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PROJECT COMPLETION REPORT
PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT
(CREDIT 865-YDR)

March 30, 1987

Education and Manpower Development Division
Europe, Middle East and North Africa Region

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

Office of Director-General
Operations Evaluation

March 30, 1987

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report: People's Democratic Republic of Yemen - Second Education Project (Credit 865-YDR)

Attached, for information, is a copy of a report entitled "Project Completion Report: People's Democratic Republic of Yemen - Second Education Project (Credit 865-YDR)" prepared by UNESCO and revised by the Europe, Middle East and North Africa Regional Office. Under the modified system for project performance auditing further evaluation of this project by the Operations Evaluation Department has not been made.

A handwritten signature in black ink, appearing to be 'A. Khan', is written over a rectangular box. The signature is stylized and cursive.

Attachment

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

PROJECT COMPLETION REPORT

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PROJECT COMPLETION REPORT

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT
(CREDIT 865-YDR)

PREFACE

This is a Project Completion Report (PCR) on the implementation of the Second Education Project in the People's Democratic Republic of Yemen, for which Credit 865-YDR for US\$4.0 million was approved in December 1978. The PCR was prepared for the World Bank Group under the Cooperative Agreement between Unesco and the World Bank.

At the invitation of the Government, a mission composed of Unesco staff member, Mr. Mason (general educator and mission leader) and Mr. J. Jordan (architect-consultant) visited the country for two weeks (February 2-17, 1985). Before working in the country, the mission leader made a study of the relevant project files held by the World Bank Group in Washington, D.C. and consulted with Bank staff associated with the project. These provided the essential background for the mission's field work in conjunction with discussions held with Government educational authorities involved with the project. The Closing Date of the Credit was December 31, 1984; the final disbursement was made on July 22, 1985, and the balance of about US\$15,800 cancelled.

In accordance with the revised procedures for project performance reporting, this PCR was read by the Operations Evaluation Department (OED) but the project was not audited by OED staff. The draft PCR was sent to the Borrower and its agencies and comments received have been taken into account in finalizing the report and are reproduced as Attachment I.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDR)

Basic Data

A. Key Project Data

Item	Appraisal Estimate Expectation	Actual or Current Estimate
Total Project Cost (US\$ Million)	4.40	6.98
Overruns (%)	-	58%
Credit Amount (US\$ Million)	4.00	4.00
- Disbursed	4.00	3.98
- Cancelled	-	-
- Repaid	-	-
- Outstanding	-	-
Date physical components completed	7/81	3/85
Number of months since credit signature	31	75
Proportion completed by above date (%)	100%	100%
Proportion of time overrun (%)	-	142%
Institutional Performance	good	good

B. Other Project Data

Item	Original Plan	Revisions	Actual
First Mention In Files or Timetable	01-08-76		01-08-76
Government's Application	11-23-77		11-23-77
Negotiations	08-00-78		08-17-78
Board Approval	11-07-78		12-14-78
Loan/Credit Agreement Date	12-22-78		12-22-78
Effectiveness Date	03-22-79	06-22-79	06-18-79
Closing Date	06-30-82	12-31-84	12-31-84 ^{1/}

Borrower: The Government of the People's Democratic Republic of Yemen

Executing Agency: Project Unit, Ministry of Education

Fiscal Year of the Borrower: 1 January - 31 December

Follow on project name: Third Education Project

Credit Number: 1222-YDR

Amount SDR Million: 5.30

Credit Agreement Date: May 25, 1982

^{1/} Final disbursement was made on July 22, 1985, and the undisbursed balance of US\$15,827 was cancelled.

C. Mission Data

<u>Item</u>	<u>Sent by</u>	<u>Month Year</u>	<u>No. of Weeks</u>	<u>No. of Persons</u>	<u>Manweek</u>	<u>Date of Report</u>
Identification	Unesco	1/1976	3.0	1	3.0	unknown
Reconnaissance	Bank	2/1977	2.0	2 A,AE,G,F,	8.0	3/09/77
Preparation	Bank	8/1977	0.8	2 A,F	1.6	8/11/77
Appraisal	Bank	1/1978	3.0	3 A,AE,F	9.0	11/10/78
			<u>8.8</u>		<u>21.6</u>	
Supervision:						
I	Bank	1/79	0.7	1 A	0.7	02-02-79
II	Bank	10/79	1.0	2 AE,A	2.0	10-26-79
III	Bank	5/80	0.4	2 AE,A	1.6	06-19-80
IV	Bank	10/80	0.4	3 GE,AE,A	1.2	11-03-80
V	Bank	5/81	0.4	3 GE,A,TE	1.2	06-18-81
VI	Bank	12/81	0.3	3 TE,AE,A	0.9	01-29-82
VII	Bank	5/82	0.3	2 GE,A,T	0.9	06-09-82
VIII	Bank	10/82	0.6	3 GE,A,TE	1.8	12-08-82
IX	Bank	2/83	0.6	3 GE,A,TE	1.8	03-15-83
X	Bank	6/83	0.3	1 TE	0.3	07-11-83
XI	Bank	8/84	0.3	1 TE	0.3	08-13-84
XII	Bank	10/84	0.6	1 A	1.2	11-05-85
XIII	Bank	2/85	0.2	1 A	0.2	03-05-85
Toal (SPN)			<u>6.1</u>		<u>14.1</u>	
Completion Mission	UNESCO	2/85	<u>2.3</u>	2 A,GE	<u>4.6</u>	05-03-85

D. Country Exchange Rates

Name of Currency

Yemeni Dinar (YD)

Exchange Rates

Appraisal year (1970)

US\$1 = YD 0.345

Intervening years average

US\$1 = YD 0.345

Completion year (1985)

US\$1 = YD 0.345

NOTE:

- A - Architect
- AE - Agricultural Educator
- TE - Technical Educator
- GE - General Educator
- F - Facilities Planner

PROJECT COMPLETION REPORT

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT
(CREDIT 865-YDR)

EVALUATION SUMMARY

Introduction

The Second Education Project (Credit 865-YDR) in the amount of US\$4.0 million) was identified by a UNESCO mission in January, 1976, and prepared by the Government with assistance from a Bank Group mission in July/August, 1977. As the original project scope and cost were larger than could be accommodated by the Government, a Bank Group appraisal mission in January, 1978, scaled down the proposed project which was then estimated to cost about US\$4.4 million equivalent (Staff Appraisal Report No. 2097-YDR dated November 10, 1978). Board approval was secured on December 14, 1978. The Credit Agreement was signed on December 22, 1978 and the Credit became effective on June 18, 1979. The project was expected to be completed by July 31, 1981, and the Closing Date was June 30, 1982. Implementation actually took three years longer than planned, and the Closing Date was changed to December 31, 1984. The final project cost was about US\$7.0 million equivalent (59% higher than appraisal estimate). Total disbursements amounted to US\$3.98 million and the balance of about US\$15,800 was cancelled on July 22, 1985 when the last disbursement was made.

Objectives

Conceived as the first phase of a proposed network of vocational training centers, the project aimed at (paras. 2.12-2.13):

- (a) meeting training needs for skilled and semi-skilled workers in industry, agriculture and commerce;
- (b) reducing regional inequalities in vocational training opportunities;
- (c) increasing the role of women in the economy; and
- (d) assisting in the development of appropriate curricula and preparing teachers for the vocational training centers.

Implementation Experience

Three Government organizations shared responsibility for project implementation: the Project Implementation Unit (PIU), created under the First Education Project (Credit 494-YDR) and the Directorate of Technical and Vocational Education in the Ministry of Education (MOE); and the Ministry of Construction (paras. 3.05-3.06). Project implementation took about six years instead of the (overly optimistic) planned three years. Initial implementation delay, due to a manpower shortage, was subsequently compounded by a sharp increase in construction costs. By mid-1980, one year after construction was to have started, the Government and the Association agreed to a revision of the appraisal plans for civil works as a means of reducing project cost. It was decided that two of the three vocational training centers would be accommodated in two existing secondary schools to be converted and expanded. But what might have been an advantage in the revised plan was lost through further delay in calling for tenders for conversion/extension of the existing facilities because construction unit costs escalated to about 137% of what was estimated at appraisal. Civil works were again delayed, this time by massive floods in 1982 when the buildings intended for conversion were used as temporary shelters for flood victims. Thus the conversion of the Al-Kod Industrial Training Center started only in July 1982 and was completed 33 months later, and work on the Agricultural Training Center at Saber started in November 1982 and was completed 25 months later. The new Commercial Training Center at Mukalla was constructed in 29 months as planned (paras. 3.01-3.04). Compared with other construction in PDRY, the quality of the project buildings is good except for damage to some woodwork caused by termites, the result of inadequate anti-termite treatment of building foundations prior to construction (paras. 3.23-3.24). Furniture and equipment for the project institutions are appropriate and of acceptable quality (paras. 3.26-3.29). Total project cost was about US\$7.0 million, 59% above the appraisal estimate of US\$4.4 million (Annex 2-1). In local currency, total project cost was YD 2,406,000 or 58% more than the appraisal estimate of YD 1,520,000 (Annex 2-2). All special covenants were satisfactorily fulfilled.

Results

In May 1985, when the project completion report (PCR) was prepared, the three vocational training centers were at varying stages of operation. Only 31% of the appraisal enrollment targets had been achieved apparently because of the low social prestige attached to vocational-technical education. Other reasons include: (a) the Al-Kod Industrial Training Center had planned the first student intake for its new premises in September 1985; (b) the Saber Agricultural Training Center had moved to its new premises only in January, 1985, after the start of the academic year; (c) evening classes were not operating yet at the Mukalla Commercial Training Center because of inadequate supply of electricity; and (d) farmer training, which would have used the facilities at the Saber Agricultural

Training Center, had been transferred to a different location (para.5.04-5.05). The project has also not met its objective of achieving 38% enrollment of females because of perceived poor employment opportunities and socio-cultural barriers (para. 5.06). As there are shortages of all types of technical personnel, and the Government assigns all graduates to the public sector, there is presumably no unemployment among the graduates of these project institutions. The training of teachers for the vocational training centers was expected to meet its target of 63 teachers trained under bilateral technical assistance. The project has been specially successful in developing appropriate curricula for the vocational training institutions. The availability of boarding places in all the vocational training centers to accommodate students from all parts of the country would help reduce regional inequalities in vocational training opportunities. Given time, the project has the potential for achieving all its objectives.

Sustainability

As the three project institutions are part of a larger network of vocational training centers planned by the Government and are the main source of trained middle-level skilled workers, they are being maintained by the local government in each Governorate where they are located. If, however, enrollment remains low, the sustainability of each institution might depend on the cost-effectiveness of the output of trained workers, an issue which would need reexamination after the institution has had a reasonable period (say, five years) of operational experience.

Findings and Lessons

The project's experience suggests the following lessons:

- (a) Preparations for civil works construction should be at an advanced stage by credit/loan effectiveness to avoid implementation delay which would almost always result in much higher construction costs in a period of rapid price inflation (paras. 3.02-3.04).
- (b) Agreement at appraisal between the Borrower and the Association on the provision of building space, schedules of accommodation, and other matters concerning civil works would avoid the necessity of revisions which would delay implementation and increase costs (paras. 3.13-3.15).
- (c) Constructive participation of the various Government agencies and the Association in decision-making during project implementation is a crucial factor in ensuring successful implementation (paras. 3.02, 3.10-3.12, 3.43).

- (d) To meet project objectives which involve rapid social change in a traditional society (such as enrollment in vocational education which has low prestige, or encouraging women to take a more active part in the economy where men have predominated) the project design should include programs for publicizing the advantages of vocational skills and the merits of having more women working in industry, agriculture and commerce (5.04-5.08).

PROJECT COMPLETION REPORT

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT
(CREDIT 865-YDR)

SUMMARY AND RECOMMENDATIONS

Project Generation

1. The quantitative development of the education system in the People's Democratic Republic of Yemen between independence in 1967 and appraisal in 1978 was remarkable. But although structural deficiencies of the system were being addressed, deficiencies still remained in manpower training, education quality and finance. The appraisal mission estimated the annual shortfall of technicians by 1983 at about 740 and that in the clerical and skilled workers category about 6,650. The mission appropriately considered these critical shortages to be a serious impediment to economic development.

Objectives.

2. The Second Education Project (Credit 865-YDR) was conceived as the first phase of a proposed network of skill training centers, and it is designed to assist in meeting training needs for skilled and semi-skilled manpower in industry, agriculture and commerce. The main objectives of the project are to assist the Government in: (a) meeting training needs for skilled and semi-skilled workers in the above three sectors; (b) reducing regional inequalities in vocational training opportunities by providing boarding places for about 50 percent of the total student population; (c) increasing the role of females in the economic life of the country by encouraging female participation in each of the three vocational training programs; and (d) assist in developing appropriate curricula and training teachers for the three types of training centers. The project is scheduled to produce annually about 500 employable graduates of a two year (grades 9-10) skill training program.

Project Scope.

3. The project originally included new construction, furniture and equipment for 850 training places and 400 boarding places for three vocational training institutions, one each in the industrial, agricultural and commercial sectors. During implementation, project scope was changed to include one new and the conversion of two centers. It also included technical assistance for teacher training, financed from bilateral sources.

Project Management and Implementation.

4. The Credit was signed on December 22, 1978. Six years later and after one, 18 month extension of the original Cosing date (June 30, 1982), physical aspects of the project had been substantially completed and the Credit was closed on December 31, 1984. The six year implementation period compares well with regional averages in implementation performance, although it substantially exceeded appraisal estimates of approximately three years. The main factors that accounted for the time overrun were limited design capacity in the Ministry of Construction and major price increases in the cost of labor and materials which necessitated scaling down of the project. Further delays also occurred as a result of the 1982 floods in PDRY.

5. Project Implementation. The project unit, originally created under the First Education Project (Credit 494--YDR), has performed well. Its responsibilities include: (a) general coordination of the project; (b) procurement of furniture and equipment; (c) monitoring of progress; (d) keeping of project records; and (e) liaising with the Association. The Ministry of Construction was responsible for the design and implementation of civil works. Bilaterally provided technical assistance was efficiently administered by the Directorate of Technical and Vocational Education. Suitable curricula for the three training programs have been developed and are being introduced. About 50 teachers have been trained, compared with appraisal estimates of 63. All project institutions have the requisite textbooks and libraries.

6. All three sites are adequate in size and location, but less than optimally planned or utilized. Construction areas are generally over 50 percent in excess of appraisal estimates due to: (a) the original allowances made at appraisal for walls and circulation were about 10% too low; (b) there were planning difficulties associated with converting existing facilities; and (c) the designers of the new facilities created unnecessarily large circulation and recreation areas. But despite flaws, the designs are generally simple and functional.

7. In comparison with other construction in PDRY, such as general secondary schools, the quality of the project buildings is acceptable, but several minor deficiencies need attention. The only serious shortcoming is caused by termite attacks on non-structural elements.

8. Appropriate furniture and equipment lists were prepared by the Ministry of Education, and procurement was timely and efficiently carried out, mostly by international competitive bidding. The quality of the imported furniture is excellent. Equipment is appropriate in terms of quality and quantity, but not yet fully operational. Adequate initial supplies of consumable materials are being provided for each center.

9. Maintenance problems are evident at two of the three project institutions (paras 19v-19vi below), but prospects are good that existing deficiencies will be rectified.

10. All covenants have been satisfactorily fulfilled.

Association Supervision and Performance.

11. The project concept and design were responsive to training needs of the Borrower. Effective communications were maintained between the Government and the Association, and critical problems were identified and solved in a timely manner.

Project Cost and Financing.

12. At appraisal, the project cost was estimated at US\$ 4.4 million equivalent, whereas actual costs are US\$ 7.0 million, an increase of 58 percent. The principal reason was an increase in construction costs by 66% over appraisal estimates despite an appropriate decision during implementation to scale the project down by substituting rehabilitated facilities for the originally planned new facilities at two out of three project sites. Construction cost increases were caused by a sharp general escalation of construction prices during early implementation (32% in 1979) coupled with 50% increases in gross building areas (para 6).

13. Furniture costs increased by 43 percent over appraisal estimates and equipment costs by 25 percent, mainly because of about 30% higher than estimated price escalation rates for these items and minor changes in equipment lists. Disbursements were closely related to expenditures.

Attainment of Project Objectives

14. The project is a forerunner of a proposed network of 14 planned vocational training centers. The project has the potential to meet its stated objectives, but enrollments and outputs remain low because of the reasons stated below. At the time of the completion mission, civil works were with minor exceptions complete. Actual capacity of project institutions is 18 percent in excess of the originally proposed capacity.

Enrollment

15. One school is fully operational and the others operated in temporary premises during 1984/85. To date, only 31 percent of appraisal enrollment targets have been achieved because : (a) the first intake to the new facilities of the Vocational Industrial Training Center at Al-Kod will not take place until September 1985; (b) The Vocational Agricultural Center at Saber only moved to its new premises in January 1985; (c) the low social prestige of vocational-technical education has discouraged better qualified students from enrolling; (d) evening classes are not yet held at the Commercial Vocational Training Center at Mukalla because of limited availability of electricity; and (e) farmer training has been appropriately transferred to an agricultural extension program on a different location. The project has not met its objectives in terms of enrollment of females (2% of compared with estimated 38%) because of perceived poor employment opportunities and socio-cultural barriers (para 5.06). The Government is contemplating measures to encourage enrolment, but further avenues must be sought to increase enrollment, particularly that of females. Dropout at the only fully operational institution is low at 3 percent per annum.

Graduates

16. The Ministry of Planning assigns graduates to employment in the public sector. Specific plans for student placement are not known, but there are shortages of all types of technical personnel of the type produced by the three centers.

Teachers

17. The outcome of the teacher training program both locally and through bilateral agreements has been successful in that about 50 of the required 63 teachers have been trained and the remainder is undergoing training.

Teaching Programs/Curricula

18. The project has been particularly successful in its attempts to generate appropriate curricula for its training institutions. Recently developed curricula are in use at the industrial and commercial training centers and serious efforts are being made to introduce new curricula to the agricultural training institution. Appropriate consultations were held with various education and research institutions as well as with user ministries and potential employers about the content of the new curricula. The result is a good balance between theory and practical subjects.

19. Recommendations

i. Special attention needs to be given to the site supervision aspects of projects in PDRY, which is generally a serious problem because of shortages of staff and funds. However, site supervision has effectively ensured an acceptable quality of construction work at two project institutions. There are nonetheless a number of problems at the Vocational Agricultural Center at Saber, where site supervision was less efficient (paras 3.17, 3.25).

ii. Appraisal missions should carefully assess the abilities of design agencies to deliver designs within provided time, cost and area limits when proposing stringent construction programs (paras 3.13, 4.03).

iii. The Government should make more use of the recommendations of the building study included in the First Education Project (Credit 494-YDR), in particular in respect of design features appropriate for the climate (para 3.16).

iv. Efforts by students and school authorities to prepare landscaping and vegetation on site should be encouraged, and the Ministry of Construction should develop specialized specifications for the establishment and maintenance of such planting on new sites (para 3.18).

v. Attention needs to be given to completing or remodelling minor construction work and equipment installation on all three sites (paras 3.19, 3.20, 3.21, 3.22, 3.25, 3.28, 3.29, 3.30, 3.34).

vi. The Ministry of Construction should give more attention to the hazards of termite attacks, by ensuring that effective treatment of sites is carried out, or alternatively by using designs that eschew the use of timber. Doors and windows on two project sites will by necessity have to be replaced because of termite damage within the next couple of years (para 3.24). Consideration should be given by the Association to finance replacement of these window and door frames from the proceeds of the Third Education Project (Credit 1222-YDR).

vii. The Project Unit should provide, by September, 1985, a one year's supply of consumable materials from the project budget. There is some danger that the recurrent budget may not suffice in the future, and this needs to be monitored by the Ministry of Education. This is particularly important for the Industrial Vocational Training Center at Al-Kod, because some courses cannot otherwise be offered (para 3.31).

viii. The Government's efforts to encourage enrollment in technical/vocational education (including the establishment of evening classes) should continue, but the focus of such activities should probably be on publicity and information campaigns rather than provision of increased stipends to students. At the local level, the education authorities should organize and implement a publicity campaign to educate the public about the activities of the training centers through organized parental visits, as well as visits by the eighth grade classes. Increased effort must in particular be made to educate the public about training opportunities for females (paras 5.05-5.07).

ix. To facilitate implementation of the curriculum and to ensure practical orientation of agricultural training, the Government should arrange for title transfer of a Ministry of Agriculture farm site adjacent to the Agricultural Vocational Training Center at Saber to the center. Although the physical facilities for animal husbandry have been provided at this center, it has as yet neither animals nor feed. Progress in rectifying these shortcomings should be monitored by the Association. The prospects for their resolution are considered good (para 5.13).

x. The next scheduled education mission to PDRY (September 1985) will review the status of the project institutions and discuss the above recommendations with the Government.

PROJECT COMPLETION REPORT

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

CHAPTER I

INTRODUCTION

1.01 The preparation of this Project Completion Report has been based largely upon data collected by a mission to the People's Democratic Republic of Yemen (PDRY) during the two first weeks of February, 1985 and data available in the Bank Group files in Washington D.C. The mission visited all three project sites, observed classes, held discussions with the Director and some teachers at the training centers in operation, and consulted with the Government authorities at ministries connected with the Project, including Education, Planning, Labour and Civil Service and Construction. The Project Director or his Deputy accompanied the mission on all visits. The Director's contribution to the work of the mission was invaluable in that he had collected data for forms previously prepared by the Association, and his records were complete, reliable and accessible.

1.02 Before going to PDRY, the mission leader made a one week study of the relevant project files held by the World Bank Group in Washington D.C., and consulted with project officers associated with the Project. The files include supervision reports, progress reports, correspondence with the Borrower and other documents which had been prepared during project generation and implementation.

1.03 The mission reviewed the achievement of project objectives and targets (physical, financial and educational) against the planned or expected schedules and achievements set out at the time of appraisal and negotiations. However, a meaningful evaluation of the quality of the internal efficiency and output of the project institutions was not feasible, because only one institution has recently become fully operational.

CHAPTER II

PROJECT BACKGROUND

Socio-Economic Setting

2.01 At the time of appraisal, the People's Democratic Republic of Yemen had a population of about 1.7 million with an estimated growth rate of 2.6 percent per annum. With GNP per capita at about US\$ 280, the country was among the least developed in the world. Economic development efforts were hindered by two major problems: (i) limited availability of natural resources combined with rugged topography and difficult climatic conditions; and (ii) a critical shortage of skilled technical and managerial personnel. These problems were exacerbated by an uneven population distribution, and emigration of workers to nearby oil producing countries.

2.02 Despite these adverse conditions, the country had achieved a healthy GNP growth rate of 8 percent per annum, mainly as a result of large scale workers' remittances, effective mobilization of public investment (which rose from 7 percent of GDP in 1970 to over 23 percent in 1975) as well as a series of structural and institutional reforms, which had increased the absorptive capacity of the economy. Yet considerable potential for further economic development existed, particularly in agriculture, fisheries, manufacturing, construction and transportation. However, successful economic development in these sectors depended to a major degree on the availability of the necessary technical manpower.

Sector Setting

2.03 As a result of a sound administrative structure and dedicated and industrious staff, the quantitative development of the educational system between independence in 1967 and appraisal in 1978 was remarkable. But although the reform measures were appropriately directed towards rectifying the structural weaknesses of the educational system and provided a promising framework for its future development, deficiencies still remained, particularly in relation to manpower training, education quality and education finance.

2.04 In the area of manpower training, an annual shortfall by 1983 of 740 technicians and 6,650 clerical and skilled workers had been estimated at the time of appraisal. These critical shortages were appropriately perceived by the Government as serious impediments to economic development. Accordingly, appropriate measures were developed in the Government's educational development strategy to assist in meeting the shortfall. These measures included: (a) assigning responsibility for pre-service training to the Ministry of Education and retraining and upgrading of skills to the Ministry of Labor and Civil Service; (b) establishing a National Technical and Vocational Council, responsible for formulating comprehensive training programs and coordinating training activities in the country; and (c) establishing a new Directorate of Technical and Vocational Education to act as the executive branch of the Council.

2.05 In view of the limited expansion of technical and vocational education after independence compared with the rapid expansion of general education, the Government decided to accord top priority to the development of two year vocational skill training centers (grades 9-10) for programs for industry, agriculture and commerce. Fourteen such centers were to be established with a combined annual output of about 2,700 graduates by 1985. The Second Education Project was conceived in support of the Government's efforts to develop such skilled and semi-skilled manpower.

Formulation of the Project

2.06 The project was formulated over a period of 22 months. The Government's request for the project was originally made by the Minister of Education during an IDA mission to Aden in November, 1975 and was reiterated at the Bank/Fund Annual Meetings held in Manila, Philippines in October 1976.

2.07 In response to the Government's request, the Association advanced the project from FY80 to FY79. Consequently a four-man reconnaissance mission went to Aden in late February 1977 and concluded that the Government's educational strategy was sound and consistent with the socio-economic needs of the country. The mission proposed that the project focus on the Government's priority of developing vocational training, beginning with nine vocational training centers with 2,860 student places 1/. The Government proceeded with the preparation of the project on this basis, and was assisted by a two-man reconnaissance and preparation assistance mission from the Association in July, 1977.

2.08 The major issue at this stage was financial: total estimated cost of the proposed nine centers was at that time about US\$ 12.5 million, including contingencies. The Government anticipated difficulties in obtaining suitable cofinancing for the project and decided to reduce the project to five centers 2/ in order to permit an early start of project. These centers were to have about 1,600 student places and cost a total of about US\$ 7.0 million.

2.09 In January 1978 a three-man appraisal mission assisted the Government in completing project preparation and appraised the project. The mission recommended that four centers 3/ with 1,400 student places and 600 boarding places be established at a total estimated cost of about US\$ 6.8 million. Technical assistance in the form of fellowships was to be provided by the Government through bilateral assistance.

2.10 The financial issues continued to stay with the project during its subsequent processing. A Credit of only US\$ 4.0 million was available, while construction costs between 1976 and 1978 had escalated at an average annual rate of 16 percent 4/. To compensate for the escalation, the Government and the Association correctly decided to reduce project scope to three centers.

2.11 Negotiations were held August 15-17, 1978 in Washington DC., and the Credit was signed on December 22, 1978. It was scheduled to become effective on March 22, 1979, but because of delays in ratifying the Development Credit Agreement and obtaining legal opinion thereon, the actual date of Credit Effectiveness was June 22, 1979.

1/ Three industrial, two agricultural, two commercial, one fishery and one health.

2/ Three industrial, one agricultural and one commercial.

3/Two industrial, one agricultural and one commercial.

4/Source: Analysis of unit cost data from IBRD Report "People's Democratic Republic of Yemen, A Review of the Construction and Manufacturing Sectors, October 30 1981".

Project Objectives

2.12 Critical manpower shortages had appropriately been perceived by the Government as one of the most serious obstacles to economic development, and the project was a part of the Government's educational development strategy to help overcome this impediment. It became the first phase of a proposed network of fourteen vocational training centers (para 2.05), and was designed to assist in meeting needs for the training of skilled and semi-skilled manpower in industry, agriculture and commerce by producing annually about 500 employable graduates.

2.13 The project also responded to the Government's objective of balanced regional development by providing boarding places for 50 percent of the total student population to cater for the needs of students from rural areas. In response to the Government's policy of increasing the role of women in the economic life of the country, the project provided for 15, 20 and 75 percent participation of female students in the industrial, agricultural and commercial training programs, respectively.

Project Description

2.14 The project as negotiated consisted of:

(a) Construction, equipment and furniture for:

Institutions	Grades	Capacity		Estimated Annual Output
		Academic	Boarding	
Vocational Training Centers :				
(a) Industrial Third Governorate	9-10 and evening classes	250	100	115 65
(b) Agricultural Second Governorate	9-10 and ungraded	250 50	150	110 200
(c) Commercial Fifth Governorate	9-10 and evening classes	300	150	135 75
Total		850	400	700

(b) Technical Assistance:

About 36 man-months of bilaterally financed fellowship training abroad for the directors of the industrial and agricultural centers and four selected teachers (six man-months each).

CHAPTER III

PROJECT IMPLEMENTATION

Overview

3.01 The Credit was signed on December 22, 1978. Six years later and after one, 18 months extension of the original Cosing date (June 30, 1982), physical aspects of the project had been substantially completed and the Credit was closed on December 31, 1984. The six year implementation period compares well with regional averages in implementation performance (about 10 years), although it substantially exceeded the optimistic appraisal estimates of approximately three years. Chart 1. shows a comparison between planned and actual implementation schedules and disbursement profiles.

3.02 Delay Factors. Several, mutually reinforcing factors accounted for the time overrun when compared with appraisal estimates. Manpower deficiencies had begun to emerge in certain key sectors, including construction, as a result of a rapid intake into the government sector and emigration 1/. As a result, the Ministry of Construction required about six months in excess of estimates to prepare the original tender documents for the project. In addition to causing design and construction delays, the manpower shortages also had a major effect on construction costs. During 1979 alone, construction unit costs for non-residential buildings increased by an average of 32 percent because of accelerated growth of the construction sector and inflationary consequences for the entire economy 2/. These unit costs increases, coupled with approximately 60 percent increases in construction areas between appraisal provisions and actual designs (para 3.13), resulted in tenders (December 1979) that were 100 percent above appraisal estimates including contingencies. At final account these costs had risen to 120 percent over appraisal estimates.

3.03 A further six months delay took place while decisions were being made about how to proceed in view of the cost overruns. By mid 1980, one year after the initially scheduled start of construction, the Association and the Government agreed to depart from the originally appraised proposal to construct new facilities for all project items. Existing secondary school facilities were provided, and converted and expanded for the use of the Vocational Industrial Center at Al-Kod and the Vocational Agricultural Center at Saber, while the Commercial Vocational Training Center at Mukalla was constructed in 29 months as per the original designs.

3.04 In hindsight it becomes apparent that much of the advantage of deciding to adapt existing facilities rather than continue with the original designs was lost. Tenders for the extensions/conversions were not received until December 1981, two years after calling the original tenders and about three years after appraisal estimates. By this time, construction unit costs

1/Source: IBRD Report "People's Democratic Republic of Yemen, A review of Economic and Social Development, March 1979".

2/Source: Review of unit cost data from IBRD Report "People's Democratic Republic of Yemen, A review of the Construction and Manufacturing Sectors, October 30 1981".

had escalated to YD 184/m² — an increase of 137 percent over the average construction costs for non-residential buildings at the time of negotiations in 1978. Further delays occurred as a result of the 1982 floods, when the buildings intended for conversion were impounded for use as temporary shelters for flood victims. Conversion of the Vocational Industrial Training Center at Al-Kod started in July 1982 and was completed in 33 months. The Vocational Agricultural Center at Saber had to be retendered because the Association found the Government's proposal to reject all tenders and award the contract to a Government Corporation that had not participated in the bidding process inconsistent with its procurement guidelines. Work began on site in November 1982 and was completed in 25 months.

Project Management and Borrower Performance

3.05 Three Government organizations were the main participants in project management, namely the Project Unit of the Ministry of Education, the Ministry of Construction and the Directorate of Technical and Vocational Education of the Ministry of Education.

3.06 Project Unit. The project unit was originally created under the First Education Project (Credit 494-YDR) and has been responsible for implementing three subsequent education projects. Responsibilities of the project unit include: (a) general coordination of all entities involved in the project; (b) procurement of furniture and equipment; (c) monitoring of progress; (d) keeping of project records; and (e) liaising with the Association. The project unit has performed well, not only in the management of events under its direct control, but also in its handling of problems outside its direct control. Procurement of equipment and furniture was carried out efficiently, its records are commendably complete, and the unit has established an excellent liaison with the Association.

3.07 Ministry of Construction. A major participant in project management was the Ministry of Construction. Because of excessive workloads and manpower shortages (para 3.02), this ministry experienced severe difficulties in the timely carrying out its assigned tasks, namely the preparation of design, preparation of tender documents, tendering, evaluation and supervision of construction. The designs were excessively spacious and the quality of tender documents for the Vocational Industrial Training Center at Al-Kod and at the Vocational Agricultural Center at Saber was less than satisfactory, including omissions of major construction items from the tender documents. Another cause of construction period overruns was clearly beyond the control of project managers, namely the necessity to refurbish buildings that had been used for flood victims after the cessation of the occupation.

3.08 Ministry of Education. Technical assistance for the project was efficiently administered by the Directorate of Technical and Vocational Education of the Ministry of Education.

Implementation of Software.

3.09 Technical Assistance. The Government provided training for the directors and four instructors of the Vocational Agricultural Center at Saber, and the Vocational Industrial Training Center at Al-Kod through a bilateral agreement with East Germany. Table 3.1 shows the fellowships actually provided compared with appraisal estimates.

Table 3.1. Technical Assistance (Fellowships)

Project Item	Appraisal Estimate			Actual Provided		
	Number	Duration Months	Total	Number	Duration Months	Total
Al Kod Industrial Training Center.						
- Director	1	6	6	1	6	6
Saber Agricultural Training Center						
- Director	1	6	6	1	6	6
- Farm Machinery	2	6	12	-	-	-
- Food Processing	2	6	12	2	30	60
Total	6		36	4		72

The successful outcome of this program is discussed in paragraph 5.09

3.10 Curriculum Development. The Education Research Center of the Ministry of Education prepared curricula for the general subjects, whereas the curriculum for the industrial, agricultural and commercial training programs were each developed by Technical Education Committees, commissioned by the Minister of Education, and assisted by professionals in each category. These professionals were selected from staff of the Nasser College of Agriculture, the Malla Technical Institute and the College of Economics, respectively. Representatives from the Ministry of Education Headquarters, teachers, business and industry also participated in their respective areas of competence. The curriculum was approved in 1979 by the Second Education Congress. Comments and suggestions on the draft syllabi by user ministries and potential employers were evaluated and incorporated as appropriate into the final curriculum design prior to finalization and approval by the Advisory Council of the Ministry of Education. The Technical Education Committees selected appropriate books and reference materials and also prepared examination policies and regulations for all vocational programs. This achievement is expected to ensure consistency of content and quality in each program specialization and simplify future development of additional training centers. The outcome of the curriculum development program is discussed in paragraphs 5.10-5.14.

3.11 Textbooks and Libraries. Appropriate textbooks, library books and reference materials were selected from abroad and modified by each curriculum committee to suit the Yemeni situation. Accordingly, the Industrial and Commercial Training Centers have a set of textbooks similar to those used in Egypt and Syria, respectively. English language books were imported from the United Kingdom and India, and Arabic ones from Egypt and Syria. Eighty reference books were imported for the Vocational Agricultural Center at Saber.

3.12 Considerable attention is being paid to the development of libraries. Each vocational training center has a library with seating for about 50 students and equipped with about 1,000 new books. Although the library of the Vocational Agricultural Center at Saber has not yet been organized and there is

no trained librarian at any of the vocational training centers, the librarian at the Commercial Vocational Training Center at Mukalla has worked for three years under the guidance of a professional librarian and serves full time. There are also plans to send staff members from the other two institutions to attend elementary training courses at the libraries of the Nasser College of Agriculture and the Aden University.

Physical Planning and Design

3.13 Space Provisions. The building areas for the new buildings are about 50 percent in excess of appraisal estimates. At the Commercial Vocational Training Center at Mukalla (the only institution with entirely new construction), the gross academic areas (8.6 m² / place) are 40 percent in excess of appraisal estimates (6.1 m²) and the boarding areas (15.0 m² / place) are 67 percent higher than appraisal estimates (8.7 m² / place). Similarly at the Vocational Industrial Training Center at Al-Kod, the new boarding facilities are 64 percent in excess of appraisal estimates. This was in part due to excessively stringent appraisal estimates for walls and circulation (15-20%) but mainly because the designers of the facilities created unnecessarily large circulation and recreation areas. At the converted facilities, there were also planning limitations associated with the existing structural elements. (Annex 2-4).

3.14 The conversion of the secondary school at Saber into a Vocational Agricultural Center provided over 60% more usable academic areas than those envisaged at appraisal because of the availability of existing space at the converted secondary school. Accordingly, the capacity of this institution is well in excess of appraisal estimates (para 5.02). Useable areas at the other two centers are similar to the appraised ones. Only at the Vocational Industrial Training Center at Al-Kod did it prove difficult to accommodate the original schedule of accommodation and a fitting workshop had to be omitted. The boarding areas included during appraisal had provided recreation areas and other amenities sparingly. Expansion of these areas during the design process resulted in a 34% excess over the appraisal program. A detailed comparison of originally proposed and actually provided areas is shown in Annex 1-1.

3.15 Building designs. The schematic designs, approved by the Association, were in broad terms simple and functional, but excessive in terms of circulation areas (para 3.13) and the buildings were spaced unnecessarily far apart, which contributed to cost increases and created unmanagable external spaces. The building plans are based on single loaded corridors in single storey buildings with the exception of the academic block at the Vocational Agricultural Center at Saber and the classrooms at the Commercial Vocational Training Center at Mukalla where two storey blocks have been used.

3.16 During subsequent construction drawing and supervision stages, the Ministry of Construction sacrificed some construction quality and gave insufficient attention to detail in attempts to economize on construction costs. Thus in several important respects, the designs differ from the recommendations of the building study, financed under the First Education Project (Cr.494-YDR). The study encourages the use of traditional construction in stone, dressed externally and rendered internally and resulting in a 16" thick external wall. However, while the unshaded 8" blockwork used for many buildings is less costly, but gives a much lower thermal comfort. Similarly, roofs are uninsulated reinforced concrete and windows lack sun-shading devices or shutters. Building orientation is generally correct although large areas of unprotected glass face west in the recreation room at the Vocational Training Center at Mukalla.

Implementation of Civil Works.

3.17 Construction Contracts. The conversion contracts for the Vocational Agricultural Center at Saber and the Vocational Industrial Training Center at Al-Kod were carried out by local public building corporations, while the Commercial Vocational Training Center at Mukalla was constructed by a joint venture of two private contractors. Effective site supervision has ensured a generally acceptable quality of work at the Vocational Industrial Training Center at Al-Kod and the Commercial Vocational Training Center at Mukalla, whereas the quality of work at the Vocational Agricultural Center at Saber is low. Details of implementation of the civil works contracts are given in Annex 1-2.

3.18 Sites. All three sites are adequate in terms of size, and location. Although provisions were made in the construction contracts for some planting, these were not implemented because of the climatic and terrain difficulties. A laudable effort which should be encouraged is underway at the Vocational Agricultural Center at Saber, where the students are developing a garden in their hostel courtyard.

3.19 Site Development. Site works are still incomplete, but arrangements have been made to ensure that the work will be done. Access and service roads are still incomplete at the Vocational Agricultural Center at Saber and at the Vocational Industrial Training Center at Al-Kod. The boarding blocks at all three sites and the kitchen and dining block at the Vocational Agricultural Center at Saber lack service roads.

3.20 Sewage disposal is by septic tanks and soakaways. At the Vocational Agricultural Center at Saber, the old septic tanks and drainage runs of the converted buildings are dilapidated and require thorough maintenance and repairs before they can be used. The PIU is entering into an agreement with the Ministry of Construction to ensure that this takes place.

3.21 At the Commercial Vocational Training Center at Mukalla the permanent water supply is scheduled to be installed shortly by the Water Authority of Fouah. In the meantime, the institution uses the building contractor's temporary supply.

3.22 Electrical mains were being connected at the time of the completion mission, except at the Commercial Vocational Training Center at Mukalla, where a generator, capable of providing power for the hostels and limited amount of power for the classrooms is still temporarily in use.

3.23 Construction Quality. All structural elements of project buildings are well constructed, although thermal movements in external hollow block walls have produced some unsightly cracks.

3.24 In comparison with other construction in PDRY, the quality of the project buildings is good. The only serious defect of the new work is caused by the failure of the anti-termite treatment of the ground prior to construction. Door frames have been seriously damaged at the Commercial Vocational Training Center at Mukalla and at the Vocational Industrial Training Center at Al-Kod where timber door frames were used instead of aluminium. Replacement of these frames will become necessary within the next couple of years.

3.25 Of the two project items that were based on conversions of existing facilities, the Vocational Agricultural Center at Saber is the less satisfactory because of inadequate site supervision. Rehabilitation of the 1978 secondary school buildings at Saber was difficult also because of the poor standard of the original construction; plumbing is of poor quality and there is a shortage of electrical power outlets in classrooms and laboratories.

Furniture and Equipment

3.26 Furniture and equipment lists, acceptable to the Association, were prepared by the Ministry of Education with assistance from staff of the Nasser College of Agriculture, the Malla Technical Institute and the College of Economics.

3.27 Procurement of about 96 percent of all project equipment and furniture was efficiently carried out by international competitive bidding. The remaining 4 percent (vehicles) was procured on the basis of three price quotations from suppliers providing service in PDRY.

3.28 The quality of the imported, steel framed, mobile furniture is very good and appropriately sturdy. Quality of the built-in furniture is acceptable except at the Vocational Agricultural Center at Saber, where doors are poorly fitted and worktop tiling requires replacement.

3.29 Equipment quality and quantity are appropriate, but the equipment was not fully operational at the time of the completion mission. In the Vocational Industrial Training Center at Al-Kod, the machinery had not been permanently connected and allowance will have to be made for commissioning and familiarization before classes start in September 1985. Evacuation ducts for exhaust gases are missing from the mobile engine rigs in the automotive workshop.

3.30 All three vocational training centers would benefit from the installation of blackout curtains in selected rooms to facilitate the use of visual aids equipment.

Consumable Materials

3.31 Steps are being taken by the Project Unit to ensure that a one year's supply of consumable materials is provided from project funds. After the first year of operations, the supply of consumable materials will become the responsibility of the Ministry of Education which must ensure adequate provision in its recurrent budget.

Maintenance.

3.32 Responsibility for maintenance of school facilities rests with the local Government in each Governorate where the institution is located.

3.33 The Commercial Vocational Training Center at Mukalla has been operating since January 1983 and appears clean and well maintained. Termite attacks at this institute will however prove an increasing maintenance problem and replacement will soon become a necessity.

3.34 The Vocational Agricultural Center at Saber requires urgent maintenance to plumbing, drainage and fittings as well as making good of defective finishes under the building contract.

3.35 The Vocational Industrial Training Center at Al-Kod does not suffer from maintenance problems.

Special Covenants.

3.36 All special covenants under this project have been satisfactorily fulfilled. A covenanted tracer system has been developed, but not fully implemented because of construction delays. The Ministry of Education is taking action to ensure that benefits will be realized from the tracer system. The following paragraphs discuss fulfillment of all project specific covenants.

3.37 Section 3.02(a) of the Credit Agreement - Coordination of Training. Under this covenant the Borrower was required to ensure that the National Technical and Vocational Council continue to function as a coordinating agency among the various ministries and public corporations involved in vocational training. The Council has carried out this function satisfactorily.

Section 3.02(b) of the Credit Agreement - Curricula. Under this covenant, the Borrower was required to consult with local and other appropriate interest groups about continued relevance of curricula. As discussed in detail in paragraph 3.10, this requirement has been fully complied with.

3.39 Section 3.02(c) of the Credit Agreement - Tracer System. Under this covenant, which is being satisfactorily implemented, the Borrower was required to establish by December 31, 1980 an evaluation system, including a tracer system for analysis of job placement and performance. Such a system was designed and developed on time by the Directorate of Vocational and Technical Education of the Ministry of Education and reviewed by school administrators before final approval by the Advisory Council of the Ministry of Education. Implementation of the system has, however been delayed because of delays in physical implementation of the project. Satisfactory tracer forms for employers and employees were issued to the schools in February 1984 along with procedures for implementation and vocational education guidance regulations. After the first six months of employment (starting around January 1986) the graduates are expected to fill the forms and again at the end of the first year of employment.

3.39 Section 3.03 of the Credit Agreement - Fellowships. The Borrower was required to arrange for overseas training of center directors and other staff in adequate numbers under this covenant. A satisfactory arrangement for such a bilateral technical assistance was also a condition of the Credit's presentation to the Board. This training program was carried out satisfactorily as shown in paragraph 3.09.

3.40 Section 4.04 of the Credit Agreement - Teachers. The Borrower was required to provide suitably qualified teachers in adequate numbers and on a full time basis for each vocational training center. This covenant has been fully met as further discussed in paragraph 5.09.

Association Supervision and Performance.

3.41 The project concept and design were responsive to the need to provide training facilities for the industrial, agricultural and commercial sectors of the economy. Project objectives were clearly defined (para 2.12) with the proper emphasis on targets to be achieved, including reductions in regional disparities and increasing the participation of women. The three year implementation schedule, adopted by the appraisal mission was, however, unduly optimistic (para 3.02).

3.42 Communications between the Government and the Association were generally good throughout the project period and critical problems were solved efficiently. The large difference between the appraised and actual construction programs (para 3.13) points however to a lack of clear communications on that point.

3.43 When external factors threatened to derail the project (i.e. runaway inflation in the construction sector - para 3.02), the Association adopted a flexible attitude in its attempts to assist the Government in meeting the basic objectives of the project by approving: (a) the conversion of the two existing secondary schools into industrial and agricultural vocational training centers in lieu of the originally planned two new vocational training centers in the Credit Agreement; (b) the use of local competitive bidding procedures (including the use of Arabic in bidding documents) for the conversion of the vocational training centers in order to expedite the implementation of civil works; and (c) an appropriate 18 month extension to the Closing Date and reallocations of the proceeds of the Credit.

3.44 Supervision reports were informative, problem areas were identified and warning signals were sounded in time. Appropriate advice was given at critical times, and recommendations were made about the composition and timing of future missions with a view to help solve identified problems. Although four project officers were responsible for the project during its life-span, the overlap in transition provided the necessary continuity.

3.45 Supervision missions were timely with average intervals between missions about six months. The average span of these missions, including time spent on other activities was about ten days. The ten missions by an architect to: (a) review the initial design work of the Ministry of Construction; (b) recommend action to counteract the effect of runaway construction prices (para 3.02); (c) supervise the redesign process (para 3.03); (d) review contract awards; and (e) supervise other implementation aspects of the project, was justified by the complexity of these implementation problems. Three other specialists participated in about five missions devoting about equal attention to the three training programs.

Chapter IV

Project Cost and Financing.

Capital Costs

4.01 Overview. At appraisal, the project cost was estimated at US\$ 4.4 million equivalent, whereas actual costs are US\$ 7.0 million, an increase of 58 percent. Table 4.1 summarizes the estimated and actual project costs by category of expenditure. A detailed comparison of estimated vs actual capital expenditures by category and by project item is given in Annex 2-1 (US\$) and Annex 2-2 (Yemeni Dinars).

Table 4.1
Comparison of Estimated and Actual Costs by
Category of Expenditure including Contingencies.

	Appraisal Estimates		Actual		Difference (%) Between Actual and Estimates
	US\$ M.	% of total	US\$ M.	% of total	
Construction and Site Development	3.143	71.4	5.217	74.8	+ 66
Furniture	0.328	7.4	0.468	6.7	+ 43
Equipment	0.760	17.2	0.948	13.6	+ 25
Professional Services and Local PIU Costs	0.117	2.7	0.292	4.2	+ 150
Technical Assistance	0.057	1.3	0.050	0.7	- 12
	<u>4.405</u>	<u>100.0</u>	<u>6.975</u>	<u>100.0</u>	<u>+ 58</u>

4.02 Civil Works. The principal reasons for the increase in project costs were: (a) runaway cost escalation in civil works between appraisal and tenders in 1979 and later, caused by manpower shortages and accelerated growth of the construction sector (3.02); and (b) large construction area increases over appraisal provisions, caused by overly stringent appraisal provisions and unnecessarily generous designs (para 3.13). Civil works tenders received in December 1979 totalled US\$6.93 million ^{1/}, an increase of 120 percent over appraisal estimates including contingencies.

^{1/} The final account for the Commercial Vocational Training Center at Mukalla has been used to determine construction costs because the tender documents inadvertently omitted one boarding block, subsequently added back to the contract.

4.03 The base unit costs used by the appraisal mission (US\$ 227/m² at Mukalla) were in line with the then prevailing construction costs, and the local inflation factor, 14.5 percent per annum was in line with the country inflation rate at the time. However the appraisal was unduly optimistic in two respects: (a) the originally scheduled implementation period of three years was optimistic and total price contingencies were consequently low; and (b) the provisions for walls and circulation were conservative at 15-20%, an average figure of 25-30% would have been more realistic.

4.04 The high tender costs were reduced to an actual construction cost of US\$ 5.22 million by foregoing entirely new facilities for the agricultural and industrial centers and resorting instead to the conversion of existing secondary school facilities. At final account, the unit cost of the Commercial Vocational Training Center at Mukalla, built as originally designed, was US\$444/m², an increase of 96 percent over appraisal estimates. Annex 2-3 shows comparisons of costs per m² for each center. Annex 2-4 compares estimated and actual areas and cost per place.

4.05 Furniture. Furniture costs exceeded appraisal estimates (including contingencies) by 43 percent as a result of the general sharp increase in the prices of imported goods during project implementation that exceeded appraisal estimates by about 30 percent, and minor changes in quantities.

4.06 Equipment. Equipment costs were over-estimated at appraisal, except for costs for machine tools for the Vocational Industrial Training Center at Al-Kod, which had been underestimated. The net result was an overall 25 percent increase in equipment cost. Annex 2-5 compares the estimated and actual cost of furniture and equipment per student place.

Disbursements

4.07 Disbursements lagged about 36 months behind appraisal estimates due to delays in implementation, but otherwise there were no problems associated with disbursements.

4.08 When it became evident that total project cost exceeded appraisal estimates by a large margin (para 3.02, 4.02), the Government had to shoulder the cost overrun. To ensure continued financing from the proceeds of the credit throughout the project period, the proportion of IDA financing of civil works was accordingly reduced from 89 percent to 45 percent in August 1981. To ensure full disbursement of the credit by June 30, 1985, this proportion was raised to 100 percent after the final Closing date, December 31, 1984, resulting in an average IDA financing of 50 percent. The undisbursed balance of the Credit is being used to finance civil works contracts that were fully committed by the Closing date. Disbursements are scheduled for completion by June 30, 1985. A comparison of actual withdrawals with appraisal estimates by year is shown in Annex 2-6, and a comparison of actual and estimated disbursement profiles is made in Chart 1.

4.09 Table 4.2 below shows the actual total disbursements from the credit by category of expenditure.

Table 4.2
Comparison of Original Allocation and Actual Disbursements
from the Credit by Category and Expenditures

Type of Expenditure	Original Allocation US\$ Million	% of Total	Percentage of Expendt. to be Financed	Estimated Disbursements US\$ Mill	% of Total	Percentage of Expenditures Financed.
Civil Works	2.68	67	89%	2.62	65	50
Equipment & Furniture	1.00	25	85/100%	1.38	35	98
Unallocated	0.32	8	-	-	-	-
	4.00	100		4.00 <u>1/</u>	100	

1/ US\$ 3.56 million had been disbursed as of April 26, 1985. The balance of the Credit is fully committed and is expected to be disbursed by June 30, 1985.

4.10 Due to delay in implementation, the original Closing Date of June 30, 1982 was postponed to 31 December 1984. The Credit Account will be closed by June 30, 1985, at which time project cost and disbursements will be updated.

CHAPTER V

INITIAL PROJECT OPERATING OUTCOMES

Attainment of Project Objectives

5.01 Objectives. The project constituted a first phase in a proposed network of 14 vocational training centers, planned by the Ministry of Education. It was designed to assist in: (i) meeting training needs in industry, agriculture and commerce, by providing a vocational training center in each of the above sectors; (ii) reducing regional inequalities in vocational training opportunities by providing boarding places for about 50 percent of the total student places; and (iii) increasing the role of women in the economic life of the country by providing for female participation in each vocational training program ranging from 15-75 percent of enrollments of the various programs (38% average). In addition to these explicitly stated objectives, the project was also designed to assist in developing appropriate curricula and to train teachers for the three types of vocational training centers.

5.02 Achievements. The project has the potential to meet its stated objectives. At the time of the completion mission, civil works had been completed at all three vocational training centers, with the exception of some external works still in progress. Quality of construction and finishes is acceptable except with regard to termite protection and all facilities have been built in accordance with the agreed designs. The quality of furniture and equipment is acceptable. A comparison of the originally proposed and actual capacity of project institutions (Table 5.1) shows that the two are identical at two institutions, whereas the capacity of the Vocational Agricultural Center at Saber is about 60 percent in excess of appraisal estimates because of availability of space in the converted secondary school (para 3.14).

Table 5.1, Capacity of Project Institutes

Project Institutions	Proposed at Appraisal		Actual Capacity (1985)	
	Academic	Boarding	Academic	Boarding
1. Al-Kod Industrial Trng Center.	250	100	250	100
2. Saber Agri- cultural Trng. Center.	250 50 <u>1/</u>	150	400 50 <u>1/</u>	150
3. Mukalla Commercial Trng. Center	300	150	300	150
Total	850	400	1,000	400

1/ Farmer Training Places

5.03 Regional inequalities have been reduced by providing boarding places to students coming from all parts of the Governorates in which the vocational training centers are located. In the case of the Commercial Vocational Training Center at Mukalla, recruitment of students is conducted on a country-wide basis. Annex 3-1 shows the origin of students enrolled at the various vocational training centers. The 38 students at the Vocational Agricultural Center at Saber are all boarders, and likewise are 141 of the 166 at the the Commercial Vocational Training Center at Mukalla. Eighty of the 90 students assigned to the Vocational Industrial Training Center at Al-Kod are also boarders.

Enrollment and Outputs

5.04 Enrollment. One school is fully operational and the other two operated in temporary premises during 1985. To date, only 31 percent of enrollment targets estimated at appraisal have been achieved because of reasons enumerated below. Table 5.2 compares appraisal estimates with actual enrollments for 1984/85. Further details are shown in Annex 3-2 .

Table 5.2, Comparison of Estimated and Actual Enrollments

Institutions	Appraisal Estimate for 1981/82	Actual for 1984/85
Commercial VTC	475 <u>1/</u>	166
Agricultural VTC	450	150 <u>2/</u>
Industrial VTC	380	90 <u>3/</u>
	1,305	406

1/ Including 175 evening class students

2/ including 112 farmers that were trained at Giar and 90 students that have been assigned to the Vocational Industrial Training Center at Al-Kod

3/ Assigned for March 1985.

5.05 Several reasons account for current under-utilization of project facilities and full capacity utilization is not expected until 1987. The Vocational Industrial Training Center at Al-Kod has not yet opened in its new facilities, but an enrollment of 150 can be expected in September 1985. The Vocational Agricultural Center at Saber operated temporarily in a former secondary school and only moved to its new premises in January 1985. The Ministry of Planning had assigned only a handful of students to the former premises. Farmer training (50 places), originally planned to be conducted at Saber, has been appropriately transferred to the agricultural extension program at Giar, supported under the Fourth Education Project (SF19-YDR). Lack of transportation or alternative boarding arrangements for day students at the Commercial Vocational Training Center at Mukalla is reportedly the prime reason for current low enrollments at that institute. Prospects for improvement in this respect are good when the nearby new township of Fouah becomes fully populated within the next two years. Evening classes have also not yet been held at Mukalla because of limited availability of electricity (para 3.22). The low social prestige accorded to vocational-technical education in terms of future employment prospects compared with those of general education is claimed by the authorities to have discouraged better qualified students from enrolling. The Government is taking steps to increase enrollments, including payment of stipends to students, but further publicity and information activities should be introduced to educate the public about activities of the centers.

5.06 The project has not met its objectives in terms of enrollment of females, which is only about 4 percent at the Commercial Vocational Training Center at Mukalla and zero at the other two institutions. This may be compared with appraisal estimates of 38% (75, 20 and 15 percent for the commercial, agricultural and industrial training centers, respectively). Several reasons account for this shortfall: despite the Government's objective to increase the role of women in the economy, and the necessity to do so in view of the ongoing large scale migration of men, reluctance apparently exists among middle level managers to recruit females for the agricultural and industrial fields, for which training facilities are supported under this project.

5.07 At the time of appraisal many females were enrolled at the Nasser College of Agriculture. However, female graduates in agriculture tend to work only in ministry offices in Aden because of socio-cultural resistance to their employment elsewhere. Family pressure encourages those interested in technical fields to enter "clean" specializations such as radio, television, X-Ray technology and other related areas. Other reasons given for low female enrollment are: (i) early marriage of females; and (ii) parental objections to co-education in geographic areas outside of Aden (for example, 21 girls listed the Commercial Vocational Training Center at Mukalla as their first choice for further education, and the Ministry of Planning assigned 26 places for girls, but only 4 enrolled).

5.08 Graduates. Only the Commercial Vocational Training Center at Mukalla has had an output of students. The training center opened in the middle of a school year, January 1983, with a limited intake of 102 students in accountancy (compared with a full complement of 150) and operated during the vacation period in order to complete the academic year in August 1983. The Center began its second year of operation on the regular school calendar in September 1983, and 90 students graduated in June 1984. Dropout at this school has decreased annually from 12 percent in 1983 to current 3 percent. The first graduates of the agricultural training institute are expected in 1986 and those of the industrial training institute in 1987. Annex 3-3 shows details of appraisal estimates of outputs compared with actuals.

Teachers

5.09 The outcome of the teacher training program both locally and through bilateral agreements (para 3.09) has been successful in that the centers now have sufficient numbers of fully qualified and trained teachers. About 50 teachers have been trained (locally and abroad), compared with appraisal estimates of 63. The balance is being provided by expatriate teachers. 1/ To provide the necessary teachers for the project, special two-year post secondary instructor training programs were established at the Nasser College of Agriculture and the Malla Technical Institute for agricultural and industrial instructors, respectively. About 30 instructors subsequently

1/Three teachers, recent graduates from the Vocational Agricultural Center at Saber have not had professional pedagogical training, but are expected to attend such classes later.

attended the Higher College of Education for pedagogical training, two days per week for one year. Four specialized teachers were also trained in the German Democratic Republic under a bilateral agreement. Teachers who had completed their training prior to physical completion of the vocational training centers were temporarily assigned other teaching and professional responsibilities, such as assisting in curriculum development. Teachers for the Commercial Vocational Training Center at Mukalla were trained at the College of Economics of the University of Aden. About 12 qualified and experienced expatriate teachers (20% of total) were recruited to fill posts that could not be filled by local recruitment. Details of the teacher training program are shown in Annex 3-4).

Teaching Programs/Curricula

5.10 The project has been particularly successful in its attempts to generate appropriate curricula for the three types of training institutions. Appropriate consultations were held with various education and research institutions in the country (para 3.10) and consultations were held with both user ministries and potential employers about the suitability and appropriateness of syllabi to be incorporated in the curricula. The following paragraphs discuss in detail these project achievements.

5.11 The Commercial Training Center at Mukalla. The curriculum proposed at appraisal allocated about 33 percent of the time to general subjects and 66 percent to technical theory and practice. This distribution is appropriate and provides for realistic job preparation. However, the technical curriculum committee of the Borrower made some modifications in the allocation of time and changed a few subjects in view of emerging needs. By and large, the curriculum remained within the originally allocated time distribution, as summarized in Table 5.3 below and shown in detail in Annex 3-4.

Table 5.3 Commercial curriculum distribution.

	Periods Per Week			
	First Year		Second Year	
	Appraisal	Actual	Appraisal	Actual
A. Accounting Section				
General Subjects	12	15	12	10
Special Subjects	24	21	26	26
Total	36	36	38	36
B. Secretarial Section				
General Subjects	13	14	14	9
Special Subjects	23	22	24	27
Total	36	36	38	36

5.12 The Industrial Training Center at Al-Kod. At the time of appraisal the curriculum of this Center was designed to cater to the agriculturally oriented third Governorate and its rapidly developing construction and transportation needs, and the distribution of periods was adequate for this type and level of instruction. The Government's technical curriculum committee did not make any changes which would significantly affect the program, but some internal shifting of courses and changing of titles, as appropriate, were made. This is summarized below in Table 5.4 and shown in detail in Annex 3-6.

Table 5.4 Summary of Industrial Training Curriculum

Subjects	Periods per Week				Percentage			
	First Year		Second Year		First Year		Second Year	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
General	7	12	6	10	17.5	30.0	14.0	24.0
Technical	33	28	36	32	87.5	70.0	86.0	76.0
Total	40	40	42	42	100.0	100.0	100.0	100.0
Technical								
Theory	13	8	15	12	39.0	29.0	42.0	38.0
Practical	20	20	21	20	61.0	71.0	58.0	62.0
Total	33	28	36	32	100.0	100.0	100.0	100.0

5.13 The Agricultural Training Center at Saber. While a new, practically-oriented curriculum has been developed, the center continues to use the old curriculum for training agricultural technicians except for some of the new courses. The old curriculum has a heavy emphasis on general subjects in the first year. The primary reason for retaining the old curriculum is that the temporary facilities did not permit the implementation of the new curriculum. Teaching remains at present overly theoretical. The Director of Industrial Education at the Ministry of Education assured the completion mission that as of the beginning of the academic year in September 1985, serious efforts will be made to implement the new, practically oriented curriculum. This entails acquiring ten acres of the adjacent state farm for developing a farm for the center and then purchasing the necessary livestock and feed. The prospects for such a transfer to take place are considered good. Table 5.5 below is a summary of curricula given in detail in Annex 3-7.

Table 5.5 Summary of Agricultural Training Curriculum

S U B J E C T S	Periods Per Week		Percentage	
	Appraisal	Actual	Appraisal	Actual
FIRST YEAR:				
General Subjects	7	16	18	44
Agricultural Subjects	33	20	82	56
Total	40	36	100	100
Agricultural Subjects:				
Theory	10	20	30	95
Practical	23		70	5
Total	33	20	100	100
SECOND YEAR:				
General Subjects	8	6	19	17
Special Subjects	34	30	81	83
Total	42	36	100	100
Special Subjects				
Theory	10-11	30	29-32	100
Practical	23-24	-	68-71	-
Total	34	30	100	100

5.14 Last year's students spent one month (rather than two as recommended at appraisal) of internship at the Nasser College of Agriculture, working in plant production, animal husbandry and plant protection. The director of the center estimates that two months will be spent in internship once the center becomes fully operational in September 1985.

CHAPTER VI

CONCLUSIONS AND LESSONS LEARNED

Summary Conclusions

6.01 Despite early implementation problems resulting from increases in construction areas, manpower shortages and runaway inflation in the construction sector, the project was implemented in only six years, which compares well with regional averages in implementation performance (para 3.02). This achievement may be attributed to good project management and to an appropriate decision by the Government and the Association to scale the project down by substituting rehabilitated facilities for the originally planned new facilities at two out of three project sites (para 3.03).

6.02 The benefits to be derived from the project are expected to be substantial despite the above mentioned implementation problems. New, appropriate curricula have been prepared for the three vocational programs and are being introduced as project facilities become operational. Appropriate examination policies and regulations for all vocational trades were also prepared to help ensure consistency of content and quality in each specialization and to facilitate the development of future training centers (para 3.10).

Lessons Learned

6.03 The large difference between appraisal estimates for construction areas and the originally designed facilities indicates a lack of agreement between the Borrower and the appraisal mission on an important project issue, that should have been settled during appraisal. It also underscores the desirability to base project cost estimates during appraisal on actual designs rather than on schedules of accommodations (para 3.13).

6.04 The importance of constructive participation of the various Government agencies and the Association during project implementation cannot be overstated. Many of the difficulties encountered during the early implementation stage of the project (para 3.02) were later resolved as a result of good cooperation between the Government and the Association (para 3.43). This cooperative spirit was particularly pronounced within the Government as manifested by the large number of Government agencies involved in successful curriculum development (para 3.10).

6.05 Enrollments and outputs remain disappointingly low at only 31% of appraisal estimates and the project has not met its objectives in terms of enrollment of females which is only 2% of the total, compared with appraisal estimates of about 38%. This may point to a need to introduce special marketing and information programs into project designs and to estimate conservatively when dealing with the introduction of social change such as increased participation of females (paras 5.04-5.08).

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT - (CREDIT 865-YDR)
COMPARISON OF NET AND GROSS FLOOR AREAS

Type of Facilities	Net Usable Area			Gross Area			% Addition to Net Usable Area for circulation & walls	
	Appraisal m2	Actual m2	Diff. ± %	Appraisal m2	Actual m2	Diff. ± %	Appraisal Worksheet % () ^{3/}	Actual %
Academic & Communal								
1. Al-Kod ^{1/}	2730	2856	+ 4.6	3195	3715	+16	15 (17)	30
2. Saber Acad. ^{1/}	1574	2549	+62.0	2110	3199	+52	15 (35)	25
Farm Bldgs. ^{2/}	600	852	+42.0	690	1004	+45	15	18
3. Mukalla ^{2/}	1600	1576	- 1.5	1840	2573	+40	15 (22)	63
TOTAL	6504	7833	+20.0	7835	10491	+34	15 (20)	34
Boarding								
1. Al-Kod ^{2/}	785	990	+26	900	1475	+64	15	49
2. Saber ^{1/}	1125	1630	+45	1290	2364	+83	15	45
3. Mukalla ^{2/}	1125	1438	+28	1290	2162	+67	15	50
TOTAL	3035	4058	+34	3480	6001	+72	15	48
Total all Facilities	9539	11315	+25	11315	16492	+46	15(19)	39

^{1/} Wholly or partly in converted space.

^{2/} Newly built space.

^{3/} Re-calculated % with "Covered Area" included in full.

Note: "Net Usable Area" is measured to inside of walls and partitions for each space.

Annex I-2

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT - (CREDIT 865-YDR)
IMPLEMENTATION OF CIVIL WORKS CONTRACTS

Project Institution	Contractual Completion of Contract (Duration)	Actual Completion Contract (Duration)	Contract Amount YD	Additional Works (Variation Orders) YD	% Construction Period Overrun over contract period	Total Cost YD
1. Industrial Voc. School - 41-Kod	Dec., 1983 (18 months)	Dec., 1984 (30 months)	609,625.540	297.635	67%	609,923.175
2. Agricultural Voc. School - Saber	Feb., 1984 (16 months)	Dec., 1984 (26 months)	384,826.950	84,502.465 ^{1/}	63%	469,329.415
3. Commercial Voc. School - Foua'ah	June, 1982 (24 months)	Dec., 1982 (30 months)	595,995.470	123,536.348 ^{2/}	25%	719,531.818
TOTAL			1,590,447.960	208,336.448		1,798,784.408

^{1/} Due to extra work of restitution following refugees occupation after contract signature.

^{2/} Tender documents omitted one boarding block, added back by variation order.

Second Education Project (Credit 865-YDR)
 Project Completion Report
 Actual and Estimated Project Costs by Item and Category
 (US\$ '000)

P R O J E C T I T E M S	Construction and Site Development				Furniture				Equipment				Professional Services: PIU and Local Costs				Technical Assistance				Total Costs						
	Appraisal Estimate		Actual Costs		Appraisal Estimate		Actual Costs		Appraisal Estimate		Actual Costs		Appraisal Estimate		Actual Costs		Appraisal Estimate		Actual Costs		Appraisal Estimate		Actual Costs				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Vocational Industrial:	Acad:	688	922	983	7	75	94	116	23	204	255	540	112	26	34	57	68					0	993	1,305	1,696	30	24
Training Center:	Board:	195	261	786	201	25	31	48	55	4	5	10	100	7	9	46	411					0	231	306	890	191	13
	at Al Kod:	883	1,183	1,769	50	100	125	164	31	208	260	550	112	33	43	103	140	0	0	0	0	0	1,224	1,611	2,586	61	37
Vocational Agricultural:	Acad:	486	651	1,053	62	45	56	73	36	290	365	265	(27)	21	28	86	186					0	842	1,160	1,471	34	21
Training Center:	Board:	267	358	310	(13)	35	44	72	64	4	5	10	100	12	15	23	53					0	318	422	415	(2)	4
	at Saber:	753	1,009	1,363	35	80	100	145	45	294	370	275	(26)	33	43	103	140	0	0	0	0	0	1,160	1,522	1,886	26	27
Vocational Commercial:	Acad:	417	559	1,079	93	45	57	87	53	84	125	113	(10)	14	18	45	150					0	560	759	1,324	74	19
Training Center:	Board:	293	392	1,006	157	37	46	72	57	4	5	10	100	10	13	41	215					0	344	456	1,129	148	16
	at Mahalla:	710	951	2,085	119	82	103	159	54	88	130	123	(5)	24	31	86	177	0	0	0	0	0	904	1,215	2,453	102	35
Staff Training																		50	57	50	(12)	50	57	50	(12)	1	
Total Project Costs (US\$ 000):		2,346	3,143	5,217	66	262	328	468	43	590	760	948	25	90	117	292	150	50	57	50	(12)	3,338	4,405	6,975	58	100	

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT - (CREDIT 865-YDR)
COMPARISON OF UNIT COSTS (US\$)

Project Item		Unit Costs US\$/M ²			% + Increase/ Decrease
		Appraisal		Actual Unit Cost	
		Excluding Cont.	Including Cont.		
Industrial VTC	Acad. & <u>1/</u>				
Al-Kod	Communal	217	289	265	- 8 <u>1/</u>
	Boarding <u>2/</u>	<u>217</u>	<u>290</u>	<u>533</u>	+ 84 <u>2/</u>
	Total	<u>217</u>	<u>289</u>	<u>341</u>	+ 18
Agricultural VTC	Acad. & <u>1/3/</u>				
Saber	Communal	181	243	251	+ 3 <u>1/3/</u>
	Boarding <u>1/</u>	<u>207</u>	<u>278</u>	<u>131</u>	- 53 <u>1/</u>
	Total	<u>190</u>	<u>254</u>	<u>208</u>	- 18
Commercial VTC	Acad. & <u>2/</u>				
Mukalla	Communal	227	304	419	+ 38 <u>2/</u>
Fouah)	Boarding <u>2</u>	<u>227</u>	<u>304</u>	<u>465</u>	+ 53 <u>2/</u>
	Total	<u>227</u>	<u>304</u>	<u>440</u>	+ 45
<u>Totals:</u>	Acad. &				
	Communal	203	272	297	+ 9
	Boarding	<u>217</u>	<u>291</u>	<u>350</u>	+ 20
	Total	<u>207</u>	<u>278</u>	<u>316</u>	+ 14

1/ Wholly or partly in converted space.

2/ Newly-built space.

3/ New farm buildings included.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

AREAS AND COSTS IN US\$ PER STUDENT PLACE

Type of Facilities	Usable Area M ² /St.		Gross Area M ² /St.		Building (US\$)/St.		Furniture and Equipment (US\$)/St.		Total (US\$)/St.	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
A. Academic & Communal:										
Al-Kod	10.9	11.4	12.8	14.9	3,824	4,076	1,396	2,624	5,220	6,700
Saber	7.2	11.3	9.3	14.0	2,263	3,603	1,403	1,127	3,666	4,730
Makalla Average Academic ^{1/} & Communal	<u>5.3</u>	<u>5.3</u>	<u>6.1</u>	<u>8.6</u>	<u>1,923</u>	<u>3,657</u>	<u>607</u>	<u>667</u>	<u>2,530</u>	<u>4,324</u>
	<u>7.8</u>	<u>9.2</u>	<u>9.2</u>	<u>12.3</u>	<u>2,602</u>	<u>3,759</u>	<u>1,120</u>	<u>1,405</u>	<u>3,722</u>	<u>5,164</u>
B. Boarding:										
Al-Kod	7.9	9.9	9.0	14.8	2,700	7,950	360	580	3,060	8,530
Saber	7.5	10.9	8.6	15.8	2,487	2,167	327	547	2,813	2,713
Makalla Average Boarding ^{2/}	<u>7.5</u>	<u>9.6</u>	<u>8.6</u>	<u>14.4</u>	<u>2,700</u>	<u>6,793</u>	<u>340</u>	<u>547</u>	<u>3,040</u>	<u>7,340</u>
	<u>7.6</u>	<u>10.1</u>	<u>8.7</u>	<u>15.0</u>	<u>2,620</u>	<u>5,348</u>	<u>340</u>	<u>555</u>	<u>2,960</u>	<u>5,903</u>

^{1/} Including professional fees and contingencies.

^{2/} Including contingencies.

^{3/} Averages have been computed by dividing the total numbers of units (m² or US\$) by the total number of students, not by determining the average of the unit costs for the three centers.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDR)
ACTUAL AND ESTIMATED COSTS OF FURNITURE AND EQUIPMENT
(US\$'000,000)

Project Institution	Furniture				Equipment			
	Actual <u>1/</u>	Appraisal <u>2/</u>	Appraisal W/Cont.	Percentage Overrun	Actual <u>1/</u>	Appraisal <u>2/</u>	Appraisal W/Cont.	Percentage Overrun
1. Industrial Voc. School, Al-Kod	0.16	0.10	0.12	+31	0.55	0.22	0.26	+112 <u>3/</u>
2. Agricultural Voc. School, Saber	0.14	0.08	0.10	+45	0.28	0.29	0.37	- 26
3. Commercial Voc. School, Foua'ah	<u>0.16</u>	<u>0.08</u>	<u>0.10</u>	<u>+54</u>	<u>0.11</u>	<u>0.09</u>	<u>0.13</u>	<u>- 5</u>
Total	<u>0.46</u>	<u>0.26</u>	<u>0.32</u>	<u>+43</u>	<u>0.94</u>	<u>0.60</u>	<u>0.76</u>	<u>+ 25</u>

1/ Including installation charges, insurance and transportation.

2/ Excluding contingencies.

3/ Due to machinery tool cost increases.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

ACTUAL AND ESTIMATED DISBURSEMENTS BY FISCAL YEAR

IDA Fiscal Year	Calendar Year PDRY Fiscal Year	Disbursements Per Year				Cumulative Disbursements		
		Planned		Actual		Planned	Actual	% Actual
		US\$ Million	% of Total	US\$ Million	% of Total	US\$M	US\$M	of Planned
	1978							
1979	1978	0.00	-	-	-	0.00	-	-
1980	1979	0.40	10.0	-	-	0.40	-	-
1981	1980	2.20	55.0	0.39	9.8	2.60	0.39	15.0
1982	1981	1.40	35.0	0.27	6.8	4.40	0.66	16.5
1983	1982			1.81	45.2		2.47	61.8
1984	1983			0.73	18.2		3.20	80.0
1985	1984			0.38	9.5		3.58	89.5
	1985							
Total		<u>4.00</u>	<u>100.0</u>	<u>3.58</u> 1/	<u>89.5</u>	<u>4.00</u>	<u>3.58</u> 1/	<u>89.5</u>

1/ As of April 22, 1985 The balance of the Credit is expected to be disbursed by June 30, 1985.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

ORIGIN OF STUDENTS

Industrial Vocational Training Center, Al-Kod

Students: Boarding

<u>Place of Origin</u>	<u>Number of Students</u>	<u>Distances from Al-Kod</u>
Saber	26	200 Km
Loader	20	100 Km
Yafa	6	150 Km
Ahwar	6	150 Km
Ga'ar	10	16 Km
Lahej	12	60 Km
Zingibar	<u>10</u>	
Total	<u>90</u>	

Agricultural Vocational Training Center, Saber

Saber

Mukalla	9	620 Km
Dhala	5	100 Km
Yafa	2	180 Km
Shoaib	6	125 Km
Kresh	5	95 Km
Abyan	10	90 Km
Mukeiras	<u>1</u>	180 Km
Total	<u>38</u>	

Commercial Vocational Training Center, Mukalla

Mukalla

Shehir Province	37	60 Km
Qatin Province	6	162 Km
Saiyun Province	11	180 Km
Hajr Province	24	100 Km
Doan Province	4	180 Km
Shabwa Government	4	200 Km
Mahara Government	3	400 Km
Alghail Province	24	50 Km
Broum Province	15	50 Km
Outside Mukalla	<u>13</u>	45 Km
Total	<u>141</u>	

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDR)
STUDENT ENROLLMENTS

Project Institutions	Appraisal Estimate for 1981/82	Student Intakes				Total Enrollment 1984/85	Total Boarding 1984/85
		1981/82	1982/83	1983/84	1984/85		
<u>Commercial Training</u>							
Day classes	300	-	102	86	90	166	141
Evening classes	<u>175</u>	-	-	-	-	-	-
Total	<u>475</u>	-	<u>102</u>	<u>86</u>	<u>90</u>	<u>166</u>	<u>141</u>
(Proportion of girls)	75%	-	-	4	4.4	4.2	
<u>Agricultural Training</u>							
Skilled workers	250	-	-	-	38	38	38
Farmers	<u>200</u>	-	-	-	<u>112</u> ^{1/}	<u>112</u> ^{1/}	-
Total	<u>450</u>	-	-	-	<u>150</u>	<u>38</u>	<u>38</u>
(Proportion of girls)	20%	-	-	-	0	0	
<u>Industrial Training</u>							
Automotive		-	-	-	30 ^{2/}	30 ^{2/}	
General metal work		-	-	-	30 ^{2/}	30 ^{2/}	
Masonry and tile		-	-	-	30 ^{2/}	30 ^{2/}	
Electricity		-	-	-	-	-	
Carpentry		-	-	-	-	-	
Sub-Total Enrollments							
Day	250	-	-	-	90 ^{2/}	90 ^{2/}	80
Evening	<u>130</u>	-	-	-	-	-	-
Total Enrollments	<u>380</u>	-	-	-	<u>90^{2/}</u>	<u>90^{2/}</u>	<u>80</u>
(Proportion of girls)	<u>15%</u>	-	-	-	0	0	0
GRAND TOTAL	<u>1,305</u>	-	<u>102</u>	<u>86</u>	<u>330</u> ^{3/}	<u>406</u> ^{3/}	-

1/ 112 trained at Giar.
2/ Assigned places.
3/ Including 1/ and 2/.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

GRADUATES

Project Institutions	Appraisal Estimate for 1983	Actual for 1984	Annual Outputs	
			Current 1985	Estimate 1986
1. <u>Industrial Training</u>				
Day	115	-	-	-
Evening	<u>65</u>	-	-	-
Sub-Total(1)	<u>180</u>	-	-	-
2. <u>Agricultural Training</u>				
- Skilled workers	110	-	26	12
- Farmers	200	112 ^{1/}	-	-
Sub-Total (2)	<u>310</u>	-	<u>26</u>	<u>12</u>
3. <u>Commercial Training</u>				
- Day classes	135	90	79	87
- Evening classes	75	-	-	-
Sub-Total(3)	<u>210</u>	<u>90</u>	<u>79</u>	<u>87</u>
GRAND TOTAL	<u>700</u>	<u>202</u>	<u>105</u>	<u>99</u>

^{1/} At Giar Extension Center 112 farmers received training.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDR)

Teachers

A. Available Teachers

Project Institution	Appraisal Estimate of Requirement 1982	Available Qualified Instructors 1984	Available Qualified Instructors 1985	Estimate of Total No. of Instructors 1986
1. Al-Kod Industrial Training Center	22 (+1) ^{1/}	15	23	28
2. Saber Agricultural Training Center	20 (+1) ^{1/}	22	22	22
3. Makalla Commercial Training Center	21 (+1) ^{1/}	14	15	18
	<u>63</u>	<u>51</u>	<u>60</u>	<u>68</u>

^{1/} Director of the Institute

B. Subject Distribution Among Teachers

	<u>Teachers</u>		
	<u>First Year</u>	<u>Second Year</u>	<u>Total</u>
<u>Saber Agricultural Center</u>			
General subjects	3	4	7
Agricultural subjects	<u>5</u>	<u>10</u>	<u>15</u>
Total	<u>8</u>	<u>14</u>	<u>22</u>
<u>Second Year Specialization</u>			
General		4	
Horticulture		3	
Plant Protection and Beekeeping		4	
Animal Husbandry		<u>3</u>	
Total		<u>14</u>	
<u>Al-Kod Industrial Center</u>			
		<u>First & Second Year</u>	
General Subjects		8	
Special Subjects		<u>15</u>	
		<u>23</u>	

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDS)

First and Second Year

Al-Kod Industrial Center (continued)

Technical Subjects	
Building construction	5
Automotive mechanics	5
General metal mechanics	<u>5</u>
Total	<u>15</u>

Makalla Commercial Center

General subjects	4
Accounting	3
Secretarial	4
Accounting and Secretarial	<u>4</u>
Total	<u>15</u>

Teachers' Qualifications

	<u>No. of Teachers</u>	<u>Place of Training</u>
<u>Industrial</u>		
Technical Subjects	4	Malla Technical Institute
Technical Subjects	<u>11</u>	German Democratic Republic
Total	15	
General Subjects	<u>8</u>	College of Education, Aden
Total	<u>23</u>	
<u>Commercial (Makalla)</u>		
	11	Nationals, College of Economics
	3	Syrians, trained expatriates under contract
	1	Egyptian, trained expatriates under contract
	<u>15</u>	
<u>Agricultural</u>		
	8	Nasser College of Agriculture and Pedagogical
	2	German Democratic Republic
	9	Trained expatriates under contract
	3	Young college graduates (no professional training, para. 5.13)
	<u>22</u>	
Total	<u>22</u>	

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 863-YDR)

Curriculum for Commercial Vocational Training Center at Mukalla

	Periods per Week			
	First Year		Second Year	
	Appraisal	Actual	Appraisal	Actual
A. Accounting Section				
<u>General subjects</u>				
1. Arabic	5	6	4	4
2. English	4	5	4	3
3. Civics	1	2	2	2
4. Physical Training	2	2	2	1
	<u>12</u>	<u>15</u>	<u>12</u>	<u>10</u>
<u>Special subjects</u>				
5. Commercial Arithmetic	6	3	4	4
6. Bookkeeping	8	-	6	-
Accountancy	-	6	-	6
7. Commercial Knowledge	2	2	-	-
8. Elementary Principles of Admin. and Organization	3	-	-	-
Business Administration	-	-	-	2
9. Civil Service General Orders	2	-	-	-
Government Rules & Regulations	-	-	-	2
10. Secretarial Practice	3	3	-	-
11. Government & Public Sector Accounts	-	-	5	3
12. Types of Accounts	-	-	4	-
13. Elementary Costs Accounting	-	-	3	4
14. Arabic Typing	-	3	2	3
15. English Typing	-	2	2	2
16. Calculator Practice	-	2	-	-
Total	<u>24</u>	<u>21</u>	<u>26</u>	<u>26</u>
Total A	<u>36</u>	<u>36</u>	<u>38</u>	<u>36</u>
B. Secretarial Section				
<u>General Subjects</u>				
1. Arabic	5	6	5	4
2. English	5	5	5	3
3. Civics	1	1	2	2
4. Physical Training	2	2	2	-
	<u>13</u>	<u>14</u>	<u>14</u>	<u>9</u>
<u>Special Subjects</u>				
5. Arabic Shorthand	4	-	4	-
6. Secretarial Arabic	4	-	4	-
Arabic	-	4	-	4
7. Arabic Typing	4	6	5	6
8. English Typing	3	4	5	5
9. Bookkeeping	4	-	-	2
10. Commercial Arithmetic	2	3	-	3
11. Commercial Knowledge	2	2	-	-
12. Secretarial Practice in English	-	-	-	3
13. Keeping of Records	-	-	-	-
14. Civil Service General Orders	-	-	2	2
15. Business Administration	-	-	-	2
16. Accountancy	-	3	-	-
Total	<u>23</u>	<u>22</u>	<u>24</u>	<u>27</u>

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

Curriculum for Industrial Vocational Training Center

Trades:

1. Automotive mechanics
2. Carpentry
3. Electrical Installations
4. General Metal Mechanics
5. Masonry and Tile (Construction and Tiling)

	<u>Periods per Week</u>			
	<u>First Year</u>		<u>Second Year</u>	
	<u>Appraisal</u>	<u>Actual</u>	<u>Appraisal</u>	<u>Actual</u>
<u>General Subjects - Common for all Trades</u>				
1. Arabic	2	2	-	2
2. English	2	2	2	2
3. Civics	1	1	2	1
4. Physical Training	2	2	-	2
5. Maths	-	2	-	2
6. Physics	-	2	-	2
7. Chemistry	-	1	-	-
	<u>7</u>	<u>12</u>	<u>6</u>	<u>10</u>
<u>Technical Subjects</u>				
8. Mathematics and Science	5	-	4	-
9. Technical Drawing	3	3	3	3
10. Basic Technical Theory	5	-	-	-
Workshop Technology	-	5	-	0
11. Advance Technical Theory	-	-	8	-
Trade Specialty	-	0	-	9
12. Workshop Practice	<u>20</u>	<u>20</u>	<u>21</u>	<u>20</u>
	33	28	36	32
Total	<u>40</u>	<u>40</u>	<u>42</u>	<u>42</u>

Industrial Training

Eight weeks of Industrial Training during the vacation period between the first and second years.

	<u>Periods/Weeks</u>				<u>Percentage</u>			
	<u>First Year</u>		<u>Second Year</u>		<u>First Year</u>		<u>Second Year</u>	
	<u>Appraisal</u>	<u>Actual</u>	<u>Appraisal</u>	<u>Actual</u>	<u>Appraisal</u>	<u>Actual</u>	<u>Appraisal</u>	<u>Actual</u>
General Subjects	7	12	6	10	17.5	30	14	24
Technical Subjects	<u>33</u>	<u>28</u>	<u>36</u>	<u>32</u>	<u>82.5</u>	<u>70</u>	<u>86</u>	<u>76</u>
	<u>40</u>	<u>40</u>	<u>42</u>	<u>42</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>Technical Subjects</u>								
Theory	13	8	15	12	39	39	42	38
Practical	<u>20</u>	<u>20</u>	<u>21</u>	<u>20</u>	<u>61</u>	<u>71</u>	<u>58</u>	<u>62</u>
	<u>33</u>	<u>28</u>	<u>36</u>	<u>32</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YUR)

Curriculum for Agricultural Vocational Training Center

<u>First Year - Common</u>	<u>Periods per Week</u>			
	<u>Appraisal</u>	<u>Actual</u>		
<u>General Subjects</u>				
1. Arabic	2	2		
2. Mathematics	2	3		
3. Civics	1	1		
4. Physical Training	2	1		
5. English	-	2		
6. Chemistry and Biology	-	3		
7. Agricultural Engineering	-	4		
	<u>7</u>	<u>16</u>		
			<u>Appraisal</u>	<u>Actual</u>
	<u>Theoretical</u>	<u>Practical</u>	<u>Total</u>	<u>Theoretical and Practical</u>
<u>Agricultural Subjects</u>				
8. Principles of Agronomy & Field Experiment	2	4	6	
9. Principles of Horticulture & Food Technology	2	4	6	
10. Principles of Soil Science, Plant Nutrition and Fertilization	1	3	4	
11. Principles of Plant Protection	1	3	4	4
12. Principles of Animal Husbandry & Dairy Production	2	4	6	
13. Principles of Agricultural Engineering (Mechanization, Surveying, Irrigation)	2	5	7	
14. Basic Plants				4
15. Basic Horticulture				4
16. Dairy & Food Production				4
17. Basic Animal Husbandry				4
	<u>10</u>	<u>23</u>	<u>33</u>	<u>20</u>
Total: 40 periods/week				<u>36</u>

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

SECOND EDUCATION PROJECT (CREDIT 865-YDR)

	<u>Periods/Week</u>		<u>Appraisal</u>	<u>Actual</u>
	<u>Appraisal</u>	<u>Actual</u>	<u>Percentage</u>	<u>Percentage</u>
General Subjects	7	16	17.5	44
Agricultural Subjects	33	20	82.5	56
	<u>40</u>	<u>36</u>	<u>100.0</u>	<u>100</u>
<u>Agricultural Subjects</u>				
	<u>Appraisal</u>	<u>T+P</u>	<u>Actual</u>	<u>T+P</u>
Theory	10	20	30	100
Practical	23		70	
Total	<u>33</u>	<u>20</u>	<u>100</u>	<u>100</u>

Second Year - Specialized

	<u>Periods per Week</u>	
	<u>Appraisal</u>	<u>Actual</u>
<u>General Subjects: (Same for the five specializations indicated below)</u>		
1. Arabic	2	2
2. Mathematics	2	0
3. Civics	2	1
4. Physical Training	2	1
5. English		2
	<u>8</u>	<u>6</u>

Special Subjects

	<u>Appraisal</u>			<u>Actual</u>
	<u>Theoretical</u>	<u>Practical</u>	<u>Total</u>	<u>Theoretical and Practical</u>
<u>A. Horticulture and Agronomy</u>				
6. Vegetable Production	2	4	6	6
7. Fruit Production	2	4	6	6
8. Forestry, Medical & Ornamental Herbs & Plants, Landscaping	1	3	4	
9. Field crop production (Fiberts, Oilseeds, Tobacco)	2	4	6	6
10. Field crop production (Grains & Fodder)	2	4	6	
11. Seeds Production (Vegetable & Field Crops)	2	4	6	3
12. Plant Decoration				3
13. Crop Production (seed in general)				6
	11	23	34	<u>30</u>
Total: 42 Periods/Week				<u>36</u>

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT (CREDIT 865-YDR)

	<u>Appraisal</u>			<u>Actual</u>
	<u>Theoretical</u>	<u>Practical</u>	<u>Total</u>	<u>Theoretical and Practical</u>
B. <u>Plant Protection and Bee-Keeping</u>				
1. Economical Entomology	2	5	7	6
2. Insecticides & Fungicides	1	3	4	6
3. Plant Diseases	2	5	7	6
4. Bee-Keeping & Silkworm Breeding	2	5	7	6
5. Veterinary & Medical Insects	1	3	4	3
6. Spraying & Dusting Machines	2	4	6	3
	<u>10</u>	<u>24</u>	<u>34</u>	<u>30</u>
Total: 42 Periods/Week				<u>36</u>

C. <u>Animal Production</u>				
1. Animal Production	2	4	6	6
2. Poultry Production	1	3	4	6
3. Animal Nutrition	1	3	4	6
4. Poultry Nutrition	1	3	4	3
5. Animal Health	2	5	7	6
6. Poultry Health	2	5	7	6
7. Veterinary & Medical Insects				
	<u>10</u>	<u>24</u>	<u>34</u>	<u>30</u>
Total: 42 Periods/Week				<u>36</u>

D. <u>Dairy and Food Technology</u>				
1. Milk Processing & Laboratory Establishment	1	3	4	
2. Milk Fat Production	2	5	7	
3. Cheese Production	2	5	7	
4. Juice & Beverages Production	2	4	6	
5. Food Canning	1	3	4	
6. Preservation by Curdling	2	4	6	
	<u>10</u>	<u>24</u>	<u>34</u>	
Total: 42 Periods/Week				

E. Farm Mechanization

1. Surveying	2	3	5
2. Irrigation	1	3	4
3. Farm Buildings	1	3	4
4. Agri-Mechanization	3	4	7
5. Tractors	2	5	7
6. Mechanical Workshop Practice	2	5	7
	<u>11</u>	<u>23</u>	<u>34</u>

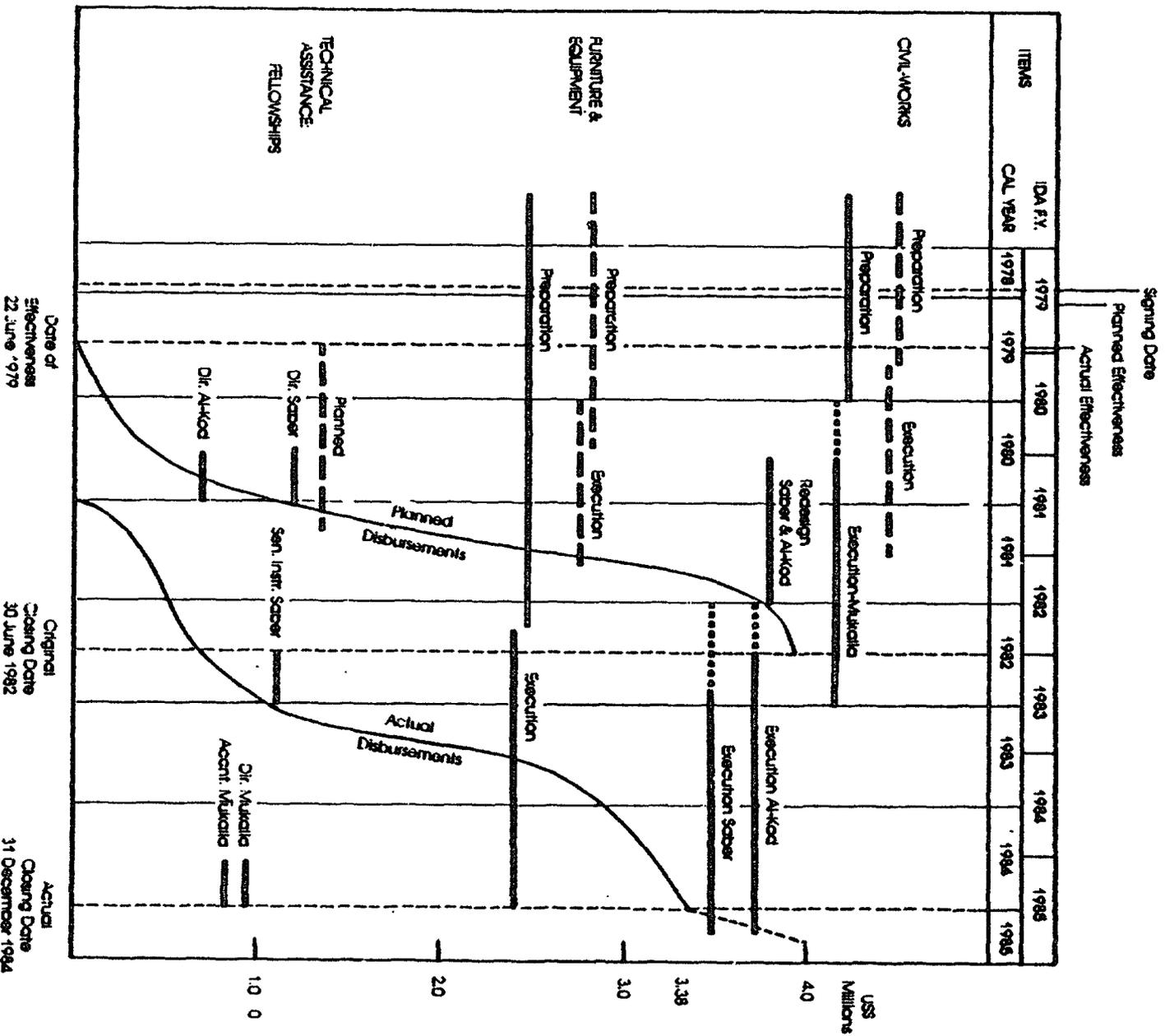
Total: 42 Periods/Week

	<u>Periods/Week</u>			
	<u>Appraisal</u>	<u>Actual</u>	<u>Appraisal Percentage</u>	<u>Actual Percentage</u>
General subjects				
General subjects	8	6	19	17
Special subjects	<u>34</u>	<u>30</u>	<u>81</u>	<u>83</u>
	42	36	100	100
Special Subjects				
	<u>Appraisal</u>	<u>T + P</u>	<u>Actual</u>	<u>T + P</u>
Theory	10 - 11)30	29 - 32)30
Practical	<u>24 - 23</u>)	<u>71 - 68</u>)
	<u>34</u>	<u>30</u>	<u>100</u>	<u>100</u>

Practical Field Training: Eight weeks practical field training during the vacation period between the first and second year.

**PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
SECOND EDUCATION PROJECT -- Credit 865-YDR**

**Comparison of Planned and Actual
Implementation and Disbursement Schedules**



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COMMENTS FROM THE BORROWER

ATTACHMENT I

* OEID1 *

JWS0078 JGI738 IN 01/02:07 OUT 01/02:11
=2289YD TKHTIT

MAR 01 10:02

MR. GRAHAM DONALDSON
CHIEF, AGRIC AND HUMAN
EVALUATION DEPT, WORLD BANK.

SUBJECT:- PROJECT COMPLETION REPORT CREDIT 865-YDR

WITH REFERENCE TO YOUR LETTER OF 11.12.86 REGARDING ABOVE SUBJECT. .
PLEASED TO INFORM YOU THAT WE ARE IN FULL AGREEMENT TO THE CONTENT
OF THE REPORT SOME VERY MINOR CORRECTION ON THE REPORT AS FOLLOWS:-

1) CORRECTION OF NAMES IN DISTRIBUTION LIST ENCLOSED IN ABOVE
LETTER AS FOLLOWS:-

- (A) MINISTER OF EDUCATION, DR. SALEM ABUBAKER BA-SILM
INSTEAD OF HASSAN AHMEED SALLAMI.
- (B) MINISTER OF CONSTRUCTION MR. MOHAMMED AHMED SALMAN
INSTEAD OF MR. FADIL AWADH DUBBA.

2) CORRECTION OF 'THIRD EDUCATION PROJECT.'
TO 'SECOND EDUCATION PROJECT.'

ON THE FOLLOWING PAGES:-

- (A) COVER (B) PAGE VX1) TITLE (C) PAGE JV TITLE.

CORRECTION OF THE FOLLOWING NAMES IN ANNEX 3-1

FROM	TO
LODA	LOADER
YAJAR	GA'AR
LAJJH	LAHEJ
BHALA	DHALA
ABIEN	ABYAN
MUKRAS	MUKEIRAS

KINDLY REQUESTED TO AMEND THE ABOVE-MENTIONED ERRORS. BEST REGA RDS.

ABDULLA SAEED ABADDAN
DEPUTY MINISTER OF PLANNING.

=2289YD TKHTIT