracting of construction and supervision firms is an efficient means of implementing construction projects in the present social conditions of El Salvador. It would seem, however, that a more careful selection process, especially in the case of supervision firms could increase the technical quality of construction. Criteria for selection should include previous successful supervision of projects of similar scope and sufficient manpower to carry out a rigorous supervision. In addition, it would seem important to allow greater flexibility in the specifications of a construction project. This would permit supervisors to make decisions about "equal or better" construction solutions which might have substantial cost implications. An example of such a situation might be the use of bolts rather than welding as specified in this project, for support beams, in areas without electricity and with difficult access.

The ambiguity in responsibility for furniture delivery and the difficulty encountered by local schools and communities in mustering resources to transport furniture caused some delay in payments under the FAR system. Thus, in future projects it may be necessary for the MOE to take direct responsibility for furniture delivery and to budget funds to ensure that delivery is completed. An alternate possibility would be to include a commitment to guarantee furniture delivery as part of the criteria for selecting a furniture manufacturing firm.

The difficulty found in local communities' ability to work within the construction deadlines of the project suggests that alternative means of involving communities in a school construction program may have greater potential for success. The willingness of community members to participate in the schools, which was observed during the evaluation, argues for their participation in the maintenance of school construction. Their contribution to maintenance could largely be carried out on individuals' own time and proper procedures could be ensured through the development of a simple pictorial maintenance manual.

The success of the institutional development financed through the grant component and the satisfaction with this aspect of the project argues for the inclusion of similar components in future projects. These might be enhanced by the provision of specialized technical assistance such as that requested in the area of microcomputers by participants in the current project.

B. Design and Construction

1.- Sanitary Services. In a number of sites, especially those where added classrooms cut into existing space, sanitary services were constructed very close to classrooms. This caused disagreeable odors to affect the teaching-learning process. This situation might be alleviated by putting quicklime or ashes, which are absorbant, into the pits rather than burned oil as is sometimes the practice. Odors could also be controlled by redesigning existing systems to improve ventilation. This could be accomplished by adding ventilation tubes to the pit latrines, shortening doors and placing high windows in the design of future structures to increase ventilation.

It was also noted that pits which had been constructed to meet minimum specification were already filling in those areas where absorption is minimum or where the services are subject to pressure from community use. The development of minimum specifications based on the type of soils encountered at the construction sites and the requirement of a soil absorption test prior to building would be one way to resolve this problem. A second solution in those schools which have running water would be to use a rinsing system of construction in which a quantity of water is maintained in a tank adjacent to the outhouses and used to cleanse the system periodically.

In those schools where flush toilets had been constructed these were found to be in a deteriorated condition as a result of constant missuse by children. This problem might be solved through the construction of a single tank, out of reach of the children, which is connected to all toilets and which is flushed at regular intervals by designated school personnel. This could also result in a saving of water of up to 50 percent over existing systems.

2.- Water system. Available water within the school was identified as a priority at a number of schools visited. The inclusion of a water system would seem necessary in future school construction plans given the importance placed on it. This might be a connection with the municipal water system or, when none exists, a well. Low level cisterns which would save water but also be sufficient to meet the school's needs should be constructed to hold the water. These systems should be placed near sanitary services so that they could also be used to develop a rinsing or periodic flushing unit for the outhouses. The cisterns should be constructed of impermiabile brick, asbestos-cement, or of drums of washed steel coated with cement mortar.

3.- Protection Fences and Retention Walls. The preoccupation of teachers with animal and human intruders and with the potential danger to children leaving the school grounds suggests that protection fences should be considered as an integral part of future construction projects. These should be solid material such as brick or block and steel mesh and be of sufficient height to prevent unwarranted entrance onto school grounds. The potential collapse of earth onto school grounds was found to be an immediate problem at one of the sites visited and a retention wall should be built as soon as possible at that site to prevent a possible tragedy.

4.- Design. The deteriorated and stained condition of the paint gave an unaesthetic appearance to many of the newly constructed classrooms. Exposed natural brick may provide a pleasing look to the classrooms for a longer period of time. All of the doors to the classrooms should open inward, as do those of phase II classrooms, to prevent possible accidents to passer-bys. Bronze should be used for door hinges rather than iron to prevent the rusting out that occurred in many schools.

Corridors appeared congested at times of maximum use. As these were reduced 0.5 meters from the original GOES design, consideration should be given to returning to the original design to assure sufficient access for children.

Support beams of "C" type structural steel were found to have a tendency to buckle during the project and were first reinforced and later substituted by inverted triangular beams (Thrust). It is recommended that the latter type of beam be used in future school construction projects. Also, in areas subject to strong wind, anchoring material for roofing sheets should be of a greater size to avoid the loss of roof sections as occurred in the project evaluated.

The majority of the ground level drainage channels constructed to disperse rain water were found to be obstructed with mud and debris. These might be kept functional through the combined effort of the MOE's maintenance department which would supply materials, if necessary, and community members who would furnish manpower.

It may also be useful to consider different standard models of classrooms for different geographical regions of the country. For example, given the rusting that occurs to iron doors in coastal areas, it may be appropriate to use wooden doors and doorframes in these areas. Of course, the relative costs of the materials would have to be considered, and ease of maintenance, given the familiarity of working with wood that rural populaces have, should enter into such considerations. For the same reason, bevelled wood and doors with screws instead of nails should be used. It may also be practical to use wood for the structural supports for roofs in coastal areas. Again, however, a study of the relative benefits of using wood as opposed to steel is essential.

5.- Maintenance. Many of the problems cited above are the result of lack of maintenance available to preserve the classrooms. This occurred because of the limited budget of the maintenance division of the DCM, disregard for this aspect of a school construction program in the loan agreement, and the lack of preparation on the part of many teachers and community members to organize an effective maintenance program for the new classrooms. Maintenance should be considered an integral part of future school construction agreements in order to ensure that facilities can be used with utmost efficiency. It also appears important that a manual, relying heavily on simple drawings of the facilities built, be developed to aid teachers, students, and/or community members in the day-to-day maintenance of new and existing facilities.

6.- Integrated Construction. The interference in the teaching-learning process caused by the lack of a number of ancillary facilities such as meeting rooms, water taps or wells, and protection fences suggests that a construction program that is less piecemeal in its implementation may be advantageous. A number of informants cited the importance of an integrated construction program that considers not only existing scholastic needs but also community needs and anticipates future school utilization by installing such features as light fixtures, retaining walls, and administrative offices.

ANNEXES

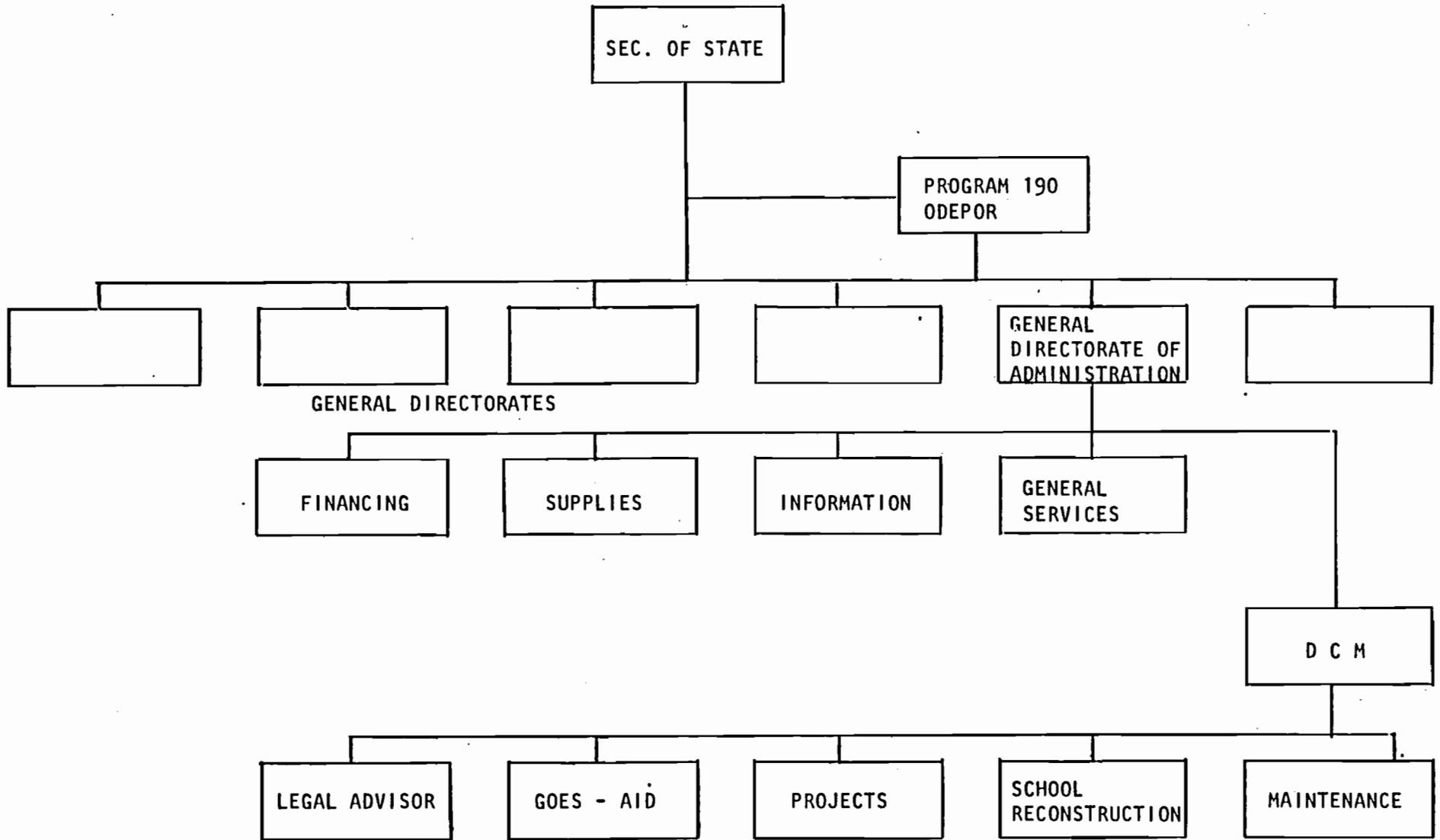
ANNEX A
SITE VISIT SAMPLE

| <u>SITE</u> | <u>CONSTRUCTION TYPE</u> | <u>MUNICIPALITY</u> | <u>INDIVIDUALS INTERVIEWED</u> |
|--------------------|--------------------------|---------------------|--------------------------------|
| Canadá | F-6 | San Salvador | 1 D**+1 T |
| Mil Cumbres | S-3 | Panchimalco | 1 D |
| El Limón | A-3 | Soyapango | 1 D |
| 22 de abril | A-3 | Soyapango | 1 D + 1 T |
| 25 de septiembre | 1-2 | San Pedro Perulapán | 1 D |
| El Espino | A-3 | San Pedro Perulapán | 1 D + 1 T |
| Los Magueyes | A-2 | Ahuachapán | 1 D |
| Junquillo | A-1 | Ahuachapán | 1 D + 1 T |
| Copapayo | S-3 | Armenia | 1 D + 2 T |
| Lourdes | F-5 | La Libertad | 4 T |
| Santa Marta | A-3 | Sonsonate | 1 D + 1 T |
| San Pedro de Belén | A-2 | Acajutla | 1 D + 3 T |
| El Zunza | S-6 | Izalco | 1 D + 2 T |

* F= new school
S= substitution
A= addition

** D= director
T= teacher

MOE ORGANIZATION CHART FOR PROGRAM 519-0190



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ANNEX C

Methods of Land Acquisition

a) Donation. This is the most common means of acquiring land for school construction. It consists of the legal transfer of land from either one individual or government agency to another, in this case the second party being the Ministry of Education, without a payment for the land taking place.

Ninety percent of the property of the MOE has been acquired in this way, with 80 percent of that having been donated by the municipalities. Although the process seems straightforward, it has become somewhat complicated in recent years. The municipalities are considered part of the Ministry of the Interior and, therefore, must consult with that entity before donating land for schools. Often, municipalities have donated land for schools and these have remained vacant, thereby encouraging the Ministry of the Interior to use the land for other purposes such as public markets or squares. That is why many municipalities demand strict stipulations on the type of school, the number of classrooms, and the time frame in which it will be built prior to making a donation.

According to some informants, certain lands on which classrooms had been constructed, such as that of the cantón el limón in the municipality of Soyapango, were still in the hands of the Ministry of the Interior. An investigation of the accuracy of these claims was, however, beyond the scope of the evaluation. Length of procedure: 55 days.

b) Purchase. Some sites are purchased outright. In this case there is no question of ownership once title to the land is clear. This process is very important because of the possibilities it offers for economizing in the overall cost of a construction project, as it may be cheaper in the long run to buy level, accessible land on which to build than to work with poorer land that has been donated. Length of processing: 115 days.

c) Exchange. In certain cases there may not be lands available in an area to be purchased or received through donation. There may, however, be someone who is willing to exchange land in the area for other lands of the MOE. This is accomplished through a legal exchange that takes about 120 days to complete.

d) Development companies. The law requires that the owner of an urban development donate to the MOE, through the appropriate municipality, an adequate space for the construction of a school. Adequate space is considered to be 8.0 m² for each child and the child population is calculated at one fourth of the population of the development. Further, this area should be adjacent to that destined for parks and recreation. Although there is lobbying by

developers against this means of acquiring land, it remains one of the better ways for the MOE to obtain good land for schools.

e) Expropriation. This is a last resort means that the MOE has at its disposal to acquire lands for large schools. The process is, however, long, sometimes taking years to complete, and very controversial. It could, however, be a means of establishing a "Land Bank" or a reserve of sites for construction of schools in future years.

f) The Agrarian Reform. This is another means of obtaining good land for rural schools. Until the lands are paid for, however, they remain in the hands of ISTA (Salvadorean Institute for Agrarian Change) even if the school has already been built.

ANNEX D

Procurement Process for School Furniture. During the implementation of program No. 519-0190, the process of procuring school furniture was not a problem because a permanent fixed price contract with the manufacturer was in force. Thus, an order was issued by the MOE procurement division and the interested party picked up the furniture at the factory, "Central de Industrias". Without this system, any request above C5,000 must, by law, pass through the governmental procurement system which can be rather slow. The steps in the process once a request has been received by the procurement division are the following:

- a) The request arrives at the procurement division from the division of construction and maintenance, where it takes a day to clear.
- b) The request goes from the procurement division to the financial department where it is included as a budget item. This takes approximately two days.
- c) The request goes to a government auditor where review takes approximately three days.
- d) The next steps in the process are approval of the request by the planning ministry, the budgeting division, central auditing and the national accounts court. This takes about 60 days.
- e) From the accounts court, the approved request returns to the procurement division over approximately a seven day period.
- f) Specifications for the request are drawn up in this division over a three day period.
- g) The request goes to the general procurement division for the nation which opens bids and selects a firm to provide the furniture. This is the longest part of the process and takes from four to six months.
- h) The order then goes to the auditor to be legalized, which takes 20 days.
- i) The order goes to the manufacturer who can take up to two months to furnish the product.

Thus, the entire process, without considering the delivery of the furniture to the school, can take up to a total of 9 months.