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**Report No. 9188**

**PROJECT COMPLETION REPORT**

**REPUBLIC OF YEMEN**

**FOURTH EDUCATION PROJECT  
(CREDIT 1203-YAR)**

**DECEMBER 12, 1990**

Population and Human Resources Operations Division  
Country Department III  
Europe, Middle East and North Africa Regional Office

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### EXCHANGE RATES

Name of Currency                      Yemeni Rial

<u>Year</u>	<u>Exchange Rate</u>
Appraisal Year Average	US\$ 1 = YR 4.50
Completion Year Average	US\$ 1 = YR 9.50

### ABBREVIATIONS

ASS	-	Agricultural Secondary School
CPO	-	Central Planning Organization
DTC	-	District Training Center
ERDC	-	Educational Research and Development Center
FOE	-	Faculty of Engineering (University of Sana'a)
GTZ	-	Deutsche Gesellschaft fur Technische Zusammenarbeit
MOE	-	Ministry of Education
PCR	-	Project Completion Report
PIU	-	Project Implementation Unit
PTTI	-	Primary Teacher Training Institute
SAR	-	Staff Appraisal Report
SBU	-	School Building Unit
TA	-	Technical Assistance
TSS	-	Technical Secondary School
TTSSF	-	Teacher Trainers' Salary Supplement Fund
UNDP	-	United Nations Development Program
USAID	-	United States Agency for International Development
VTC	-	Vocational Training Center
YAR	-	Republic of Yemen (formerly Yemen Arab Republic)

### FISCAL YEAR

January 1 to December 31

THE WORLD BANK  
Washington, D.C. 20433  
U.S.A.

Office of Director-General  
Operations Evaluation

December 12, 1990

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report: REPUBLIC OF YEMEN -  
Fourth Education Project - (Credit 1203-YAR)

Attached, for information, is a copy of a report entitled "Project Completion Report: Republic of Yemen - Fourth Education Project (Credit 1203-YAR)" prepared by the Europe, Middle East and North Africa Regional Office, with Part II of the report contributed by the Borrower. No audit of this project has been made by the Operations Evaluation Department at this time.

A handwritten signature in black ink, appearing to be 'A. Fay', is located to the right of the main text block.

Attachment

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(CREDIT 1203-YAR)TABLE OF CONTENTS

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PROJECT COMPLETION REPORT

REPUBLIC OF YEMEN

FOURTH EDUCATION PROJECT  
(CREDIT 1203-YAR)

PREFACE

This is the Project Completion Report (PCR) for the Fourth Education project in the Yemen Arab Republic, for which an IDA Credit 1203-YAR in the amount of SDR 10.2 million was approved on January 28, 1982. The credit was closed on December 31, 1989, two years behind schedule. It was 99.9% disbursed and an amount of SDR 7,139.12 was cancelled with effect on January 16, 1990.

The PCR was jointly prepared by the Population and Human Resources Division of the Europe, Middle East and North Africa Regional Office (Preface, Evaluation Summary, Parts I and III), and the Borrower (Part II).

The preparation of the report was facilitated by data collected before and during IDA supervision of the YAR's ongoing Education and Training projects in February/March 1990. The PCR is based, inter alia, on information contained in the Staff Appraisal Report, the Credit Agreement, supervision reports, correspondence between the Bank and the Borrower, internal Bank memoranda and information gathered in the country.

PROJECT COMPLETION REPORT

REPUBLIC OF YEMEN

FOURTH EDUCATION PROJECT  
(CREDIT 1203-YAR)

EVALUATION SUMMARY

Objectives

1. The objectives of the project were to: (a) create an institutional capability to assist the Ministry of Education (MOE) and others to resolve qualitative, operational and programming problems of the country's educational system and to provide guidance for planned change of the system; (b) accelerate the Yemenization of the teaching force, (c) increase the outputs from existing Vocational Training Centers (VTCs); and (d) meet the deficit of Yemeni engineers through a low-cost in-country training program. To achieve these objectives, the project included: (a) the establishment of an Educational Research and Development Center (ERDC), (b) boarding facilities at two vocational training and two teacher training institutes; (c) a teacher salary supplement fund; and (d) establishment of the Faculty of Engineering (FOE) at the University of Sana'a. To assist implementation, the project also included support for the Project Implementation Unit (PIU).

Implementation Experience

2. Project implementation was satisfactory despite delays of about two years, and its main components were completed at an opportune time to address critical issues in YAR's rapidly evolving education system. Items of specific interest included:

(a) Fellowship Training. Implementation of this program would probably have been more efficient if it had been administered and supervised by an experienced technical assistance agency/contractor;

(b) Expert Services. Relying heavily on short-term specialists to implement specialist services programs through a new institution can have serious adverse consequences for the achievement of project objectives;

(c) Delaying factors with respect to the Faculty of Engineering included in particular uncertainties in finding financing for the construction of all its facilities, because the project included funds for only one out of the three engineering departments envisaged (para 19);

(d) The Teacher Trainers' Salary Supplementary Fund was found to be ineffective after being evaluated in 1984 as planned, and therefore discontinued (para. 24); and

(e) The Project Implementation Unit was appropriately strengthened and functioned well (para 25).

### Results

3. The ERDC is fully equipped and operational. Twenty-three researchers are completing their training overseas and should return by October 1991. Their delayed return, coupled with unclear research policies within ERDC, has diminished ERDC's utility as MOE's principal research facility.

4. The Faculty of Engineering is in full operation, enrolling some 1,430 students in excellent facilities and well-designed programs in three departments. This may be compared with appraisal estimates of about 1,000 students for the three departments.

5. The boarding facilities at the VTCs and PTTIs have contributed to increased enrollments at these institutions.

### Sustainability

6. The sustainability of this project hinges on two factors: (a) the staffing and the strength of future linkages between the MOE and ERDC; and (b) the ability of FOE to secure local and bilateral financing to hire and retain qualified teaching staff to produce the numbers of qualified engineers needed for the economic development of YAR.

### Findings and Lessons Learned

7. The project experience provides the following main lessons:

(a) Fellowships Training. The project suffered costly implementation delays due to the lack of planning, organization and monitoring of counterpart training, particularly at the ERDC. In retrospect, it would have been more efficient to implement and monitor this aspect of the project's technical assistance by enlisting an experienced management agency to administer and supervise the project's fellowships.

(b) Expert Services. It was observed that the ERDC did not use its full allocation of short-term specialists and the few who were utilized were recruited after considerable delay. As a result, project funded studies for the institution's work program were substantially delayed. This experience has prompted our observation that a specialist services program, relying heavily on short-term expertise in a new institution, can seriously impede the achievement of project objectives.

(c) Financing Covenant. The Government had difficulty in obtaining the bilateral financing required to fund the FOE component of the project by the date stipulated in the credit agreement. As a result, an amendment to the credit agreement had to be authorized by IDA. In retrospect, we believe that instead of a dated covenant to ensure the timely provision of credit funds, it would have been more realistic to prepare a contingency plan for the phased out execution of works, in the event that the required cofinancing was not forthcoming by a specified stage of the project's implementation.

**PROJECT COMPLETION REPORT**

**REPUBLIC OF YEMEN**

**FOURTH EDUCATION PROJECT**

**(CREDIT 1203-YAR)**

**PART I. PROJECT REVIEW FROM THE BANK'S PERSPECTIVE**

**A. Project Identity**

Project Name	-	Fourth Education Project
Credit Number	-	1203-YAR
RVP Unit:	-	Europe, Middle East and North Africa Region Country Department III
Country:	-	The Yemen Arab Republic
Sector:	-	Education and Training
Subsector:	-	Engineering & Vocational Education, Teacher Training & Educ.Research

**B. Project Background**

1. **Sector Development Objectives.** At the time of appraisal in October 1980, the Government's First Five-Year Development Plan reflected a need to urgently develop an educated workforce with the necessary skills to respond to the demands of a changing economy. Accordingly, educational development planning and IDA's response to the Government's priorities, were directed toward expanding basic schooling and promoting training programs to meet the need for semi-skilled manpower. The issues which affected YAR's educational development were mainly (a) a rapid expansion of the primary education system that took place at the expense of efficiency and quality; (b) the undesirable effects of a large expatriate teaching force and an inadequately trained Yemeni one; (c) inequity of schooling opportunity by region and gender; and (d) higher education, characterized by the absence of applied science and technology programs.

2. **Policy Context.** Specific policy priorities that had a bearing on the project related to: (a) the replacement of foreign manpower by trained Yemenis at all occupational levels (virtually all high-level manpower and 85 percent of the country's primary teaching force were foreign at the time of appraisal); (b) strengthening MCT's capacity to set sound education policies and administer programs for quality improvement; and (c) expansion and improvement of vocational and technical education programs to alleviate technical manpower shortages at all levels.

3. While some progress had been made in improving primary teacher training programs, higher education in YAR was at the time of appraisal,

characterized by a virtual absence of applied science and technology programs and there was a major demand for degree courses in civil engineering. The Government had been meeting the demand for engineers by recruiting expatriates and funding out-of-country training for Yemeni engineering students, both of which were costly: the average cost of sending a secondary school graduate overseas to complete engineering studies was about US\$ 90,000 (based on \$15,000 per year) while the annual cost of an expatriate engineer was about US\$36,000.

4. Linkages to Macro Policy Objectives. The project was thus aimed at addressing two critical links to macro-economic policy objectives: (a) the need to create self-sufficiency in high level manpower production and (b) the development of a policy analysis capability for the MOE.

C. Project Objectives and Components

5. Project Objectives. The objectives of the project were complex and ambitious. It would:

- (a) assist the MOE to resolve qualitative, operational and programming problems in managing educational change by establishing the Education Research and Development Center (ERDC);
- (b) create an in-country capability to produce engineers by establishing the first phase of the Faculty of Engineering (FOE) at Sana'a University;
- (c) improve the supply of trained teachers and skilled workers from rural areas by constructing boarding facilities at VTCs (Taiz and Hodeida) and PTTIs (Ibb and Amran);
- (d) attract qualified teacher trainers by creating a salary supplement fund; and
- (e) support the creation of permanent school construction capacity by providing expert assistance and equipment for the PIU.

6. Project Components. The project included:

- (a) construction, furnishing, equipping and technical assistance for the ERDC;
- (b) establishment of FOE at the University of Sana'a through the provision of building designs, civil works, equipment and furniture for the civil engineering department, and associated fellowships for training future teachers;
- (c) construction of boarding facilities at two VTCs and two PTTIs;
- (d) a salary supplementary fund for teacher trainers; and

- (e) technical assistance to the PIU through the continued financing of expert salaries and equipment costs.

**D. Project Design and Organization**

7. Through its focus on education quality and university degree level programs, the direction of this project represented a radical departure from IDA's earlier and subsequent lending strategies, which focussed on primary teacher training, and non-formal and industrial skills training. Despite its disparate components, the project was (with the possible exception of items discussed in paras. 10 and 11) effectively designed and well prepared. Its concepts were clearly defined and understood by the institutions and agencies responsible for implementation, and the project was on a scale commensurate with the absorptive capacity of the sector.

8. The design concepts underlying the individual components were appropriate at time of preparation and appraisal, and were as follows:

- (a) **ERDC.** This project component was designed in support of an institution which was potentially of critical importance. The ERDC was designed as a semi-independent organization, responsible to its Governing Board of Trustees under the chairmanship of the Minister of Education. It was to act as a research institution and think tank, capable of carrying out analytical work and studies in the field of education without being enmeshed in MOE's day-to-day administrative matters. It was therefore well positioned to provide independent policy advice on educational matters to the Ministry of Education and to other concerned bodies;
- (b) **FOE.** The Faculty of Engineering was conceived as a cost-effective way to increase the number of locally trained engineering graduates at a modest cost. Accordingly this component supported long-term government policies to reduce the drain on national budgets through overseas training of engineers;
- (c) **Student Boarding.** A third major project component addressed equity through the provision of boarding places constructed at Vocational Training Centers and Primary Teacher Training Institutes financed under earlier IDA projects. The concept was to enable students in rural areas to benefit from training at these institutions;
- (d) The design concept underlying the **Salary Supplementary Fund** was to accelerate the training of teacher trainers by providing incentives equivalent to 20% of their base salary. It was anticipated that 210 future teacher trainers, to be educated at Eastern Michigan University with USAID support, would not stay at teacher training institutes without such incentives in place.

9. In terms of organization, the project had an appropriate blend of centralization and decentralization. The PIU, appropriately strengthened through provisions of the project, was responsible for architectural designs, procurement, and overall project administration. Desired decentralization was achieved in terms of training program designs, curricula and implementation of project studies.

10. In retrospect, the project design may be faulted for not establishing a strong administrative mechanism to monitor and facilitate implementation of technical assistance, especially fellowships. This weakness contributed to delays in the preparation of students for overseas training and unnecessarily prolonged their overseas training. These delays were costly because the students spent on average about 12 months (33%) in excess of the budgeted time mainly in completing language training courses before their actual study programs commenced. As a remedial measure, both ERDC and FOE started using the services of AMIDEAST and the British Council as training agents during the later part of project implementation (mid-1986) to ensure better implementation of their fellowship program.

11. Article IV, Section 4.07 of the Development Credit Agreement contained the covenant that in order to complete the development of the Faculty of Engineering, the Government would provide all the necessary financial resources on its own, or from unspecified bilateral resources no later than by FY1984. When the Government was unable to do so within the stipulated time period, the Credit Agreement was amended in October 1983 to provide the Government with additional time to secure the funding for investments which it did with its own resources.

#### E. Project Implementation

12. The project was originally scheduled to be completed in mid-1987 after a five and a half year implementation period. By that time, about 85 percent of the project had been completed, and all project items were at least partially operational. The remainder of the project was completed over the subsequent two years. During implementation, a close collaboration and cooperation developed between the PIU, MOE, ERDC and the FOE with respect to the preparation of architectural designs and for the procurement and installation of project financed equipment and furnishings. Overall, the project was well implemented and, despite the lengthy implementation delays of the FOE, its main components were completed at an opportune time to address critical issues in YAR's rapidly evolving education system. Except for the increase in costs of the FOE buildings, the project costs (see Table 5) were close to the original estimates. The increase in project costs from \$18.17m to \$24.90m is mainly due to (i) an increase in the construction program by \$4.9m so that the FOE could establish Departments of Electrical Engineering and Architecture; and (ii) additional financing amounting to US\$1.6m to finance equipment and furniture for these departments, which was provided by the GTZ and the British Government. These increases caused local costs to increase (by US\$0.97m) while foreign costs increased by US\$5.7m.

13. **ERDC.** The construction of ERDC was completed only seven months behind schedule, and at costs close to original estimates. The facilities are well-designed and constructed, although at present somewhat under-utilized because of delays in the completion of fellowship programs (para.16).

14. There were major delays (60 months) in the completion of ERDC's equipment procurement because of late and sometimes piecemeal identification of its equipment needs, especially in computer related fields.

15. ERDC management's reluctance to use the short term experts originally included in the project design <sup>2/</sup> adversely affected project implementation in that the center did not become exposed to all the educational research concepts originally envisaged. Savings generated from the shortfall were used for fellowships (when completed in late 1991, 37 researchers will have been trained under the project, compared with an appraisal target of 23).

16. ERDC's fellowship training took much longer than anticipated at appraisal (Annex 3, Table 2) because of delays in identifying suitable candidates and preparing them for their training (para. 10). Originally, the fellowships training was to have commenced in early 1982, but out of ERDC's thirty-seven long term fellowship recipients, only six had departed by late 1984. The majority left in mid-1987, close to the original Closing Date of the project. This situation resulted in implementation delays and delayed the completion of their study programs beyond the project Closing Date, which further exacerbated ERDC's shortage of qualified researchers.

17. With respect to its priority work program, which had been agreed at appraisal, ERDC completed most of its four studies, albeit well beyond original target dates of mid-1983 or earlier as follows (Part III, Table 9 discusses their impact on future projects):

- (a) The two studies on (i) enrollment dynamics, and (ii) teacher supply and retention were completed and made available to the MOE in mid-1985. The conclusions of these studies facilitated the preparation of the Teacher Training project (Credit 1773-YAR);
- (b) Because of delays in getting the vocational and technical education study underway, the scope of the review and revision of the curricula for teacher training and vocational training institutions was reduced to include only the teacher training portion of that study and was used for developing the curricula

for the senior PTTI. The vocational training component of the study was carried out by GTZ financed consultants during the preparation of Credit 1645-

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<sup>2/</sup> As shown in Annex 3 - Table 2, only 4 experts out of the planned 17 were actually hired. These experts were used mainly to provide long term operational support rather than diversifying and enriching ERDC's work program through short-term consultants.

YAR (the Technical Training Project);

- (c) The school inventory study was expanded in scope to become a full-scale school inventory and school mapping project which is still underway and continues to be sponsored by the Government.

18. The last two studies were delayed because of (a) lack of advance planning for data collection, (b) inexperience in costing the studies (in particular, the school mapping study), and (c) lack of computer facilities to process collected data (para. 14). An additional contributing delay factor was ERDC's reluctance to make full use of its resources that were allocated under the Credit for short-term expert services (para. 15).

19. Faculty of Engineering. There were major delays of about four years in completing the construction of the FOE. Delaying factors included in particular uncertainties in finding financing for the new construction facilities, which eventually included buildings for the departments of both civil engineering and electrical engineering <sup>3</sup>/. Ultimately the Government decided to fund the entire FOE construction program from its own resources, which permitted IDA funds to be used to partially equip the Department of Electrical Engineering. Because of these delays during a period of rapid construction cost increases, and a large increase in the construction program, the cost of the construction of this component (US\$8.8 million) far exceeded the original estimates (US\$3.9 million). The exceptionally well-designed and well built facilities are well utilized with an enrollment far exceeding appraisal targets (para 29).

20. The FOE's building facilities are also well equipped and furnished. Although there were delays in obtaining funding for constructing the facilities, bilateral support was eventually obtained from the German and the UK Governments (about DM 3.0 million and 60,000 pounds sterling) to finance electrical and civil engineering research and testing equipment, which supplemented the teaching equipment financed by the IDA Credit.

21. As indicated in Annex 3, Table 2, the planned and actual specialist services and fellowships programs were identical with SAR estimates in terms of numbers of consultants used and staff trained, but slightly higher in terms of man-months utilized. Specifically, about 32 more man-months of specialists time were used than were planned, and about 48 more man-months of fellowship training was utilized than planned.

22. A data base at the Ministry of Civil Service and Administrative Reform monitors the number of government-supported Yemeni engineering degree students abroad by discipline and expected date of return, as well as the number of new students proceeding abroad for engineering studies. Data from this system would permit cost comparisons between in-country and overseas training. If the cost (US\$14.3 million) of FOE's training facilities (which can accommodate

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<sup>3/</sup> A department of Architecture has also been created, but is currently squeezed into the facilities originally designed for the two engineering departments.

about 1,400 students) is depreciated over (say) 20 years, the per graduate depreciation cost (for five years) is about US\$2,500. If we add to this the estimated annual public cost of training an engineer in-country (US\$10,000 for a five-year period), the total annual cost per locally trained graduate is about US\$12,500. This may be compared with the public cost of providing fellowships to an engineer abroad at a cost of some US\$90,000 for a six-year period.

23. Boarding Facilities. Construction of the boarding facilities for the VTCs and the PTTIs went smoothly. The well built facilities were completed in 1984 within the original cost estimates, after an average delay of only three months beyond SAR estimates. Three of the boarding facilities are being utilized as originally intended while the VTC at Taiz was absorbed into an existing technical secondary school.

24. The Teacher Trainers' Salary Supplementary Fund was evaluated by mid-1984 as stipulated in the Credit Agreement, to determine the effectiveness of the incentive supplement for teachers. The evaluation report concluded that the Fund created dissatisfaction among teachers not covered by the Fund, and the Ministry therefore discontinued the Fund. Subsequently, the MOE introduced appropriate salary incentives in its budget and (after consultation with IDA) used the remainder of the Salary Supplement Fund to cover the cost of in-service training for ten teacher trainers who had completed master of science degree courses overseas.

25. The Project Implementation Unit was appropriately strengthened through technical assistance support and provision of equipment for the unit. The unit was responsible for: (a) designing ERDC and the boarding facilities; (b) organizing the construction program; (c) procuring furniture and equipment; (d) keeping records, including accounts; and (e) maintaining liaison with the various project entities and IDA.

#### F. Project Results

26. ERDC. The ERDC is operational with 54 professional staff and has the following 12 staffed research units: planning and finance; statistics; curricula; educational techniques; documents and publishing; teacher training and preparation; psychology and social research; higher education; school administration; general education; non-formal education; and school buildings. ERDC's staffing remains weak, however, because of delays in carrying out its own staff training program (para 16). Of the 37 researchers whose fellowship programs were financed under the credit, 23 are still studying abroad.

27. During the early years of project implementation, ERDC had a good working relationship with and strong links to the MOE (the Minister of Education was the Chairman of the ERDC's Governing Board -- para 8.(a)). Despite staff shortages, approximately 25 research studies have been prepared for the MOE. Because of their wider interest, some of these studies should be made available, not only to educational establishments in the country, but also to bilateral and multilateral organizations to avoid duplication of effort and to promote recognition of the Center as the Government's principal

agency for educational research. The Center's major ongoing work priority is an enhancement of the school inventory study, which was funded by the project, and has now been enlarged to encompass a school mapping project of 200 districts throughout the country. Approximately 400 reports will be prepared for the MOE before this initiative is completed. The information will then be summarized in two reports (a diagnostic report and a future plan report) for each school district catchment area.

28. During the later years of project implementation, ERDC has worked intensively on programs commissioned or used by entities other than the MOE <sup>4/</sup>, with the result that ERDC's work activities have often been perceived by the MOE as being isolated from the MOE's priority work programs. As a result, a substantial part of the work that ERDC has carried out is not being used by the MOE.

29. Faculty of Engineering. The Faculty of Engineering is fully operational and enrolled 1,430 students during the first semester of 1989/90. This may be compared with an enrollment of 35 students in 1983, and appraisal estimates for a Faculty-wide capacity of 750 to 1,050 students <sup>5/</sup>. Departments of civil, electrical and architectural engineering have been established at a total cost of YR 72 million as compared original appraisal estimates of about YR 20 million for a department of civil engineering only <sup>6/</sup>. All three departments are operational in well-equipped premises. The cost overruns were caused by unexpected general cost increases and a substantial area increase (about 5,500 m<sup>2</sup> in the size of the new facilities) over appraisal estimates due to the addition of a department of electrical engineering and a department of architecture. The cost overruns (see Table 5 for details of cost estimates) were financed by the Government (for civil works) and through bilateral funds (for equipment). German bilateral funding of approximately DM 3 million as well as assistance from the British Government in the amount of 60,000 pounds sterling was obtained to purchase equipment and furniture for the electrical engineering department.

30. The boarding places for the VTCs at Hodeidah and Taiz as well as the PTTIs at Ibb and Amran were instrumental in increasing enrollments at these institutions. Specifically, enrollments at the VTCs rose to 484 new students (from a planned enrollment of 440), even though the Center at Taiz was merged with a secondary teacher training center, thereby reducing the planned enrollment figure. The number of boarders at these institutions was 238 in 1989 compared to 56 in 1983. For the PTTIs, new enrollments stood at 1209 students by late 1988 (compared to a plan of 360 students). Total numbers of boarders for the two institutions rose to 515 compared to a plan of 216 students.

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<sup>4/</sup> The school mapping reports are being used by the electricity authority of Yemen as a basis for designing their distribution network.

<sup>5/</sup> The SAR envisaged three departments -- civil, electrical and mechanical engineering.

<sup>6/</sup> In US\$ terms, the cost difference is much less pronounced, because of the sharp devaluation of the YR during implementation.

31. The Project Implementation Unit is playing a useful role in the monitoring and implementation of the ongoing education and training projects in YAR (Education V, VI, and the Technical Training and Teacher Training projects - Credits 1340, 1470, 1645, 1773-YAR). It also serves as the Government's school building unit (SBU).

#### G. Project Sustainability

32. The sustainability of this project hinges on two factors: (a) staffing and the strength of future linkages between the MOE and ERDC; and (b) the ability of the FOE to hire and retain qualified teaching staff to produce the numbers of qualified engineers needed for the economic development of YAR. These points are further elaborated below.

33. The ERDC. Because of its hitherto weak staffing (para 16), uncertain work priorities (para 27) and tenuous linkages with the MOE, ERDC needs to review its operational policies and procedures with a view to securing its long-term sustainability. At present, the Center sets its work priorities in relative independence from MOE's priorities. It also competes -- frequently unsuccessfully -- for work assignments subsequently awarded to researchers at the Faculty of Education and those in the MOE. In order to become a long-term, viable entity, the Center needs to strengthen its staff qualifications and improve its linkages with its main client -- the MOE. This will include in particular:

- (a) enticing overseas trainees to return to and remain with the ERDC by providing a meaningful and interesting work-program upon their return;
- (b) helping government agencies, including in particular the MOE identify priority work programs and studies within the education sector that are of particular relevance to the country's educational and economic development;
- (c) assisting MOE (and the Faculty of Education) in carrying out technical analyses of the above priority work programs and studies, thereby enabling the MOE make the necessary political decisions and establishing ERDC's reputation as the country's premier and unbiased research facility for the education sector; and
- (d) securing ERDC's financial viability through implementation of the above research contracts with the MOE, thereby ensuring a steady income stream and a commitment for continued government funding for the center.

34. Faculty of Engineering. The FOE is by now a well established institution with an enrollment exceeding appraisal estimates by a substantial margin (para 29). The Faculty attracts a large student body, but in order to safeguard institutional quality, future enrollments must be controlled by

restricting the large number of admissions each semester. If unchecked, overcrowding will inevitably reduce quality of graduates, which will crucially affect the future viability of the Faculty. One initial indicator is, however, good: the 38 graduates of the FOE have all obtained good employment in a mix of private and government enterprises.

35. The Faculty continues to be highly dependent on foreign aid. Thirty-one of its expatriate staff are being funded by the State of Kuwait. The services of these foreign experts will be required at least until the full complement of 25 engineering teachers return from ongoing training overseas in late 1991. (Ten of these were financed under the IDA credit). Bilateral aid is being used to train future teachers, including those needed for the establishment of an otherwise unfunded department of mechanical engineering.

36. To augment its operational budget, the FOE provides minor consulting services, mainly materials testing. It should however also improve its contacts with local industries to further strengthen consulting opportunities, to ensure the adequacy of on-the-job training, and to better position its graduates for relevant jobs.

#### **H. IDA Performance**

37. Perhaps the most note-worthy feature of IDA's performance in the early stages of the project was the development, appraisal and acceptance of a heterogeneous project design, which nevertheless resulted in the completion of several high priority, quality components. During implementation, IDA performed well by responding promptly to requests from the Government to: (a) terminate an unsuccessful component (para 24), (b) change the financing pattern for the FOE (para 19), and (c) finance equipment for non-project activities, supplementary to the original objectives (para 19). Requests for Closing Date extensions and various house-keeping items were also handled promptly. Project supervision was generally timely and there was good staff continuity, especially during the later stages of the project, which facilitated follow-up between identification of issues and recommendations for effective solutions. Staff continuity was also important with respect to actions which required prompt IDA actions, such as reviews of procurement documents, approvals for expenditures, and advice on improving the PIU's daily operations.

38. On the downside, IDA may be faulted for not persuading ERDC of the utility of implementing its short-term experts program and the fellowships training program in a timely fashion. IDA also did not have much of a success in assisting the Government with obtaining bilateral funding for the FOE which later necessitated an amendment to the Credit Agreement.

#### **I. Borrower Performance**

39. Prior to credit effectiveness, the Government acted promptly in expediting actions required to set in place the planned project activities. The project was declared effective within four months of Credit signing -- an

unusually prompt response in YAR's complex approvals setting. Necessary legislation was also enacted in a timely fashion to create the various governing bodies for the ERDC and FOE; and persistent efforts were made to obtain local and bilateral funding for the three FOE departments. An interim assessment was made on the teachers' salary supplementary fund, as stipulated in the Credit Agreement, which proved to be of critical importance in deciding the future of the fund. During supervision, IDA missions also received a consistently high level of support from the PIU, MOE and CPO.

40. With the exception of the unrealistic (and subsequently amended) covenant concerning the Borrower's obligation to bridge FOE's financing gap (para. 11), all other covenants, including accounting and audit covenants, were met on time. Quarterly progress reports of a high quality were also submitted to IDA routinely.

41. Implementation weaknesses included delays in carrying out ERDC's fellowship training programs, non-implementation of the short-term experts program (para 15) and delays in completing project studies (para 17).

#### **J. Borrower-IDA Relationship**

42. As may be deduced from the above text, the relationship between the Borrower and IDA was excellent during project implementation.

#### **K. Consulting Services**

43. The FOE made good use of its expert services for the design of buildings, preparation of equipment lists and teaching staff. The ERDC, however, did not use its allocation of short-term experts. Its long-term experts performed well, but more in the capacity of long-term staff concentrating on regular administrative work than as innovators.

#### **L. Project Documentation and Data**

44. With the exception of the covenant on future investment funds (para 11), the Credit Agreement was appropriate for its purposes. The SAR was well documented and a valuable tool for Government in implementing the project. Action programs, prepared by supervision missions, were used regularly during the later stages of the project and were valuable monitoring tools. The availability of well documented progress reports, prepared by the PIU, has been an invaluable resource to visiting supervision missions and in the preparation of this report. Data for the PCR were readily accessible.

## **PART II. PROJECT REVIEW FROM THE BORROWER'S PERSPECTIVE**

### **A. Adequacy and Accuracy of Factual Information in Part III**

45. The statistical information presented in Part III was collected by responsible personnel at the pertinent institutions, comprising directorates of PTTIs and Technical Education, ERDC and FOE. Subsequently, the data was compared and verified with, inter alia, existing records at PIU, quarterly progress reports and aides memoire, working papers, credit documents and appraisal reports.

### **B. Evaluation of IDA's Performance and Lesson Learned**

46. The performance of Bank personnel was acknowledged to be highly professional, revealing no interference of personal proclivity. Mission members always proved to be well-qualified, and capable of assisting in technical and legal problem-solving. Supervision missions often acted as catalysts to help implementation of the project's progress more quickly. Correspondence from EM3PH at the Bank was gratifyingly prompt and efficient. Similarly, the responsible officers of the disbursement division were generally responsive and co-operative. While the mission appropriately adheres to the World Bank standards for architectural design, these standards are sometimes incompatible with local traditions and preferences. This discrepancy was most often faced in the design of per/student area, and corridors in boardings and other educational facilities.

47. Two major lessons were learned. Firstly, it is recommended that an officer from the disbursement division accompany a mission at sufficient intervals, for example every three to four years. The purpose of this would be for the division to become familiar with local financial operations and implementation methods. The officer would also exchange suggestions with PIU and provide the accounting department with guidance and expertise in solving financial problems. The second major lessons learned is that architectural specifications would preferably not be generalized to all countries so as to allow more flexibility in approving designs.

### **C. Evaluation of Borrower's Own Performance and Lessons Learned**

48. Throughout the period of implementation, the pertinent institutions remained co-operative with each other and committed to their efforts of working towards a successful outcome of the project. However, lengthy governmental procedures caused a delay in approving the award of the civil works contracts and providing the duty tax exemption for furniture and equipment.

49. Particularly with the FOE equipment purchase, there were two steps in the procurement process that proved to ensure the acquisition of high-quality

state-of-the art equipment, and eliminated the acquisition of defective parts or equipment. Firstly, the specifications in the bid documents stated that a particular item be made by a manufacturer famous for high-quality or its equivalent. Secondly, an inspection was carried by experienced agencies after installation. For example, the agencies discovered a re-built pumping unit in a new hydraulic universal testing machine.

50. The lack of a comprehensive equipment list for procurement of the ERDC, a new institution of the country, presented problems of continuous orders and bidding of trivial items.

51. The original estimation of fellowship program duration was sometimes inaccurate due to variations in the education systems and requirements from country to country and university to university. This resulted in continuous requests for extension of duration and funds.

52. The major lessons learned were: First, the estimation for the duration of a fellowship should only be a guideline and the actual study should be determined through regular progress reports by the administrative agency (e.g. AMIDEAST, British Council). Second, items in an equipment list that are available locally and at a reasonable price should be presented on a separate bid from items that may only be obtained from outside the country. Third, quarterly progress reports usually indicate very little change in progress. It requires much effort to provide it quarterly and would be much more efficient and meaningful to produce it bi-annually. In any case, PIU is in the process of making a program for computerizing all the components of the project progress reports.

**PART III. STATISTICAL INFORMATION**

**A. Related Bank Loans**

**Table 1: IDA Credits Relevant to the Project**

Credit No. Project Title	Year of Approval	Purpose of Project	Status	Comments
Cr.421-YAR Education I	1973	.Teacher Training .Vocational Trng. .Non-formal Educa- tion and Trng. .Agriculture Sec. School	Closed 12/80	PPAR in 1983 noted institutional improvement within MOE in planning, administration and curriculum develop- ment; execution was satisfactory.
Cr.611-YAR Education II	1976	.Teacher Training .Basic Trng.Centers .Education Materials Production Center	Closed 06/82	PPAR in 1983 reported a timely full implementation with effective basic training in rural development.
Cr.1340-YAR Education V	1983	.Teacher Training; .Vocational Training; .District Training centers; .Basic Training Facility (Village Units).	Ongoing	Implementation is satisfactory. Uncommitted funds are being used to support additional PTTIr and to re- habilitate institutions financed under Credits 421 & 611-YAR.
Cr.1470-YAR Education VI	1984	.Primary Teacher Training (PTTI) .Teacher quality improvement through Senior PTTI; .Non-formal Training; .Staff Development for NIPA.	Ongoing	Civil works delays have caused project implementation to lag. Uncommitted funds are being used to rehabilitate IDA- funded institutions under Cr.421 and 611-YAR.

**Table 1: (IDA Credits Relevant to the Project cont'd)**

Credit No. Project Title	Year of Approval	Purpose of Project	Status	Comments
Cr.1645-YAR Techn.Trng.	1985	.Polytechnic Trng. .Technical Secondary Schools; .Vocational Trng. .National Tech. Training Board.	Ongoing	Delays experienced in civil works have inflated project costs higher than anticipated at appraisal.
Cr.1773-YAR Teacher Trng.	1985	.Primary Teacher Training Institutes; .Secondary Teacher Training.	Ongoing	Start-up of civil works has been slow due to delays in the award of tenders. The start- up of technical assistance has also been delayed.

**B. Project Timetable**

**Table 2. PLANNED, REVISED AND ACTUAL DATES OF PROJECT TIMETABLE**

Item	Planned Date	Revised Date	Actual Date
Identification Mission	05/79	06/79	06/79
Preparation Mission	09/79	09/25/79	09/29/79
Preappraisal Mission	10/79	-	05/80
Appraisal Mission	10/15/80	10/21/80	10/25/80
Post-Appraisal Mission	-	-	07/01/81
Credit Negotiations	-	-	12/02/81
Board Approval	-	-	01/28/82
Credit Signature	-	-	02/05/82
Credit Effectiveness	-	-	06/15/82

Table 2 (cont'd)

Item	Planned Date	Revised Date	Actual Date
Project Completion	06/30/87	12/31/87	12/31/89 <sup>1/</sup>
Credit Closing	12/31/87	12/31/88	12/31/89
Credit Completion	01/16/90		

3.02 Comments on Project Timetable: The original Credit Closing Date was December 31, 1987. All the project institutions and facilities were in place and operational. However, as there were unutilized funds, additional equipment lists were prepared and procurement took place between 1984 and 1989. Two extensions of the Credit account were therefore necessary - the final extension was made on August 11, 1989 to facilitate the payment of project equipment which had been shipped by the suppliers but which had not arrived in YAR before the planned completion date for final disbursements.

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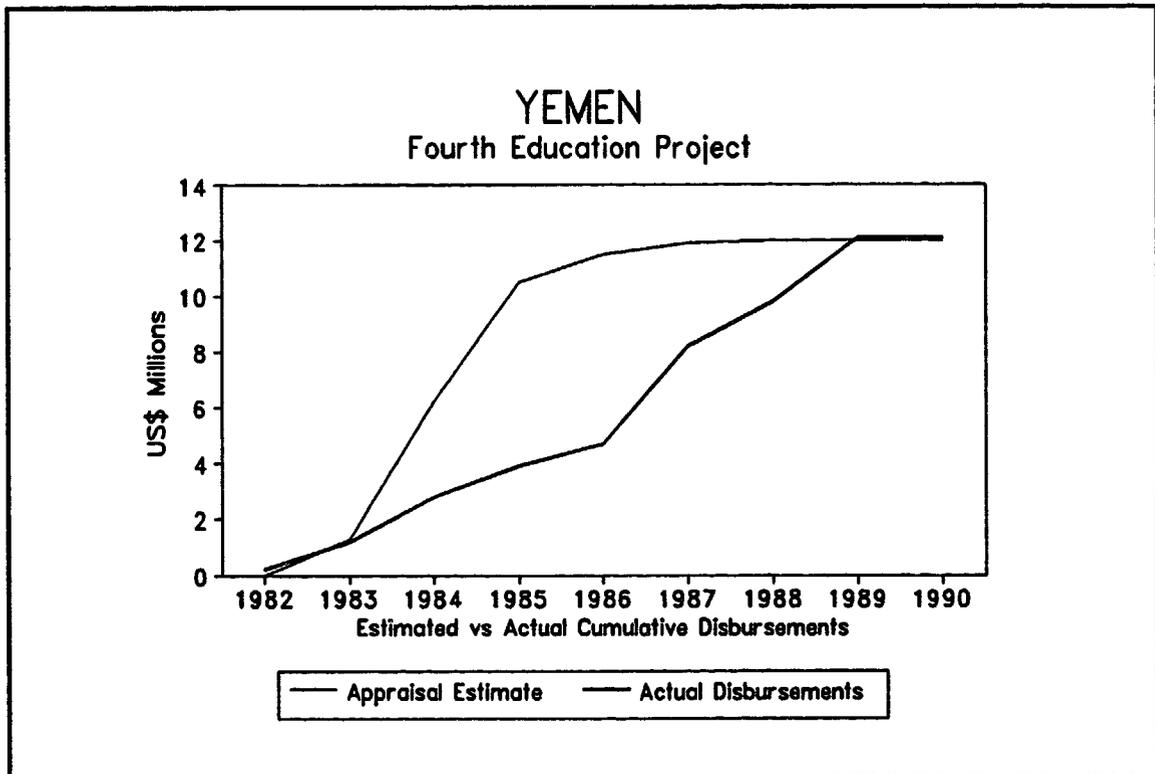
<sup>1/</sup> Except for a small portion of the fellowships program, funded from other IDA Credits and scheduled for completion in late 1991.

C. Credit Disbursements

**Table 3: CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS  
(US\$Million)**

IDA FY	82	83	84	85	86	87	88	89	90
Appraisal Estimate	-	1.3	6.2	10.5	11.5	11.9	12.0	-	-
Actual	0.2	1.2	2.8	3.9	4.7	8.2	9.8	12.1	12.1
Actual as % of Estimate	-	92%	45%	37%	41%	69%	82%	-	-
Date of Final Disbursement - January 16, 1990									

3.03 Comments on Actual Disbursements: The Credit was disbursed in SDRs. At appraisal the SDR rate was 1.072 to US\$1.00. By 1988, the equivalent SDR/US\$ rate was 1 SDR = \$1.34. The original credit amount was SDR 10.2 million of which SDR 10.19 million was disbursed. A balance of SDR 7,139.12 was cancelled effective January 16, 1990.



D. Project Implementation

**Table 4: PLANNED AND ACTUAL COMPLETION DATES OF COMPONENTS**

Project Components	Planned Completion	Actual Completion	Months of Delay
<u>Civil Works:</u>			
. ERDC	09/84	04/85	7
<u>Student Boarding Facilities:</u>			
. VTC, Taiz	03/84	07/84	4
. VTC, Hodeidah	03/84	02/84	-1
. PTTI, Ibb	03/84	03/84	-
. PTTI, Amran	03/84	12/84	9
. FOE	06/87	10/88	16
<u>Furniture &amp; Equipment</u>			
. ERDC	12/84	12/89	60
. FOE	12/87	12/89	24
. PIU	06/85	06/88	36
<u>Technical Assistance</u>			
<u>Expert Services:</u>			
.ERDC	05/86	06/89	37
.PIU	06/85	10/89	52
.FOE	06/86	06/89	36
<u>Fellowships:</u>			
.ERDC	12/85	10/91	58
.FOE	06/86	01/91	55
<u>Work Program/Studies</u>			
.Enrollment Dynamics	09/82	06/85	33
.Teacher Supply/Retention	05/83	06/85	25
.Curriculum Review/Revisio..	04/83	05/89	73
.Educational Facilities Inventory	06/83	10/89	76
<u>Teacher Trainers' Salary Supplement Fund</u>			
	09/86	12/84	-21

3.04 Comments on Completion Dates of Components: Furniture and equipment was procured in phases as funds became available. The first reallocation was made in September 1985 from the civil works category to the equipment, furniture & goods category. A second phase was procured when savings were identified towards the end of implementation. Funding for expert services by the State of Kuwait is still in progress at the FOE. Of the thirty-seven research fellowships allocated for the ERDC, fourteen have completed their training. The remaining twenty-three researchers will return only in the Fall of 1991. The Curriculum Review study was modified as the GTZ completed a part of it that dealt with vocational training. The school inventory study was absorbed into a full scale school mapping project

supported by the government. The TTSS fund was discontinued after an evaluation of the program in mid 1984.

**E. Project Costs and Financing**

**Table 5: PROJECT COSTS**  
(US\$ million)

Category	<u>Estimated Costs</u>			<u>Actual Costs</u>		
	Local Costs	Foreign Costs	Total Costs	Local Costs	Foreign Cost	Total Costs
Civil Works	3.22	3.13	6.35	6.05	6.05	12.10
Furniture & Equipment	0.20	1.85	2.05	0.75	6.64	7.39 <sub>a/</sub>
Technical Assistance	0.81	3.93	4.74	0.83	4.16	4.99
Salary Supplement Fund	0.36	-	0.36 *	.32	-	.32
ERDC Work Programs	<u>0.23</u>	<u>-</u>	<u>0.23</u> *	<u>.10</u>	<u>-</u>	<u>.10</u>
Total	4.82	8.91	13.73	8.05	16.85	24.90
Contingencies	<u>2.26</u>	<u>2.18</u>	<u>4.44</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>7.08</u>	<u>11.09</u>	<u>18.17</u>	8.05	16.85	24.90

\* These costs are shown as planned at appraisal. Table 7 shows actual SDR amounts which are the final allocations as shown in the credit agreement.

<sub>a/</sub> This figure includes financing provided by the GTZ and the British Government.

3.05 **Comments on Project Costs:** The project was implemented as planned, and generally close to original estimates. The large construction cost difference is in part due to sharp general rise in construction costs and in part because of additions of facilities. The Government has provided facilities for an Architectural, and an Electrical engineering department in addition to the Civil engineering department, originally planned.

**Table 6: PROJECT FINANCING**  
**(US\$Million)**

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<b>Source of Funds</b>	<b>Planned (SAR Report)</b>	<b>Revised</b>	<b>Final</b>
IDA	12.00	12.00	11.99
Government	6.17	8.10	11.31
Other Sources	- <u>a/</u>	<u>a/</u>	1.60 <u>b/</u>
<b>Total Project Costs</b>	<b><u>18.17</u></b>	<b><u>20.10</u></b>	<b><u>24.90</u></b>

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a/ No exact amounts were estimated for cofinancing

b/ German and British bilateral aid

3.06 **Comments on Project Financing:** The Development Credit Agreement for the project specified that the Government should obtain bilateral financing for planned civil works at the FOE (departments other than the civil engineering department which IDA had originally agreed to finance). After delay in attempting to obtain this financing, the Government carried out the civil works from its own budget, but was able to obtain approximately \$1.6 million in German and British bilateral assistance, which the Government used to purchase additional equipment and furnishings for the electrical engineering department of the FOE which were not included in the original cost estimates.

**Table 7: ALLOCATION OF CREDIT PROCEEDS**

Category	Original Allocation	Revised Allocation	Actual Disbursement
	-----in SDRs-----		
(1) Furniture, Equipment, Books	2,000,000	3,250,000	4,276,046.33
(2) Civil Works	3,090,000	1,840,000	2,028,698.96
(3) Technical Assistance/Training	3,710,000	3,710,000	3,530,885.50
(4) Work Program (Part A)	260,000	260,000	85,224.29
(5) Salary Supplementary Fund	520,000	520,000	272,005.80
(6) Unallocated	620,000	620,000	-
<b>TOTAL</b>	<b>10,200,000</b>	<b>10,200,000</b>	<b>10,192,860.88</b>

3.07 Comments on the Allocation of Credit Proceeds: When the Government decided to finance construction of the FOE buildings from its own funds, the credit was amended by reallocating SDR 1.25 million from Category 2 (Civil Works) to Category 1 (Furniture and Equipment). At accounts closing (January 16, 1990) an amount of SDR 7,139.12 was cancelled with effect from December 31, 1989. The total amount of funds in the Unallocated category was reallocated to the Furniture and Equipment category.

F. Project Results

**Table 8: DIRECT BENEFITS OF PROJECT**

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Indicators	Estimated at:		
	<u>Appraisal</u>	<u>Closing Date a/</u>	<u>Full Development</u>
<u>Enrollments (Ref. Annex 3)</u>			
. VTC - Taiz	160	98	160
. VTC - Hodeidah	280	386	280
. PTTI - Ibb	210	674	210
. PTTI - Amran	210	535	210
<u>Staff Upgrading/Training</u>			
. ERDC	13	39	
. FOE	10	10	
<u>No. of Graduates</u>			
. FOE	30	38	150 <u>b/</u>
<u>Specialist Assistance</u>			
. ERDC	71mm		
. PIU	174mm		
. FOE	122mm		

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a/ Actual as at the Credit's Closing Date.

b/ FOE will exceed the targetted output of graduates by 1993 according to current enrollments.

**Table 9: PROJECT STUDIES**

Name/Description	Purpose	Status	Impact
Efficiency of Primary Education	To identify key factors contributing to low efficiency of Prim.Educ.in each governorate.	Completed	USAID provided financing to further develop the PTTI system.
Teacher Retention	To identify measures for accelerating the training, recruitment and retention of Yemeni teachers at all levels of the educ.system.	Completed	Gov't. reviewed Teachers Salaries and incentives in 1985 and its findings resulted in the design of the Teacher Trng. Project - Credit 1773-YAR.
School Inventory	To conduct an inventory and evaluation of existing school facilities to reduce the number of incomplete schools and under-utilized schools, with a view to initiating a medium-term school location plan.	Completed	Expanded to a gov't.school mapping project. IDA study used in expansion of primary education.
Curricula Review	To review and revise curricula of all teacher training and vocational training institutions.	Completed	Further studies have built upon the groundwork laid by this study.

3.09 **Comments on Project Studies:** The studies were instrumental in the preparation of future projects, e.g., the Teacher Training project preparation work utilized information from the study on the Efficiency of Primary Education. The Curriculum Review/Revision study prepared by the ERDC was reduced in scope as the GTZ prepared a part of the study on vocational training. The School Mapping study was, on the other hand, drastically increased in scope as the government used it to implement a school mapping project which encompassed 200 school districts.

6. Status of Loan Covenants

Table 10  
COMPLIANCE WITH LOAN/CREDIT CONDITIONS

March 30, 1990/Y. Saran  
(Date) (Task Manager)

YAR - Education IV  
(Credit Number 1203-YAR)

Description of Covenant	Source of Covenant 1/	Status of Compliance			Discussion 2/
		Conditions Not Complied	Action Pending	Conditions Met	
1. a. Establish in a bank acceptable to IDA a Salary Supplement Fund in accordance with the provisions of Schedule 4 to the Credit Agreement.	Sect. 3.02 Schedule 4 Paras. 2&3			X	
b. Maintain records adequate to reflect in accordance with consistently maintained sound accounting practices, the operations of said Fund.	Sect. 1.02 Schedule 4 Paras. 2&3			X	
c. Not later than 06/30/85 make a mid-term evaluation to assess the effectiveness of the Salary Supplement Fund in attracting teacher trainers into the training institutes.	Sect. 3.02 Schedule 4 Paras. 2&3			X	Evaluation resulted in termination of program.
d. By June 1984, take necessary steps to incorporate progressively the expenditures related to the Salary Supplement Fund in the recurrent budget of MOE commencing with fiscal year 1985, leading to full budgeting of said expenditures for fiscal year 1987 and thereafter.	Sect. 3.02 Schedule 4 Paras. 2&3			X	As of end of 1984, MOE provides own funding to cover expenditures related to teacher trainers salary supplement.

1/ Undertakings of both the Borrower and guarantor are to be covered whatever given in the form of covenants in the Loan/Credit. Guarantee or Project Agreements or in other written form (e.g., supplemental letters; agreed minutes of negotiations). However, only the conditions most important to the success of the project need to be reviewed: all or most of the "special conditions" of the Loan/Credit listed in Section III of Annex IV of the President's Report will generally fall in this category.

2/ List causes of non-compliance and the remedies being pursued or cross reference should be made where this is adequately discussed in the Form 590 or in another Annex. In the case of dated covenants or other conditions upon which action is still pending, an indication should be given of the progress being made toward fulfillment of each of the conditions.

COMPLIANCE WITH LOAN/CREDIT CONDITIONS

March 30, 1990/Y. Saran  
(Date) (Task Manager)

YAR - Education IV  
(Credit Number 1203-YAR)

Description of Covenant	Source of Covenant <sup>1/</sup>	Status of Compliance			Discussion <sup>2/</sup>
		Conditions Not Complied	Action Pending	Conditions Met	
12. Commencing December 1983, make available to IDA annually the data of total enrollments, number of annual admissions, examinations passing rates and number of students residing in the hostels for each of the VTCs and the PTIIs.	Sect. 4.03			X	Information provided to the IDA mission in April 1989.
13. Not later than 12/31/82, establish in the CPO a system to monitor annually: (a) the number of Government-supported Yemeni engineering degree students abroad by discipline and name of country and the expected date of their return; (b) the number of new students proceeding abroad for engineering studies.	Sect. 4.04			X	A data base system has been implemented at the Ministry of Civil Service and Administrative Reform for this purpose.
14. Undertake that the Board of Studies to be constituted for the Faculty of Engineering in the University shall include representatives of at least 2 of the following: (a) MOPW; (b) CPO; (c) Yemeni General Electricity Corporation; (d) Tihama Development Authority.	Sect. 4.05			X	A Faculty Council with the above representation has been established.

<sup>1/</sup> Undertakings of both the Borrower and guarantor are to be covered whatever given in the form of covenants in the Loan/Credit. Guarantee or Project Agreements or in other written form (e.g., supplemental letters; agreed minutes of negotiations). However, only the conditions most important to the success of the project need to be reviewed; all or most of the "special conditions" of the Loan/Credit listed in Section III of Annex IV of the President's Report will generally fall in this category.

<sup>2/</sup> List causes of non-compliance and the remedies being pursued or cross reference should be made where this is adequately discussed in the Form 590 or in another Annex. In the case of dated covenants or other conditions upon which action is still pending, an indication should be given of the progress being made toward fulfillment of each of the conditions.

COMPLIANCE WITH LOAN/CREDIT CONDITIONS

March 30, 1990/Y. Saran  
(Date) (Task Manager)

YAR - Education IV  
(Credit Number 1203-YAR)

Description of Covenant	Source of Covenant <sup>1/</sup>	Status of Compliance			Discussion <sup>2/</sup>
		Conditions Not Complied	Action Pending	Conditions Met	
15. Not later than 06/30/84, furnish or cause to be furnished to IDA an interim report in a form satisfactory to IDA on the establishment of the Faculty of Engineering. Such report to include, <i>inter alia</i> , the future requirements of foreign exchange resources to complete all departments of such a Faculty.	Sect. 4.06			X	The civil engineering department of the FOE has been established with IDA assistance and is fully operational; electrical engineering and architectural engineering departments have been set up; other departments are planned for the future.
16. Before 06/30/83, enter into agreement satisfactory to the Association to ensure the foreign exchange and local components of the financing of the completion of departments at the Faculty of Engineering available starting 01/01/84; if by 06/30/83, part or all of the aforesaid funds of such financing shall not have been ensured to the satisfaction of the Association, the Borrower shall include all funds needed for the completion of departments at the Faculty of Engineering in its budgetary allocation starting 01/01/84.	Sect. 4.07			X	The buildings of the Faculty of Engineering have been completed and are in use.

<sup>1/</sup> Undertakings of both the Borrower and guarantor are to be covered whatever given in the form of covenants in the Loan/Credit. Guarantee or Project Agreements or in other written form (e.g., supplemental letters; agreed minutes of negotiations). However, only the conditions most important to the success of the project need to be reviewed; all or most of the "special conditions" of the Loan/Credit listed in Section III of Annex IV of the President's Report will generally fall in this category.

<sup>2/</sup> List causes of non-compliance and the remedies being pursued or cross reference should be made where this is adequately discussed in the Form 590 or in another Annex. In the case of dated covenants or other conditions upon which action is still pending, an indication should be given of the progress being made toward fulfillment of each of the conditions.

COMPLIANCE WITH LOAN/CREDIT CONDITIONS

March 30, 1990/Y. Saran  
(Date) (Task Manager)

YAR - Education IV  
(Credit Number 1203-YAR)

Description of Covenant	Source of Covenant 1/	Status of Compliance			Discussion 2/
		Conditions Not Complied	Action Pending	Conditions Met	
7. Undertakes to provide to the Association, upon completion of the ERDC referred to in Part A (ii) of Schedule 2 of the Credit Agreement for review and comments by the Association.	Sect. 4.08			X	The four studies that made up the ERDC work program have been completed. The school inventory study was enlarged to a full scale school mapping project which is being supported by the Government.

1/ Undertakings of both the Borrower and guarantor are to be covered whatever given in the form of covenants in the Loan/Credit. Guarantee or Project Agreements or in other written form (e.g., supplemental letters; agreed minutes of negotiations). However, only the conditions most important to the success of the project need to be reviewed; all or most of the "special conditions" of the Loan/Credit listed in Section III of Annex IV of the President's Report will generally fall in this category.

2/ List causes of non-compliance and the remedies being pursued or cross reference should be made where this is adequately discussed in the Form 590 or in another Annex. In the case of dated covenants or other conditions upon which action is still pending, an indication should be given of the progress being made toward fulfillment of each of the conditions.

H. Use of IDA Resources

Table 11: STAFF INPUTS BY STATE OF PROJECT CYCLE IN SWs

<u>Stage of Project Cycle</u>	<u>Planned</u>		<u>Revised</u>		<u>Final</u>	
	<u>HQ</u>	<u>Field</u>	<u>HQ</u>	<u>Field</u>	<u>HQ</u>	<u>Field</u>
Preparation To Appraisal	30.0	15.0	-	-	38.3	12.0
Appraisal - Board Approval	40.0	20.0	-	-	46.0	15.0
Board Approval - Effectiveness	5.0	-	-	-	2.9	-
Supervision	15.0	25.0	10.0	38.0	16.8	47.6
Total	<u>90.0</u>	<u>60.0</u>	<u>10.0</u>	<u>38.0</u>	<u>104.0</u>	<u>74.6</u>

3.11 Comments on Staff Inputs: Supervision time was underestimated as the original closing date of the project was December 31, 1987. The Credit closed on December 31, 1989 (credit account closed on January 16, 1990). An average of 8 staffweeks was planned for each year the project was supervised. The actual staffweek of supervision time spent was seven staffweeks.

**Table 12: MISSION DATA BY STAGES OF PROJECT**

Mission	Month/ Year	No. of Persons <u>a/</u>	Staff Weeks Field	Overall Performance Status <u>b/</u>
Identification	06/79	2 (GE/A)	3.0	
Preparation	09/79	3 (GE/TE/A)	6.0	
Preappraisal	05/80	2 (GE/A)	3.0	
Appraisal	10/80	6 (A/E/GE/TE/EP/MS)	13.8	
Post-Appraisal	07/81	1 (A)	1.2	
<b>TOTAL</b>			<b><u>27.0</u></b>	
Supervision I	06/82	1 (A)	1.9	1
Supervision II	11/82	2 (A/GE)	.9	1
Supervision III	07/83	1 (GE)	1.4	1
Supervision IV	08/83	2 (A/GE)	.9	1
Supervision V	01/84	1 (EP)	2.6	1
Supervision VI	02/84	3 (A/EP/TS)	1.3	1
Supervision VII	08/84	3 (A/GE/TE)	1.4	1
Supervision VIII	03/85	1 (TE)	.3	1
Supervision IX	12/85	2 (A/E)	.9	1
Supervision X	06/86	4 (A/GE/TE/EP)	5.0	1
Supervision XI	04/87	4 (A/GE/TE/EP)	6.7	1
Supervision XII	10/87	2 (GE/OA)	3.1	1
Supervision XIII	03/88	3 (GE/OA/PS)	4.6	1
Supervision XIV	10/88	4 (GE/OA/A/TE)	5.6	1
Supervision XV	03/89	3 (GE/A/OA)	3.8	2
Supervision XVI	08/89	5 (GE/A/OA/PS/TE)	7.2	2
<b>TOTAL</b>			<b><u>47.6</u></b>	
PCR	03/90	2 (A/OA)	3.3	

a/ A= Architect; E= Economist; GE= Gen.Educator; TE= Tech.Educator;  
EP= Education Planner; OA= Operations Assistant; PS= Procurement  
Specialist; MS= Media Specialist.

b/ Performance/Implementation Status -- 1 = Problem Free or Minor Problems  
2 = Moderate Problems; 3 = Major Problems

REPUBLIC OF YEMEN

Project Completion Report

Fourth Education Project (Credit 1203-YAR)

Participants in Completion Mission

International Development Association (IDA)

Y. Saran, Technical Educator, Task Manager  
S. Sigurdsson, Senior Implementation Specialist  
P. Maughan, Operations Assistant

Ministry of Education

A. Abdul Hafez, Director General, PIU  
A. Taher, Co-Director General, PIU  
A. Hamis, Assistant Director General, PIU  
A. Kharama, Procurement Officer, PIU  
M. Al Muwaada, Technical Assistance Officer, PIU  
B. Abdul Kader, Accountant, PIU

Educational Research & Development Center (ERDC)

M. Shahari, Director, ERDC  
I. Abdu Kasem, Technical Coordinator, ERDC  
M. Sarhan AlMiklafi, Head, Research Unit, ERDC

Faculty of Engineering, Sana'a University

A. Faisal Omar, Dean, Faculty of Engineering  
M. R. Al Eryani, Vice Dean, Faculty of Engineering  
A. Karim Daer, General Director for Financial Affairs  
A. Ghanem, Chief, External Procurement Dept.  
H. Al Nehme, Coordinator, Faculty of Education

REPUBLIC OF YEMEN

Project Completion Report

Fourth Education Project (Credit 1203-YAR)

Record of Project Progress Reports Submitted

(by Quarter)

	<u>PERIOD ENDING</u>	<u>DATE SUBMITTED</u>
1.	09/82	10/25/82
2.	12/82	-
3.	03/83	05/15/83 a/
4.	06/83	08/03/83
5.	09/83	10/29/83
6.	12/83	01/01/84
7.	03/84	05/30/84
8.	06/84	09/03/84
9.	09/84	11/15/84
10.	12/84	03/09/85
11.	03/85	06/05/85
12.	06/85	08/20/85
13.	09/85	05/07/86
14.	12/85	05/07/86
15.	03/86	06/04/86
16.	06/86	08/06/86
17.	09/86	05/06/87
18.	12/86	05/06/87
19.	03/87	-
20.	06/87	-
21.	09/87	-
22.	12/87	-
23.	03/88	10/23/88 a/
24.	06/88	11/04/88
25.	09/88	04/11/89
26.	12/88	04/11/89
27.	03/89	08/05/89
28.	06/89	-
29.	09/89	-
30.	12/89	03/11/90 a/

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a/ This report incorporated the status of the project for the preceding period(s). Except for the delays in 1987 and 1989 in submitting the information for the report, the quarterly progress reports submitted were well documented and submitted on time.

REPUBLIC OF YEMEN

Project Completion Report

Fourth Education Project (Credit 1203-YAR)

PLANNED AND ACTUAL COMPLETION OF CIVIL WORKS,  
FURNITURE AND EQUIPMENT PROCUREMENT

<u>Institution/ Building</u>	<u>COMPLETION DATES</u>					
	<u>Civil Works</u>			<u>Furniture and Equipment</u>		
	<u>Planned</u>	<u>Actual</u>	<u>Months Delay</u>	<u>Planned</u>	<u>Actual</u>	<u>Months Delay</u>
<u>ERDC:</u>	09/84	04/85	7	12/84	12/89	60
<u>Boarding Facilities:</u>						
. VTC, Taiz	03/84	07/84	4	-	-	-
. VTC, Hodeidah	03/84	02/84	-1	-	-	-
. PTTI, Ibb	03/84	03/84	-	-	-	-
. PTTI, Amran	03/84	12/84	9	-	-	-
<u>Faculty of Engineering:</u>						
. Civil Eng. Dept.	12/84	10/88	46	12/87	12/89	24
<u>Project Implementation Unit:</u>	-	-	-	06/85	06/88	36

Comments Completion Dates: Equipment procurement began in 1984 and continued through 1989 as funds became available following a reallocation, in September 1985, of funds from the civil works category to the furniture, equipment and goods category.

PLANNED AND ACTUAL UTILIZATION OF  
TECHNICAL ASSISTANCE BY INSTITUTION

Institution	<u>Specialist Assistance</u>		<u>Fellowship Training</u>	
	<u>Planned</u> No.	<u>Actual</u> MM	<u>Planned</u> No.	<u>Actual</u> MM
ERDC	(17)	71	(4)	132
PIU	(9)	174	(6)	180
FOE	(9)	122	(9)	154
TTSSF	-	-	-	-
Totals	<u>(35)</u>	<u>367</u>	<u>(19)</u>	<u>466</u>
			<u>(33)</u>	<u>766</u>
			<u>(57)</u>	<u>1361</u>

Comments on the Utilization of TA. ERDC did not use its full quota of short-term consultants but were allowed to send more fellows for training. Fewer consultants were used for a longer duration at less cost than anticipated at appraisal. Approximately 37 researchers have been sent on fellowships and 14 had completed their programs of study by the project's closing date. The remainder are expected to return in late 1991.

INSTRUCTIONAL STAFF IN PROJECT INSTITUTIONS  
FACULTY OF ENGINEERING

Department	----- Full Time Staff -----			
	Instructional Staff (PhD Level)		Teacher Assistants (M.S./B.S. Level)	
	<u>YEMENI</u>	<u>NON-YEMENI</u>	<u>YEMENI</u>	<u>NON-YEMENI</u>
Civil Eng.	3	11	15	3
Electrical Eng.	4	7	12	-
Architectural Eng.	-	6	3	-
Mechanical Eng.	-	2	3	-
Sub-total	<u>7</u>	<u>26</u>	<u>33</u>	<u>3</u>
Part-time Staff	3	1	1	1
<b>TOTAL</b>	<b><u>10</u></b>	<b><u>27</u></b>	<b><u>34</u></b>	<b><u>4</u></b>

Comments on Staff at the FOE. In addition to the 75 technical and professional staff shown above, there are also some 35 administrative staff and about 20 lab technicians who support the technical staff. Although the table shows five staff for the mechanical engineering department, this department has not as yet been established but courses in that field have begun to teach relevant mechanical engineering subjects to civil and electrical engineers. Expatriate salaries are being financed by the State of Kuwait and average about US\$30,000 per staff year.

**PLANNED AND ACTUAL ENROLLMENTS AND OUTPUTS  
OF PROJECT INSTITUTIONS/PROGRAMS**

<u>Institution/ Program</u>	<u>Enrollments</u>			<u>Boarders</u>			<u>Outputs</u>		
	<u>Planned</u>	<u>Actual</u>	<u>%</u>	<u>Planned</u>	<u>Actual</u>	<u>%</u>	<u>Planned</u>	<u>Actual</u>	<u>%</u>
<b><u>Boarding Facilities:</u></b>									
. VTC, Taiz	160	98	61%	108	98	91%	60	27	45%
. VTC, Hodeidah	280	386	138%	108	140	130%	70	74	106%
. PTTI, Ibb	210	674	321%	108	226	209%	56	104	186%
. PTTI, Amran	150	535	357%	108	289	268%	40	103	258%
<b><u>FOE</u></b>									
. Civil Eng. Dept.	750	1450	193%	-	-		40	34	85%

**3.04 Comments on Enrollments and Outputs:** The numbers of students enrolled and those graduating exceeded the planned capacity at each facility except for the VTC at Taiz which was merged with a secondary teachers' center also at Taiz - a new VTC was constructed with government funds nearby. The lower than planned output at the FOE is due to delays in civil works; however, the students now enrolled at the FOE will far exceed the planned output by 1992.

CIVIL WORKS PROCUREMENT SCHEDULE AS AGREED  
BETWEEN IDA AND GOVERNMENT

<u>Institution</u> <u>Building</u>	<u>Tender</u> <u>Date</u>		<u>Contract</u> <u>Signed</u>		<u>Civil Works</u> <u>Initiated</u>	
	<u>Planned</u>	<u>Actual</u>	<u>Planned</u>	<u>Actual</u>	<u>Planned</u>	<u>Actual</u>
ERDC	05/82	04/82	09/82	11/82	09/82	12/82
<u>Boarding Facilities:</u>						
. VTC, Taiz	11/81	04/82	03/82	11/82	10/82	02/83
. VTC, Hodeidah	11/81	04/82	03/82	11/82	10/82	02/83
. PTTI, Ibb	11/81	04/82	03/82	11/82	10/82	02/83
. PTTI, Amran	11/81	04/82	03/82	11/82	10/82	02/83
FOE						
. Civil Eng. Dept.	10/82	07/83	12/82	08/84	01/83	10/84

Except for major delays in the award of contracts and subsequent completion of the FOE, other facilities were completed with marginal delays only. The quality of construction was quite good and the design of buildings impressive.