

January 9, 1985

NOTICE OF MEETING

TO: See Distribution
 FROM: Mr. Norman Cohen, AFR/PD
 MEETING: Botswana Junior Secondary Education Project Paper

	<u>ISSUES</u>		<u>ECPR</u>
DATE:	1/31/85	DATE:	2/5/85
TIME:	9:00 a.m.	TIME:	2:00 p.m.
PLACE:	1408 N.S.	PLACE:	1408 N.S.

Attached is a copy of the Botswana Junior Secondary Education Project Paper. Please review and bring your issues to the issues meeting at which time we will prepare an agenda for the ECPR.

Attachments:

a/s

Distribution:

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 AAA/AFR/PRE:H. Munson

AFR/SA:CSadler
 AFR/TR:VBarnes

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number

DOCUMENT CODE

3

2. COUNTRY/ENTITY

Botswana

4. BUREAU/OFFICE

Africa, AFR/SA

06

3. PROJECT NUMBER

633-0229

5. PROJECT TITLE (maximum 40 characters)

Junior Secondary Education Improvement

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
 02 28 92

7. ESTIMATED DATE OF OBLIGATION
 (Under "B:" below, enter 1, 2, 3, or 4)

A. Initial FY 85

B. Quarter 2

C. Final FY 88

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	FIRST FY 85			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	2852	1675	4527	10292	6026	16318
(Grant)	(2852)	(1675)	(4527)	(10292)	(6026)	(16318)
(Loan)	()	()	()	()	()	()
Other: 1.						
U.S. 2.						
Host Country		1000	1000	290	5903	6193
Other Donor(s)						
TOTALS	2852	2675	5527	10582	11929	22511

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF	624	680				16318		16318	
(2)									
(3)									
(4)									
TOTALS						16318		16318	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

620 630 660

11. SECONDARY PURPOSE CODE

600

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code BR
 B. Amount 16318

13. PROJECT PURPOSE (maximum 480 characters)

To increase the quality and efficiency of an expanded basic educational system and to institutionalize the capacity of the Ministry of Education to develop, manage and support this system.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
 05 87 05 90

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify) 935

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

17. APPROVED BY

Signature Paul Guedet
 Title Director, USAID/Botswana

Date Signed MM DD YY
 12 13 84

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

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I. SUMMARY

- A. GRANTEE: The Republic of Botswana, (GOB)
Ministry of Finance and
Development Planning
- B. IMPLEMENTING AGENCY: The Ministry of Education (MOE)
- C. PROPOSED AMOUNT OF GRANT:
- | | |
|-------|------------------|
| AID | \$16,318,000 |
| GOB | <u>6,193,000</u> |
| TOTAL | \$22,511,000 |
- D. TERM OF GRANT: Seven years from the date of
initial obligation.
- E. PURPOSE OF GRANT: To increase the quality and
efficiency of the expanded
basic junior secondary
education system and to
institutionalize the capacity
of the MOE to develop, manage,
and support the junior
secondary education system.
- F. BACKGROUND OF PROJECT: The period of British colonial
administration through
Botswana's Independence in
1966, was characterized by
particularly slow development
of formal education. As a
result, Botswana were less
educated at Independence than
the inhabitants of any other
ex-British African territory.
Since 1966, the GOB has
improved education at all
levels. At present, access to
primary education is almost
universal. Secondary
schooling however, is limited
to approximately one-fifth of
the children in the secondary
school age group. To date,
this has been largely
circumscribed by lack of
physical facilities and
qualified teachers.
- The educational quality of
Botswana's national labor
force is unbalanced. Job
opportunities for the
uneducated and untrained are
limited. At the same time,

there is an unmet demand for educated individuals that out-strips their availability. This situation parallels a secondary school system which is considered inadequate and often inappropriate for preparing school leavers to participate in the work force. Many school graduates have not received adequate core knowledge and skills to make them employable or to prepare them for subsequent training. The overall training environment at the junior secondary level requires modification, in both curricula and instructional strategies, to meet the specific needs of the students and to ensure compatibility with the socio-cultural environment. Many teachers themselves, however, have not been adequately trained to undertake this task.

To address these issues, the GOB has launched an ambitious program of expansion and improvement of the junior secondary education system throughout the country. The goal of this program is to permit all primary school graduates the opportunity to continue into the secondary level and expand basic education from seven to nine years. Complementary to this effort is the recognized need to improve the training of teachers. A new Junior Secondary Teacher Training College (JSTTC) will be opened in 1985. This college will formulate a detailed program to enable its staff to prepare student teachers for the implementation of a new and expanded junior secondary program. In addition to this, the Ministry of Education is facing shortages of facilities, equipment, skilled

and experienced staff and general financial constraints, all of which could hinder progress in the expansion of the junior secondary education program.

G. DESCRIPTION OF PROJECT:

The Junior Secondary Education Improvement Project (JSEIP) is designed to increase the quality and efficiency of an expanded junior secondary education program and to institutionalize the MOE's capacity to develop, manage and support junior secondary education. The JSEIP will have three closely coordinated and interrelated components to achieve these results: curriculum and instructional materials development; teacher development; and education systems planning, management and supervision. More specifically, the project will assist the MOE with the a) revision of curricula to better respond to basic education and projected workforce requirements; b) organization of instructional objectives, learning strategies, and achievement measures; c) development of instructional materials to support the revised curricula; d) establishment of strategies for field testing, and on-going improvements of the instructional program; e) teacher training in implementing the revised curricula; f) development and distribution of teacher guides, student learning guides and instructional materials; g) strengthening the MOE staff skills for planning, managing and assessing junior secondary education; h) development and implementation of inservice and preservice teacher training programs which are consistent with the revised junior secondary program; i) development and implementation

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of training workshops for inspectors, education officers and headmasters responsible for junior secondary education centers.

The project will be implemented by the MOE in conjunction with a team contracted by the consortium, "Improving the Efficiency of Educational Systems" (IEES), presently under an AID contract. This consortium will help integrate the work of the Curriculum Development Unit of the MOE, with inservice and preservice training activities nationwide. They will also work directly with MOE management personnel in administrative functions. The skills areas covered by technical assistance personnel include instructional systems design, planning and management, program evaluation, testing, instructional media, inservice training, professional studies (teaching methodology) and certain subject area specialties. The resident technicians will be complemented by short term technical assistance. Over the seven year life of the project, 48 person years of long-term technical assistance and 150 person months of short-term technical assistance are scheduled. In conjunction with technical assistance, the project will provide 36 person years of U.S. master's level training, 140 person months of U.S. and third country short course training and about 2,000 person months of local inservice training. Construction elements include five staff houses for technical assistance personnel, a Curriculum Development and Evaluation Department and six education centers in key locations

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throughout the country. Finally, the project will supply commodities to support the three areas of concentration.

H. SUMMARY OF FINDINGS:

Project analyses indicate the JSEIP is technically feasible. The design is based on a proven least-cost and low-risk methodology, comprising approaches to education systems development established as effective through numerous applications in developed and developing countries. The least-cost aspect of the project design is based on two considerations: 1) the target area for assistance was determined through extensive analyses and recommendations of the recent Botswana Education and Human Resource Sector Assessment; and 2) the project design makes effective and efficient use of funds by helping to improve the entire education sub-sector responsible for the expansion of the junior secondary system.

The assessment of the distribution of the social benefits of the project indicate that the social consequences will be strongly positive. The environmental examination of the project identified no issues requiring further environmental study and recommended that a Negative Determination be made. This recommendation was approved by the Africa Bureau. The financial and engineering analyses reviewed the cost estimates of the project, construction requirements, contracting arrangements, payment procedures, monitoring plans and implementation schedule, and concluded that the planning was adequate and the costs were reasonably firm, thereby satisfying the

requirements of Section 611 (a)(1) of the Foreign Assistance Act, as amended. The administrative analysis detailed the project's administrative and management responsibilities and concluded that effective means of coordination will be established and maintained among the project implementors.

The economic analysis estimated the social internal rate of return of the project to be 40.8 percent. The key to the economic viability is a significant reduction in the internal inefficiency at the junior secondary level. The Financial Analysis demonstrated that the GOB is in a position to absorb the recurrent expenditures associated with the expansion of secondary education including those which result from the project investment. However, the analysis shows that the capital costs of the planned expansion of physical facilities would require donor financing to assist with some of the construction of new school facilities.

I. PROJECT ISSUES:

Three project issues were discussed in the PID. In addition to those, all issues raised by AID/Washington in State 256369 have been addressed in the Project Paper.

J. WHETHER SMALL, DISADVANTAGED AND WOMEN-OWNED FIRMS HAVE BEEN CONSIDERED:

The Contracting Plan found in Annex G complies with this requirement.

K. WAIVERS REQUESTED:

Two waivers were requested for commodities and technical services changing Source Origin from Code 941 to Code 935. These waivers were justified in Annex M and are included in the Draft Project Authorization.

L. MAJOR CONDITIONS PRECEDENT
AND COVENANTS:

Conditions Precedent and Covenants address construction activities, the availability of Botswana counterparts and candidates for long-term training, office space and housing requirements for the proposed technicians, necessary human, physical and financial resources for the expansion of the junior secondary education program and evaluation arrangements. These are detailed in Section X.

M. PROJECT TEAM:

S. Baker - General Engineering Officer, USAID/Botswana
G. Bisson - Regional Legal Advisor, USAID/Swaziland
J. Claffey - Educational Planner, S & T/Washington
V. Cieutat - Teacher Education Specialist, Contract/IEES
A. Domidion - Human Resources Development Officer, USAID/Botswana
T. Harris - Project Development Officer, R: O/ESA
L. Mailloux - Social Scientist, USAID/Botswana
R. Morgan - Instructional Technology, Contract/IEES
R. Shortlidge - Education Economist, USAID/Zimbabwe
R: Wilk - Teacher Education Specialist, Contract/IEES
and

In collaboration with officials from the Ministries of Education, Finance and Development Planning, and Works and Communications.

DRAFT PROJECT AUTHORIZATION

Name of Country/Entity: Botswana
Name of Project: Junior Secondary Education Improvement Project
Number of Project: 633-0229

1. Pursuant to Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Junior Secondary Education Improvement Project for Botswana involving planned obligations of not to exceed Sixteen Million Three Hundred and Eighteen Thousand Dollars (\$16,318,000) in grant funds over a six year period from the date of authorization, subject to the availability of funds in accordance with the AID/OYB allotment process, to help finance the foreign exchange and local currency costs of the project. The planned life of project is seven years from the date of initial obligation.
2. The project will increase the quality and efficiency of the expanded basic educational system in the Cooperating Country and increase the capacity of the Ministry of Education to develop, manage, and maintain an effective and efficient junior secondary education system. AID funding will finance long and short-term technical assistance, participant and local training, construction, and commodity support.
3. The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. Regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditons, together with such other terms and covenants and major conditions, together with such other terms and conditions as AID may deem appropriate.
4. a. Source and Origin of Commodities, Nationality of Services
Commodities financed by AID under the project shall have source and origin in the Cooperating Country or countries included in AID Geographic Code 941, except as AID may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have as their place of nationality the Cooperating Country and countries included in AID Geographic Code 941, except as AID may otherwise agree in writing. Ocean shipping under the project shall be financed only on flag vessels of the United States, other Countries in Code 941, or the Cooperating Country, except as AID may otherwise agree in writing.
- b. Conditions Precedent to First Disbursement
Prior to the first disbursement under the Grant or to the issuance by AID of documentation pursuant to which disbursement will be made, the Cooperating Country will, except as the parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID a statement of the person(s) representing the Cooperating Country for purposes of the Project, together with a specimen signature of each person specified in such statement.

c. Additional Disbursement: Construction Activities

Prior to disbursement under the Grant for construction, or to the issuance by AID of documentation pursuant to which disbursement shall be made, the Cooperating Country will, except as AID may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID final plans and specifications including cost estimates for such construction and evidence that appropriate sites have been made available by the Cooperating Country for such facilities.

d. Covenants

The Cooperating Country shall covenant that:

(1) It will make available for long-term academic training in the U.S. on a timely basis qualified candidates, and it will ensure by bonding or other means that such candidates are assigned upon their return to suitable positions within the Ministry of Education related to activities under this Project, unless AID otherwise agrees in writing.

(2) It will assign suitable counterparts for each long-term technician furnished in support of the CD/E during the initial tour of the technician, and for each long-term technician furnished in support of the Junior Secondary Teacher Training College at Molepolole during the life of the project.

(3) Pending construction of the central headquarters building of the CD/E, it will provide suitable office space for short or long-term technicians furnished in support of the CD/E.

(4) It will provide suitable housing and office space for long-term technicians assigned to the Junior Secondary Teacher Training College at Molepolole.

(5) Permanent housing constructed under the Project for long-term technicians in support of the CD/E, upon completion, will be available for such technicians for the life of the project.

(6) It will provide the necessary human, physical and financial resources commensurate with the expansion of the junior secondary education program in Botswana.

e. Waivers

Notwithstanding paragraph 4.a. above and based upon the justification set forth in Annex M of the Project Paper, I hereby approve: (1) a procurement source/origin waiver from AID Geographic Code 941 to Code 935 in the estimated amount of \$1,100,000, for commodities to be furnished under the Project, and I certify that "exclusion of procurement from Free World countries other than the Cooperating Country and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program;" and (2) a procurement source/origin waiver from AID Geographic Code 941 in the estimated amount of \$25,000, for services from suppliers having their nationality in countries included in AID Geographic Code 935, and I certify that the interests of the United States are best served by permitting the procurement of these services from Free World countries other than the Cooperating Country and countries included in Code 941.

II. PROJECT BACKGROUND

Since Independence in 1966, the Government of Botswana (GOB) has improved education at all levels: primary, secondary, teacher training, technical/vocational, and university. It has succeeded in achieving near universal access to the primary level (Standards 1-7), with over 200,000 children or about 85% of the age group enrolled. Paralleling the increase in the number of primary schools, the GOB has revised the primary curriculum and improved the quality of preservice and inservice teacher training. USAID/Botswana has assisted the Ministry of Education (MOE) and the University of Botswana (UB) in training primary teachers and in establishing a Department of Primary Education at UB.

Concurrent with these efforts, the GOB has decided to extend the basic learning cycle from seven to nine years, improve the quality of education throughout the cycle, and make the content of the system more relevant to national development needs and workforce requirements. This follows from recommendations in the Report of the National Commission on Education (1977) and the Supplement Report of the National Commission (1979). It is responsive also to the principal education objective of the GOB's National Development Plan VI: 1985-1991 (Draft) to prepare Botswana citizens for useful, productive lives with special emphasis on rural development and employment generation.

Presently, the quality and duration of primary schooling is not adequate to address the nation's manpower needs. The GOB has found that children completing the seven standards of primary school do not have adequate mastery of the core knowledge and skills necessary for subsequent employment, related training, direct employment, or further formal education. The proposed nine years of expanded and improved basic education will help enable greater mastery of such requisite knowledge and skills in literacy, numeracy, problem solving, etc.

In 1983, only 27% of the primary school (Standard 7) completers were accommodated in the eighth year (Form I) of school, the first year of the junior secondary level. The influx of non-skilled, Standard 7 leavers, who are too young for the job market, is recognized as a serious labor problem. At the same time, the Ministry of Finance and Development Planning has projected a shortfall of nearly 11,050 junior secondary graduates with training in 1989.

The GOB collaborated with AID in conducting an Education and Human Resources Sector Assessment during October and November 1983. This assessment is a basis for education planning to address the national goals of employment generation and workforce skills training.

The present formal education system comprises seven years of primary school, three years of junior secondary school, and two years of senior secondary school. This 7-3-2 structure will be modified in 1986 to a 7-2-3 system, then is slated to become a 6-3-3 system after 1991. Universal access is proposed for the first two levels, or nine years of basic education.

The GOB has demonstrated through its allocation of national resources that expanding and improving basic education is one of its highest priorities. To provide Botswana youth with nine years of relevant, quality intermediate education will require the revision of the junior secondary curriculum and modified instructional strategies, a program of inservice and preservice teacher training, and the construction of additional classrooms and education centers to handle enrollment expansion and staff training. (See Annex I.)

The GOB has requested financial and technical assistance to help realize these objectives. AID's proposed Junior Secondary Education Improvement Project (JSEIP) is intended to assist the MOE to develop a coordinated, efficient and cost-effective curriculum and instructional program at the junior secondary level that is responsive to Botswana's development and workforce needs. The project also seeks to help build a permanent capability to develop, manage, and support this system.

III . PROJECT RATIONALE AND DESCRIPTION

A. Project Rationale

The Junior Secondary Education Improvement Project (JSEIP) conforms with Botswana's National Development Plan, USAID/Botswana's Strategy Statement, and AID's Education and Human Resources Policy.

1. Relationship to Botswana's National Development Plan

The major challenge facing the Government of Botswana (GOB) is to finance effective and efficient education and training programs which reduce the existing and projected imbalance between labor demand and supply while at the same time being responsive to social and political pressures for expanded access to post-primary education and training opportunities. A major educational goal of the government for the remainder of the decade is an expansion of access and the improvement of a basic education system consisting of nine years of schooling. This represents a net increase of two years in Botswana's basic education system. The strategy for this expansion involves improving the quality of education throughout the cycle, making the curriculum of the system more relevant to workforce requirements, and reducing inefficiencies in the utilization of resources within the system. Successfully meeting this challenge over the long run is critically dependent on how the planned rapid expansion of access to junior secondary education (the last two to three years of the basic education cycle) is implemented.

Botswana has attained nearly universal access to primary schooling (7 years) with a participation rate of 85 percent. The completion rate for primary education is 89 percent. Since the mid-1970s, there has been growing and widespread public concern about the increasing numbers of primary school leavers (Standard 7) who are unable to be accommodated at the Form I level because of limited places. From a peak of 52 percent in 1977, the percentage of Standard 7 graduates entering Form I declined to 27

percent in 1983. Furthermore, as relative access to junior secondary education dropped, the numbers increased of primary school completers unable to find meaningful employment in the economy and with inadequate preparation for further skills training or formal education. In juxtaposition to this growing surplus of primary school graduates, shortages of post-primary educated and trained manpower continue to be a major constraint on economic development.

In 1984, the number of Standard 7 completers entering Form I was increased from 7,430 in 1983 to 10,818, representing a 40 percent transition rate. By 1991 the Form I enrollees are expected to number 23,000, representing a 70.5 percent transition rate. Changes of this magnitude will have implications for virtually all elements of the education system---curriculum and instructional resources, facilities, the number and qualifications of teachers, and capacity for planning, support, and management of the system.

A major revision of the junior secondary curriculum is underway to maximize coordination with the primary curriculum, increase its efficiency and effectiveness, and make it more relevant to the current and future needs of Botswana. Essential to increasing educational relevance is enhancing the junior secondary graduates' employment potential and trainability for the world of work. Fundamental to this aim is mastery of basic knowledge and skills coupled with practical training. Minister of Education, Mr. E.K. Morake, in a presentation to a conference of Commonwealth Education Ministers in 1984, asserted the GOB's aim that "When the new junior secondary curriculum is completed, our students will learn more in nine years than they presently learn in ten."

A Junior Secondary Teacher Training College (JSTTC) will open in January, 1985, at Molepolole. This three-year college, will accommodate 450 full-time students who, upon graduation, will be certified to teach in junior secondary schools. By 1991 the number of junior secondary teachers needed to support the expansion will increase from the present 927 to 1643. The annual output of 150 teachers from the JSTTC beginning in 1988, along with the current UB output from the Secondary Education Diploma program will be sufficient to meet the net annual increase in need for new teachers. However, it will still fall short of requirements to replace expatriates and phase out teachers who are not trained (i.e., part of the Unified Teaching Service). The JSTTC will also be responsible for planning and implementing a large scale inservice training program for teachers already assigned to schools.

To provide sufficient junior secondary classrooms in 1984, some existing primary schools were converted to junior secondary use. From 1986 onward, the expansion of the community junior secondary schools will be accommodated by construction of new schools through the joint efforts of the government and local communities. By 1990, 520 new classrooms and 540 new specialist rooms and teaching labs will be built for junior secondary use. Costs will be borne principally by the GOB and other donors. Communities will be expected to make some contribution, particularly for the provision of staff housing.

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This project will address the urgent need to coordinate this expansion and upgrade the junior secondary system through an integrated program for (1) developing curriculum and instructional materials, (2) training teachers, and (3) strengthening MOE capabilities for planning, management, and support of the educational system.

2. Relationship to USAID/Botswana's Strategy Statement

USAID/Botswana's two interrelated program goals are to increase income opportunities, especially in the rural areas; and to increase the supply of trained manpower equipped to participate productively in the public and private sectors of the economy. The strategy has three objectives:

- a. To improve the quality and efficiency of the primary and post-primary education systems to better meet projected workforce requirements;
- b. To provide advanced training for administrators and technical personnel; and
- c. To strengthen selected institutions which are directly responsible for increasing agricultural and non-farm productivity and incomes in rural areas.

The Primary Education Improvement Project (PEIP) (633-0222) already addresses the first strategic objective. The proposed Junior Secondary Education Improvement Project (633-0229) will specifically focus on the post-primary aspects of the first objective, build on the inservice teacher training component of PEIP, and help to localize faculty positions at the Molepolole JSTTC.

The analytical section of the FY 1985 CDSS concluded that there was a growing requirement for the expansion of formal schooling at the junior secondary level and above, and for vocational and technical training. The JSEIP is designed to assist the GOB during its planned expansion of basic education at the junior secondary level, and to improve the match between formal schooling and labor demand requirements. Thus, the JSEIP is directly related to USAID/Botswana's approved strategy and the attainment of the strategy's first objective.

3. Relationship to AID and AFR Education and Human Resources Policy

AID's education and human resources policy is outlined in the December 1982 Policy Paper, Basic Education and Technical Training. This paper states that AID will focus on increasing (a) the efficiency with which education resources are used, (b) the quantitative and qualitative outputs of education and training investments, and (c) the effectiveness of the education and training systems in supporting economic and social development objectives. It notes that priority attention will be given to improving the efficiency and distribution of existing

basic education and skills training systems. The same policy objectives and their strategy implications for the problems of Africa are discussed in the Africa Bureau Basic Education and Technical Training Assistance Strategy Paper (March 1984).

Both the AID Policy Paper and the Africa Bureau Strategy Paper emphasize the importance of taking an integrated approach to the resolution of key problems affecting the efficiency and effectiveness of basic education systems. The Africa Bureau paper stresses the importance of sector assessments in assisting Missions to identify key constraints and project interventions to assist developing countries overcome them. In line with the Bureau's strategy, USAID/Botswana and the GOB conducted, in late 1983, a comprehensive Education and Human Resources Sector Assessment. This assessment identified as a major problem the growing number of primary school graduates who do not have requisite knowledge and skills for further education, training or employment while manpower shortages of secondary graduates persist

To help address this problem, the Assessment recommended AID technical support during the planned expansion of basic education at the junior secondary level. This support would emphasize overcoming present inefficiencies by making the curriculum more relevant, improving instructional materials and teacher training, and strengthening MOE management and supervisory capabilities. These three areas are the primary ones addressed in the JSEIP project.

Through this intervention, coupled with policy dialogue since early 1983, the GOB has modified its plans for junior secondary expansion to ensure greater emphasis on maintaining and enhancing the quality of educational programs in preference to mere physical expansion of the present system. GOB educational policy makers, administrators, and analysts are directing concerted attention to this effort.

The USAID/Botswana's education and human resources strategy similarly highlights the importance of improving the efficiency and effectiveness of the basic education system. As indicated in the AID Basic Education Policy document, investments which improve existing systems realize the highest marginal returns. This conclusion is supported by the economic analysis of the project.

B. Project Description

1. Program Goal

The program goal of the Junior Secondary Education Improvement Project is to enhance the capacity of Botswana's education and human resources system to meet projected workforce requirements. (See Annex B, Log Frame Matrix.)

2. Project Purposes

The project has two purposes: (1) to increase the quality and efficiency of the expanded basic (junior secondary)

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education system and (2) to institutionalize the capacity to develop, manage, and support the junior secondary education system.

The quality and efficiency of the expanded system of basic education will be increased by (a) making junior secondary schooling more responsive to national development needs, and (b) improving the instructional delivery and teacher training components of the system. The permanent capacity to develop, manage, and support the junior secondary system will be institutionalized by (a) developing the organizational structure with trained staff for the system, and (b) developing and coordinating needs analysis, teacher training, dissemination, and managerial components of the system.

3. Specific Outputs

The JSEIP will increase the quality and efficiency of the junior secondary education system by accomplishing the following:

- a. Adapted curriculum incorporating basic education and projected workforce needs;
- b. Effectively organized instructional objectives, learning strategies, and achievement measures;
- c. Identified, adapted or developed instructional materials to support the revised curriculum;
- d. Established strategies for field testing, formative evaluation, revision, implementation and improvement of the instructional program;
- e. Teachers trained to implement the new instructional program;
- f. Developed teacher guides with instructional strategies to support the revised curriculum;
- g. Produced and distributed teacher guides for the entire junior secondary program;
- h. Developed student instructional packages (learning guides and associated instructional materials) to support the revised curriculum.

The activities listed above will help ensure that students master core knowledge and skills necessary for entry into the workforce, employment-related training, or further formal education, and reduce repetition and dropout rates, thereby realizing other efficiencies that lower unit cost per graduate.

The project will help institutionalize the capacity to develop, manage, and support the junior secondary system by accomplishing the following:

- a. Improved Ministry of Education organizational structure and staff skills to manage the junior secondary system (see MOE organization chart, Annex O);
- b. Strengthened Curriculum Development and Evaluation (CD/E) Unit;
- c. Trained MOE staff in management information techniques for continuous assessment and improvement of the system;
- d. Improved inservice program to support the new junior secondary instructional program;
- e. Improved preservice program to support the new instructional program;
- f. Training workshops for inspectors, education officers, and headmasters on implementing the revised instructional program;
- g. Effective procedures established for procuring and distributing instructional materials including teacher guides;
- h. CD/E Unit constructed;
- i. Six Education Centers for inservice training constructed.

4. Project Components

The JSEIP will have three closely coordinated components designed to produce an efficient and effective junior secondary school program and permanent organizational capabilities for the continuing support and improvement of all levels of education in Botswana. These three components will focus on curriculum and instructional materials development; teacher development; and educational systems planning, management, and supervision.

a. Curriculum and Instructional Materials Development

(1) Background and Justification

Coupled with the commitment to expand access to junior secondary education is the GOB's desire to make these two additional years of basic schooling better and more cost-efficient. To do this, the MOE is revising the junior secondary curriculum to better incorporate basic education and projected workforce needs and to use the principles and technologies of instructional systems development to enhance teaching and learning. The MOE also seeks to develop

within its Curriculum Development and Evaluation Department a permanent capacity for on-going instructional improvements that will increase the quality and cost-efficiency of the expanded basic education system.

At the present time, the Ministry of Education's Curriculum Development Unit of the CD/E is revising junior secondary curricula in all subjects to have syllabi and teaching guides ready for use by classroom teachers in January 1986. As levels or grades are completed in draft, the materials are reviewed by headmasters and teachers in seminars and panels, then revised and reviewed again by another group of teachers before final revisions are made for production. Senior education officers are responsible for writing, revising, and holding workshops and seminars in Gaborone and the field with little support except for that of subject area panels. This task is in addition to supervising education officers, headmasters and teachers in their respective subject fields.

Science, mathematics, Setswana, English, social studies, agriculture, and practical arts are some of the main subjects. Since the primary school syllabi have been completed for Standards 1 through 7, the senior education officers and their curriculum panels have built Forms I and II (Standards 8, 9) on the primary curricula so that there is continuity of content and a framework of nine years of basic education. During the period 1986-1990, the revised curricula will be tried out in urban and rural schools, tested for grade level, comprehension, degree of difficulty and general accuracy and cultural appropriateness. With the help of the curriculum specialists in instructional systems design on the JSEIP team, the curricula will be adapted to reflect the expanding needs of junior secondary students with different goals based upon ability and interests in future employment or higher education.

One source for the development and production of teaching materials is the Teaching Aids Production Unit (TAPU) of the MOE, located in Francistown, which works closely with the Curriculum Development Unit to produce such visual aids as supplementary readers and classroom instructional tools for use in primary schools. With the help of the Swedish International Development Agency, TAPU will be expanded to include junior secondary audio-visual requirements. It is possible that the audio-visual section in the Molepolole JSTTC would be equipped to produce instructional materials specifically for the junior secondary level.

Under a contract with Macmillan Botswana Publishing Company and Longman Group Ltd., textbooks, workbooks and teachers' guides have been printed for primary schools. With the regular inputs of curriculum panels and the curriculum writers, the companies are altering new editions to reflect Botswana student needs and interests as determined by the Curriculum Development Unit. It is anticipated that text materials will also be revised for the junior secondary level as well.

The curriculum is the foundation of an educational program. There are two principal elements to any curriculum; the

first is the content or subject matter, and the second is the instructional system or processes which enable learning to occur efficiently. While the GOB recognizes the need to improve both of these elements, the latter is the most pressing need. Thus, the development and organization of more effective instructional resources is one of the highest priorities for the project. These resources will include complete instructional packages including teaching guides, course syllabi with instructional strategies, testing instruments, and instructional aids.

The project will build on the work begun to make the junior secondary curriculum more appropriate to the future economic and social/cultural needs of Botswana's youth. After the nine year curriculum development is complete, the task will be to develop teaching/learning strategies that will result in maximum student learning with the most cost efficient utilization of available resources. A number of features characterize the development of such an instructional program. One is to analyze the learning environment in terms of cultural cognitive and communication styles. Another is the careful analysis of educational goals and their translation into operationally-defined, and hierarchically-organized student learning outcomes which are objectively measurable. The learning outcomes for the several subject areas and school levels then serve as the specifications for which instructional programs are built and the criteria against which learning is assessed.

The main consequence of organizing learning programs in this way is that, when implemented, they have been demonstrated to be significantly more effective in student learning than traditional instruction. Typically, such instructional packages (of properly sequenced learning objectives, diverse instructional strategies geared to student interests and capabilities, and achievement measures---with teacher and student guides on how best to proceed with the learning program) result in measurably higher levels of student achievement and retention and require less learning time than traditional teaching methods. This can usually be accomplished without increase in the recurring unit cost of instruction.

Another feature of this approach, also referred to as instructional systems design (ISD), is the systematic integration of all the key elements in the instructional process--teachers, instructional materials, facilities, scheduling, teaching aids, and school management. This insures that these elements operate together as an integrated system to maximize the accomplishment of student learning. The application of this organizational approach to educational programs has been demonstrated successfully in a range of countries including, for example, Indonesia, Korea, Peru, El Salvador, Liberia, and the United States.

Preparing the CD/E staff to use effectively the tools of ISD in curriculum development will be a cornerstone aim of the project. Such tools include needs assessment, performance objectification, materials design, criterion referenced testing, formative and summative evaluation, low-cost technology

applications, competency-based instruction, and the efficient and effective integration of these.

Experience has shown that improvements in instructional materials, when closely coordinated with upgrading teacher skills, correlate much higher with measured student achievement, and have more enduring effects, than increased teacher training alone. Investments in instructional materials improvement appear to have greater and more immediate returns in terms of student achievement than similar investments in other elements of the instructional program. For these reasons there will be close coordination between the student curriculum development effort by CD/E and the preservice teacher training program at the Molepolole Junior Secondary Teacher Training College and the inservice training program to be conducted in the regional and district education centers.

(2) Strategy Components

The MOE's Department of Curriculum and Evaluation (CD/E) is responsible for the development of all instructional resources for primary and secondary education. The CD/E consists of the following five units: (a) Curriculum Development, (b) School Broadcasting, (c) Examinations, (d) Research and Testing, and (e) Teaching Aids Production. There are thirty-three professionals assigned to CD/E. It is the GOB's intention to increase the CD/E staff to fifty professionals by 1990. This increase will provide the additional Batswana who will be needed by CD/E for the junior secondary education development program.

Upgrading the capabilities of the present CD/E professional staff and improving their work environment is an important requirement for obtaining the maximum output from the unit and, as noted, is one of the central aims of this project. The CD/E has completed a major revision of the primary curriculum, and a revision of the junior secondary curriculum has already begun. The analysis of goals and specification of subject content is underway. The revised and fully validated junior secondary curriculum for the proposed school structure must be ready for nationwide implementation by 1991. The next steps in this work by CD/E will be the design, development, and trial validation of corresponding instructional materials for the entire junior secondary program. (See Technical Analysis in Annex F.)

Upgrading and modernizing the skills of the CD/E personnel, and helping to install a revised junior secondary curriculum with well designed instructional programs, will occur through seven means:

- U.S.-Based Master's Training (for programs not available in Botswana)
- In-Country Training Workshops
- Short-Term U.S. and Third Country Training
- Increased Instructional Development Resources
- Improved and Expanded Facilities
- Resident Technical Advisers
- Short-Term Consultants

The expansion of the CD/E staff will be the responsibility of the Government of Botswana, as will be the provision of resources for the design and development of the new junior secondary school curriculum. It is anticipated that project support for improving the CD/E will be for six years with costs being heavier in the first three years and tapering off in the last three years. Following is a brief description of each of the project support elements.

(a) U.S.-Based Degree Training

Up to nine key professionals from the CD/E will be selected for advanced degree (Masters level) training in the United States for programs not available in Botswana. These programs will last about two years, and the assignments to training will have staggered starting dates with three starting the first year, and two more in each of the second, third, and fourth years. Thus, three persons will be absent from the CD/E during the first year of the project; five will be absent during year two; four will be absent during the third and fourth years, and two will be away during the fifth year of the project.

Specialty areas for which advanced training is critical in the CD/E have been tentatively identified, but changes in these may be indicated as the project gets underway. The areas of major emphasis will include:

- Instructional Systems Development
- Instructional Materials Development
- Curriculum Planning and Management
- Instructional Technology
- Field Program Evaluation
- Science Education Curriculum
- Math Education Curriculum

The training programs will be designed to enable each person to study more than one area of emphasis.

(b) In-Country Training Workshops

A series of in-country training workshops will be conducted by resident technical advisers and short-term consultants in conjunction with professional personnel of the CD/E and other educators in the junior secondary program from the Ministry of Education, the Molepolole JSTTC, and the regional and district Education Centers. The workshops will vary from one to several weeks in duration and serve to develop essential skills for the curriculum development team members, in both instructional systems approaches and subject matter specialties. Workshop agendas and their timing will be determined through needs assessment early in the project and be scheduled to minimize disruption of ongoing work.

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(c) Short-Term U.S. and Third Country Training

The purpose of this training will be to familiarize key personnel of CD/E with the most advanced programs of curriculum and instructional materials development and to let them see state-of-the-art applications of instructional systems and technology to national educational development. Training and orientation visits by CD/E senior managers and professional staff will be made to U.S. and third country institutions where more advanced techniques of curriculum development are in operational use. In addition to familiarizing the CD/E with current practices, such visits will assist in developing continuing linkages between CD/E and other institutions with similar purposes. Examples of such training trips might include a visit to Kenya to see the radio English teaching program in operation and visits to U.S. institutions where innovative instructional development work is ongoing. During the life of the project approximately thirty Botswana involved in curriculum development (from the MOE and CD/E staff or teachers working on the project) will receive such training. The duration of the trips is expected to average two months, varying from one to six. About sixty person-months of short-term U.S. and third country training would occur over the life of the project.

(d) Increased Instructional Development Resources

The project will have, as a major output, an adapted curriculum for the junior secondary program with corresponding instructional packages. Teacher guides will be developed, produced, and distributed for all junior secondary teachers, and the needed instructional materials either procured, adapted, or developed. Student guides to the learning programs also will be developed but their production and distribution will be handled as with present course materials.

Although the CD/E presently has most of the generic equipment needed to support an instructional resources development effort, the project will provide a small amount of additional, critically needed equipment. These items might include word processing equipment, microfiche readers, high speed duplicators, slide and audio tape duplicators and other materials production and audiovisual equipment.

Essential, not only to CD/E, but to the MOE as a whole, is a basic inventory of current literature on curriculum and instructional materials development. The project will provide a small but basic library of textbooks, handbooks, research and technical reports, and exemplary junior secondary level instructional materials. The field of curriculum development has undergone marked changes in the past few years, and state-of-the-art education development resource materials are largely unavailable at present in Botswana. In addition to basic hard copy resource materials, appropriate portions of the U.S. education research information file (ERIC) will be made available in microfiche form. While it is logical to centrally house this

basic library at CD/E, it will be accessible to educators countrywide.

(e) Improved and Expanded Facilities

The CD/E is housed in temporary quarters with insufficient work space for seminars, storage, materials development, and such special activities as graphic art work, small group testing, and photography. The present 33 professional staff members are already too many for the available space. With the anticipated increase in staff (8 to 10 Batswana) and expanded functions of the CD/E, new physical facilities become a necessity and are critical to the implementation of the JSEIP project. Preliminary specifications and architectural drawings have been developed by the GOB. The planned facility will be built in a centrally located MOE compound which already has facilities for nonformal education and the research and testing units. The compound is adjacent to the University of Botswana and near the MOE's main offices. With the exception of the CD/E's Training Aids Production Unit (TAPU) located in Francistown, approximately 280 miles north of Gaborone, and the School Broadcasting Unit, all other CD/E units will be housed in or near the new facility. JSEIP will finance 60 percent of the cost of this construction on a FAR basis.

Although TAPU will not move to the new Gaborone facilities, JSEIP will focus on strengthening the linkages between TAPU and the other CD/E units in Gaborone. For example, the small media/training aids development section in Gaborone will develop prototypical materials which will be refined for quantity production by the Francistown facility. In addition, the Francistown facility will work closely with CD/E in Gaborone on arrangements for mass production of the required learning materials for junior secondary schools. It is possible that a unit similar to TAPU will be set up at the Molepolole JSTTC for production of junior secondary teaching aids. TAPU itself is not equipped for mass production and relies on the private sector.

(f) Resident Technical Advisers (RTAs)

Three RTAs will function as day-to-day consultants and co-workers with their counterparts in CD/E and TAPU. They will provide technical expertise for on-the-job training within the CD/E and participate as lead instructors in the pre- and inservice short-term teacher training programs. They also will assume some of the work responsibilities of the nine key CD/E staff members who are sent to the United States for training. The scopes of work for the RTAs are given in Annex H. The titles of the RTAs for CD/E are as follows:

- Senior Instructional Systems Design Specialist (5 years)
- Program and Materials Evaluation Specialist (4 years)
- Instructional Media Specialist (5 years)

The JSEIP will provide a total of 14 person years of long-term technical assistance to CD/E.

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(g) Short-Term Consultants

technical advisers, a number of short-term consultants (STC) will be needed throughout the life of the project. A variety of specialty needs are anticipated but actual project requirements will determine which specialists are called upon and the timing of their use. Representative areas of specialty include:

- Instructional Needs Assessment
- Mastery Learning Models
- Student Performance Assessment
- National Testing Programs
- Learning Data Analysis
- Curriculum Implementation
- Audiovisual Teaching Aids
- Competency Based Teaching
- Education Research Design
- Instructional Cost Analysis
- Educational Anthropology
- Language Instruction
- Practical Arts
- Math Education
- Science Education

The STCs will be used to supplement and augment the expertise of the resident technical advisers, and will also provide much of the in-country training. Their use will be coordinated with the pre- and inservice teacher training programs as well. It is expected that many of the STCs will be drawn from institutions where the participant trainees will be enrolled for U.S.-based graduate training. Also, many of the STCs will be used on a repeat basis allowing the STC to develop familiarity with Botswana and its educational system. Such continuity fosters mutual trust and understanding. It is estimated that 60 person months of STC time will be needed to support the curriculum development effort.

b. Teacher Development

This aspect of the project has two components, preservice and inservice teacher training, which will be linked closely to the curriculum development component of JSEIP.

(1) Background and Justification

The enrollment in junior secondary education is forecasted to increase from 23,553 students in 1984 to 42,740 by 1991. To achieve this target, the GOB estimates that the number of junior secondary teachers will have to increase from 927 in 1984 to a maximum of 1643 in

1991 (see data in Annex I). The rate of expansion in the teaching force is approximately proportional to the growth in enrollment.

At present, junior secondary teachers are prepared through the University of Botswana's 3-year diploma course in education. This program is capable of providing 70 to 90 graduates a year which is far short of the projected requirements. In anticipation of the increased need for junior secondary teachers, the GOB with an African Development Bank loan constructed a Junior Secondary Teacher Training College (JSTTC) at Molepolole. The JSTTC will open in January 1985 with its first class of 150. When this class graduates in three years, the University's program will be eliminated.

The annual output of 150 teachers from the JSTTC beginning with the graduating class in 1987, along with the current UB output from the Secondary Education Diploma program, will be sufficient to meet the net annual increase in demand for new teachers. However, it will fall far short of requirements to replace expatriate teachers (estimated to be 37% of the junior secondary teachers in 1984) and untrained Botswana teachers. At least for the remainder of the decade, Botswana will have to continue recruiting non-citizens to teach mathematics, science, and the practical subjects.

The GOB faces two immediate problems in the expansion of junior secondary education and the introduction of a revised curriculum. One is the need to develop a complementary preservice teacher training program at Molepolole. The other is to train present junior secondary teachers to implement the revised curriculum and instructional program through an expanded inservice program. Each of these strategy components is described below.

(2) Strategy Components

(a) Preservice Teacher Training

The curriculum for the JSTTC is divided into three broad areas of study: (1) Teaching Subjects, (2) Professional Studies, and (3) Educational Studies. About one-half of the students' studies will be in the Teaching Subjects: English, Setswana, mathematics, science, social studies, home economics, and optional studies (art, music, physical education, and practical arts). One-fourth of the program will be in Professional Studies, courses on instructional methodology for teaching the subjects, diagnosing impediments to learning, and managing the classroom environment. During the final year of study, extended periods of practice or internship will be arranged and supervised.

Comprising about one-eighth of the program, Educational Studies courses will enable students to learn about the development and organization of education in Botswana and other African countries. In addition, philosophy, psychology, and sociology will be studied for their applications to education.

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Students in the JSTTC will participate in about 40 hours of instruction a week. In the initial year they will spend about two-thirds of their time in activities directly supervised by the tutors. In the second and third years, as the students are more capable of guiding their own learning, instructor contact hours will decrease to one-half and then to one-third. Students will be enrolled for two terms a year, each about 17 or 18 weeks, for the three year program.

Fifteen faculty and professional staff will be hired for the first year the JSTTC is in operation, with an additional fifteen in each of the two following years to complete the professional complement of 45. Most of these positions will likely be filled initially by expatriate teachers. This is a function of two interrelated characteristics of the labor market. The first is the limited number of qualified Batswana, for whom there is keen competition among various sectors of the economy. The second is the relatively lower salary and benefit structure at the TTC level which lessens its capacity to compete with the private sector. The junior secondary teachers, however, have a much lower attrition rate since their salaries are more nearly commensurate with their education and experience.

Although the curriculum to be taught at the JSTTC in 1985 will be based largely on the existing structure of junior secondary education, the program will be modified over the next several years to conform to the revised junior secondary education curriculum and improved instructional methodology.

The development of an integrated and relevant curriculum and instructional program for the JSTTC involves five activities:

(i) Analysis

During the first phase of JSEIP, the learning outcomes expected of junior secondary students in each curriculum area will be analyzed in cooperation with the CD/U Unit. This will serve as the subject foundation for designing the teacher training program. In addition, teacher skills needed to implement an integrated instructional program and assess student abilities, needs, and performance will be systematically identified.

(ii) Design

During the design activity the curricula and pedagogical analyses made during the first phase will provide the basis for developing courses in each area of study--Teaching Subjects, Professional Studies, and Educational Studies. Courses will be developed to complement the revised junior secondary curriculum and instructional program. Detailed content outlines with accompanying performance objectives, instructional strategies, and achievement measures will be prepared for each course of study. The outcomes of instruction will be described in terms of verbal information, cognitive skills, motor skills, and attitudes. Each type of performance will require approaches

to teaching and assessment that recognize the nature of the learning that is sought and students' prior levels of preparation. It is anticipated that competency-based measures of achievement would be used to the extent possible.

(iii) Development

During the development stage, the completed instructional and assessment designs are used to guide completion of the courses. This requires the detailed development of instructional methods, materials and media, and the preparation of test items that can be used to make up the measuring instruments. Resource materials and teaching aids also will be identified and procured. Because of the magnitude and complexity of instructional development activities, priority will be given to certain area courses; e.g., mathematics, science, and home economics because of the emphasis given to them in the junior secondary curriculum.

(iv) Trial

During the trial phase, detailed analyses will be made of student learning during course implementation. Such analyses will enable evaluation of the effectiveness of the selection and blend of course content, methods of instruction, materials and media, and performance tests. These analyses will reveal whether the JSTTC program is producing the expected student learning and serve as a basis for any revisions in the following phase.

(v) Revision

The last activity of the JSTTC curriculum development effort involves refinement of the instructional system, including the assessment procedures, based on the data collected from the implementation trials. Courses which have been through the complete cycle will be ready for full operational use.

Preservice teacher training will be supported by the following AID inputs:

- U.S.-Based Master's Training (for programs not available in Botswana)
- Short-Term U.S. and Third Country Training
- Resident Technical Advisers
- Short-Term Consultants
- Commodities

The GOB will finance the staff and operational costs of the JSTTC at Molepolole.

(1) U.S.-Based Master's Training

Five Botswana would be recruited for Master's degree training in the US, three in the first year of the project and two in the second year. Upon return, these individuals would be expected to assume teaching posts at the JSTTC. The students would build competency in one or more of the teaching fields and in instructional design and methodology.

(2) Short-Term U.S. and Third Country Training

Appropriate Botswana faculty will be invited to attend workshops and non-degree training programs sponsored by institutions and professional associations that demonstrate recent developments in preservice education of teachers. Training will be provided in competency-based education which may include visits to successful teacher training projects in the U.S. and other African countries, and to centers where instructional development activities reflect state-of-the-art applications. To provide training opportunities to 15 staff members at JSTTC, 30 person/months of training are planned over the life of the project.

(3) Resident Technical Advisers

Four long-term RTAs will be made available to the JSTTC for a total of 19 person years. They include a Staff Development Specialist (6 years), an Instructional Systems Design Specialist (4 years), a Teacher Education Certification Specialist (3 years), and a Technical Education Specialist (6 years). Detailed position descriptions are given in Annex H. Until the phase-out of the UB secondary education diploma program in 1987, the RTAs may be requested to teach short courses in instructional design at the UB, as needed.

(4) Short-Term Consultants

During each year of the project, at least two short-term workshops will be conducted for the faculty and staff of the JSTTC. The topics will relate directly to the curriculum development and instructional design activities of the JSTTC. The workshops will vary in length depending on the requirements of the topic, and will be scheduled at times when education officials from the CD/E, the Ministry of Education and the University of Botswana can attend. To conduct these workshops, about 20 person months of short-term consultants will be required. Short-term consultants also may be requested to conduct occasional instructional activities for appropriate courses in UB's Faculty of Education and to assist in the development of instructional methodologies for various technical subjects such as woodworking and technical drawing.

(5) Commodities

The JSEIP will assist the JSTTC in obtaining a limited quantity of commodities which specifically relate to the design and development of the teacher training curriculum and the short-term workshops. These may include, for example, print and non-print materials on competency based teacher training and assessing learner achievement; simple office equipment for use by the design and development staff; and materials and audio visual supplies required of the various workshops. Selections will be cleared with the MOE and the Principal of the JSTTC, as well as USAID.

b) Inservice Teacher Training

As part of its efforts to broaden access to basic education and upgrade the quality of instruction, the

MOE has adopted a strategy of decentralized inservice teacher training and school administration. Inservice teacher training and regional school administration are to operate from a base of 14 education centers, the locations of which are determined by the number of teachers and schools in the catchment areas. Locations have been selected which minimize transit time between the majority of schools and the centers. (See Annex J.)

At present, six of the planned 14 centers are operational. These centers are at Kang, Lobatse, Molepolole, Mochudi, Serowe, and Maun. A new facility will operate as part of the new teacher training college at Tlokweng. The Maun and Mochudi centers are housed in temporary quarters. The proposed locations of the new centers are Gomare, Kasane, Masunga, Selebi-Phikwe (Bobonong), Mahalapye, Ghanzi, and Tsabong. In 1983, the MOE developed a ten year implementation plan which involves renovating existing facilities, relocating the Maun and Mochudi centers in permanent quarters, and building or renting facilities for the new centers.

The centers are conceived as multipurpose facilities under the MOE. Besides being a resource for inservice, primary and secondary teacher training, they are to be used for the training of headmasters, inspectors, and other school administrative staff. The centers will be available to other government ministries and departments for training their community and district level staffs. Non-formal education programs have become a major activity at the existing centers and will accelerate as new centers are built.

The model plan for these centers includes two 30-person classrooms, one of which is a workroom, storage areas and library. Each facility will have a 36-bed hostel and two offices for center and school administrative staff. The centers are to be run by a professional coordinator under the MOE with support, clerical, and maintenance staff. To simplify the administration of the education centers, the MOE plans to establish a Department of Teacher Education. This new department will have responsibility for both preservice and inservice teacher training. This arrangement will facilitate the coordination and linkage of teacher training colleges and the education centers. It will also establish closer ties between the centers and the CD/E Department.

The inservice teacher training program will develop in a pattern analogous to that for preservice teacher training. A survey of teachers will be made to determine their information needs and in what teaching skills they may be deficient relative to implementation of the revised junior secondary curriculum and instructional program. An analytical profile of the population of junior secondary teachers and their training needs will then be developed for planning and improving the inservice program. Close cooperation among policy makers, planners, administrators, teachers, and teacher educators will be essential to establish priorities for inservice training. This will be accomplished through

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workshops and meetings of representative groups of individuals from these interested parties.

Concurrent with the analyses that are essential for program development will be planning for the physical renovation and expansion of the education centers. Under the JSEIP, AID will help finance, under a FAR arrangement of GOB-40%, AID-60%, the construction of six new centers: in Maun, Gomare, Masunga, Selebe-Phikwe, Mahalpye, and Ghanzi. Given limited resources to finance construction, yet reach as many teachers and schools as possible, first priority is given to center locations on the basis of utilization and need: (1) anticipated utilization rate as indicated by the number of schools, students, and teachers in the catchment area, (2) need as reflected by student performance rates and socio-economic status, and (3) availability of temporary quarters. These criteria and the ranking of the new facilities are given in Annex J.

The inservice training will focus upon teachers' and supervisors' skill deficiencies and needs to effectively deliver the revised junior secondary program. The methods of conducting the inservice training will be similar to those that will guide delivery of the revised curriculum and instructional program for junior secondary school. The courses will be organized with sequential learning objectives that build upon prior learning, corresponding instructional strategies geared to different trainee interests and needs, and appropriate achievement measures. The various instructional strategies would involve, for example, print and non-print media, demonstrations and simulations, self-directed learning, and various other innovative and low-cost methods. The necessary instructional materials and media would next be procured or prepared and trainees instructional packages developed. The inservice training program will undergo progressive trial and revision based on the data collected from the trial implementations.

The training programs will cater to three groups: unqualified teachers, qualified teachers who require further training in the revised curriculum and instructional program; and headmasters, inspectors, and district education officers who oversee the work of teachers in the classroom. Assessments of the correlation between training and job performance will be made throughout the project. Also, JSEIP will strengthen the MOE's capacity, centrally and at the local level, for on-going training and formative evaluation.

AID will finance the following inputs in support of the inservice teacher training component:

- U.S.-Based Master's Training
- Short-Term U.S. and Third Country Training
- Resident Technical Adviser
- Short-Term Consultants
- Construction
- Commodities

Each of these is discussed below.

i. U.S. Degree Training

Two MOE staff from the teacher training unit will be sent to the U.S. for Master's degree training related to inservice teacher education. This will involve 48 person months of training.

ii. Short-Term U.S. and Third Country Training

Selected Batswana education officers and others involved in inservice teacher education will be sent to the U.S. and third countries to examine inservice education. Particular attention will be given to those places with an instructional systems design program or other innovative programs. The JSEIP anticipates 10 person months of non-degree training.

iii. Resident Technical Advisers
One Inservice Teacher

Education Specialist will be recruited for 5 years and one Inservice Management/Administration Specialist for 4 years. These individuals will be located in the MOE. A description of the positions is contained in Annex H.

iv. Short-Term Technical Consultants

Short-term consultants, averaging 8 person months for 5 years, will present inservice workshops which, over the life of the project, will give an average of ten weeks of training to 1000 teachers.

v. Construction

AID will finance 60 percent of the cost to construct six new centers. This will be under a FAR arrangement with the GOB.

vi. Commodities

Audiovisual, materials development, and photocopying equipment will be procured for the education centers. Vehicles also will be procured for the new centers, the JSTTC, and MOE, for staff work, inservice training and distribution of instructional materials and resources.

c. Systems Management and Supervision

(1) Background and Justification

In addition to curriculum development and teacher training, other MOE functions will be involved in the revision and implementation of the junior secondary program. The Department of Secondary Education will have primary responsibility for the nationwide implementation of the new program. The structural changes from a 7-3-2 to a 7-2-3 sequence, and eventually to a 6-3-3 sequence, will add significantly to the size and complexity of the Planning Unit's workload. Senior MOE officials, such as the Permanent Secretary and Deputy Permanent Secretary, will provide oversight and direct management of various interdependent activities.

While these various units and departments are presently directed by highly competent individuals, their personnel and other resources are severely limited. Also, much of the present expertise in modern educational management practices lies with expatriates. Increasing applications are being made of computer technology, demographic analyses, student enrollment projections, teacher and facility requirements, budgeting and resource allocations. Very few Batswana have been trained, however, to use the equipment available. The Unified Teaching Service, for example, has no means of preparing statistical information on teachers, schools, budgets, etc., except manually since it has no computer and is some distance away from the MOE building in Gaborone.

The managerial effectiveness of the MOE is essential to the success of the JSEIP, as it is to the improvement of any other educational area targeted for improvement. For this reason, the project will support the strengthening of the MOE departments which have primary responsibility for managing, implementing, planning, and evaluating the expansion and improvement of junior secondary education.

(2) Strategy Components

The strengthening of the various departments involved in the implementation of the expanded program of junior secondary education will involve work in the following areas:

- Computer Systems Applications to Education: data filing, analyses and interpretation.
- Information Management: record keeping, forms design, storage and retrieval.
- Fiscal Management: cost analysis, budgeting, financial reporting.
- Project Management: monitoring, evaluation, control, reporting.
- Organizational Development: inter-departmental communications, quality assurance, intra-agency linkages.
- Educational Planning: demographic analyses, enrollment forecasting, resource allocation.

To develop a stronger management and planning capacity within the MOE and its decentralized operations, AID will finance the following inputs:

- Resident Technical Adviser
- Short-Term Consultants
- U.S.-Based Master's Training
- Short-Term U.S. and Third Country Training
- Commodities

a) Resident Technical Adviser

One adviser will be assigned for six years to support the systems management and supervisory activities of the MOE. This individual will be well versed in modern management practices and data analysis models and be experienced in their application in the education sector. Detailed description of the competencies and work of this individual are given in Annex H. Given the key role of this individual, he/she might serve as the JSEIP Chief-of-Party.

b) Short-Term Consultants

Thirty person-months of short-term consultant services are projected for use during the duration of the project. They will be used, according to need, to supplement the expertise of the resident technical adviser and will be the principal means by which in-country management and planning staff development are accomplished. They may also be used in response to any unanticipated project support requirements.

While providing support to and strengthening the systems management and supervisory functions of the MOE is critical to the JSEIF, the enhancement of these capabilities will have long-term residual benefits for all levels of Botswana education.

c) U.S.-Based Master's Training

Two key MOE staff members will be selected for Master's degree level training in systems management and supervision in the U.S. The training programs will be selected in order to give the trainees in-depth diverse but complementary specializations in education systems management practice.

d) Short-Term U.S. and Third Country Training

Most MOE staff development in systems management will be short-term, through on-the-job or in-country practical activities and workshops. A limited number of MOE personnel will be sent to the U.S. or third countries for short-term training which would be impractical to provide locally. It is estimated that 40 person months of short-term U.S. and third country training would occur during the five years of the project. At present, all planning officers are under the Ministry of Finance and Development Planning (MFDP); so it may be necessary to train MFDP Botswana who will work in the MOE as planning officers.

e) Commodities

Two or three microcomputers will be purchased to assist in fiscal management, budget planning, record keeping, and educational planning. The location of these computers and the development of the relevant software will be worked out with the assistance of the RTA and with the approval of the MOE as well as USAID/Botswana.

IV. SELECTED DEVELOPMENT ACTIVITIES OF OTHER DONORS

National and multinational organizations have played very supportive roles in the development of education in Botswana, particularly in technical assistance for vocational/technical education and secondary education and in capital assistance for school construction. Teaching volunteers serve as headmasters and instructors in junior and senior secondary schools throughout the country. Expatriate personnel comprise 50% of the staff of the primary teacher training colleges, education centers, and the University of Botswana.

The Swedish International Development Authority (SIDA), in its Education Sector Support Grant #7, plans to provide ten million pula for a three year period beginning June 1985, to continue its support and expansion of the MOE Teaching Aids Production Unit in Francistown. Plans are being made to erect a building on the Radio Botswana compound to house the Schools Broadcasting Unit of the CD/E. Such a move will help to alleviate loss of time traveling from a rented house to the radio station for programing.

The Africa Development Bank has helped finance the Junior Secondary Teacher Training College at Molepolole, scheduled to open in January 1985 with a preservice teacher enrollment of 150 and an inservice enrollment of fifty. USAID will have four contract advisors assigned to the new college by June, 1985 under the Junior Secondary Education Improvement Project.

The German Agency for Technical Cooperation (GTZ) has contributed to the establishment of the Botswana Automotive Trades Training School in Gaborone. Of particular interest for 1985 will be the expansion of the heavy plant mechanics section. Approximately DM 2.7 million has been made available for the industrial training and trade testing.

The GOB has met with IBRD representatives to discuss financing additional secondary schools and vocational/technical schools which would be set up near urban industrial areas in Botswana. A Primary Teacher Training College (PTTC) has just been completed at Tlokweng near Gaborone under an IBRD loan. The PTTC is scheduled to open in January 1985, the start of the school year.

Japan has agreed to provide funds for education equipment, particularly in math and science. The United Kingdom, through its Overseas Staff Advisory Service (OSAS), will continue to supply advisors and instructors at the Botswana Polytechnic, and the Danish International Development Agency (DANIDA) has completed a technical wing for a secondary school in Lobatse. The Canadian International Development Agency (CIDA) is providing 15 faculty members to the University of Botswana and the Institute for Development Management (IDM). The Netherlands has been contributing funds to the non-formal education literacy program and the Brigades, and has helped construct a pre-science building.

The donor community in Botswana has been making a concerted effort to effectively combine human and financial resources, communicate with one another to avoid redundant efforts and work closely with the GOB to obtain the greatest return on funds allocated to education and manpower development. USAID has every reason to believe that donor interest in the education and human resources sector will continue in Botswana.

V. COST ESTIMATES AND FINANCIAL PLAN

The JSEIP effort will have a total estimated cost of \$22,511,000 over the seven year life of project; \$6,193,000 (27.5%) contributed by the GOB and \$16,318,000 (72.5%) by AID. The basic assumptions made in calculating costs include an overall 10% contingency factor on all items, a compounded 10% annual inflation rate after year one, and an exchange rate of one Botswana Pula equals U.S. dollar 0.80. Table I presents a summary of costs estimates and a financial plan, followed by Table II which shows project inputs and costs by line item. Annex F.2 is a definitive budget for all components of the project.

The Financial Plan assumes procurement of services for technical assistance, overseas participant training, and procurement of certain commodities under contract no. DPE 5823-C-00-4013-00, Improving the Efficiency of Educational Systems. The contractor, competitively selected, is led by Florida State University with Howard University, the Institute for International Research, and the State University of New York at Albany. The USAID/Botswana Field Support Office will procure selected commodities and provide contractor support. All construction activities will be contracted to local firms by the GOB.

Procurement of goods and services requiring local currency will be handled by the GOB and will follow the Government's standard competitive procurement practices, which are managed by the GOB's Central Tender Board. The GOB will effect payment for locally procured goods and services and, wherever applicable, request reimbursement from USAID/Botswana for items that have been identified as an AID contribution to the project. Construction activities will utilize AID's Fixed Amount Reimbursement (FAR) procedures. Advance of funds is not anticipated, except for progress payments for the construction of the curriculum development and evaluation building. USAID/Botswana will maintain administrative control over funds for technical assistance, training in the United States and selected commodities. Project Implementation Orders for technicians (PIO/T) and participants (PIO/P) will be issued to initiate contracts for these services. Listed below are the major project components and cost estimates for each item, less inflation and contingency factors.

1. Technical Assistance

The project will require about 48 person years of long-term advisors and approximately 150 person months of short-term consultants. Estimated cost is \$7,355,000 for this technical assistance input.

2. Training

Thirty six person years of long-term training in the United States and 140 person months of third country and United States training is planned, representing an estimated cost of \$1,094,000 and \$714,000 respectively. In-country special seminars (\$75,000) and inservice teacher training courses (\$1,175,000) will be conducted over the life of the project.

3. Equipment, Commodities and Vehicles

Furniture and equipment (\$1,010,000) will be supplied for the staff housing units, the curriculum development and evaluation building and the six educational centers. Twenty-two vehicles are required (\$374,000) to efficiently implement the field work associated with the curriculum development/evaluation unit, the Junior Secondary Teacher Training College and educational centers. Instructional materials are necessary for the project, with an estimated cost of \$258,000.

4. Construction

These components consist of one curriculum development building (\$1,075,000), six education centers (\$2,368,000), five staff housing units (\$240,000) and construction related professional fees (\$368,000). FAR procedures will be employed with AID assuming 60% of the construction costs and GOB covering 40% of the costs, plus the professional fees.

5. Project Support Services

Items under this category include: two external evaluations (\$100,000); local construction monitoring services (\$25,000); and an audit by a public accounting firm (\$15,000).

6. Operating Costs

These expenses include regular support and maintenance of buildings and vehicles, at an estimated cost of \$814,000.

After completion of the project, annual recurring costs are estimated at \$900,000. The GOB is aware of this and intends to allocate sufficient funds to adequately maintain the project.

The above cost estimates and financial plan reflect preliminary project planning and current cost estimates necessary to supply inputs to this proposed project. USAID/Botswana has determined that the project design is feasible and the cost estimates are reasonably firm for the project elements, thereby satisfying the requirements of Section 611(a)(1) of the Foreign Assistance Act, as amended.

It is proposed that the following AID incremental obligation schedule be accepted in order to ensure forward funding and successful implementation of this project. Total funding is estimated at \$16,318,000 over four years of obligations with the initial obligation of \$4,527,000 in FY 1985, followed by \$4,700,000 in FY 1986; \$3,500,000 in FY 1987; and \$3,591,000 in FY 1988.

Table I
Summary of Cost Estimates and Financial Plan
(\$000)

Budget Items and Uses of Funds	AID			GOB			TOTAL		GRAND TOTAL
	FX	IC	Sub- Total	FX	IC	Sub- Total	FX	IC	
Technical Assistance	5356	1579	6935	—	420	420	5356	1999	7355
Training	1168	650	1818	220	1020	1240	1388	1670	3058
Equipment and Commodities	807	90	897	—	371	371	807	461	1268
Vehicles	374	—	374	—	—	—	374	—	374
Construction	—	2210	2210	—	1841	1841	—	4051	4051
Project Support Services	100	40	140	—	—	—	100	40	140
Operating Costs	—	—	—	—	814	814	—	814	814
Sub-total	7805	4569	12374	220	4466	4686	8025	9035	17060
Inflation (10% per year)	1552	909	2461	44	900	944	1596	1809	3405
Contingency (10%)	<u>935</u>	<u>548</u>	<u>1483</u>	<u>26</u>	<u>537</u>	<u>563</u>	<u>961</u>	<u>1085</u>	<u>2046</u>
TOTAL	10292	6026	16318	290	5903	6193	10582	11929	22511
			72.5%			27.5%	47%	53%	

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TABLE II
 JSRIP COST ESTIMATES AND PROJECTED ANNUAL EXPENDITURES
 (\$000)

CATEGORY	YEAR 1			YEAR 2			YEAR 3			YEAR 4			YEAR 5			YEAR 6			YEARS 1-6		
	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL
Technical Asst.																					
A. L-T Tech. Asst.	653	74	727	626	80	706	714	80	794	566	76	642	497	67	564	186	43	229	3242	420	3662
B. Admin. Support	80	0	80	80	0	80	80	0	80	80	0	80	80	0	80	41	0	41	441	0	441
C. S-T Tech. Asst.	195	0	195	292	0	292	324	0	324	211	0	211	195	0	195	0	0	0	1217	0	1217
D. Home Office Oper.	56	0	56	56	0	56	56	0	56	56	0	56	56	0	56	28	0	28	308	0	308
E. Overhead	196	0	196	210	0	210	234	0	234	181	0	181	164	0	164	50	0	50	1035	0	1035
F. AID Contractor Supp.	130	0	130	144	0	144	144	0	144	130	0	130	101	0	101	43	0	43	692	0	692
G. Proj. Support Serv.	8	0	8	58	0	58	9	0	9	0	0	0	65	0	65	0	0	0	140	0	140
T.A. TOTAL	1318	74	1392	1466	80	1546	1561	80	1641	1224	76	1300	1158	67	1225	348	43	391	7075	420	7495
Training																					
A. L-T Overseas	122	60	182	224	110	334	204	100	304	143	70	213	41	20	61	0	0	0	734	360	1094
B. S-T Overseas	93	60	153	124	80	204	124	80	204	62	40	102	31	20	51	0	0	0	434	280	714
C. Inservice Courses	95	100	195	105	100	205	115	100	215	125	100	225	135	100	235	0	100	100	575	600	1175
D. Special Seminars	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	0	0	0	75	0	75
Training Total	325	220	545	468	290	758	458	280	738	345	210	555	222	140	362	0	100	100	1818	1240	3058
Commodities																					
A. L-T Staff Furniture	60	50	110	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	90	50	140
B. Office Equip. & Furn.	75	5	80	330	220	550	72	48	120	72	48	120	0	0	0	0	0	0	549	321	870
C. Vehicles	119	0	119	34	0	34	34	0	34	0	0	0	187	0	187	0	0	0	374	0	374
D. Instruction Materials	60	0	60	4	0	4	42	0	42	46	0	46	51	0	51	55	0	55	258	0	258
Commodities Total	314	55	369	374	220	594	154	48	202	124	48	172	244	0	244	61	0	61	1271	371	1642
Construction																					
A. CD/E Building	161	108	269	323	215	538	161	107	268	0	0	0	0	0	0	0	0	0	645	430	1075
B. Education Centers	365	243	608	627	418	1045	429	286	715	0	0	0	0	0	0	0	0	0	1421	947	2368
C. Staff Housing	144	56	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144	96	240
D. Professional Fees	0	112	112	0	158	158	0	98	98	0	0	0	0	0	0	0	0	0	0	368	368
Construction Total	670	559	1229	950	791	1741	590	491	1081	0	0	0	0	0	0	0	0	0	2210	1841	4051
Operating Costs	0	0	0	0	67	67	0	120	120	0	209	209	0	209	209	0	209	209	0	814	814
Sub-Total	2627	908	3535	3258	1448	4706	2763	1019	3782	1693	543	2236	1624	416	2040	409	352	761	12374	4686	17060
INFLATION	0	0	0	326	145	471	580	214	794	559	179	738	747	191	938	249	215	464	2461	944	3405
CONTINGENCY	263	91	354	358	159	517	334	123	457	225	72	297	237	61	298	66	57	123	1483	563	2046
TOTAL	2890	999	3889	3942	1752	5694	3677	1356	5033	2477	794	3271	2608	668	3276	724	624	1348	16318	6193	22511

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VI. IMPLEMENTATION PLAN AND SCHEDULE

This part of the Project Paper describes plans for implementing the Junior Secondary Education Improvement Project and then sets forth a proposed schedule for key activities.

A. Implementation Plan

USAID/Botswana plans to implement the JSEIP through the existing AID/W project, Improving the Efficiency of Education Systems II (IEES), Contract No. DPE 5823-C-00-4013-00. The IEES project is intended to assist selected developing countries to identify and reduce key constraints to the effective, efficient, and equitable development of the education and human resources (EHR) sector. The IEES project is intended to provide professional continuity and on-going collaboration with EHR planners, policy makers, and operational personnel of the participating countries.

The contract enables USAID Missions in the selected countries to add funds for the implementation of bilateral projects integrally related to IEES project objectives. The Junior Secondary Education Improvement Project has been designed in congruence with the purposes of the IEES effort. Furthermore, the IEES contractor, who was competitively selected, is deemed by the Mission to be well qualified to undertake implementation of the JSEIP.

The IEES contractor is a consortium led by Florida State University with Howard University, the Institute for International Research, and the State University of New York at Albany. Technical personnel from both ST/ED and IEES were parties to the design of the JSEIP.

For these reasons, and in concurrence with the cognizant Technical Office for the IEES contract, and the Regional Contracting Officer, the Mission intends, following the project's authorization, to issue a PIO/T for JSEIP'S implementation by the IEES project and its contractor. The AID/W Contracting Officer for IEES will issue a task or delivery order to the IEES contractor for the technical assistance and participant training activities of the JSEIP and for the procurement of certain commodities.

Moreover, Botswana's participation in the centrally funded IEES enables the Mission, once the JSEIP is authorized, to have contractor personnel start preliminary project implementation activities. These activities are expected to commence before the grant agreement is signed and conditions precedent are satisfied, thereby ensuring that JSEIP from the outset relates to key MOE planning initiatives that will be underway in early 1985. The pre-implementation activities also will enable the contractor to better identify the resident technical advisors most appropriate for work on the JSEIP.

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The following table shows the flow of resident technical advisors and their areas of specialization, while Annex H details their proposed scopes of work. The next part of this section highlights some of the anticipated benchmarks for contractor accomplishments. This is meant as an indicative plan that will be subject to on-going review and revision in collaboration with the MOE.

Because the JSEIP adopts an integrated and systemic approach to assist the MOE during the expansion of junior secondary education, it will build upon efforts which the MOE has already begun to strengthen instructional quality. Work has started to revise the curriculum for junior secondary education and to strengthen administration and management. In 1986 a new phase will begin with the introduction of the modified curriculum in Form I and then gradually throughout the junior secondary cycle. During this period, the curriculum and instructional program will be tested, evaluated, and revised. Pre-service training at the new Junior Secondary Teacher Training College and in-service training will be tailored to the skills needed to implement effectively the revised junior secondary program in the classroom. Following JSEIP's authorization, the contractor, under AID/W IEES funding, will immediately commence work to collaboratively lay out a timetable for revision and pilot introduction of particular instructional modules and courses in the junior secondary cycle, at the Molepolole JSTTC, and in the inservice program. This will ensure full and efficient utilization of the resident technical assistance team immediately upon their arrival, targeted for June 1985. These pre-project efforts also will enable the preparatory work necessary to identify and place six (proposed) Batswana in appropriate M.A. programs in September 1985. Finally, baseline data from which to measure achievements can be collected with the start of the 1985 school year.

B. Proposed Schedule

Different actions or tasks required are pointed out in outline form, showing the month in which they should occur, listing the principal party (-ies) which will participate in the actions, and briefly describing the activity taking place. Technical assistance personnel will be in Botswana by June 1985, and that date is established as the initial point for JSEIP activities. This list is not meant to be exhaustive, but does highlight the major project events.

Table III-2: INCOUNTRY SCHEDULE FOR RESIDENT TECHNICAL ADVISERS

	PROJECT YEAR						TOTAL
	1	2	3	4	5	6	
<u>Ministry of Education</u>							
Systems Management and Supervision Specialist	X	X	X	X	X	X	6
Inservice Teacher Education Specialist	X	X	X	X	X	0	5
Inservice School Management and Administration Specialist	X	X	X	X	0	0	4
<u>Department of Curriculum Development and Evaluation</u>							
Senior Instructional Systems Design Specialist	X	X	X	X	X	0	5
Program and Materials Evaluation Specialist	0	X	X	X	X	0	4
Instructional Media Specialist	X	X	X	X	X	0	5
<u>Junior Secondary Teacher Training College</u>							
Instructional Systems Design Specialist	X	X	X	X	0	0	4
Staff Development Specialist (ISD)	X	X	X	X	X	X	6
Teacher Education Certification Specialist	X	X	X	0	0	0	3
Technical Education Specialist	X	X	X	X	X	X	6
TOTALS	9	10	10	9	7	3	48

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<u>Activity</u>	<u>Parties</u>	<u>Date</u>
PID Approval	AID/W, AID/B	August 1984
PP Authorization	AID/W, AID/B	January 1985
Grant Agreement signed	AID/B, GOB	February 1985
Contract Awarded for Detailed Design of CD/E Bldg. and Education Centers	GOB	February 1985
Contract negotiated with TA contractor	AID/B	February 1985
Construction contract awarded for 5 staff houses	BHC	April 1985
Annual workplans submitted (9 RTAs in country during next year)	TA Contractor, AID, GOB	May 1985
Technical Assistance Team arrives	TA Contractor	June 1985
Detailed drawings of CD/E building and educ. centers, submitted and approved	AID/B, GOB	July 1985
Begin appraisal of junior secondary content, instructional needs, and resources	TA Contractor, GOB	July 1985
Short-term training begun in-country	TA Contractor, GOB	July 1985
Inservice training activities initiated	TA Contractor, GOB	September 1985
First group (6) long-term participants depart for MA training in U.S.	TA Contractor, GOB	September 1985
Construction contract awarded for 2 Education Centers (Maun, Selebi-Phikwe)	GOB	October 1985
Construction contract awarded for CD/E Bldg.	GOB	October 1985
Construction of 5 staff houses completed	Construction Contractor	December 1985
Short-term US/3rd country training begun	TA Contractor, GOB	January 1986

Begin developing needed instructional materials	TA Contractor, GOB	January 1986
Project annual report submitted to AID, GOB, with annual work plan (10 RTAs in country during next year)	TA Contractor	May 1986
Construction of first 2 education centers completed	Construction Contractor	June 1986
Begin developing provisional teacher guides	TA Contractor, GOB	June 1986
Begin implementing modular curriculum units for in-school tryouts	TA Contractor, GOB	June 1986
Construction contract awarded for 2 Education Centers (Masunga, Gomare)	GOB	July 1986
Begin training field teaching staff to implement the revised curriculum	TA Contractor, GOB	July 1986
Second group (5) long-term participants depart for MA training	TA Contractor GOB	September 1986
Project annual report submitted with annual work plan (10 RTAs in country during next year)	TA Contractor	May 1987
Construction for 3rd and 4th education centers completed	Construction Contractor	March 1987
Construction Contract Awarded for 2 Education Centers (Ghanzi, Mahalapye)	GOB	April 1987
External evaluation of project	Evaluation Contractor, AID	May/June 1987
Resident T.A. personnel completing assignments leave or are renewed; new personnel arrive	TA Contractor	June 1987
First group of students in long-term training return	TA Contractor, GOB	June 1987
Construction of CD/E Bldg. completed	Construction Contractor	September 1987

Third Group of students (5) sent for long-term training	TA Contractor GOB	September 1987
Construction of 5th and 6th Education Centers completed	Construction Contractor	December 1987
Annual report submitted to AID, GOB, with workplan (9 RTAs in country during next year)	TA Contractor	May 1988
RTAs completing assignments leave or are renewed; new personnel arrive	TA Contractor	June 1988
Second group of students in long-term training return	TA Contractor GOB	June 1988
Begin producing teaching/learning materials in quantity for nationwide dissemination	TA Contractor, GOB	July 1988
Fourth group of students (2) sent for long-term training	TA Contractor, GOB	September 1988
Annual report submitted to AID, GOB, with workplan (7 RTAs in country during next year)	TA Contractor	May 1989
RTAs completing assignments leave or are renewed; new personnel arrive	TA Contractor	June 1989
Third group of students in long-term training return	GOB, TA Contractor	June 1989
Complete development, production, and distribution of teacher guides for jr. sec. subjects	TA Contractor, GOB	December 1989
Annual report submitted to AID, GOB, with final workplan (3 RTAs in country during next year)	TA Contractor	May 1990
Major external evaluation performed, recommending major course of action	AID, Eval. Contractor	May/June 1990
RTAs completing assignments leave or are renewed, new personnel arrive	TA Contractor	June 1990

Fourth group of students in long-term training return	GOB, TA Contractor	June 1990
Complete inservice training of all junior secondary teachers, headmasters, inspectors, and education officers	TA Contractor, GOB	December 1990
Complete distribution of revised junior secondary curriculum and instructional packages to all schools	TA Contractor	January 1991
Final report submitted to AID, GOB	TA Contractor	May 1991
RTAs depart country	TA Contractor	June 1991
Project completion report done	AID/B	June 1991

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VII. ADMINISTRATIVE AND MANAGEMENT ANALYSIS

The Junior Secondary Education Improvement Project requires a cooperative effort among two GOB Ministries, an AID-funded contractor, and USAID/Botswana. Each has particular responsibilities and tasks for collaborating with the others to implement component activities.

A. Roles and Relationships

1. Government of Botswana

a. Ministry of Education (MOE)

The GOB will devolve day-to-day operational responsibility for carrying out the JSEIP to the Ministry of Education. The MOE has overall charge of primary and secondary education. The project will be coordinated for the MOE by the Chief Education Officer for the Department of Secondary Education. The Department of Secondary Education has responsibility for subject reviews of the new junior secondary curriculum and its implementation in the schools.

The Curriculum Development and Evaluation Department has responsibility for developing the new junior secondary curriculum and supportive instructional materials, examinations and achievement measures, research and testing, teaching aids production, and school broadcasting.

The MOE's Policy Advisory Committee has approved, in principle, establishing a Department of Teacher Education with a Chief Education Officer to be in charge of all preservice and inservice teacher training for the primary and secondary levels. This unit would have major administrative responsibility for the teacher development component of the JSEIP. The Principal Planning Officer for the MOE will also play an important role in project implementation and coordination.

b. Ministry of Works and Communication

The Ministry of Works and Communication will have daily oversight of the construction activities of the JSEIP, namely, the design, location, and the supervision of construction of the Curriculum Development and Evaluation facility and the six proposed regional education centers. Contracts for construction under JSEIP will be awarded by the GOB.

2. Contractor

One contractor is expected to be responsible for all technical assistance, participant training, and the procurement of certain commodities. The contractor will be an academic consortium highly experienced and proficient in macro-planning and instructional systems design in developing countries. This contractor must be able to maintain long-term professional continuity in Botswana.

3. USAID/Botswana

USAID/Botswana will be responsible for overall project monitoring, and the Project Manager (the Human Resources Development Officer) will serve as the primary contact for the technical assistance personnel. The administrative responsibility for long-term technicians, once they have arrived in country, will rest with the Field Support Office (FSO) which is currently responsible for all contract personnel. In addition, the FSO will provide support services to the project relating to commodity procurement, housing and logistical matters. The Training Officer will prepare PIO/Ps for all long and short-term training. The General Engineering Officer will provide engineering services for project construction activities until mid-1985 when the position will be abolished. At that time, USAID/Botswana proposes to contract locally for this expertise and to rely on REDSO/ESA for quarterly engineering services to meet AID reporting and oversight requirements. GOB/USAID implementation procedures, established under the Primary Education Improvement Project and other projects, have been successful and will be instituted under this proposed project.

B. Project Coordination

To achieve the project's purposes of increasing the quality and efficiency of an expanded basic (junior secondary) education system and institutionalizing the capacity to develop, support, and maintain this system, effective means of coordination will be established and maintained among the project's implementors.

There are two reasons to expect full cooperation and collaboration among the GOB implementing units. First, all of the GOB's education and human resources ministries agree upon the critical need to ensure the quality of junior secondary education during its major expansion phase. Several ministries participated in the recently completed Botswana Education and Human Resources Sector Assessment. Major needs and constraints were identified for the education sector and these form the basis of this project. In addition, discussions concerning the educational objectives put forth in this project have been held with key members of the MFDP and the MOE's planning and curriculum development staff.

Second, a track record exists of cooperation among the concerned parties in education and human resource development in Botswana. The MFDP and the MOE coordinated the Sector Assessment (10/83-4/84) through an interministerial coordinating committee. Over the last eight months, this collaboration on the Sector Assessment strengthened the already effective working relationships among the concerned ministries and agencies. This has contributed to the development of a responsive project design and should lead to successful implementation of the proposed project.

Furthermore, USAID/Botswana has a long history of productive involvement in the education and human resources sector. Since initiating personnel training and development in

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Botswana in 1973, USAID/Botswana has contributed significantly to human resources development. Over 400 participants have received advanced level short-term and long-term training in the United States, and approximately 40 operational experts have filled key GOB positions while counterparts were being trained locally or abroad.

In the area of formal education, AID has assisted in establishing the University of Botswana and expanding the Botswana Agricultural College. More recently, USAID/Botswana and the GOB are implementing the Primary Education Improvement Project. This project is helping to establish within the University of Botswana a permanent capacity to provide appropriate preservice training through the creation of a four-year Bachelor of Education degree program, and a two-year diploma program to upgrade senior primary school staff for whom a degree is not appropriate. Additionally, the project is strengthening the capacity of the GOB's Ministry of Education, in cooperation with the University, to organize and implement effective inservice programs for supervisory staff and teachers involved in primary education. The JSEIP complements and reinforces the developments of the primary education improvement activities. USAID/Botswana's history of involvement in the EHR sector has established the US as a major donor in education and human resources development.

While existing mechanisms and experience attest to effective administrative and managerial structures for project coordination, a concern is noted about the large number of expatriates who will be required in the short-term to begin the Junior Secondary Teacher Training College and the lag time that will be necessary to recruit and develop a qualified Botswana staff. This seems an unavoidable situation, however, and simply means that development of Botswana staff capability at the JSTTC will not see fruition until the project's final years.

An Advisory Committee would be formed to provide counsel monthly regarding the project's implementation. Its membership would likely comprise the Deputy Permanent Secretary of the MOE, as chair, the Chief Education Officer of Secondary Education, Teacher Education, Curriculum Development and Evaluation, the President of the Botswana Teachers Union, the Director of the Unified Teaching Service, the Dean of the UB Faculty of Education, the MOE's Senior Planning Officer, a MFDP representative, the Principal of the Junior Secondary Teacher Training College, a representative of a private sector training association, the USAID/HRDO/Botswana, and the AID contractor's Chief of Party.

VIII. MONITORING PLAN

Project monitoring involves constant knowledge and oversight of all activities, including funding levels, personnel levels and status, training activities, construction, commodity procurement and overall performance. Project monitoring is the direct responsibility of the project manager, in this case, the USAID/Botswana Human Resource Development Officer (HRDO). The HRDO will work closely with other USAID staff personnel with responsibilities related to project activities: the AID Engineer

and a local engineering consultant on matters related to all construction activities, the Controller and Program Officer on funding levels, the Training Officer on long-term training, and supply management personnel on activities related to commodities. Overall management aspects are the project manager's direct responsibility.

To maintain a good record of the project's activities, status, and plans, the project manager will prepare a semi-annual report. This report will show the financial status of all activities: obligations, expenditures, projections, and balances by activity and by line item. The report will indicate the status and projections of all construction activities, what has been done, an evaluation of that work, and the construction plan for the next six months. A schedule of all training activities will be maintained and included in the semi-annual report, with status and location of all long-term trainees, and indication of completed, ongoing, and upcoming short-term training (including individual training locally or abroad, group seminars-conferences/workshops) and the participants.

The project manager will maintain a record of all technical assistance personnel and dependents: their status, location, tasks and performance. This record could be maintained on large charts or standard forms. Over all project performance, within each activity area will also be monitored constantly by the project manager.

Commodity procurement and disposition records will be maintained by the project manager. An inventory will be kept of goods procured and being used, goods on order, and goods to be procured.

To monitor all these activities, the project manager will need to rely heavily on the reports submitted by the project Chief of Party and the assistance of other USAID/Botswana personnel. The following oversight methods and mechanisms are recommended:

- maintaining personal liaison with key officials at the MOE, JSTTC, and CD/E Department and all TA personnel;
- holding periodic meetings with key personnel;
- analyzing financial and reporting documents;
- visiting building sites and project facilities; and
- compiling quarterly progress reports on all aspects of the project.

IX . SUMMARIES OF ANALYSES

A. Technical Analysis

This analysis examines the technical feasibility of the Junior Secondary Education Improvement Project (JSEIP) and demonstrates why the proposed means and methods are the most

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appropriate for achieving the project objectives with the least expenditure of funds.

1. Technical Strengths

The design of the JSEIP has three closely coordinated and fully integrated components: curriculum and instructional materials development; inservice and preservice teacher training; and planning, managerial, and supervisory training.

The design teams for the PID and the PP have included specialists in educational planning and instructional methodologies directly relevant to the structure of the JSEIP. This has ensured that the proposed design represents an application of state-of-the-art technology that is suitable and appropriate for the proposed applications.

A third aspect of the JSEIP's technical strength is the plan for monitoring and evaluation, which is fully amplified elsewhere in the Project Paper, and establishes an independent scheme for formative evaluation and quality control.

2. Practicality and Suitability

The design of the JSEIP is based on a proven and low-risk methodology, comprising approaches to educational systems development established as effective through numerous applications in developed and developing countries. There are no experimental aspects within the proposed design that might raise questions with regard to anticipated success. The project objectives support identified needs and current plans of the Ministry of Education and present no obstacles with regard to local acceptance.

3. Cost Aspects

The design comprises a fully integrated approach to project objectives that is compatible with current and projected plans within Botswana's education sector. The project design recognizes and accommodates education and human resources sector constraints as cited in the Technical Analysis Annex. The major thrust of the design focuses on making the most efficient possible use of present and projected limited resources within the sector. The least-cost aspect of the project design is based on two characteristics. First, the target area for the assistance is based on the extensive analyses and recommendations of the recent Botswana Education and Human Resources Sector Assessment. Second, the project design makes effective and efficient use of USAID/Botswana funds by helping to improve the entire education sub-sector responsible for the expansion of the junior secondary cycle.

Benefits of the proposed approach can be more clearly specified in terms of five target areas for improvements in the education sector: external efficiency,

internal efficiency, equity, costs and financing, and administration and supervision. Aspects of the JSEIP related to these areas are described more fully in the Technical Analysis Annex.

A major cost consideration in project design is associated with the compatibility of the proposed interventions with existing infrastructure. The design of the JSEIP is favorable with respect to a least-cost analysis because it is fully compatible with the existing and projected system. There are no new components to be justified and added to the existing infrastructure. The project, instead, is built upon improving the efficiency and effectiveness of the junior secondary elements that are already in place. There thus will be no difficulties or delays related to lack of receptivity for the JSEIP. In conclusion, the JSEIP constitutes a technically strong, feasible, practical, low-risk, and high-impact approach to improving the quality and relevance of basic education in Botswana.

B. Economic and Financial Analyses

The Technical Analysis describes in detail the least-cost aspects of the JSEIP. These are summarized below:

- A project design based on careful analysis of the education and human resources sector, its various interrelationships, and problems.
- An integrated project approach which treats junior secondary education as a system consisting of components such as curriculum development, inservice and preservice teacher education, testing, planning, and administration.
- Maximum utilization of existing resources and infrastructure, thereby minimizing the recurrent cost impacts of the project.
- Concentration on elimination of internal inefficiencies in the system as reflected in low transition, progression, and pass rates.

The inclusion of these elements in the project design ensures that the economic return on the investment is maximized. This was suggested in the preliminary economic analysis in the PID and is reconfirmed in this more comprehensive and rigorous analysis of benefits and costs of the JSEIP investment. The key to the economic viability of the project is a significant reduction in the internal inefficiencies at the junior secondary level and the change from a 3-year instructional program to a 2-year one. These inefficiencies include the low progression and pass rates which result in only 2.3 students graduating from community junior secondary schools for every 10 students who enter Form I. With the JSEIP investment it is expected that 7.8 will graduate. The return is less sensitive to variations in enrollment levels, unemployment among junior secondary graduates, and significant changes in the age of retirement. When the education cycle is changed from 7-2-3 to 6-3-3 after 1991, the change to the junior secondary system will be one of name only, the last year of

primary education becoming the first year of the new junior secondary system. The result will have no effect on the economic viability of the project.

The economic analysis is divided into four sections. Section one examines the relationships among projected growth from 1985 to 1991 in Gross Domestic Product (GDP), the GOB's budget, the Ministry of Education's (MOE's) budget, and projected expenditures in secondary education. Section two analyzes the MOE's estimates for new school construction to achieve its 1991 junior secondary enrollment target of 42,740 students. Section three explores the labor supply of and demand for both primary school completers and junior secondary graduates from 1985 to 2001. Section four estimates the internal rates of return (IRR), net present values, and benefit-cost ratios for the JSEIP.

Macroeconomic Context

The draft National Development Plan VI (NDP VI) which covers the period from 1985/86 to 1990/91 projects an annual average growth in GDP of 4.8 percent. This rate is roughly one-third the growth rate during the previous 15 years. During the NDP VI, GDP is estimated to expand from P1533.6 million to P2115.8 (See Annex F.3, Table 1). Over this same period, the GOB's development and recurrent budget is projected to grow from P656.9 million to P899.0 million. As a percent of GDP, the government's share remains stable at approximately 42 percent.

To finance the expansion of secondary education, particularly junior secondary, and vocational training, the GOB will permit the MOE's budget to increase from P107.8 million in 1984/85 to 172.0 million in 1990/91. As a percent of the national budget, the MOE's share will expand from 16 percent to 19 percent (See Annex F.3, Table 1). The increase in the MOE's budget is largely to finance the planned expansions of secondary and vocational education.

Although the MOE's share of the national budget increases, this is accomplished without a corresponding increase in the GOB's share of GDP. It seems reasonable, therefore, to conclude that the GOB is in position to absorb the recurrent expenditures associated with the expansion of junior secondary education. Most of the inservice and preservice teacher training, curriculum development, and educational administrative costs associated with this expansion are already factored into the GOB budget for the MOE through 1991.

Physical Capital Requirements

The additional physical infrastructure associated with the expansion of junior secondary education involves new schools and classrooms including specialist rooms for science and practical subjects, the Junior Secondary Teacher Training College at Molepolole, the education centers, and the Curriculum Development and Evaluation Center. Assuming approval of the JSEIP, 60 percent of the capital requirements for six of the education centers and the CD/E center will be met by AID under the project. The African Development Bank is already financing the teacher training college at Molepolole. Thus, the major physical capital infrastructure not

financed with donor assistance as of October 1984 is school classrooms.

Assuming an enrollment of 42,740 in 1991, the MOE estimates a total requirement of 519 extra classrooms and 542 specialist rooms. The estimated cost for these additional rooms is P117.5 million. The average annual cost is P19.6 million. The NDP VI budgets P33.0 million annually for the MOE's development program or P'98.0 million over the plan period. The proposed classroom construction would require 59 percent of the planned development budget. For this reason, the GOB looks toward this requirement being met, at least in part, from donor assistance. However, as of October 1984, donor funds were not yet committed for school construction. Therefore, the benefit-cost analysis explores the impact of a reduced quantitative expansion on the return to the investment in qualitative improvements within the system.

Labor Market Projections

Despite the anticipated modest rate of growth in GDP, employment including self-employment in sectors other than agriculture is forecasted to grow at an annual rate of 5.6 percent per year which is 0.8 percent higher than the 4.8 percent growth in GDP.

Although the number of employment opportunities in the formal sector will double for both primary and junior secondary graduates, they will fall short of the number required to absorb the supply of these individuals available in the labor market. The demand for primary graduates will increase the number of job opportunities from 35,835 in 1985 to 72,294 in 2001. The increase in primary school completers in this same period will be from 121,543 to 417,522. The demand for junior secondary graduates with and without training rises from 47,420 in 1985 to 106,836 in 2001. The supply of junior secondary graduates will expand from 44,369 in 1985 to 178,627 in 2001 (See Annex F.3, Table 2).

As these projections indicate, there is likely to be a significant increase in the unemployment rate among junior secondary graduates through the 1990s if the economy grows at close to 4 percent per year. This surplus would disappear if the rate of growth in the economy doubled to 8 percent which was the figure for the past two decades. However, continuation of the drought, low mineral prices, and lack of major investments in mining over the next decade reduces the likelihood that the high growth rates of the past can be expected to prevail in the near future. For this reason, the analysis assumes a significant growth in unemployment among both primary school leavers and junior secondary graduates. Thus, the rate of return uses fairly pessimistic assumptions about the job opportunities for these individuals. To the extent this underestimates the future labor demand for those with primary and junior secondary education, the projected benefits from JSEIP are biased downward. Also these estimates do not take into account major efforts underway by the GOB to improve the employment elasticity of the economy. Even with fairly low rates of growth in GDP, these policies to promote employment of less skilled individuals would result in significant increases in job opportunities for both primary and junior secondary graduates.

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Social Benefit-Cost Analysis of JSEIP

The expansion of junior secondary education and the change from a three-year to a two-year instructional program including the JSEIP investment will have four major economic effects. First, it will increase the supply of better educated graduates in the labor market. This gain will be reflected in a more productive work force. Second, the investment in improved curriculum and teacher training will strengthen the foundation for further schooling and training. Thus, a portion of the economic benefit will be measured in the increased return to post-secondary schooling and training. Third, the reduction in internal inefficiencies at the junior secondary level permits a more optimum use of scarce capital and human resources. Fourth, the interim elimination of one year off the junior secondary cycle significantly reduces the cost per graduate.

The methodology utilized in this analysis of benefits and costs is a typical human capital approach. The benefits from the investment by society in junior secondary education are assumed to be measured by the increased earnings potential of the graduate after adjustments for unemployment. The costs are measured by the expenditures by society and individuals at the junior secondary level combined with the earnings foregone by the individual while undergoing the additional schooling. The complete calculations of costs and benefits are given in Annex F.3. These calculations are only summarized here.

The project earnings for junior secondary graduates without training are presented in Table 3 of Annex F.3. The profile is based on earnings data for individuals employed in the General Administration Cadre of the GOB. Comparisons between these earnings and other data supplied by the Employment Policy Unit of the Ministry of Finance and Development Planning suggested this would be generally reflective of the earnings potential of junior secondary graduates in the formal sector.

The earnings profile is adjusted for two likely unemployment situations. The first assumes that the average graduate in 1991 will face a 22.2 percent unemployment rate upon graduation and the second an unemployment rate of 40.2 percent. These figures are based on the portion of junior secondary graduates in the labor market in 1991 and 2001 who cannot be absorbed in formal sector employment. Since the probability of being unemployed is likely to decline over time, it is assumed that all graduates find employment in the formal sector by age 22.

The cost stream consists of the annual recurrent expenditure per student by the GOB on junior secondary education, the amortized annual per student value of the JSEIP investment and the construction of school facilities, and the opportunity cost of continuing schooling as measured by the earnings of an average primary school graduate adjusted for the probability of being employed. Annex F.3, Table 5 gives the resulting cost streams using different assumptions about enrollment levels, unemployment, and changes in the internal efficiency of junior secondary education as measured by progression and pass rates.

As in the case of the junior secondary graduate, unemployment among primary school leavers is assumed to impact most severely on the individual during the immediate post-school period. The probability of employment gradually increases from age 14 to age 22. All primary graduates are assumed to be employed by the age of 22.

The amortized cost per student associated with the JSEIP investment was P26 per year if the MOE achieves a junior secondary enrollment of 42,740 in 1991 assuming a 70 percent transition rate from Standard 7 to Form I. The per student cost of JSEIP increases to P46 if the enrollment is only 24,044 assuming a continuation of the current 40 percent transition rate.

The cost per student for construction is estimated to be P25. This figure does not vary with changes in enrollment levels, since the number of classrooms is dependent on the number of students enrolled. If the number of students enrolled is less than the projected figure, the number of new classrooms will also be lower.

The MOE estimates a per student recurrent cost of P812 for junior secondary education by 1991. This represents an increase from the P349 in 1983 and takes into account the planned qualitative improvements in junior secondary education.

Thus, the total cost per student in 1991 is estimated to be P863 if 42,740 students are enrolled in junior secondary. The cost increases to P883 if enrollment is 24,044. Thus, the impact of a lower enrollment projection is to increase the total per student cost by 2.3 percent.

The JSEIP investment combined with the growth in the GOB's budget for junior secondary education is expected to lead to significant improvements in the internal inefficiency of the system. Thus, rather than obtaining only 2.3 graduates per ten who started in a community junior secondary school in 1980, it is expected that 7.8 will graduate in 1991.

At an enrollment level of 42,270 students in 1991, the estimated social internal rate of return is 40.8 percent. If the planned expansion occurs without the qualitative improvements in the system, the return falls to 29.5 percent. As the analysis in Annex F.3 indicates, the internal rate of return of 40.8 percent is insensitive to changes in enrollment levels, different unemployment rates, and alterations in the age of retirement. The return is, however, extremely sensitive to the change in the number of years of junior secondary. If the program were three years in 1991 instead of two and the current inefficiencies remained, the return would decline from 29.5 percent to 19.3 percent.

C. Socio-Cultural Context*

The Republic of Botswana has made great strides in economic growth since Independence in 1966. At that time Botswana was considered one of the poorest nations in the world, with a \$60

*The detailed analysis is found in Annex F.4.

per capita annual income. Today, per capita income is approximately \$970.

The economy of Botswana is dominated by minerals and commercial beef production. These two sectors are largely responsible for the spectacular rate of economic growth. Access to the economic benefits that emerge from these sectors however, is limited. The result is a highly stratified class structure in which large cattle owners and educated wage earners are the primary beneficiaries.

The relationship between class and post primary education is complementary and mutually reinforcing. At present there is an acute shortage of educated Batswana to meet the increasing demands of the country's expanding economy. Educated Batswana are also needed to eventually replace non-Batswana employed in the public and private sectors. However, lack of post primary education gives rise to unequal opportunities among members of the work force in securing well paying jobs. Individuals with little or no schooling are unlikely to be in formal employment; only 20% of the labor force with no schooling are wage employed, compared to 49% of those with secondary schooling.

Access to education is not dependent, by and large, on considerations of gender, ethnicity, and in the case of primary education, on the variable of wealth. Approximately 85% of the school age children in Botswana are in primary schools. Of that group, an estimated 53% are females and 47% males. The costs of primary education are essentially paid by the GOB, thereby facilitating admission for the general population, regardless of class position.

There is, however, a differential success rate in obtaining a secondary education. Lack of physical facilities and qualified teachers is partially responsible for secondary school being limited to one-fifth of the children in that school age group. An additional factor is that a percentage of the cost of secondary education is borne by the household. Students attending community junior secondary school paid an average cost per annum of P200 for tuition in 1983. This is beyond the reach of many households in Botswana. At present, therefore, economic stratification limits student enrollment and contributes to student attrition. There is some indication however, that the National Development Plan VI may address the issue of secondary school tuition, with an aim of eventually reducing fees.

Achievement levels, as measured by test scores, vary according to gender. At the primary level, female achievement is slightly higher than that of males, while at secondary, males perform significantly better. This substantive disparity between male and female achievement at the junior secondary level is cause for concern.

Under present conditions, biologically mature females frequently confront a barrier in their efforts to achieve an education. If a student is pregnant, she is required to leave school immediately for at least one year. If and when she returns, she must attend a different school. Considering the

geographical dispersion of schools, few women return. It has been estimated that between 300 and 500 students leave school annually because of pregnancy.

BENEFICIARIES:

The beneficiaries of this project will include 450 preservice junior secondary school teachers who will benefit from the new teacher training program at Molepolole, the participants in the staff training program at the Curriculum Development and Evaluation Department and other departments of the Ministry of Education. Inservice teacher education will offer a mechanism by which 1,000 teachers can upgrade their skills. In the aggregate, the project will deliver 36 person/years of long-term training, 140 person/months of short-term U.S. and Third Country training, and 2,200 person/months of short-term in-country training. Finally, the students enrolled in the junior secondary cycle will also benefit. It is expected that there will be over 93,000 of these students within the life of the project.

Even moderate success of this project will improve the quality of junior secondary education. Nevertheless, until tuition costs are adjusted, the main student beneficiaries will most likely be the wealthier segments of society. Similarly, until a policy decision is made within the MOE regarding female pregnancy, females will continue to be discriminated against in their attempts to obtain an education. There remains the particularly troubling issue of the disparity between male/female achievement levels. A consultancy directed at providing insights into the causes for this disparity and recommending corrective measures will be considered under this project.

SOCIAL FEASIBILITY

The GOB receptivity to the project is evidenced by both the National Commission on Education of 1977 and the National Development Plan V recommendations that universal secondary education be made available. With unemployment estimated at 13% and with the keen awareness on the part of the population of the relationship between education and employment opportunities, it is expected that local receptivity to the various types of training offered under the project will be high.

Some behavioural changes will be required if the project intends to produce students who are academically better prepared for further education or training. Both teaching and learning techniques will have to be altered from those grounded in rote memorization.

Particular caution is needed in curriculum development, and in the selection of forms of instruction, to ensure against western technicians unknowingly fostering cognitive styles derived from their own primary group socialization. The social consequences of entirely changing Batswana cultural patterns of cognition could be staggering and could result in underachievement, and an inherent bias against Batswana students. Therefore, a consultancy will be considered to review variations in learning styles, leadership types, cognition and cultural values and their relationship to the present educational learning environment. T

SOCIAL IMPACT

The project itself, and its diffusion to the wider population, will affect different groups in different ways. The project will target community junior secondary schools, a category of schools that has not benefited from quality education in the past. Benefit incidence for this group is therefore compatible with equity objectives. The project activities will have a favorable impact on the secondary school teachers. At present, 63% of these teachers are male. However, it appears that the number of female teachers is increasing. There is also a slightly larger percentage of unqualified female teachers than males. Project inputs will positively affect female earning capacity and overall job security by upgrading female teachers through inservice training.

The benefits that accrue to the students will be substantial. As more teachers are trained, particularly those stationed in remote areas, the education that students receive will improve qualitatively. The long-term benefit distribution of additional and improved education, and thereby employment, has the potential for increasing the income of both rural and urban households. The project will therefore provide opportunities for greater participation in the formal sector, increase access to productive resources, assist in the restructuring of present economic disparities, and will have a measurable impact on the quality of life.

This assessment of the distribution of the benefits and burdens of the project indicate that the social consequences will be strongly positive. While the ultimate success necessarily depends on the quality of project implementation, analysis of the project in terms of the social factors involved indicates that the project is soundly designed to meet its stated objectives.

D. Environmental Analysis

The education, technical assistance and training components of the project are not considered to have any direct effects on the environment. Environmental impacts will be limited to land utilization by construction of physical facilities and demand on services such as water supply, sanitation and community facilities by small population increases. The Initial Environmental Examination (IEE) prepared for the PID explained GOB procedures for land use planning and the insignificance of the small population increases in relationship to sizes of the town where project activities will take place. The IEE identified no issues requiring further environmental study and recommended that a Negative Determination be made. This recommendation was approved by the Africa Bureau Environmental Officer and concurred in by the General Counsel for the Africa Bureau.

E. Engineering Analysis

Construction of a Curriculum Development Building (to support curriculum and instructional materials development), six education centers (for inservice training of teachers), and five houses (for U.S. technical advisors assigned to Gaborone) is

planned for the project. Construction costs will be shared 60% by AID and 40% by the GOB. In addition, the GOB will contribute professional fees for design and supervision. The detailed Engineering Analysis in Annex F.5 explains the requirements for new facilities, planned standards and specifications, contracting and payment procedures, AID monitoring plans, projected implementation schedule and cost estimates. Standard GOB specifications and procedures for local contracting are planned to ensure smooth implementation of the program and to minimize construction and recurrent maintenance costs. USAID/Botswana will utilize FAR payment procedures to reimburse the GOB for AID's share of costs. The USAID/Botswana Engineer concludes that the planning and cost estimates for the construction program meet all 611 (a) requirements of the FAA Act of 1961 (as amended).

X. CONDITIONS AND COVENANTS

A. Conditions and Precedents

Two Conditions Precedent are proposed for the Project Grant Agreement. They are presented below.

1. Conditions Precedent to First Disbursement

Prior to the first disbursement under the Grant or to the issuance by AID of documentation pursuant to which disbursement will be made, the Cooperating Country will, except as the parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID a statement of the person(s) representing the Cooperating Country for purposes of the Project, together with a specimen signature of each person specified in such statement.

2. Additional Disbursement: Construction Activities

Prior to disbursement under the Grant for construction, or to the issuance by AID of documentation pursuant to which disbursement shall be made, the Cooperating Country will, except as AID may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID final plans and specifications including cost estimates for such construction and evidence that appropriate sites have been made available by the Cooperating Country for such facilities.

B. Covenants

Seven covenants are proposed for the Project Grant Agreement. GOB will be expected to covenant that:

1. An evaluation program will be established as an integral part of the project. This program will include:

a. evaluation of progress toward attainment of the objectives of the Project;

b. identification and evaluation of problem areas of constraints which may inhibit such attainment;

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c. assessment of how such information may be used to help overcome such problems; and

d. evaluation, to the degree feasible, of the overall development impact of the Project.

2. It will make available for long-term academic training in the U.S. on a timely basis qualified candidates, and it will ensure by bonding or other means that such candidates are assigned upon their return to suitable positions within the Ministry of Education related to activities under this Project, unless AID otherwise agrees in writing.

3. It will assign suitable counterparts for each long-term technician furnished in support of CD/E during the initial tour of the technician, and for each long-term technician furnished in support of the Junior Secondary Teacher Training College at Molepolole during the life of the Project.

4. Pending construction of the central headquarters building of the CD/E, it will provide suitable office space for short or long-term technicians furnished in support of the CD/E.

5. It will provide suitable housing and office space for long-term technicians assigned to the Junior Secondary Teacher Training College at Molepolole.

6. Permanent housing, constructed under the Project for long-term technicians in support of the CD/E, upon completion, will be available for such technicians for the life of the project.

7. It will provide the necessary human, physical and financial resources commensurate with the expansion of the junior secondary education program in Botswana.

XI. EVALUATION ARRANGEMENTS

The success of the JSEIP will be measured by the extent to which it assists the MOE to:

- Make junior secondary education more responsive to national development needs;
- Improve the instructional delivery and teacher training components of the junior secondary system;
- Develop a functional organizational structure with trained staff for the system; and
- Develop and coordinate needs analysis, teacher training, dissemination, and managerial components for the junior secondary system.

The project specifically intends to help the GOB lessen five chief constraints to achieving the above objectives: (1) limited personnel and instructional resources, (2) inadequately specified curriculum and instructional strategies, (3)

insufficiently trained teachers and supervisors, (4) inadequate institutional capacity for optimum system maintenance, and (5) insufficient planning, management and supervisory capacity.

Five priority activities will be undertaken in the JSEIP:

1. Strengthen the Curriculum Development and Evaluation Department
2. Assist with Revised Curriculum and Instructional Program
3. Assist in training Inservice Teachers
4. Develop the Junior Secondary Teacher Training College Program
5. Strengthen MOE Capacity for System Support, Management, and Development

A. Evaluation Criteria

In 1985, baseline data will be collected so that comparisons can be made over time to assess progress toward achievement of project objectives. The following are principal sources of evaluation criteria:

1. In-School Criteria

Following are some of the dependent variables which will permit fairly direct inferences as to the project's effects on instructional effectiveness.

- a. Student achievement on national and international normative exams.
- b. Student achievement by subject matter and grade level on criterion referenced tests.
- c. Retention of skills/knowledge with time passage.
- d. Elapsed time on learning task.
- e. Student attrition rates by grade level.

The Junior Certificate examination will be used as one evaluative means. Improvement of this test is one of the GOB's objectives at the junior secondary level.

Achievement also will be measured in the six targeted subject areas for each grade level. Such tests are not now being administered on a systematic national basis. The tests to be developed will be criterion-referenced, that is, designed specifically to measure how well the student learns all of the objectives for an instructional unit. Such test data can be a fairly precise index of the effect of particular teaching/learning packages. For baseline data, tests will be developed using as

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criteria the basic education objectives in the present curriculum which are likely to be carried over into the revised curriculum. There will likely be a large (70 to 80%) overlap between the core educational objectives in the old and new curricula.

A third measure of instructional effectiveness is how well the student retains the knowledge and skills acquired, with the passage of time. On a population sampling basis, subject matter taught in term one will be retested in term two, or end of year achievement will be compared with achievement measures made at the beginning of the next academic year.

A fourth comparison will be the student time on learning task. As the new curriculum modules are tried out during the development phases, the time requirement can be compared to the baseline time requirement. It is not unusual for an integrated curriculum and instructional system to enable mastery of the same objectives taught in a traditional classroom in 20 to 25 percent less time and with higher average achievement. It is essential that this be empirically determined because the GOB intends to add to the junior secondary subject matter such things as adult living skills and pre-employment and practical arts education without extending the total period of instruction.

A fifth criterion variable on instructional effectiveness is the attrition rate. This type of data is relatively easy to gather in its raw form. However, additional information is needed if it is to be useful to educational decision making. For those students who drop out, it is essential to know when and why. Obviously, conditions other than the quality of instruction also operate to affect attrition. Pregnancies, deficient academic aptitude, illness, and falling behind academically are common causes of dropouts or failure. Tracer studies, on a sampling basis, will be undertaken to analyze attrition.

2. Post Junior Secondary Criteria

JSEIP seeks to assist the MOE to enhance the junior secondary leaver's employability or the trainability for work. Few data exist on what happens to students after they exit formal education.

Following are some of the criterion data that will be collected:

- a. Employability
- b. Trainability for employment
- c. Continuation in formal education

Manpower, employment, and wage data will be gathered and analyzed over the life of the project. Analyses also will be made of relationships among school achievement measures and employment over the life of the project. The employability criterion will be examined, through time, from a number of perspectives. What numbers of junior secondary leavers found wage-paying jobs in the

first 6 months, 12 months, or 18 months after graduation? For what level and types of jobs were they hired? Were they still gainfully employed a year after their initial job entry? Were others, not in wage-earning jobs, engaged in productive activities on a regular basis, such as on a family owned farm plot or enterprise? What is the frequency of the employed receiving on-the-job or apprentice-type training from their employer? What is the average and range of their annual income? What, if any, training was absent in their formal education that, if added, would further enhance their employability? Data will be collected in survey questionnaires and personal interviews of students and employers, on a stratified random sample of junior secondary school graduates. To establish baseline data, an initial survey will be considered in 1985.

Similar kinds of information will be collected on those students pursuing occupational training following junior secondary graduation. In what types of training are they involved? What percentage of students could and did exercise this option? What are their employment prospects upon completion of the training? Is their progress in the training satisfactory? Has their basic education adequately prepared them for training?

Those students who are able and elect to continue to senior secondary school (Form III) will also be tracked to determine their success at that level. Such things as achievement, attrition, and completion should be surveyed. Comparisons between 1985 and later years will have to include effects of the large expansion of enrollments in Forms I and II scheduled to take place in the balance of this decade. With larger numbers there will be much greater variability among students in academic aptitude and achievement.

3. Teacher Effectiveness Criteria

Relating student achievement to an individual teacher's intervention is difficult if not virtually impossible. A student's success in school and afterwards also is conditioned by many non-school influences. Nevertheless, assessments over time can track improvements of in-school student performance at the national, district, and school levels, and such improvements can be correlated with instructional improvements. In addition, observations and other assessments of teacher competency relative to particular tasks can be made and correlated with student learning in individual classrooms. The preservice and inservice training in use of the revised curriculum and instructional program is expected to impact positively on teacher performance and result in measureable effects on student achievement, retention and time on learning.

4. Curriculum and Instructional Effectiveness Criteria

The criteria which should be examined in relation to the adequacy of the curriculum are as follows:

- a. Teaching Effectiveness
- b. Content Completeness and Validity

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- c. Articulation within and across Subject Areas.
- d. Ease of Use by Teachers and Students
- e. Cost Feasibility

The first of these criteria seeks to ascertain the extent to which the instructional packages used by teachers and students result in satisfactory levels of student achievement. This is objectively measurable, both during and after curriculum development. Content completeness and validity refer to the amount of subject matter to be taught in a unit or grade, and its appropriateness and accuracy. Evaluations of these factors are largely matters of professional judgment and will be made by specialists in each subject area.

Logistical and cost considerations on the packaging and distribution of the improved curriculum and instructional materials will be thoroughly analyzed during the design phases of the project to insure that materials are both usable and affordable. Prototypes of the instructional packages will be used in the trial and revision phases to test their overall suitability for large scale use. This "debugging" process is necessary before materials are manufactured in mass quantities.

5. Improved Institutional Capacity Criteria

JSEIP will assist in strengthening two institutions--the Curriculum Development and Evaluation Department of the MOE and the Junior Secondary Teacher Training College. Indicators of organizational proficiency will be operationally defined early in the project. They will include such questions as how many positions are allocated to the organization? Are these of sufficient number and type for the functions to be performed? To what degree are they filled by qualified Batswana? Are the administrative and management procedures functionally efficient, and consistently followed? Are there sufficient resources--equipment, vehicles, resource materials, physical facilities--to support the organization's mission? One means of evaluation could take the form of a "before, during, and after" management and organizational audit.

6. Improved MOE Management Capacity Criteria

Improvement in the management and supervisory capacities of the MOE may be documented by the number of persons in the various units in the MOE who have been trained either formally or informally and what job-related changes have taken place. What the individuals do in the way of improved management and supervision will be indirectly inferred from observable system characteristics and variables that serve to measure efficiency and effectiveness of the system. Evaluation will focus on wider applications of improved management practices, including more extensive use of computer data bases, improved cost analysis and control, better program management, effective communication within and among departments and with employers, and strengthened monitoring and overall quality control.

B. Types of Evaluation

Two types of evaluation will take place: (a) formative, and (b) summative.

1. Formative Evaluations

JSEIP will be evaluated on an interim and continuing basis. The annual formative evaluations are primarily for the purpose of shaping and guiding progress through the project. The formative evaluations will be undertaken jointly by the GOB, USAID/Botswana, and include members of the IEES contractor consortium not involved directly in JSEIP implementation. The interim evaluations will provide information on progress to date toward project objectives, identify problems or obstacles to their attainment, and suggest ways to correct such problems. The planning section of the MOE, with JSEIP's resident technical advisor in systems management and planning, will identify and operationally define the interim objectives for achieving end-of-project status. These are to be amenable to independent observation and evaluation sequentially related to the project's purposes.

These activity objectives, when time-scheduled, will permit continuing progress checks and program evaluation and review by the GOB and USAID/Botswana. One mechanism for this review will be an annual meeting chaired by a representative of the Ministry of Finance and Development Planning with MOE officials, appropriate USAID staff, and the contractor. The meeting will be spent in presentation and review of the project activities undertaken and the formulation of recommendations regarding the conduct of the activities. More frequent meetings will be held of JSEIP's Advisory Committee, as discussed in Section VII of this paper.

2. Summative Evaluation

Two summative evaluations of project accomplishments will occur, one of these after the project's second year, and the other after the project's fifth year or at the project's conclusion to evaluate achievement of all project outputs.

The summative evaluations will be conducted by an independent team of experts and highlight any continuing constraints and suggest appropriate programmatic responses. The final evaluation will be useful to USAID/Botswana also as a source of feedback on the success of its education and human resources strategy and program development.

Seminars related to project developments will be held in Botswana, and local and international education leaders invited. Appropriate project-related research publications and reports, collaboratively produced, will be made widely available to share project experiences with similarly-interested education planners.

C. Evaluation Implementation

There are four organizations or groups that will take part in the overall JSEIP evaluation from the outset of the project. These are the MOE and its relevant departments, the technical assistance contractor, the external evaluators, and USAID/Botswana. Those involved in the daily conduct of the project--the MOE, the CD/E, the JSTTC and the technical assistance contractor--will necessarily have responsibility for primary data collection on the various evaluation criteria. They will need these data to guide the progress of the project, and for incorporation into the overall evaluations. Detailed and comprehensive plans for the formative and summative evaluations will be developed in the first three months of the project.

XII. ANNEXES

NNNNVV ORO541
 PP RUEHOR
 DE RUEHC #6369/01/2420417
 ZNR UUUUU ZZH
 P 290334Z AUG 84
 FM SECSTATE WASHDC
 TO RUEHOR/AMEMBASSY GABORONE PRIORITY 4784
 INFO RUEHNR/AMEMBASSY NAIROBI PRIORITY 2853
 RUEHRB/AMEMBASSY MBABANE 3352
 BT
 UNCLAS STATE 256369

Anal-5

AIDAC NAIROBI FOR REDSO/EA, MBABANE FOR RLA/

E.O. 12356: N/A

TAGS:

SUBJECT: BOTSWANA JUNIOR SECONDARY EDUCATION
 IMPROVEMENT PROJECT (633-0229): ECPR RECOMMENDATIONS
 FOR PP DESIGN

1. THE AFR/PD⁶ PROJECT COMMITTEE MET ON AUGUST 9, 1984 TO IDENTIFY AND DISCUSS THE PERTINENT ISSUES RELATED TO THE SUBJECT PID. THE MEETING WAS CHAIRED BY MR. LARRY HAUSMAN, WHO COMMENDED THE MISSION FOR A WELL-WRITTEN DOCUMENT.

2. ECPR FOR SUBJECT PROJECT CONVENED ON 8/14/84, CHAIRED BY DAA/AFR PHILIP BIRNBAUM. ECPR RECOMMENDED APPROVAL OF PID WITH FOLLOWING CONCERNS BEING TAKEN INTO ACCOUNT IN PREPARATION OF PP:

A. LOP FUNDING LEVEL: FACED WITH UNCERTAINTY OF MAINTAINING PRESENT AID LEVELS IN BOTSWANA OVER LIFE OF PROJECT BECAUSE OF WORLD-WIDE AID FUNDING CONSTRAINTS OVER NEXT SEVERAL YEARS, ECPR WAS CONCERNED ABOUT AID'S ABILITY TO HONOR A FINANCIAL COMMITMENT OF U.S. DOLS 25.3 MILLION AS ENVISAGED IN SUBJECT PID. IT WAS DETERMINED THAT LOP FOR SUBJECT ACTIVITY SHOULD BE UNDER DOLS 20 MILLION WHICH PRESUMES THAT THE BASIC INTEGRITY

OF PROJECT COULD BE MAINTAINED AT REDUCED LOP LEVEL. FOR EXAMPLE, IT WAS SUGGESTED AT ECPR THAT A) MANYEARS OF TECHNICAL ASSISTANCE MIGHT BE SCALED BACK AND B) THE CONSTRUCTION COMPONENT COULD BE FINANCED ON A 50-50 RATHER THAN 75-25 BASIS.

B. ALTHOUGH IT IS GENERALLY RECOGNIZED THAT BOTSWANA IS NOT LIKELY TO ACHIEVE ITS GOAL OF 45,000 ENROLLED AT JUNIOR SECONDARY LEVEL BY 1992, CLEARLY THE GOVERNMENT OF BOTSWANA IS PLANNING FOR SUBSTANTIAL ENROLLMENT INCREASES OVER THE NEXT EIGHT YEARS. ECPR REQUIRES THAT ECONOMIC ANALYSIS TEST SENSITIVITY OF RATE OF RETURN TO DIFFERENT ENROLLMENT SCENARIOS. ALTHOUGH THE PRELIMINARY ECONOMIC ANALYSIS IN PID SUGGESTED THAT THE ECONOMIC RETURN ON THE INVESTMENTS IN JUNIOR SECONDARY EDUCATION WERE MORE SENSITIVE TO IMPROVEMENTS IN THE INTERNAL EFFICIENCY OF SYSTEM RATHER THAN QUANTITATIVE EXPANSION, IT WAS DETERMINED THAT THE PP ECONOMIC ANALYSIS TEST EXPLICITLY THE IMPACT OF DIFFERENT

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ENROLLMENT LEVELS ON THE EXPECTED RATE OF RETURN. IN ADDITION, THE TECHNICAL ANALYSIS SECTIONS OF THE PP SHOULD INCLUDE A MORE COMPREHENSIVE DISCUSSION OF HOW GOB PROPOSES TO FINANCE PHYSICAL EXPANSION OF JUNIOR SECONDARY EDUCATION EITHER THROUGH OTHER DONOR FUNDING OR ITS OWN RESOURCES.

C. PP TEAM SHOULD ANALYZE RECURRENT COST IMPLICATION OF THE PROJECT ON THE GOB'S EDUCATION BUDGET. TEAM SHOULD REVIEW THIS ANALYSIS WITH THE GOB TO ENSURE THAT THEY FULLY UNDERSTAND THE COMMITMENT THEY HAVE MADE TO SUCH AN AMBITIOUS PROGRAM AND THE COST IMPLICATIONS OF SUCH A PROGRAM ONCE THIS PROJECT HAS BEEN COMPLETED.

D. PP SHOULD DISCUSS IN DETAIL JUSTIFICATION FOR JUNIOR SECONDARY EDUCATION IN TERMS OF LINK WITH INCREASED EMPLOYMENT OPPORTUNITIES. DOES PROJECT IMPLY A LONGER TERM COMMITMENT TO SECONDARY EDUCATION IN ORDER TO IMPROVE EMPLOYMENT/INCOME PROSPECTS OF BENEFICIARIES OR ARE THERE OTHER ECONOMIC BASES FOR THIS PROJECT AS WELL?

E. EDUCATIONAL CENTERS: (1) ECPR REQUIRES THAT PP CONTAIN A MORE COMPREHENSIVE ANALYSIS OF THE ROLE OF EDUCATIONAL CENTERS AND HOW NUMBER OF REQUIRED CENTERS MIGHT BE AFFECTED IF GOB UNABLE TO ACHIEVE TARGET OF 45,000 ENROLLED IN JUNIOR SECONDARY EDUCATION BY 1992. ALSO ANALYSIS SHOULD EXPLORE RELATIONSHIP BETWEEN LOCATION OF CENTERS AND LIKELY DISTRIBUTION OF TEACHERS REQUIRING IN-SERVICE TRAINING.

(2) THE COMMITTEE ALSO EXPECTS THAT IN THE SUPPORT OF THESE CENTERS, LINKAGES BE ESTABLISHED BETWEEN THE ADMINISTRATIVE UNITS AND THE EDUCATIONAL CENTERS TO ENCOURAGE POLICY REFORMS IN THE SECTOR. THESE LINKAGES SHOULD BE DEVELOPED AND INCLUDED IN THE PP.

F. EVALUATION PLAN: PROJECT PAPER NEEDS A BUDGET LINE ITEM FOR EVALUATION AND DATA COLLECTION ACTIVITIES TO MEASURE CHANGE/IMPACT. THE EVALUATION PLAN IN PP SHOULD CONTAIN CLEAR INDICATORS AND BENCHMARKS UPON WHICH PROGRESS CAN BE ASSESSED.

G. LOGICAL FRAMEWORK: THE COMMITTEE FOUND THE LOGICAL FRAMEWORK VAGUE. FROM THE PRELIMINARY LOGFRAME IT IS DIFFICULT TO DISCERN WHAT AN EFFECTIVE AND EFFICIENT JUNIOR SECONDARY EDUCATION PROGRAM IS AS THERE ARE NO BENCHMARK OR QUALITATIVE INDICATORS AT THE PURPOSE/GOAL LEVELS. INDICATORS SHOULD BE FACTORED IN TO THE REVISED LOGFRAME AT THE PROJECT PAPER STAGE.

H. PP SHOULD PROVIDE FIRM JUSTIFICATION FOR CONSTRUCTION FINANCING BY AID, INCLUDING FULL EXPLANATION OF WHY OTHER DONORS OR GOB CANNOT COVER THESE COSTS.

3. BUREAU ENVIRONMENTAL OFFICER HAS REVIEWED AND APPROVED IEE AND GC/AFR CONCURS IN NEGATIVE DETERMINATION.

4. AID/W ASSUMES THAT SERVICES OF TEACHER EDUCATION
SPECIALIST REQUIRED FOR PP DESIGN CAN BE OBTAINED WITH
EXISTING MISSION PD AND S FUNDS OR THROUGH OTHER MEANS.
PLEASE CONFIRM.

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5. GIVEN PROJECT SIZE AND THE NUMBER OF ISSUES RAISED,
PP SHOULD BE SUBMITTED TO AID/W FOR REVIEW AND APPROVAL.

6. FOR REDSO/ESA: AID/W UNDERSTANDS THAT REDSO/ESA HAS
AGREED TO PROVIDE A SENIOR PDO FOR PP DESIGN OF SUBJECT
ACTIVITY WHICH IS NOW SCHEDULED TO BEGIN O/A SEPTEMBER
10 FOR 4 WEEKS. PLEASE CONFIRM. SHULTZ.

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ANNEX B
PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

From FY 85 to FY 92
Total U. S. Funding: \$16,318,000

Project Title and Number: Junior Secondary Education Improvement Project (JSEIP): 633-0229

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><u>Program Goal:</u></p> <p>Enhanced capacity of the education and human resources system to meet projected work-force requirements.</p>	<p><u>Measures of Goal Achievement:</u></p> <p>Significant reduction in short-fall of jr. sec. graduates projected for manpower requirements.</p>	<p><u>Means of Verification</u></p> <p>a. Manpower, employment, and wage data at beginning and over life of project.</p> <p>b. Analyses of relationships among examination scores, school performance, and employment, at beginning and over life of project.</p>	<p><u>Assumptions for Achieving Goal Targets:</u></p> <p>a. Relevant education includes knowledge and skills related to employment opportunities.</p> <p>b. Jr. sec. examinations validly measure curriculum.</p> <p>c. Positive correlation between academic performance and labor productivity.</p> <p>d. GOB or other donor resources will be allocated to expand the number of jr. sec. classrooms</p>
<p><u>Project Purpose:</u></p> <p>1. <u>Increase quality and efficiency of expanded basic (jr. sec.) education system.</u></p> <p>a. Make junior secondary education more responsive to national development needs.</p>	<p><u>End of Project Status:</u></p> <p>a. Revised curriculum implemented in all jr. sec. schools.</p>	<p><u>Means of Verification</u></p> <p>a. Comparisons of qualitative changes in curricula materials and teaching practices.</p>	<p><u>Assumptions for Achieving Purpose:</u></p> <p>a. Work-related knowledge and skills can be identified and effectively taught at the jr. sec. level.</p>

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b. Improve instructional delivery and teacher training components of system.

b. Teachers trained to use improved instructional program in all jr. sec. schools.

b. Reductions in dropout and repetition rates.

b. Instructional systems design approach can be implemented and will improve internal efficiencies of the jr. sec. system.

2. Institutionalize capacity to develop, manage, and support the jr. sec. education system.

a. Develop the organizational structure with trained staff for the system.

a. MOE organizational changes and staff training accomplished for institutional support.

a. Increase in technical staff in JSTTC, CD/E, and planning.

a. Necessary and sufficient institutionalization strategies are included in project design and will be effectively implemented. Project will introduce a more efficient instructional program that will lower unit costs.

b. Develop and coordinate needs analysis, teacher training, dissemination, and managerial components of system.

b. System planning and managerial components functional and operational.

b. Analyses of organizational effectiveness of different operational units.

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Outputs:

1. Increased quality and efficiency of jr. sec. system.

a. Adapted curriculum incorporating basic education and projected workforce needs.

b. Effectively organized instructional objectives, learning strategies, and achievement measures.

c. Identified, adapted, or developed instructional materials to support the revised curriculum.

d. Established strategies for field testing, formative evaluation, revision, and implementation of new instructional program.

e. Teachers trained to implement improved instructional program.

Magnitude of Outputs:

a. Revised 3-year curriculum completed for 6 subject areas.

b. Hierarchically-organized objectives, scope and sequences; recommended instructional approaches; and outcome measures developed for entire jr. sec. curriculum.

c. Effectively modularized instructional packages assembled for entire curriculum.

d. Validated instructional program in place for all jr. sec. schools.

e. All of the approximately 1450 jr. sec. teachers trained to use new instructional program: inservice programs

a. Number of subject areas revised; utilization in classroom of new materials by students and teachers.

b. Analyses of relationship between new materials and student/teacher performance. Predicted increase in correlation between instructional materials and teaching skills and measures of student learning or performance.

c. GOB, contractor, USAID, and independent monitoring and evaluation reports; program support included in GOB recurrent budget.

Assumptions for Achieving Output

a. The quality and efficiency of jr. sec. system will be increased by a fully integrated program including a more responsive curriculum, effective instructional strategies, supportive materials, and teacher training.

b. Correlations exist among learning materials and teacher performance in classroom and student achievement as measured by test results.

c. Increases in pass rates and reduced drop out rates related to qualitative changes in curricula.

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f. Developed teaching guides with instructional strategies to support revised curriculum.

g. Produced and distributed teaching guides for jr. sec. program.

h. Developed student instructional packages (learning guides and associated instructional materials) to support revised curriculum.

i. Students have mastered core knowledge and skills necessary for entry into workforce, employment-related training, or further formal education.

j. Reduced repetition and drop-out rates, and other efficiencies that lower unit cost per graduate.

2. Institutionalized capacity to develop, manage, and support the jr. sec. ed. system.

a. Improved MOE organizational structure and staff skills for managing jr. sec. education.

for 1000, and preservice programs for 450. Preservice courses in instructional systems methodology developed, taught, revised, and validated.

f. Teaching guides developed for 18 jr. sec. courses

g. Teaching guides distributed (1450 teachers).

h. Student instructional packages developed for 18 courses.

i. Increased pass rate on jr. sec. exams from current rate at community jr. sec. schools to that of government schools.

j. Through instructional improvements, reduced jr. sec. cost per graduate by 20%.

a. Clearer job definitions, improved personnel system, and data-based management decisions within MOE.

a. Analyses of job performance of MOE staff involved in management of jr. sec. education.

a. Institutionalization will be achieved by improved MOE structure and staff; training of inspectors, headmasters, and teachers; instructional materials and the outreach support by the Education Centers.

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b. Strengthened curriculum development and evaluation (CD&E) unit.

c. Trained MOE staff in management information techniques for continuous assessment and improvement of the jr. sec. system.

d. Improved inservice program to support new jr. sec. instructional program.

e. Improved preservice program to support new jr. sec. instructional program.

f. Training workshops for inspectors, education officers, and headmasters in implementation of new instructional program.

g. Effective procedures established for procuring, producing, and distributing instructional materials including teaching guides.

b. 9 CD&E staff with appropriate MA degrees; 80 p/m of short-term training.

c. 2 MOE management staff with appropriate MA degrees; 40 p/m short-term training.

d. 2 MOE inservice staff with appropriate MA degrees; teaching proficiency demonstrated by competency-based examinations; headmasters' and inspectors' reports.

e. 5 MOE preservice staff (JSTTC) with appropriate MA degrees; instructional systems methodology courses designed and in place; teaching proficiency demonstrated by competency-based exams; headmasters' and inspectors' reports of improved teaching skills.

f. Inspectors, education officers, and headmasters trained in implementation of revised jr. sec. instructional program.

g. Instructional materials and teaching guides available in all jr. sec. schools.

b. Assessment and analyses of staff performance at CD/E in curriculum revision work.

c. Studies of utilization rates of education centers and staff.

d. Comparative studies of job performance of inspectors and headmasters and their support and reinforcement of new instructional methods.

b. Adequately prepared staff are available for training.

c. Training programs are responsive to skill requirements of post-training assignments.

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- i. CD&E unit facility constructed.
- i. 6 regional Education Centers constructed for inservice teacher and headmaster training and for materials support and distribution.
- j. 5 staff houses for technical advisors constructed.

- h. Facility constructed and equipped.
- i. Construction completed; equipment and supplies in place.
- j. Construction completed.

Inputs:

1. Participant Training

- a. 36 p/y long-term training
- b. 70 Batswana (from CD/E, JSTTC, inservice, secondary education; and planning divisions) receive short-term US/3rd country training (2 mo. aver.)
 - 1000 jr. sec. teachers receive 2000 p/m in-country training (2 mo. aver.)
 - 175 MOE personnel receive 875 p/wks in-country training (5 wk. aver.)
 - 150 MOE personnel receive periodic on-the-job training.

Implementation Targets:

1. Participant training

- a. 18 MAs completed.
- b. Short-term training provided.

a. A periodic review of participants' training programs to ensure training is focused on requirements of operational units into which they will go following training.

b. Follow-up studies of participants' performance on jobs.

Assumptions for Providing Inputs:

a. Training needs well defined, suitable training programs identified and utilized, and trainees identified with appropriate skills.

b. Participants will be placed in appropriate operational units in teacher training, curriculum development, and planning.

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2. Technical Assistance (TA)

a. Long-term TA

2. Technical Assistance

a. Long-term TA: 48 p/y
Ministry of Education (15 p/y)
Syst. Mgmt. & Supervision Spec.
Inserv. Tchr. Ed. and Mgt. Spec.
CD & E Unit (14 p/y)
Sr. ISD Spec.
Prog. & Mats. Evaln. Spec.
Instruc. Media Spec.
Jr. Sec. Teacher Training
College. (19 p/y)
Staff Dev. Spec.
ISD Spec.
Tchr. Ed. Certification Spec.
Technical Education Spec.

a. Periodic review and assessment of technical assistance staff performance both short-term and long-term.

a. Well qualified technical assistance staff available.

b. Short-term TA

b. Short-term TA:
Specialists in course content, instructional systems design, assessment, cost analysis, training design, management informations systems, low-cost learning methodologies, materials design, media, formative evaluation.

b. Analyses of interplay between technical assistance and local staff to determine extent to which skills, processes, and procedures are being effectively institutionalized.

b. Continuity of technical assistance staff.

c. Independent formative and summative evaluation.

c. Independent monitoring and evaluation.

c. Overlap between technical assistance staff and returned participants sufficient to institutionalize program.

3. Capital Construction

3. Capital Construction

a. Building for CD/E Unit

a. CD/E unit occupied by middle of year 3

a. Periodic review of construction of CD/E unit, education centers, and staff houses.

a. Site selection and architectural and engineering studies begun well in advance as conditions precedent.

db x

1. New Educ. Ctrs.

b. Educ. Ctrs. completed and in use.

2. Project Housing.

c. Staff houses completed by end of year 1.

3. Commodities

4. Commodities

1. CD/E unit materials.

a. Commodities and equipment procured by end of year 2.

2. CD/E learning resources ctr.

b. Follow-up study of relationship between physical facility and its utilization by staff.

b. Architectural briefs well prepared to reflect requirements of MOE and intended uses of facilities.

3. Educ. Ctrs. materials.

a. Periodic review of procurement timetable, specifications and procedures to ensure timely procurement.

a. Commodity selection effective; procurement and shipping done on schedule.

1. Audio-visual equipment (e.g., duplicators, projectors, etc.)

b. Follow-up study of equipment utilization and maintenance.

2. Production equipment (e.g., high-speed photocopier, etc.)

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STATUTORY CHECKLIST

Botswana Junior Secondary Education Improvement
Project 633-0229

5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481; FY 1984 Continuing Resolution. Has it been determined or certified to the Congress by the President that the government of the recipient country has failed to take adequate measures or steps to prevent narcotic and psychotropic drugs or other controlled substances (as listed in the schedules in section 202 of the Comprehensive Drug Abuse and Prevention Control Act of 1971) which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to the United States government personnel or their dependents or from entering the United States unlawfully?
2. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?
3. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?
4. FAA Sec. 532(c), 620(a), 620(f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist

No such
determination
has been made.

No.

No.

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- country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver? No.
5. ISDCA of 1981 Secs. 724, 727 and 730. For specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727 and 730 of the ISDCA of 1981. Not applicable.
6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property? No.
7. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC? Yes, but AID has not considered denying assistance to Botswana for this reason.
8. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. activities in international waters? No.
- (b) If so, has any deduction required by the Fishermen's Protective Act been made? Not applicable.
9. FAA Sec. 620(q); FY 1982 Appropriation Act Sec. 517. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country? No.
- (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the appropriation bill appropriates funds? No.
10. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the Yes. Taken into consideration at the time of OYB approval.

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annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

No.

12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.)

Botswana was slightly in arrears of its UN contribution as of 30 September, 1983, but was not delinquent for purposes of the first sentence of Article 19 of the UN Charter. This was taken into consideration at the time of FY84 OYB Approval (January 1984).

13. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime?

AID has no knowledge of any such action.

No.

14. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA?

No.

15. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it

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transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.)

AID has no knowledge of any such action.

- 16. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.

Botswana was present at such meeting and has not subsequently taken steps to disassociate itself from the communique. This was taken into account at OYB approval.

- 17. ISDCA of 1981 Sec. 721. See special requirements for assistance to Haiti.

Not applicable.

- 18. FY 1984 Continuing Resolution. Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States?

No.

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

- 1. Development Assistance Country Criteria

Not a DA Country.

- 2. a. FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

Not applicable.

- 2. Economic Support Fund Country Criteria

- a. FAA Sec. 502B. Has it been determined that the country has

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engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

No.

b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interests of the U.S.?

Not applicable.

c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that (1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicted in connection with the murder of Orlando Letelier?

Not applicable.

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5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST
UP TO DATE?
HAS STANDARD ITEM
CHECKLIST BEEN
REVIEWED FOR THIS
PROJECT?

Yes.

Yes.

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;

(a) A Congressional Notification will be transmitted for this Project.

(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

(b) Yes.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial or other plans necessary to carryout the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

(a) Yes.

(b) Yes.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient county, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required.

4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as

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set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)

Not applicable.

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

Yes. See Project Paper Annex E.

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

No.

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

Project has little relevance to FAA Section 601(a). It is designed to increase the quality and efficiency of the expanded basic educational system and to increase the capacity of the MOE to develop, manage and maintain an effective and efficient junior secondary education system.

8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

The Project will fund U.S. technical assistance, university training, and some U.S. commodities.

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9. FAA Sec. 612(b), 636(h); FY 1982 Appropriation Act Sec. 507.

Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

The GOB will fund approximately 27.5% of the cost of the project including "in-kind" costs. 40% of the construction component will be financed by the GOB.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

Botswana is not an excess currency country.

11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

12. FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

Not applicable.

13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of tropical forests?

Yes.

Not applicable.

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?

Not applicab.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

Not a DA Country.

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

Not applicable.

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?

Not applicable.

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

Not applicable.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

Not applicable.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the

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recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than \$100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character.

Not applicable.

f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Not applicable.

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

Not applicable.

2. Development Assistance Project Criteria (Loans Only)

Not a DA loan.

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.

Not applicable.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

Not applicable.

c. ISDCA of 1981, Sec. 724(c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?

Not applicable.

3. Economic Support Fund Project
Criteria

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Sec. 102?

Yes.

Yes.

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?

No.

c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?

No.

d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

Not applicable.

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5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? **Yes.**
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? **Yes.**
3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? **Not applicable to Botswana.**
4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in the U.S.) **Not applicable.**
5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas? **No.**
6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo

liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?

Shipping will comply with said requirement.

7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

Yes.

Not applicable.

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

Yes.

9. FY 1982 Appropriation Act, Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

All direct AID contracts will so provide.

B. Construction

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used?

No. Construction activities to be financed 40% by the GOB will be undertaken under FAR procedures with local construction firms. There are no U.S. firms resident in the area.

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

Yes.

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3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)?

Not applicable.

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?

Not applicable.

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

Not applicable.

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

Yes.

4. Will arrangements preclude use of financing:

a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

(1) Yes.

(2) Yes.

(3) Yes.

(4) Yes.

b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?

Yes.

c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? **Yes.**

d. FAA Sec. 662. For CIA activities? **Yes.**

e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? **Yes.**

f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel? **Yes.**

g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues? **Yes.**

h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)? **Yes.**

i. FY 1982 Appropriation Act, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? **Yes.**

j. FY 1982 Appropriation Act, Sec. 511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? **No.**

k. FY 1982 Appropriation Act, Sec. 515. To be used for publicity or propoganda purposes within U.S. not authorized by Congress? **Yes.**

TELEPHONE
TELEGRAMS: FINANCE
REFERENCE FDP 71/6/46 I



REPUBLIC OF BOTSWANA

ANNEX D
MINISTRY OF FINANCE AND DEVELOPMENT PLANNING
PRIVATE BAG 008
GABORONE

12th December, 1984

Director,
USAID,
P. O. Box 90,
GABORONE

Dear Sir,

PROPOSED BOTSWANA JUNIOR SECONDARY EDUCATION
IMPROVEMENT PROJECT 633-0229

I refer to recent discussions between representatives of the Government of Botswana and USAID staff regarding the subject project. The Government of Botswana requests assistance of the United States Government to increase the quality and efficiency of the expanded basic educational system in Botswana and to increase the capacity of the Ministry of Education to develop, manage and support an effective and efficient junior secondary education system. The estimated seven year project would fund long and short-term technical assistance, participant and local training, capital construction and commodity support.

2. The requested AID contribution is US \$ 16,318,000. The contribution of the Government of Botswana would be not less than the equivalent of US \$6,193,000, including "in-kind costs".

3. We trust that this request will meet with USAID's approval.

Yours Sincerely,

A handwritten signature in dark ink, appearing to read 'O. K. Matambo'.

O. K. Matambo
for/PERMANENT SECRETARY

cc. PS, Ministry of Education

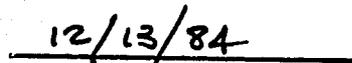
FAA, 611 (e) Certification

As the Principal Officer for the Agency for International Development in Botswana, having taken into account, among other things, the maintenance and utilization of projects in Botswana previously financed or assisted by the United States, the performance of the Ministry of Education which has responsibility for implementing education activities, and the previous assistance from other donors specifically directed to education projects, I do hereby certify that in my judgement the Government of Botswana has both the financial capability and the human resource capability to effectively maintain and utilize the capital assistance to be carried out under the Junior Secondary Education Improvement Project.



Paul Guedet

Director, USAID/Botswana



Date

ANNEX F

PROJECT ANALYSES

TECHNICAL ANALYSIS

This annex examines the technical feasibility of the Junior Secondary Education Improvement Project (JSEIP) and demonstrates why the proposed means and methods are the most appropriate for achieving the project objectives with the least expenditure of funds. The first part of the annex describes the rationale for selection of the project goal and purposes. This is followed by a description of the feasibility of the proposed project design. The annex concludes with a discussion of the cost aspects of the design with regard to the limited resources available for education and human resources development in Botswana.

1. Project Basis

This project is derived from a recent national assessment of Botswana's needs in the education and human resources sector. This assessment was prepared under the auspices of an interministerial Steering Committee that was coordinated by the Ministry of Finance and Development Planning and chaired by the Ministry of Education. The report was prepared by a team of AID-sponsored specialists working closely with professional staff of several concerned ministries. (See Botswana Education and Human Resources Sector Assessment, June, 1984).

The purpose of the sector assessment was to accomplish the following:

- Strengthen the base for systematic planning of Botswana's human resource development;
- Identify priority areas of education and training for the investment of internal and external resources;
- Focus attention on the constraints affecting such investments; and
- Provide a sounder basis for monitoring system performance.

As explained fully in the following sections of this annex, the goal and purposes of the JSEIP are responsive to the national development objectives, current and proposed plans, and fiscal and institutional constraints identified in the sector assessment. Rational linkages are specified for the goal selection as well as design aspects related to labor needs, cost considerations, and administrative capabilities for project continuation.

1.1 Goal and Purpose

The goal of the JSEIP is to make Botswana's education and human resources system more relevant to present and future needs for trained manpower. The proposed project

will contribute to this goal by making the planned expansion of the junior secondary cycle more efficient and more effective. To ensure the continuation of these improvements, the project will help to develop a permanent capability in the Ministry of Education to plan, manage, and support the expanded system.

The planned expansion of the junior secondary cycle is explained in detail within other sections of this Project Paper and in the Botswana Education and Human Resources Sector Assessment referred to above. The major objective of this expansion is to add two years to the present basic education cycle. This expansion has already begun. In 1984 the percentage of students who completed the seventh year of the present 7-3-2 cycle and entered junior secondary school increased from 25% (7,255) to 40% (10,157). This expansion will continue until universal junior secondary cycle education is reached in the 1990s with an evolved 7-2-3 primary and secondary structure beginning in 1986, followed by a 6-3-3 system after 1991. This expansion of basic education from 7 to 9 years is reasonable, commendable, and feasible given that Botswana now has 85% of its primary school age children enrolled in primary school.

1.2 Rationale for Project Objectives

The goal and purposes of the JSEIP, and their related activities, are responsive to Botswana's most pressing needs in the education and human resources sector. The expansion of the junior secondary cycle to accommodate near universal access within the decade will dominate education system activities over the next five-to-ten years. This proposed assistance is not only fully coordinated with Botswana's plans and needs, but also is consistent with USAID/Botswana's Strategy Statement and AID's policy for education and human resources as outlined in AID's two major recent documents: Basic Education and Technical Training (1982) and Africa Bureau Basic Education and Technical Training Assistance Strategy Paper (1984).

A major theme of the project design emphasizes making the most efficient use of the limited funds available for the proposed expansion. Since there will be severe limitations on the increased funds in the education sector, an emphasis on efficiency will allow opportunities for basic education to be available to the largest number of children possible.

Other aspects of the project focus on making the junior secondary cycle expansion more responsive to labor demands, of particular importance for national economic and social development. There was a shortage of almost 10,000 workers in 1981, among the group of those who had completed the junior secondary cycle and with employment-related training. This shortage will be reduced by the expansion program. For this increase in junior secondary completers to make an effective contribution to national development, however, there should be a close coordination with related planning for public and private post-junior secondary training opportunities. This coordination is not addressed by the JSEIP and presents a

fertile opportunity for activities of other bilateral and multilateral donors to be closely and effectively coordinated with this major endeavor of USAID/Botswana. Some initial research and development activities related to this coordination are being planned with USAID/Botswana under the centrally funded Improving the Efficiency of Educational Systems II (IEES II) Project.

The JSEIP will redress some of the cost and instructional quality inequities within the present junior secondary system. Of the approximately 45 junior secondary schools in 1983, roughly one-half received major financial support from the Botswana government, and the remaining schools received their major support from the communities in which they were located. This dual system has been characterized by significant inequities. Students at the community supported schools paid about 62% of the costs for operating the schools, for example, compared to between 10% and 14% paid at the government and government-assisted schools.

Despite this disparity of cost allocation, the quality of instruction at the community supported schools was considerably lower. Three times as many years of instruction have been required to produce a single graduate at a community supported school, for example, than at a government supported school. Although this difference can partly be attributed to differences in selection and teacher qualifications, as well as other factors, it is closely related to the fact that more funds are spent on the government assisted schools. The annual cost per student at the community supported schools in 1983 was about P 349, as compared to between P 833 and P 460 for the government and government-assisted schools, respectively.

The JSEIP will help the MOE to reduce the inequalities between these two groups of schools. As explained more fully in a later section of this annex, this will be done by the development and implementation of more effective instructional programs with related support materials for students and teachers. Instructional quality also will be improved by better management of the educational system, including better trained headmasters and inspectors, as described immediately below.

A critical element of the project rationale is the development within the Ministry of Education of a continuing capability to plan, support, and manage junior secondary education within the context of changing needs for national and individual development. This project element is of particular importance because there is currently a shortage of trained citizens of Botswana in professional and technical positions within the Ministry of Education. There are, consequently, not enough persons available to move from these professional and technical positions into senior administrative positions within the Ministry. Beyond the central staff of the Ministry of Education, the headmasters and school inspectors more closely responsible for classroom activities also lack sufficient training to operate effectively.

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The shortage of trained manpower within the Ministry of Education is compounded by insufficient availability of effective staff development programs. The JSEIP addresses this staff development need by providing training for Ministry of Education professional and technical staff, as well as headmasters, inspectors, and teachers.

Training provided by the JSEIP will also permit a more effective allocation of managerial responsibilities within the Ministry of Education. This training will be accompanied by assisting the MOE to re-examine the responsibilities of its units with respect to the large and complex set of tasks required for the expansion of the junior secondary cycle.

2. Feasibility of Project Design

This section of the Technical Analysis describes the feasibility of the proposed design in terms of its technical strengths, as well as its practicality and suitability for the current situation in Botswana.

2.1 Technical Strengths

The technical strengths of the project design are three-fold, involving a fully-integrated approach to supporting the junior secondary cycle expansion, a design team representing state-of-the-art expertise in educational planning and instructional methodology, and a monitoring and evaluation plan for formative evaluation and continuous quality control.

The design of the JSEIP has three major components, which will be closely coordinated and fully integrated. These components focus on the three critical areas of support for an effective and efficient expansion of the junior secondary cycle: curriculum and instructional materials development; inservice and preservice teacher training; and planning, managerial, and supervisory training. The instructional technologies upon which the curriculum and materials development will be based will include instructional systems design as well as low-cost approaches which have emerged from USAID-sponsored projects in the Philippines, Indonesia, Thailand, and Liberia. The teacher training will include a heavy emphasis on inservice training for short-term improvement in classroom instruction, and will also focus on assistance with the staff training and curriculum development at the new Junior Secondary Teacher Training College to open at Molepolole in January of 1985. The staff development program will improve the overall capacity of the Ministry of Education to plan, manage, and support its expanded system of basic education.

The design team for the Project Identification Document and the Project Paper has included specialists in educational

planning and instructional methodologies directly relevant to the structure of the JSEIP. This has ensured that the proposed design for the JSEIP represents an application of state-of-the-art technology that is suitable and appropriate for proposed applications in Botswana.

The third and final aspect of the JSEIP's technical strengths consists of the carefully prepared plan for monitoring and evaluation. This plan, which is fully amplified elsewhere in this Project Paper, establishes an independent scheme for formative evaluation and quality control. The most significant feature of the plan is that it provides for early feedback to USAID/Botswana, the GOB, and the contractor so that any required corrective actions can be taken before any significant expenditure of funds takes place. The plan also identifies appropriate criteria for project accomplishments and presents meaningful milestones for project evaluation.

2.2 Practicality and Suitability

The design of the JSEIP is practical and suitable for Botswana. It is based on a proven methodology, comprising approaches to educational systems development which have been established as effective through numerous applications in developed and developing countries. There are no experimental aspects within the proposed design that might raise questions with regard to anticipated success.

The objectives of the JSEIP support identified needs and current plans of the Ministry of Education and present no obstacles with regard to acceptance within Botswana. All of the preliminary planning and design has been done in close collaboration with the Ministry of Finance and Development Planning and with professional and technical staff of the Ministry of Education and other ministries with interests related to the expansion of the junior secondary cycle.

The project activity related to the preparation of instructional materials has been designed to keep to a minimum the development of new instructional materials. Once the present curriculum revision has been completed, existing materials will be incorporated into the instructional packages wherever possible. Where appropriate existing materials are not available, adaptations of existing materials will be used. New materials will be developed only as a last resort, thus reducing the total expenditure of funds and professional time within the project.

2.3 Other Considerations

The objectives of the JSEIP address the single most important education activity that will take place in Botswana over the next five-to-ten years, as has been explained in an

earlier section of this annex. There are, however, several related activities that should be examined with respect to the expansion of the junior secondary cycle. The most significant of these activities are related to obtaining the most possible benefit from the increased number of junior secondary completers that will become available over the next several years.

The first consideration relates to those junior secondary completers expected to enter directly into the workforce through employment. In order for some number of these completers to obtain jobs, it will be necessary that the revised junior secondary curriculum include sufficient basic literacy and numeracy skills for entry level into jobs identified by labor market projections.

The second consideration concerns the greater number of junior secondary completers who will be better prepared for employment related training programs in either the private or public sector. As mentioned in section 1.2 of this annex, there should be a closely related expansion of post-junior secondary training opportunities in order for the results of the JSEIP to make the most contribution to national development. The objectives of the JSEIP, however, comprise an important first step in improving the skills and knowledge of the workforce required for development in all sectors.

The third and final feasibility consideration is the relationship between the JSEIP and senior secondary education. Although the improved junior secondary instructional quality that will be brought about with the help of the JSEIP will satisfy the present demand for better prepared students entering the senior secondary cycle, plans for a related expansion of the senior secondary cycle are still in their early stages. Preliminary plans for senior secondary expansion include an intake increase from 2250 students in 1984 to 6500 students in 1991. Social pressure for expanded senior secondary access will begin to increase substantially in 1986 and will continue to rise over the next decade. Given the limited funds anticipated to be available for expansion at the senior secondary level, it will be necessary to address the identification and development of alternatives for those junior secondary completers who may not be able to enter the senior secondary cycle. Possible alternatives might include expanded public and private opportunities for post-junior secondary training, as mentioned above, with a particular emphasis on private sector involvement in job specific and on-the-job-training.

3. Cost Aspects

This part of the technical analysis provides information about the least-cost aspects of the JSEIP that establish the proposed design as a means to achieve project objectives with a minimum expenditure of funds. The design comprises a fully integrated approach to project objectives that is compatible with current and projected plans within Botswana's education sector.

3.1 Fully Integrated Approach

The project design recognizes and accommodates all education and human resources sector constraints as cited above in section 2.1. The major thrust of the design focuses on making the most efficient possible use of present and projected limited resources within the sector. The least-cost aspect of the project design is based on two characteristics. First, the target area for the assistance is based on the extensive analyses and recommendations of the recent Botswana Education and Human Resources Sector Assessment. The assessment identified the target area for the JSEIP as one of high priority when compared with other possible interventions throughout the education sector. Second, the project design makes effective and efficient use of USAID/Botswana funds by helping to improve the entire education sub-sector responsible for the expansion of the junior secondary cycle. By focusing on curriculum and instructional materials development, inservice and preservice teacher training, and administrative capability, the project benefits from the interactions and mutual support which derive from the coordination among these components. This coordinated approach brings about a greater benefit to the educational system than three independent and loosely coordinated projects within the education sector.

Benefits of the proposed approach can be more clearly specified in terms of five target areas for improvements in the education sector: external efficiency, internal efficiency, equity, costs and financing, and administration and supervision. Aspects of the JSEIP related to these areas are described below.

External Efficiency. An education and human resources system is externally efficient to the extent that its programs contribute to sustained economic and social development by teaching knowledge and skills related to employment opportunities. The revised curriculum of the JSEIP will incorporate a common core of knowledge and skills that will emphasize achievement in English, mathematics, and science. This curriculum revision will improve the external efficiency or relevance of the junior secondary cycle by better preparing graduates for three important follow-on activities. These activities are direct entry into the workforce, further employment-related training in the public or private sector, or continued formal education at the senior secondary cycle.

Internal Efficiency. An education system is internally efficient to the extent that it makes the best use of its available resources. There are three anticipated accomplishments of the JSEIP that will improve the internal efficiency of the junior secondary cycle.

First, the teacher training activities will improve the teaching skills of the teachers presently within the system. This improvement in their teaching skills will increase their effectiveness and efficiency without requiring any increase in their numbers beyond normal expansion projections. The amount of knowledge and skills that can be delivered by each teacher,

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in other words, will be increased by the inservice and preservice teacher training.

The second characteristic of the project that improves internal efficiency is the improved learning that will occur as a result of the application of the instructional systems design approach to the preparation of teaching guides and student instructional packages. This will increase the learning that takes place without a significant expenditure beyond the development funds for the new curriculum and support materials. The improved instructional effectiveness, for example, will not require new facilities, elaborate equipment, or increases in teaching and administrative staff. The only increases in classrooms and teachers will be those associated with the system expansion; the JSEIP will thus increase the unit output of learning for all existing and proposed facilities and teachers.

The third aspect related to improving internal efficiency is the reduction in repeaters and dropouts that will come about because of the more effective instructional system that will be prepared. The improved student instructional packages, teaching guides, and teacher training programs will generally increase the amount of learning in the classrooms. Marginal students will benefit from better prepared teachers and more effective instructional materials, with a resulting decrease in the numbers of repeaters and dropouts for this group.

Equity. The equity of an educational system refers to the extent to which access is available to all members of the population, regardless of factors beyond individual control. Such factors include gender, socio-economic status, and rural-urban location. Botswana has a dual system of schools at the junior secondary cycle, as explained above in section 1.2. The quality of instruction is much lower in those schools that receive the majority of their support from the rural communities in which they are located than in those schools that receive most of their support from the government. The design of the JSEIP will help to reduce the inequities between these two groups of junior secondary schools by focusing on improved instructional materials and teacher training that is system-wide. These disparities also will be reduced by the emphasis within the project on better systems management that will include training for headmasters and inspectors.

Issues of equity with regard to the student beneficiaries will depend to a large degree on whether tuition costs are adjusted. At present, tuition for secondary schooling is beyond the means of many households. There is, however, some indication that the GOB may address this issue in the National Development Plan VI, with the intent of reducing costs.

Another area of equity concerns female students who become pregnant and are forced to leave school for one year.

If and when they return, they must attend a school in a different location. This policy discriminates against females, and negatively affects the equity factor.

Costs and Financing. This aspect of an educational system is related to aggregate expenditures for education, and includes analyses of unit costs for instructional years as well as costs per graduate. The design of the JSEIP will improve the costs and financing of junior secondary education by reducing unit costs per instructional year and unit costs per graduate. This cost saving will be brought about by a more effective instructional system with fewer repetitions and dropouts.

Administration and Supervision. Characteristics of an educational system related to administration and supervision concern the capacity to manage the system effectively. This capacity particularly involves supervisory and analytic capabilities, including the ability to assess needs and to design, implement, and evaluate programs of education and training. The design of the JSEIP places special emphasis on improving the managerial capacity of the Ministry of Education. The staff development program of the project will give the Ministry of Education a continuing capability to plan, support, and manage the expanded system of junior secondary education. As explained above in section 1.2, the staff training will be accompanied by an assessment of the present structure and responsibilities of the Ministry of Education with regard to the changed and complex managerial requirements of the expanded junior secondary cycle. An important component of the staff development within the JSEIP is the training to be provided to headmasters and inspectors, who have significant responsibilities related to the managerial outreach of the Ministry of Education.

3.2 System Compatibility.

A major cost consideration in project design is associated with the compatibility of the proposed interventions with existing infrastructure. Project interventions requiring major changes in educational infrastructure, for example, can be costly in terms of time-associated expenditures required for acceptance of institutional changes.

The design of the JSEIP is favorable with respect to a least-cost analysis because it is fully compatible with the existing and projected system. There are no new components to be justified and added to the existing infrastructure. The project, instead, is built upon improving the efficiency and effectiveness of the junior secondary elements that are already in place.

The project design also takes into account the socio-cultural context of Botswana by encouraging culturally appropriate learning environments and curriculum which is sensitive to the history and culture of Botswana. The assessment of the distribution of the benefits and burdens of the project indicate that the social consequences will be strongly positive.

There will be no difficulties or delays related to lack of receptivity for the JSEIP. Professional and technical staff of the Ministry of Education, and several other concerned ministries, have been involved with the preparation of this project over the past year. This collegial association with USAID/Botswana-sponsored planners and analysts began in October of 1983 with a six-week period devoted to preparation of the sector assessment that has served as the basis for this project. Botswana professional and technical staff also participated in the planning and design of the Project Identification Document as well as this Project Paper.

In conclusion, the JSEIP constitutes a technically strong, feasible, practical, low-risk, and high-impact approach to improving the quality and relevance of basic education in Botswana. The technical analysis supports the JSEIP as fully responsive to Botswana's national development objectives, current and proposed plans for expansion of basic education to include the junior secondary cycle, and the financial and institutional constraints that have been identified in the Botswana Education and Human Resources Sector Assessment. The design of the project is an appropriate least-cost approach to assisting with Botswana's priority educational activity for the remainder of the decade - expanding the junior secondary cycle to accommodate near universal access by 1990.

The design is technically strong and involves a fully integrated and coordinated approach to improving the education system at the junior secondary level. It is practical, low-risk, and suitable for implementation within the existing educational infrastructure. Professional and technical educators and related specialists in Botswana have participated in project planning and design, ensuring local support and endorsement for the approaches and methods as well as compatibility with the present system.

COST ESTIMATES AND NOTESI. TECHNICAL ASSISTANCE

It is assumed that a contractual arrangement will be made with the IEES consortium and it will provide technical assistance, placement of trainees and procurement of certain commodities. The Botswana currency (Pula) is converted at a rate of Pl.00 per U.S. \$0.80.

A. Long-Term Staff

Salaries: An average of \$40,000 per technical assistance person per year is used, assuming nine persons in year one, ten in years two and three, nine in year four, seven in year five and three in year six. Three new positions are created and staffed by the GOB. Annual salaries of \$7,000 each are used to calculate additional GOB expenses incurred because of the project.

Post Differential: Ten percent is the present post differential for Botswana, and the factor is applied to all long-term technical assistance advisors.

Fringe Benefits: Social security, unemployment, disability, pension, etc. are paid as fringe benefits, estimated at 25% of the base salary.

Insurance and Medical: Coverage per family is calculated at \$3,000 per annum. This figure includes DBA and general medical coverage.

School Fees: Two school age children are estimated per long-term advisor. Averaging costs, an annual figure of \$3,500 per family is derived.

Housing Accommodations: The cost or value of house rent and land is paid or provided by the GOB in Molepolole and the land in Gaborone for the five staff houses.

Moving and Storage: A shipping allowance of \$4,000 per family is estimated at the time of arrival. While the family is in Botswana, a storage allowance of \$1,000 per year is estimated (return shipping is done through USAID/Botswana's contractor support office).

Travel and Accommodation: Each four member family will cost an estimated \$6,000 in transport. Accommodations for two weeks for each family are included. This is upon arrival only.

B. Administrative Support for Contractor

Local Staff: One locally hired administrative assistant and one secretary are provided under the project. Salaries and emoluments are projected at \$10,000 and \$7,000 per annum respectively.

Communications: Telephone, cable and mail are estimated at \$6,000 per year.

Local Travel: Per diem is paid to long-term advisors working away from their base. A monthly total of 60 working days for all TA personnel is used, with a per diem rate of \$62. Also a travel allowance of some 4,000 miles at \$0.25 per mile is included.

C. Short-Term Technical Assistance

Salaries: It is assumed that various person months per year of short-term consultants will be used. Calculations total 24 pm in year one, 36 pm in year two, 40 pm in year three, 26 pm in year four and 24 pm in year five. The cost is estimated at \$4,500 per month; based on an average 22 workday/month @ \$200/day.

Travel: It is assumed that one trip per two months of short-term technical assistance is appropriate and that round trip tickets will cost \$3,000 each. There will be 12 round trips in year one, 18 in year two, 20 in year three, 13 in year four, and twelve in year five. Local travel costing \$500 per TDY is also included.

Per Diem: A per diem of \$62 is applied per person day.

D. Home Office Operations

Staffing for the home office is estimated at one half of a full time professional (\$20,000), secretary (\$12,000), a portion of a bookkeeper's time (\$4,000), research assistance (\$14,000), and also various supplies and miscellaneous expenses of \$6,000 are calculated as being required. This totals an annual estimate of \$56,000.

E. Overhead

An estimated overhead rate of 20% is used for the contractor's direct costs (not including equipment purchase nor trainee placement costs). Certain costs, borne and managed directly by USAID/Botswana, are not included. The percentage rate of 20% is applied to all costs shown in A-D.

F. AID Contractor Support

Contractor support of a general nature is estimated at \$700 per month per family on an average. This includes guard services, medical trips, USAID/Botswana's Field Support Office, shipping of household effects at the end of contract and other miscellaneous items. Further support includes AID purchase of tickets for R&R and return to the U.S. for home leave and termination of services. R&R is estimated at \$6,000 per family. Return tickets are estimated at \$6,000 per family.

Therefore, after initial arrivals, \$6,000 per year per family is used for travel.

G. Project Support Services

In years two and five an external evaluation will be conducted, costing \$50,000 each. USAID contracting of local engineering supervision, costing \$8,000, \$8,000 and \$9,000 in years one, two and three, respectively, will be paid. A private audit firm, if deemed necessary, will be hired between years two and five, costing \$15,000.

II. TRAINING

A. Long-Term Overseas: Tuition, housing, and allowances are estimated at \$20,400 per participant per year. It is expected that the training will take two years per participant, with six starting in year one, five in years two and three, and two in year four (year one, 6 in training; year two, 11 in training; year three, 10 in training; year four, 7 in training; and year five, 2 in training).

Travel and Allowances: Travel for students and spouses is estimated to cost \$2,000 per person in the first and again in the second year of travel. In year one the cost is therefore \$24,000, year two \$44,000, year three \$40,000, year four \$28,000, and year five \$8,000. This is paid by the GOB.

Salaries: Salaries for participants, during training, will be paid by the GOB. This cost is estimated at an average of \$6,000 per annum while abroad.

B. Short-Term Overseas: Tuition, housing, and allowances are estimated as costing \$3,100 per month per participant. Calculations estimate a total of 30 pm in year one, 40 pm in years two and three, 20 pm in year four, and 10 pm in year five.

Travel and Allowances: An estimate of a two month study period per participant is used, with a round-trip airfare of \$3,000. This is paid by the GOB.

Salaries: Participant salaries, paid by the GOB, are estimated at \$500 per month each.

C. Inservice Courses: In support of inservice courses for junior secondary teachers, the project will fund transportation costs, subsistence allowances and necessary supplies. These courses will be conducted by teacher college staff, technical assistance advisors, and short-term consultants. It is expected that all active teachers will participate in seminars. These seminars will be conducted at the education centers and/or at the Junior Secondary Teacher Training Center, will last five days, and are estimated to cost \$20 per day per person (travel and subsistence). In year one, 950 teachers are expected to participate, increasing 100 per year, paid for by the project. Teachers without certificates (estimated at 250 out of a total of 950 teachers) are expected to participate in inservice upgrading courses for

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one month per year. Costs for these participants are estimated at \$20 per day for 20 days per year. This is paid by the GOB.

D. Special Seminars: In-country seminars are contemplated for all CD/E staff, as well as MOE management and teacher trainer personnel. These may be done outside of Gaborone and/or away from the office. It is estimated that professional staff will participate in special seminars for about one week per year. It is estimated that some 150 person weeks at \$100 per week will be required.

III. COMMODITIES

A. Long-Term Staff Furniture: An estimated cost of \$6,000 per family is estimated (for 10 families). A 10% maintenance/replacement expense is included after the first year. The GOB will provide furniture and appliances valuing an estimated \$5,000 per household.

B. Office Equipment and Furniture: The GOB will supply basic office furniture for technical assistance personnel (valued at \$500 each), plus an allocation from the project for \$75,000 is included. This is for the establishment of an administrative office, (with photocopier, mini-computer, typewriter, calculator and basic furniture) and special equipment required by the technical assistance personnel. Office equipment and furniture for the new CD/E building is estimated at roughly \$430,000. For each of the education centers (six in total), the estimate is for \$60,000. Two are furnished in year 2, two in year 3, and two in year 4.

Illustrative Commodities List: An estimate for the new CD/E building equipment and furnishings is for \$430,000.

desks and chairs (70 @ \$500 each)	\$35,000
filing cabinets (100 @ \$150 each)	15,000
conference room furnishings	5,000
book cases, tables	15,000
visitors' chairs and furniture	15,000
lamps, wastebaskets, trays	5,000
typewriters and calculators (20 each @ \$1,000 and \$100)	22,000
standard photocopiers (5 @ \$3,000 each)	15,000
highspeed photocopier and collator	12,000
microcomputers (2), hard disc, software)	38,000
binding and sorting equipment	21,000

miscellaneous audio-visual equipment	26,000
ERIC microfiche file	16,000
core equipment for instructional materials prototypes (drafting equip., lettering, silkscreen, printer, stock)	<u>190,000</u>
ESTIMATED TOTAL	\$430,000

The estimate per new education center for equipment and furnishings is \$60,000 each. This is based on the following items:

Kitchen equipment (stove, oven, washer, cooking utensils)	\$18,000
dormitory beds and furniture	20,000
classroom furniture	8,000
staff facilities and director's furniture	8,000
office equipment and furniture	3,000
field extension equipment (generator, projector, recorder, etc.)	<u>3,000</u>
ESTIMATED TOTAL	\$ 60,000

These costs are divided on a 60% AID - 40% GOB basis.

C. Vehicles: One office vehicle and three vehicles for technical assistance personnel for field trip activities are provided. The field trip vehicles, probably used mainly for inservice activities, would be based at the main MOE office. The estimated cost is \$17,000 each. For the new centers, one 4 wheel-drive vehicle each is purchased. One vehicle is purchased for the CD/E unit in year one. Replacements for all 11 vehicles are budgeted for year five. Their cost is also estimated at \$17,000 each.

D. Instructional Materials and Books: To help establish resource materials for the CD/E unit, the MOE, and the JSTTC, a fund for the purchase of books, periodicals and other instructional materials is included. \$20,000 is earmarked for each locale for this purpose. In years two - six, a fund of \$4,000 per year is available for appropriate resource information. Curriculum material, such as teacher guides, workbooks and audio-visual aids are also provided, starting in the third year. The cost per teacher, starting with 1250 teachers in year 3 and increasing by 150 per year, is estimated at \$30 each per year. During the LOP, these costs are borne by the project.

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IV. CONSTRUCTION

A. CD/E Building: The office building for the Department of Curriculum Development and Evaluation is estimated to cost \$1,075,000, built in years 1 - 3 of the project. The AID portion of the cost is \$645,000 (60% of the total) and the GOB portion is \$430,000 (40% of the total). For further details, see the Engineering Analysis, Annex F.5.

B. Education Centers: Over the life of the project, six new centers will be constructed. It is planned that new construction will be done in the first, second, and third years of the project. The construction costs of new centers will vary because of size and location. Costs are estimated as follows:

Maun (2/3 built in year 1, 1/3 in year 2)	\$ 522,000
Bobonong (Selebi-Phikwe) (2/3 built in year 1, 1/3 built in year 2)	390,000
Gomare (built in year 2)	429,000
Masunge (built in year 2)	312,000
Mahalapye (built in year 3)	312,000
Ghanzi (built in year 3)	<u>403,000</u>
TOTAL	\$2,368,000

Contingency and inflation are added later. For further details see the Engineering Analysis. Again, the GOB will assume 40% of construction costs and AID will fund 60%.

C. Staff Houses: For long-term technical assistance personnel at the CD/E Department, housing will be constructed. Type "H 123" houses will be built in year one at an estimated cost of \$48,000 per house, with a total of five houses built. Costs will be divided on a 60% AID - 40% GOB basis.

D. Professional Fees: Fees for architects, quantity surveyors, and supervision are paid by the GOB, at a rate of 10% of overall construction costs (\$368,000).

V. OPERATIONS

Shown are estimated costs of repairing and maintaining the new buildings, vehicles and equipment, and new staff houses. These are all shown as GOB expenses. The estimates are at a rate of 5% of construction/purchase costs per year, starting in the year after purchase/completion of construction. The CD/E building is estimated to cost \$1,075,000. Using 5% operations expense in the maintaining

of the building, maintenance will equal \$54,000 (starting in year three). New education centers, costing a total of \$2,368,000, will require an upkeep expense of \$118,000 each year. For all vehicles (seven) and office equipment, a GOB annual upkeep expense of \$25,000 is shown. Staff houses, costing \$240,000, will be maintained at an estimated annual cost of \$12,000.

VI. INFLATION

An inflation factor is placed on all cost estimates. Using the first year as a base year, a compounded 10% inflation factor is used.

VII. CONTINGENCY

A contingency of 10% is shown on all cost items, allowing for uncertainties and unexpected events that may occur during the life of the project.

VIII. OVERALL ASSESSMENT OF THE FINANCIAL PROCEDURES USED BY GOB

The GOB's internal control of expenditures is governed by a financial warrant (FW) system and expenditures cannot take place without a warrant. A FW is issued by the Ministry of Finance and Development Planning (MFDP), and all issuances are contingent upon the availability of funding. In case of an Agreement with a donor agency, the Agreement must be signed and conditions precedent fulfilled before a FW will be issued. Delegated responsibility for the issue of FWs rests with the Budget Administration Unit/Development (BAU/D) under control of the Budget Administrator, who signs all FWs on behalf of the Permanent Secretary of the MFDP. It is through BAU/D that all requests to donors for disbursements, reimbursements or advances are made; in fact, BAU/D invariably initiates these. Between BAU/D and the Planning Officers involved, it is generally possible to ensure compliance with the utilization conditions of any donor financing.

The system provides adequate and appropriate controls. It lays down procedures which are calculated to protect against misuse of Public Funds. It is applied to all donor funds, whether grant or loan. GOB cheques require two signatures for validity. All FWs are made out to the Accounting Officer of a Ministry and are filed in the Ministerial Accounting Unit. This is the authority to proceed spending up to the amount shown on the FW for the respective project. The warrant is itemized in accordance with the approved categories as identified in the Agreement. Actual expenditure, however, takes place only on the issue of a sub-warrant by the Accounting Officer to either the Head of a Department under whose control the project falls, to a specific implementation officer designated by him, or to a GOB agency. Whoever receives the sub-warrant is authorized to incur expenditures up to the amount and for the purposes

stated. GOB has established an enviable and publicized record of prosecuting even the smallest misuse of funds and of GOB property.

Several factors combine to make this project relatively impervious to fraud, waste, abuse, and error. Most important among these are the high level of honesty and freedom from corruption which exist in Botswana society in general and in its government institutions in particular. As cited above, the government employs effective financial procedures and review mechanisms for the letting of contracts and the payment of all vouchers. In addition, it has been USAID/Botswana's policy to keep advance payments to GOB to an absolute minimum and to keep direct AID control over the disbursement of AID funds. This allows for a thorough review of supporting documentation before any U.S. Government funds are paid. USAID/Botswana has generally relied heavily on the FAR mechanism for AID financed construction. Even though some progress payments may be made under the FAR construction element of this project, the cost sharing ratio is 60 percent AID and 40 percent GOB. The only way AID could be vulnerable is for the buildings not to be completed in an acceptable way. Given the relative sophistication of the Botswana construction industry, this appears to be a negligible risk. At the present there are no specific plans for audits of this activity by either the GOB, AID, or public accountants. The project has, however, budgeted \$15,000 for a systems/internal control review of project operations to be performed by one of the public accounting firms under an IQC. If deemed appropriate, it is anticipated that this review will be conducted between years two and five of the project.

JSEIP COST ESTIMATES AND PROJECTED ANNUAL EXPENDITURES
(\$000)

	Year 1			Year 2			Year 3			Year 4			Year 5			Year 6			Years 1-6		
	AID	GOB	TOTAL	AID	GOB	TOTAL															
Tech. Assistance																					
Long-Term Staff Salaries	360	21	381	400	21	421	400	21	421	360	21	381	280	21	301	120	21	141	1920	126	2046
-Differential	36	0	36	40	0	40	40	0	40	36	0	36	28		28	12	0	12	192	0	192
-Fringe Benefits	90	0	90	100	0	100	100	0	100	90	0	90	70	0	70	30	0	30	480	0	480
-Insurance & Medical	27	0	27	30	0	30	30	0	30	27	0	27	21	0	21	9	0	9	144	0	144
-School Fees	32	0	32	35	0	35	35	0	35	32	0	32	25	0	25	12	0	12	171	0	171
-House Rent and Lands	0	53	53	0	59	59	0	59	59	0	55	55	0	46	46	0	22	22	0	294	294
-Moving and Storage	45	0	45	14	0	14	46	0	46	14	0	14	31	0	31	3	0	3	153	0	153
-Travel & Accomodation	63	0	63	7	0	7	63	0	63	7	0	7	42	0	42	0	0	0	182	0	182
Admin. Support Staff	17	0	17	17	0	17	17	0	17	17	0	17	17	0	17	17	0	17	102	0	102
-Communications	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	36	0	36
-Local Travel	57	0	57	57	0	57	57	0	57	57	0	57	57	0	57	18	0	18	303	0	303
Short-Term Consultants	108	0	108	162	0	162	180	0	180	117	0	117	108	0	108	0	0	0	675	0	675
-Travel	42	0	42	63	0	63	70	0	70	46	0	46	42	0	42	0	0	0	263	0	263
-Per Diem	45	0	45	67	0	67	74	0	74	48	0	48	45	0	45	0	0	0	279	0	279
Home Office Operations	56	0	56	56	0	56	56	0	56	56	0	56	56	0	56	28	0	28	308	0	308
Sub-Total	984	74	1058	1054	80	1134	1174	80	1254	913	76	989	828	67	895	255	43	298	5208	420	5628
Overhead (20%)	196	0	196	210	0	210	234	0	234	181	0	181	164	0	164	50	0	50	1035	0	1035
AID Contractor Support	130	0	130	144	0	144	144	0	144	130	0	130	101	0	101	43	0	43	692	0	692
Proj. Support Services	8	0	8	58	0	58	9	0	9	0	0	0	65	0	65	0	0	0	140	0	140
T.A. Total	1318	74	1392	1466	80	1546	1561	80	1641	1224	76	1300	1158	67	1225	348	43	391	7075	420	7495
Training																					
A. L.T. Overseas	122	0	122	224	0	224	204	0	204	143	0	143	41	0	41	0	0	0	734	0	734
-Travel & Allowances	0	24	24	0	44	44	0	40	40	0	28	28	0	8	8	0	0	0	0	144	144
-Salaries	0	36	36	0	66	66	0	60	60	0	42	42	0	12	12	0	0	0	0	216	216
B. S.T. Overseas	93	0	93	124	0	124	124	0	124	62	0	62	31	0	31	0	0	0	434	0	434
-Travel & Allowances	0	45	45	0	60	60	0	60	60	0	30	30	0	15	15	0	0	0	0	210	210
-Salaries	0	15	15	0	20	20	0	20	20	0	10	10	0	5	5	0	0	0	0	70	70
C. Inservice Courses	95	100	195	105	100	205	115	100	215	125	100	225	135	100	235	0	100	100	575	600	1175
D. Special Seminars	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	0	0	0	75	0	75
Training Total	325	220	545	468	290	758	458	280	738	345	210	555	222	140	362	0	100	100	1818	1240	3058

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, 000's, for LOP)

Commodities	Year 1			Year 2			Year 3			Year 4			Year 5			Year 6			Years 1-6		
	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL	AID	GOB	TOTAL
4. L.T. Staff Furniture	60	50	110	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	90	50	140
3. Office Equipment and Furniture	75	5	80	330	220	550	72	48	120	72	48	120	0	0	0	0	0	0	549	321	870
2. Vehicles	119	0	119	34	0	34	34	0	34	0	0	0	187	0	187	0	0	0	374	0	374
1. Instructional Mats. & Books	60	0	60	4	0	4	42	0	42	46	0	46	51	0	51	55	0	55	258	0	258
Commodities Total	314	55	369	374	220	594	154	48	202	124	48	172	244	0	244	61	0	61	1271	371	1642
																					0
Construction																					
A. CD/E Building	161	108	269	323	215	538	161	107	268	0	0	0	0	0	0	0	0	0	645	430	1075
B. Education Centers (6)	365	243	608	627	418	1045	429	286	715	0	0	0	0	0	0	0	0	0	1421	947	2368
C. Staff Housing (5)	144	96	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144	96	240
D. Professional Fees	0	112	112	0	158	158	0	98	98	0	0	0	0	0	0	0	0	0	0	368	368
Construction Total	670	559	1229	950	791	1741	590	491	1081	0	0	0	0	0	0	0	0	0	2210	1841	4051
Operating Costs																					
A. CD/E Building	0	0	0	0	0	0	0	0	0	0	54	54	0	54	54	0	54	54	0	152	162
B. New Educ. Centers	0	0	0	0	30	30	0	83	83	0	118	118	0	118	118	0	118	118	0	467	467
C. Vehicles & Equip.	0	0	0	0	25	25	0	25	25	0	25	25	0	25	25	0	25	25	0	125	125
D. Staff Houses	0	0	0	0	12	12	0	12	12	0	12	12	0	12	12	0	12	12	0	60	60
Operating Costs Total	0	0	0	0	67	67	0	120	120	0	209	209	0	209	209	0	209	209	0	814	814
Technical Assistance	1318	74	1392	1466	80	1546	1561	80	1641	1224	76	1300	1158	67	1225	348	43	391	7075	420	7495
Training	325	220	545	468	290	758	458	280	738	345	210	555	222	140	362	0	100	100	1818	1240	3058
Commodities	314	55	369	374	220	594	154	48	202	124	48	172	244	0	244	61	0	61	1271	371	1642
Construction	670	559	1229	950	791	1741	590	491	1081	0	0	0	0	0	0	0	0	0	2210	1841	4051
Operations	0	0	0	0	67	67	0	120	120	0	209	209	0	209	209	0	209	209	0	814	814
Sub-Total	2627	908	3535	3258	1448	4706	2763	1019	3782	1693	543	2236	1624	416	2040	409	352	761	12374	4686	17060
ion	0	0	0	326	145	471	580	214	794	559	179	738	747	191	938	249	215	464	2461	944	3405
gency (10%)	263	91	354	358	159	517	334	123	457	225	72	297	237	61	298	66	57	123	1483	563	2046
TOTAL	2890	999	3889	3942	1752	5694	3677	1356	5033	2477	794	3271	2608	668	3276	724	624	1348	16323	8193	22511

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FINANCIAL AND ECONOMIC ANALYSES

I. INTRODUCTION

The Technical Analysis describes in detail the least-cost aspects of the JSEIP. These are summarized below:

- A project design based on careful analysis of the education and human resources sector, its various interrelationships, and problems.
- An integrated project approach which treats junior secondary education as a system consisting of components such as curriculum development, preservice and inservice teacher education, testing, planning, and administration.
- Maximum utilization of existing resources and infrastructure, thereby minimizing the recurrent cost impacts of the project.
- Concentration on elimination of internal inefficiencies in the system as reflected in low transition, progression, and pass rates.
- Reduction of junior secondary from 3 to 2 years.

The inclusion of these elements in the project design ensures that the economic return on the investment is maximized. This was suggested in the preliminary economic analysis in the PID and is reconfirmed in this more comprehensive and rigorous analysis. The keys to the economic viability of the JSEIP are the reduced years in the cycle (from 3 to 2) and the elimination of the internal inefficiencies at the junior secondary level which are described in Chapter V of the Botswana Education and Human Resources Sector Assessment, June 1984. The return is less sensitive to variations in junior secondary enrollment levels and in the unemployment rate among junior secondary graduates. If the education cycle is changed from 7-2-3 to 6-3-3 after 1991, the change to the Junior Secondary system will be one of name only, the last year of primary education becoming the first year of the new junior secondary system. The result will have no effect on the economic viability of the project.

The economic analysis is divided into four sections. Section one examines the relationships among projected growth in Gross Domestic Product (GDP) from 1985 to 1991, the GOB's budget, the Ministry of Education's (MOE) budget, and projected expenditures on secondary education. Section two analyzes the MOE's estimates for new school construction to achieve its 1991 junior secondary enrollment target of 42,740 students. Section three explores the labor supply of and demand for both primary school completers and junior secondary graduates from 1985 to 2001. Section four estimates the internal rates of return (IRR), net present values, and benefit-cost ratios for the JSEIP, assuming 2 year system of junior secondary as opposed to the current 3 years.

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II. MACROECONOMIC CONTEXT

The Draft National Development Plan VI (NDP VI) which covers the period from 1984/85 to 1990/91 forecasts an average annual growth rate of 4.8 percent per year. This rate is approximately one-third the growth rate during the previous 15 years. With a population growth rate around 3.0 percent, real per capita income will increase in Botswana at about 1.8 percent.

Several assumptions underlie these estimates. First, although Botswana's economy is forecast to benefit from an improving world economy during the middle of the decade, it is expected to experience a slow down in growth at the close of the decade as the world economic recovery slackens. Second, rapid economic growth in the past has been led by major investments in the mining sector. Although these activities did not create significant employment growth in the mining sector itself, they did promote strong growth in income and employment in other sectors such as construction as well as government revenues. During NDP VI new investments in the mining sector are anticipated to be considerably smaller than in the past. Third, the forecast for agricultural recovery is bleak. The NDP VI assumes below average rain fall throughout the plan period. Fourth, the buoyant growth in the manufacturing sector is expected to continue. Fifth, the power and water sectors are forecast to grow at a fairly rapid rate stimulated by major investment programs of the BPC and WUC. Sixth, although the recurrent budget of the government will grow at a rate above the average annual growth rate in GDP, it will be held in check by a considerably smaller growth in the development budget.

During the NDP VI, GDP is projected to expand from P1533.6 million in 1984/85 to P2115.8 in constant 1985/86 prices (see Table 1). In this same period, the GOB's development and recurrent budget is estimated to grow from P656.9 million to P899.0 million. As a percent of GDP, the government's share remains stable at between 42 and 43 percent.

To finance the expansion of secondary education, particularly junior secondary, and vocational training, the GOB has agreed to an average annual growth in the MOE's budget of 10.7 percent over the plan period. The MOE's budget will increase from P107.8 million in 1984/85 to P172.0 million in 1990/91. As a percent of the government's budget, it will rise from 16 percent to 19 percent. MOE's recurrent budget over this same period will grow from P74.8 million to P139.04 or from 22 percent of the total government's recurrent budget to 26 percent. Education's share of GDP will climb from 7 percent in 1984/85 to 8 percent in 1990/91.

The recurrent budget for secondary education is forecast to increase from P10.4 million to P23.1 million, a 2.2 fold increase, from 1984/85 to 1990/91. Secondary education's share of the MOE's recurrent budget will increase from 13.9 percent to 16.6 percent.

The MOE's recurrent budget takes into account the operating cost associated with the new Junior Secondary Teacher Training College at Molepolole, the expansion of inservice teacher training relying on 14 education centers, the new curriculum development facility, and the increase in secondary teachers. However, the MOE's budget assumes a significant infusion of donor funds to cover the physical infrastructure requirements involved in the growth of junior and senior secondary enrollment from 31,817 in 1985 to 59,881 in 1991.

Although the MOE's share of the GOB's budget will increase from 16.4 percent in 1984/85 to 19.1 percent in 1990/91, this will be accomplished without an increase in the GOB's share of GDP. Thus, the expansion in secondary education and vocational training will be financed through offsetting reductions in the rates of growth of other segments of the GOB's budget.

In conclusion, the GOB is in a position to absorb the recurrent expenditures associated with the expansion of secondary education including those which result from the JSEIP investment. As the discussion of recurrent cost earlier in the Project Paper and the analysis of the MOE's budget noted, most of the ongoing activities associated with preservice and inservice teacher training, curriculum development, and educational planning and administration are factored into the planned growth in the MOE's budget. The next section explores the GOB's plans to finance the physical capital requirements for the secondary education expansion.

III. PHYSICAL CAPITAL REQUIREMENTS

The additional physical infrastructure associated with the expansion of junior secondary education involves new schools and classrooms including specialist rooms for science and practical subjects, the Junior Secondary Teacher Training College at Molepolole, the education centers, and the Curriculum Development and Evaluation Center. As indicated above, the GOB's plans call for donor financing of much of this infrastructure.

Assuming approval of the JSEIP, donor funds will cover most of these infrastructure requirements with the exception of new schools and classrooms. The African Development Bank is already financing the construction of the Junior Secondary Teacher Training College at Molepolole. The JSEIP will finance 60 percent of the cost of the CD/E center and six new education centers. Therefore, this section focuses on the GOB's planning for the development of additional school facilities.

The Botswana Education and Human Resources Sector Assessment, June 1984, estimated a requirement for 55 new junior secondary schools from 1986 through 1992 at a projected total cost of P83.5 million or an annual cost of P11.9 million (See Table 2.34 in the Assessment). This estimate was based

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on data drawn from a 1982 MOE study entitled "Greater Access to Form I in Botswana." Within the last year, these projections have been revised upward. These revisions are discussed below.

Between 1984 and 1991, enrollment at the junior secondary level will increase from 23,553 in 1984 to 42,740 in 1991. This increase of 19,187 will require 519 extra classrooms and 542 specialist rooms. The development of these new facilities will occur in two phases. In the first phase, from 1984 to 1986 existing community junior secondary schools are being upgraded and expanded. Also in this phase a limited number of primary schools have been converted to junior secondary schools. In the second phase from 1986 to 1991, the growth in junior secondary education will be accommodated through the building of new schools and the replacement of a small number of rundown community junior secondary schools.

The construction of new schools from 1986 onward is based on a low-cost design for small to medium sized schools. There are three school models: a 2-stream school for 160 students, a 3-stream school for 240 students, and a 4-stream school for 320 students. These will for the most part be day schools. However, in remote parts of the country, a limited number of boarding schools are planned.

The MOE has estimated a total requirement of P117.5 million from 1985 through 1991 to finance the upgrading and expansion of junior secondary school facilities. The average annual cost is P19.6 million. This represents a significant increase over the estimates contained in the Botswana Education and Human Resources Sector Assessment, June 1984.

The NDP VI estimates an average annual development budget of P33.0 million for the MOE or P198.0 million over the plan period. In order to finance the expansion of additional junior secondary facilities, the MOE would have to allocate 59 percent of its development budget to cover this cost. This would undoubtedly place strain on the development budget. For this reason, the GOB looks to donor financing to assist in the construction of these new school facilities.

As of October 1984, donor financing for junior secondary school facilities was uncertain. Although the GOB has requested financing from the World Bank and the African Development Bank, no commitments have been made. Given the uncertainty surrounding donor support for classroom construction, the analysis in section four tests the sensitivity of the internal rate of return to different projected junior secondary enrollment levels in 1991 assuming a 7-2-3 system of education.

IV. LABOR MARKET PROJECTIONS

Using the lower projected growth rate in GDP, the Employment Policy Unit is presently preparing revised manpower estimates for the 1985 to 1991 plan period and extrapolations

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through 2001. The preliminary projections for primary school leavers and junior secondary graduates are used in this analysis.

Despite the anticipated low rate of growth in GDP, employment including self-employment in sectors other than agriculture is forecasted to grow at an annual rate of 5.6 percent per year. The expected rate of growth in job opportunities for primary school leavers with and without training is 4.5 percent. The comparable rate of growth for junior secondary graduates is 5.2 percent (See Table 2). At these rates, the demand for primary school leavers will increase from 35,835 in 1985 to 72,294 in 2001. The demand for junior secondary graduates will rise from 47,420 in 1985 to 106,836 in 2001.

Although the number of employment opportunities in the formal sector will double for both primary and secondary school graduates, they will be insufficient to absorb the available supply. In the same period, the supply of primary school leavers will jump from 121,543 in 1985 to 417,522 in 2001, a 3.4 fold growth. The supply of junior secondary graduates will expand from 44,369 in 1985 to 178,627 in 2001, a 4.0 fold rise. This indicates that a significant number of school leavers will remain dependent on the informal and traditional agriculture sectors as well as other employed family members. This will be particularly the case for primary school leavers.

As Table 2 suggests, in the aggregate there is a shortfall in the supply of junior secondary graduates. This shortfall is largely accounted for by the demand for junior secondary graduates with training. Even though the aggregate shortage of junior secondary graduates is anticipated to be met by 1987, there will remain structural imbalances between labor supply and demand for junior secondary graduates. These imbalances are accounted for by the continued shortage of junior secondary graduates who combine their formal schooling with post-school training.

These manpower imbalances are considered by the GOB to be its most important manpower problem. The long-run solution is obviously dependent on the rate of growth in GDP. An increase of the growth in GDP from 4.8 percent in NDP VI to approximately 8 percent would eliminate any excess supply of junior secondary graduates through the remainder of this century. The closer the growth in GDP approaches a rate of growth of 8 percent, the greater would become the constraining effect on growth of inadequate labor supply.

The GOB has adopted, and is considering, a number of options to expand the employment opportunities for the less educated and unskilled members in the labor force. These include programs such as the Financial Assistance Policy (FAP), the Arable Lands Development Program (ALDEP), the Labour Intensive Public Works (LIPW), and the Labour Intensive Employment Fund (LIEF). FAP, LIPW, and LIEF encourage the

adoption of productive techniques that use relatively more unskilled labor and less of other non-labor inputs to produce a given level of output.

Other policy options that could promote job creation include an unskilled labor tax relief assistance scheme, the Local Preference Scheme, Labour Only Contracts, local procurement by parastatals and large firms, changes in building and materials specifications to suit local resource availabilities and capabilities of local contractors and suppliers, import protection for certain local producers, exchange rate policy, the Incomes Policy, bank credit policy, apprenticeship and industrial training policy, and changes in some of the trade, employment, and land tenure regulations. A number of these options are under consideration. Several of them relate to reducing Botswana's dependency on South Africa for imported goods and services. This dependency tends to reduce the GDP multiplier which in turn adversely affects domestic employment creation in Botswana.

Considering the priority which the GOB attaches to employment growth, it is likely that policy changes will take place in the next several years which increase the rate of growth in formal sector employment. Although these changes would substantially reduce the surplus supply of labor as estimated in Table 2, the economic analysis of the JSEIP is based on the data contained in Table 2.

V. SOCIAL BENEFIT-COST ANALYSIS OF JSEIP

The expansion and the change from 3 to 2 years of junior secondary education including the JSEIP investment will have four major economic effects. First, it will increase the supply of better educated graduates in the labor market. The economic gain from this increase is therefore, reflected in their increased productive capacity. Second, the investment in improved curriculum will strengthen the foundation for further schooling and training. Thus, a portion of the economic benefit is measured in the returns to post-junior secondary schooling and vocational training. Third, the reduction in internal inefficiencies at the junior secondary level permits a more optimum use of scarce financial resources. Fourth, the elimination of one year of junior secondary education significantly reduces the cost per graduate, since the GOB is investing in two rather than three years.

The methodology utilized in this analysis is a typical human capital approach. The benefits from investment by society in junior secondary education are assumed to be measured by the increased earning potential of the junior secondary graduate after adjustments for unemployment. The costs are measured by the expenditures by society and the individual at the junior secondary level combined with the earnings foregone by the individual while undergoing the additional schooling.

Two measures of the economic viability of the investment in junior secondary education are examined. The first is the internal rate of return which is the discount rate at which point present value of the benefit stream equals the present value of the cost stream or the difference between these two present values is zero:

$$PV \text{ benefit} = PV \text{ cost}$$

or

$$PV \text{ benefit} - PV \text{ cost} = 0$$

The second is the net present value of the investment and the ratio of the present value of benefits to the present value of costs. For these latter, the GOB's social discount rate of 6 percent is used.

A. Calculation of the Benefit Stream

The projected earnings for junior secondary graduates without training are given in Table 3. The data was provided by the Employment Policy Unit, Ministry of Finance and Development Planning. The profile is based on a typical career progression for an individual entering the General Administration Cadre at the GA6 level at an annual salary of P1452 and rising eventually to the GA3 level at P6984 per year after 23 years of experience. Several other profiles were examined including Prisons Cadre and Technical Cadres. Of the various profiles, the General Administration Cadre gave the most conservative estimate of earnings. The others tended to combine formal schooling with inservice training, therefore, distorting the benefit from formal schooling. Also this lower earnings profile seemed a more accurate reflection of labor productivity, since one of the underlying assumptions in this kind of analysis is that earnings reflect productivity.

As indicated in Table 2, the labor supply of junior secondary graduates in 1991 will exceed by 22.2 percent the available jobs in the formal sector. This proportion increases to 40.2 percent in 2001. In order to adjust the earnings profile for the effect of unemployment, it was assumed that the probability of being unemployed was greatest in the initial year after leaving school and gradually declined over time until the graduate was fully employed by age 22. Thus, in 1991, the average graduate has a 77.8 percent probability of being employed in the first year after leaving school. In 2001, the probability of employment for the average graduate decreases to 59.8 percent in the first year after leaving school. The computed year by year employment probabilities under both situations are given in Table 4. The 1991 and 2001 employment situations are used to define the expected best and worst case benefit scenarios and to test the sensitivity of the benefit-cost analysis to a significant decline in employment opportunities over the decade of the 1990s.

B. Calculations of the Cost Stream

The cost stream consists of the annual recurrent expenditure per student in junior secondary education, the

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amortized annual per student value of the JSEIP and the planned expansion in school facilities by the GOB plus the opportunity cost of continuing schooling as measured by the earnings of an average primary school graduate, adjusted for the probability of being employed. Table 5 gives the resulting cost streams using different assumptions about enrollment levels, unemployment, and the internal efficiency of junior secondary education. These figures assume a two-year program of junior secondary education by the year 1991.

The discussion of the labor market for primary school leavers indicated that in 1991 only 22.2 percent would be employed in the formal sector. By 2001, the proportion declines to 17.3 percent. It is assumed that these probabilities are a reflection of the unemployment rate for primary school completers. As in the case of the junior secondary graduate, unemployment is assumed to impact most severely on the individual during the immediate post-school period. The likelihood of being employed increases as the person becomes older, until it reaches a probability of one at age 22. The labor market situations in 1991 and 2001 are used to define the lower and upper bounds of unemployment.

The MOE in its budget projections through 1991 for the expansion of junior secondary education uses a per student recurrent cost of P812. This represents a significant increase in the per student expenditure of P349 in 1983 for community junior secondary schools. The increase reflects the planned qualitative changes in curriculum, teacher education, and general upgrading of community junior secondary schools from 1984 to 1991.

Assuming that the average new school facility has a useful life of 20 years, the planned expenditure on new classrooms from 1985 to 1991 is depreciated on a straight-line basis over 20 years. However, since the number of classrooms constructed is a function of the number of students enrolled, the average per student cost does not change as the number of classrooms constructed decreases or increases. The estimated amortized annual per student cost of construction is P25. (See Table 6.)

To calculate the average annual per student cost of the JSEIP, two assumptions were made about the project's costs. First, those expenditures by the GOB which represented recurrent expenses were assumed to be covered in the P812 per student cost of junior secondary education. From discussions with the staff in the Planning Unit of the MOE, this seemed a reasonable assumption. To do otherwise would likely double count cost. Second, the project components such as technical assistance, participant training, commodities, and construction were assumed to have different useful lives for purposes of depreciation. Both technical assistance and participant training which impact directly on improving the productivity of the staff employed in secondary education were depreciated over 30 years which was assumed to be an average

career profile. Construction was depreciated over 20 years and commodities over 10 years. Inflation and contingency were depreciated over the average of these various depreciation rates. However, in the benefit-cost calculations, contingency was not used, since it would be used only to cover unforeseen costs and does not reflect an anticipated real cost of JSEIP. The U.S. dollar cost estimates in the budget were converted to Pula at a rate of U.S. \$.80 equals Pula 1.00.

The annual cost per student associated with the JSEIP investment was P26. This assumes an enrollment of 42,740 in junior secondary education as of 1991 and a transition rate of 70 percent. If the current transition rate of 40% continues throughout the decade, the per student investment cost increases to P46. However, as Table 6 indicates, the total per student cost taking into account the recurrent expenditures, and the amortized values of construction and the JSEIP investment increases from P863 to P883 which represents an increase of 2.3 percent if enrollment at junior secondary declines from 42,740 to 24,044.

C. Internal Rate of Return and Present Value Analysis

The JSEIP is expected to reduce significantly the inefficiencies at the junior secondary level. In the early 1980s, the proportion of Form I students in the community junior secondary schools going on to Form II was 86 percent. The proportion of Form IIs proceeding to Form III was 79 and the pass rate on the junior certificate examination was 34 percent. Thus, out of 10 students entering a community junior secondary school only 2.3 graduated. The JSEIP is anticipated to alter significantly these transition and pass rates. Assuming that the weighted average transition and pass rates for all junior secondary schools in 1980 including government and government aided schools reflects the improvements likely under the JSEIP, the proportion completing the community junior secondary school would increase from 23 percent to 78 percent. (See Table 7.)

Table 8 gives the various internal rates of return under various assumptions regarding unemployment rates and enrollment levels for junior secondary education. If the GOB achieves a 70 percent transition rate from Standard 7 to Form I by 1991 combined with the institution of a two year program instead of a three year one and a significant decline in the inefficiencies at the junior secondary level, the internal rate of return on the GOB's and JSEIP investment is 40.8 percent. On the other hand, if the planned expansion occurs without qualitative improvements in the system, the return falls to 29.5 percent. The net present values using a social discount rate of 6 percent for the two scenarios are P39,694 and P38,207 per student respectively. The corresponding benefit-cost ratios are 3.14 and 2.95.

The extent to which the projected social rate of return of 40.8 percent was sensitive to changes in the rate of unemployment, a lowering of the average age of retirement, different enrollment levels, and the elimination of one year

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of junior secondary were analyzed. As Table 8 suggests the return is sensitive only to the reduction of one year in the level. If the level continued to have 3 years and no qualitative improvements occurred, the return would drop from 29.5 percent to 19.3 percent. An increase in the unemployment rate from 22.2 percent to 40.2 percent results in a decrease from 40.8 percent to only 28.8 percent in the rate of return. The reason for this slight change is explained in part by the deterioration in the labor market situation of primary school leavers which would parallel any major decline in the demand for junior secondary graduates.

Since a lower enrollment at the junior secondary level by 1991 would impact only on the annual amortized value of the JSEIP investment which represents a relatively small proportion of the total per student cost, there is no significant change in the social rate of return, the net present value, and the benefit-cost ratio. At a continuation of the current transition rate of 40 percent, from Standard 7 to Form I, the number of students enrolled in junior secondary education in 1991 would be 24,044 instead of 42,740. Even with this 56 percent decrease in enrollment, the estimated rate of return declines five-tenths of one percent from 40.8 to 40.3 percent. The net present value per graduate drops from P39,694 to P39,652 and the ratio of benefits to cost goes from 3.14 to 3.13. The primary reason for this insensitivity is that most of the per student costs associated with education are constant and do not vary with changes in enrollment levels.

In conclusion, the economic return on the investment in junior secondary education is most sensitive to the changes in the internal efficiency of the system and the institution of a two year program of instruction. Failure to achieve significant improvements in progression and pass rates will adversely affect the expected benefits to Botswana from the expansion of junior secondary education.

Table 1: Draft National Development Plan VI (1984/85 to 1990/91) Projections of Gross Domestic Production, Government of Botswana's Budget, and Ministry of Education's Total Budget and Secondary Education Budget (Figures in 1985/86 Prices)

YEAR	Est. GDP P mil	Estimated Government of Botswana Budget			Estimated Ministry of Education Budget				Estimated Education Budget		
		Development	Recurrent	TOTAL ¹	Development	Recurrent ²	TOTAL	Percent of GDP	Percent of Budget	Recurrent ³	Percent of MOE Budget
1984/85	1533.6	253.1	338.0	656.9	33.0	74.75	107.75	7.03	16.40	10.36	13.86
1985/86	1674.8	288.0	382.0	742.9	33.0	82.90	115.90	6.92	15.60	11.84	14.28
1986/87	1805.6	302.2	406.7	791.8	33.0	91.93	124.93	6.92	15.78	13.53	14.72
1987/88	1876.4	255.3	435.7	780.8	33.0	101.95	134.95	7.19	17.28	15.47	15.17
1988/89	1946.8	249.8	465.7	805.8	33.0	113.06	146.06	7.50	18.13	17.68	15.64
1989/90	2044.3	254.1	497.6	841.6	33.0	125.38	158.38	7.75	18.82	20.20	16.11
1990/91	2115.8	271.7	532.2	899.0	33.0	139.04	172.04	8.13	19.14	23.09	16.61

¹ Total does not equal the sum of the development and recurrent budgets, because included in total is interest paid and net lending to parastatals which adds P70-95 m per year over the plan period.

² Plan assumes 10.9% growth in Ministry of Education Budget.

³ Plan assumes 14.3% growth in Ministry of Education's budget for junior and senior secondary.

Source: Draft National Development Plan VI, Government of Botswana.

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Table 2: Estimates of Labor Supply and Demand for Primary School Leavers and Junior Secondary Graduates with and without Training (1985-2001)

Year	Primary School Leavers				Junior Secondary Graduates			
	Supply (S)	Demand ¹ (D)	Supply less Demand (S-D)	Proportion without jobs (S-D/S)	Supply (S)	Demand ¹ (D)	Supply less Demand (S-D)	Proportion without jobs (S-D/S)
1985	121,543	35,835	85,708	.705	44,369	47,420	-3,051	-.069
1986	136,422	38,007	98,415	.721	48,614	50,229	-1,610	-.033
1987	153,026	38,754	114,272	.747	52,900	52,263	637	.012
1988	171,513	40,022	131,491	.767	59,982	54,846	5,136	.086
1989	178,232	42,234	135,998	.763	70,910	58,464	12,446	.176
1990	196,692	43,753	152,939	.778	76,932	62,006	14,926	.194
1991	214,369	45,744	168,625	.787	83,632	65,066	18,566	.222
1992	233,055	47,839	185,216	.795	90,085	68,329	21,756	.242
1993	252,200	50,042	202,158	.802	96,386	71,768	24,618	.255
1994	271,657	52,357	219,300	.807	103,847	75,390	28,457	.274
1995	291,430	54,791	236,634	.812	112,743	79,206	33,537	.297
1996	311,539	57,350	254,189	.816	121,811	83,227	38,584	.317
1997	331,991	60,041	271,950	.819	131,617	87,464	44,153	.335
1998	352,790	62,874	289,916	.822	142,163	91,931	50,232	.353
1999	373,958	65,855	308,103	.824	153,497	96,639	56,858	.370
2000	395,524	68,991	326,533	.826	165,634	101,604	64,030	.387
2001	417,522	72,294	345,228	.827	178,627	106,837	71,790	.402

¹ Demand for graduates in formal sector. Demand for Primary School Leavers with and without training grows at an annual average rate close to 4% through 1991. For annual rate for junior secondary graduates with and without training is near 5%.

Source: Manpower projections supplied by Employment Policy Unit, Ministry of Finance and Development Planning in October 1984. Figures are based on revisions in the Macro-Economic Model of Botswana through 1991 and extrapolated to 2001.

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Table 3: Undiscounted Earnings Streams for Junior Secondary Graduates With and Without Unemployment

Year	Earnings Profiles With and Without Unemployment (In Pula)		
	No Unemployment (B1)	Unemployment Rate 22% (B2)	Unemployment Rate 40% (B3)
1	0	0	0
2	0	0	0
3	1452	1130	868
4	1596	1291	947
5	2040	1716	1448
6	2208	1932	1709
7	2376	2162	2005
8	3384	3206	3113
9	3636	3636	3636
10	3888	3888	3888
11	4140	4140	4140
12	4392	4392	4392
13	4644	4644	4644
14	4644	4644	4644
15	4644	4644	4644
16	4644	4644	4644
17	4644	4644	4644
18	4644	4644	4644
19	4644	4644	4644
20	5304	5304	5304
21	5604	5604	5604
22	5976	5976	5976
23	6312	6312	6312
24	6648	6648	6648
25	6984	6984	6984
26	6984	6984	6984
27	6984	6984	6984
28	6984	6984	6984
29	6984	6984	6984
30	6984	6984	6984
31	6984	6984	6984
32	6984	6984	6984
33	6984	6984	6984
34	6984	6984	6984
35	6984	6984	6984
36	6984	6984	6984
37	6984	6984	6984
38	6984	6984	6984
39	6984	6984	6984
40	6984	6984	6984
41	6984	6984	6984
42	6984	6984	6984

Source: Based on earnings data supplied by Employment Policy Unit, Ministry of Finance and Development Planning.

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Table 4: Employment Probabilities for Primary School Leavers
and Junior Certificate Graduates

Year	Age	Probability of Employment			
		Primary School Leaver		Junior Certificate Graduate	
		Initial Unemployment Rate = 77.8% (Est. S-D/S for 1991)	Initial Unemployment Rate = 82.7% (Est. S-D/S for 2001)	Initial Unemployment Rate = 22.2% (Est. S-D/S for 1991)	Initial Unemployment Rate = 40.2% (Est. S-D/S for 2001)
1	14	.222	.173	(In School)	(In School)
2	15	.269	.215	(In School)	(In School)
3	16	.325	.266	.778	.598
4	17	.393	.330	.809	.652
5	18	.476	.409	.841	.710
6	19	.576	.507	.875	.774
7	20	.697	.629	.910	.844
8	21	.843	.843	.947	.920
9	22	1.000	1.000	1.000	1.000

Source: Derived from Table 2 of this Annex.

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Table 5: Undiscounted Cost Streams for Junior Secondary Graduates
Adjusted for Primary School Leavers Unemployment

Year	1983 Inefficiencies		System Inefficiencies Overcome By 1991					
	Student Cost P349 Per	Student Cost P 812 Per	Per Student Cost P812 in 1991					
	Unemployment Rate 71%	Unemployment Rate 78%	Unemployment Rate Among PSL of 78%			Unemployment Rate Among PSL of 83%		
	ST.7 Transition Rate 40%	ST.7 Transition Rate 70%	ST.7 Transition Rate 70%	ST.7 Transition Rate 55%	ST.7 Transition Rate 40%	ST.7 Transition Rate 70%	ST.7 Transition Rate 55%	ST.7 Transition Rate 40%
(C2)	(C9)	(C3)	(C5)	(C7)	(C4)	(C6)	(C8)	
1	692	1074	1108	1116	1128	1054	1063	1074
2	759	1133	1167	1175	1187	1106	1114	1126
3	841	375	375	375	375	307	307	307
4	576	467	467	467	467	392	392	392
5	693	577	577	577	577	496	496	496
6	834	713	713	713	713	628	628	628
7	1007	880	880	880	880	794	794	794
8	1211	1086	1086	1086	1086	1005	1005	1005
9-42	1288	1288	1288	1288	1288	1288	1288	1288

Sources: Data on educational cost and transition and pass rates derived from Botswana Education and Human Resources Sector Assessment, 1984, and Ministry of Education, Government of Botswana, Secondary School Projections, 1984. Data on earnings of primary school leavers based on unskilled industrial class wage information supplied by Employment Policy Unit, Ministry of Finance and Development Planning, October 1984.

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Table 6: Per Student Recurrent and Development Costs in 1991
Assuming Transition Rates from Standard 7 to Form I
of 70%, 55%, and 40%

1991 Transition Rate	Form I and Form II Enrollment ¹	Recurrent Cost ²	Cost Estimates Per Student		Total Recurrent and Developmental
			Amortized Development Cost		
			Construction ³	JSEIP Investment ⁴	
Standard 7 to Form I Rate 70%	42,740	P812	P25	P26	P863
Standard 7 to Form I Rate 55%	33,062	P812	P25	P34	P871
Standard 7 to Form I Rate 40%	24,044	P812	P25	P46	P883

- Footnotes:
1. Enrollment projections based on 7-2-3 system which will still be in effect as of 1991.
 2. Assumes a constant per student recurrent cost of P812. This unit cost is unlikely to vary as a function of the number of students. The Ministry of Education in its own estimates through 1991 uses a constant figure of P812 per student per year.
 3. This is based on the Government of Botswana annual cost estimates of the number of classrooms to be constructed through 1991. The annual cost of construction is depreciated over 20 years. Although the total cost of construction is a function of enrollment and the number of classrooms required, the amortized cost per student is a constant.
 4. The Junior Secondary Education Improvement Project's costs are treated as an investment. The various components of the project are depreciated over different time periods: technical assistance over 30 years; participant training over 30 years; commodities over 10 years; construction over 20 years; and inflation and contingency over 21.3 years which is the average depreciation period for the other four elements. Straight-line depreciation is used for each element. Since the annual depreciation amount is a constant, the per student amount is a function of the number of students enrolled.

Source: Ministry of Education, Secondary Education Projections, July 1984 and budget tables in this Project Paper.

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Table 7: Transition and Pass Rates for 1983 and Projected for 1991 for Junior Secondary Education Based on 6-3-3 System

ITEM	CJSS as of 1983		Projected CJSS for 1991	
	Rates	Compounded Probability ¹	Rates ²	Compounded Probability ¹
Form 1 to Form 2	.86	.86	.99	.99
Form 2 to Form 3	.79	.68	---	---
JC Pass Rate	.34	.23	.79	.74

- Footnotes:
1. The compounded probability measures the likelihood of a child entering Form progressing through the system. Thus a child entering Form 1 had a probability of .23 of passing the JC examination in 1983 and an estimated probability of .74 in 1991.
 2. The projected 1991 transition and pass rates for Junior Secondary are based on the weighted average of Government/Government-aided and Community Junior Secondary Schools in 1983.

Source: Education and Human Resources Sector Assessment, USAID/Botswana, June 1984, and Ministry of Education, Secondary School Projections, July 1984.

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Table 8: Social Benefit-Cost Analysis of Junior Secondary Education Improvement Project's Impact per Junior Secondary Graduate

DESCRIPTION OF SCENARIO	Internal Rate of Return		Net Present Value SDR = 6%		Benefit Cost Ratio SDR = 6%	
	Retires Age 56	Retires Age 41	Retires Age 56	Retires Age 41	Retires Age 56	Retires Age 41
1. Expansion of JS Occurs without Improvement in Internal Efficiency of System. Assumes 6-3-3 System in 1991.	19.3%	18.7%	P31,711	P20,239	2.43	2.03
2. Expansion of JS occurs without Improvement of System. Assumes 7-2-3 System in 1991.	29.55%	29.4%	P38,207	P26,736	2.95	2.57
3. Physical Expansion Combined with Improvements in Internal Efficiency of System and a 22% Unemployment Rate in 1991 for JS Graduates. Assuming 7-2-3 System.						
a. Standard 7 Transition Rate of 70%	40.8%	40.7%	P39,694	P28,222	3.14	2.72
b. Standard 7 Transition Rate of 55%	40.6%	40.6%	P39,677	P28,205	3.14	2.72
c. Standard 7 Transition Rate of 40%	40.3%	40.3%	P39,632	P28,180	3.13	2.72
4. Physical Expansion Combined with Improvements in Internal Efficiency of System and a 40% Unemployment Rate in 1991 for JS Graduates. Assuming a 7-2-3 System.						
a. Standard 7 Transition Rate of 70%	38.8%	38.8%	P39,147	P27,675	3.19	2.77
b. Standard 7 Transition Rate of 55%	38.7%	38.6%	P39,130	P27,658	3.18	2.76
c. Standard 7 Transition Rate of 40%	38.4%	38.4%	P39,105	P27,633	3.18	2.76

Source: Tables 3,4,5,6,7, and 8 of this Annex.

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Table 9: Guide to Tables 10 and 11

SCENARIO	Education System in 1991	
	7-2-3	6-3-3
	(Refer to Table 11)	(Refer to Table 10)
I. <u>Benefit Stream for Junior Secondary Graduates</u>		
A. No Unemployment in 1991	Bene 1.2	Bene 1
B. Unemployment Rate of 22% in 1991	Bene 2.2	Bene 2
C. Unemployment Rate of 40% in 1991	Bene 3.2	Bene 3
II. <u>Cost Stream for Junior Secondary Graduates</u>		
A. Unemployment Rate of 71% for Primary School Leavers in 1983 and Based on 1983 Per Student Cost of P349 and System Inefficiencies	C2	C2
B. Unemployment Rate of 78% for Primary School Leavers in 1991 and Based on 1991 Per student cost of P812 and System Inefficiencies as of 1983	C9	C9
C. Unemployment Rate of 78% for Primary School Leavers in 1991, Per Student Cost of P812 in 1991, and Without System Inefficiencies		
1. Standard 7 Transition Rate of 70%	C3	C3
2. Standard 7 Transition Rate of 55%	C5	C5
3. Standard 7 Transition Rate of 40%	C7	C7
D. Unemployment Rate of 83% for Primary School Leavers in 1991, Per Student Cost of P812 in 1991, and Without Inefficiencies		
1. Standard 7 Transition Rate of 70%	C4	C4
2. Standard 7 Transition Rate of 55%	C6	C6
3. Standard 7 Transition Rate of 40%	C8	C8

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Table 10: Computation of Present Values, Net Present Values, Benefit-cost Ratios, and Internal Rates of Return Assuming a 6-3-3 System of Education in 1991

YEAR	BENE1	BENE2	BENE3	COST1	COST2	COST3	COST4	COST5	COST6	COST7	COST8	B1-C1	B1-C2	B1-C3	B1-C5	B1-C7	B3-C4	B3-C6	B3-C8	C9	B1-C9	
							70% CASE		55% CASE		40% CASE											
1				805	805	1114	1040	1120	1044	1130	1074	-805	-805	-1114	-1120	-1130	-1060	-1044	-1074	1343	-1343	
2				1028	1141	1304	1237	1312	1244	1324	1255	-1028	-1141	-1304	-1312	-1324	-1237	-1244	-1255	1797	-1797	
3				3074	3457	2855	1942	2045	1952	2082	1968	-3074	-3457	-2855	-2045	-2082	-1942	-1952	-1968	5640	-5640	
4	1452	1130	868	350	574	467	392	447	392	447	392	1102	874	663	663	663	663	663	663	574	874	
5	1596	1304	1000	350	493	577	494	577	494	577	494	1238	993	727	727	727	564	564	564	493	993	
6	2040	1750	1503	245	834	713	424	713	424	713	424	1475	1204	1037	1037	1037	875	875	875	834	1204	
7	2200	1989	1804	373	1007	800	794	800	794	800	794	1035	1201	1109	1109	1109	1012	1012	1012	1007	1201	
8	2376	2240	2157	300	1211	1004	1005	1004	1005	1004	1005	1974	1145	1142	1142	1142	1152	1152	1152	1211	1145	
9	3304	3300	3300	300	1200	1200	1200	1200	1200	1200	1200	3004	2094	2094	2094	2094	2094	2094	2094	1200	2094	
10	2636	3236	3236	300	1200	1200	1200	1200	1200	1200	1200	3254	2340	2340	2340	2340	2340	2340	2340	1200	2340	
11	3000	3000	3000	300	1200	1200	1200	1200	1200	1200	1200	3500	2400	2400	2400	2400	2400	2400	2400	1200	2400	
12	4140	4140	4140	300	1200	1200	1200	1200	1200	1200	1200	3740	2052	2052	2052	2052	2052	2052	2052	1200	2052	
13	4392	4392	4392	300	1200	1200	1200	1200	1200	1200	1200	4012	3104	3104	3104	3104	3104	3104	3104	1200	3104	
14	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4244	3354	3354	3354	3354	3354	3354	3354	1200	3354	
15	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
16	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
17	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
18	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
19	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
20	4644	4644	4644	300	1200	1200	1200	1200	1200	1200	1200	4344	3354	3354	3354	3354	3354	3354	3354	1200	3354	
21	5304	5304	5304	300	1200	1200	1200	1200	1200	1200	1200	4924	4014	4014	4014	4014	4014	4014	4014	1200	4014	
22	5640	5640	5640	300	1200	1200	1200	1200	1200	1200	1200	5260	4352	4352	4352	4352	4352	4352	4352	1200	4352	
23	5976	5976	5976	300	1200	1200	1200	1200	1200	1200	1200	5596	4680	4680	4680	4680	4680	4680	4680	1200	4680	
24	6312	6312	6312	300	1200	1200	1200	1200	1200	1200	1200	5932	5024	5024	5024	5024	5024	5024	5024	1200	5024	
25	6648	6648	6648	300	1200	1200	1200	1200	1200	1200	1200	6268	5360	5360	5360	5360	5360	5360	5360	1200	5360	
26	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
27	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
28	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
29	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
30	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
31	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
32	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
33	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
34	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
35	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
36	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
37	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
38	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
39	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
40	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
41	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
42	6984	6984	6984	300	1200	1200	1200	1200	1200	1200	1200	6604	5696	5696	5696	5696	5696	5696	5696	1200	5696	
NPV@.42	53140	53036	52293	8969	19446	18120	17625	18139	17405	18174	17470	44970	34474	34916	34896	34842	34660	34600	34615	22220	31711	
NPV@.27	39874	38976	38227	6204	14872	13524	13031	13543	13051	13580	13064	31670	23002	23446	23425	23390	23196	23176	23143	19434	28239	
1										1881		.3322443	.2542182	.2478274	.2478040	.2457823	.2435645	.2424787	.2414101		.1928117	
2										2082		.3322442	.2518154	.2458585	.2458961	.2437584	.243405	.242406	.2414101		.1872187	
3												NPV/C.42	4.813448	2.770997	2.924921	2.923791	2.918259	2.946997	2.963586	2.958111		2.924484
4												NPV/C.27	4.840174	2.343347	2.507987	2.504857	2.501324	2.543248	2.53982	2.534321		2.838812

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SOCIO-CULTURAL CONTEXT

The Republic of Botswana, which until Independence in 1966, was the Bechuanaland Protectorate, is a multi-party democracy, politically stable and fiscally conservative. At Independence, Botswana was ranked as one of the poorest nations in the world, with a per capita income of about \$60 per annum. Today, per capita Gross Domestic Product (GDP) is approximately \$970.

Botswana's remarkable achievement in this area is primarily due to large investments in the mineral sector of the economy, which is the major contributor to the GDP. Agriculture contributes about 10% of the GDP and is dominated by the livestock industry. While the government has invested heavily in minerals and livestock, comparable levels of investment have not been made in arable agriculture and non-farm employment endeavors.

Agriculture in Botswana is not self-financing nor is it sufficiently productive to feed most families, even in years with favorable rainfall. Because of this, there is a strong interdependence between off-farm wage employment and farm production. Various household members simultaneously engage in agriculture and wage employment to subsist or to accumulate wealth. Yet job opportunities for the uneducated and the untrained are limited in Botswana. The socio-economic result of this is that the distribution of income and wealth is severely skewed. The GOB is aware of this stratification and is making efforts to invest and create employment in agriculture and the non-farm sector to rectify inequalities.

The inhabitants of Botswana identify themselves with tribal and clan groupings, each of which manifest varying degrees of social and cultural differences. These differences are expressed in attitudes and value orientations. To a lesser degree, they indicate class position and location in the economic organization. Although Setswana and English are the two official languages of the country, other linguistic affiliations remain. Notwithstanding, ethnic differences in Botswana are not politicized. The various social identities and affiliations are compatible and harmonious rather than contradictory and conflictual. In the context of Botswana, therefore, ethnic categories exist as cultural units rather than as interest groups geared towards political activity. This is a factor which differentiates Botswana from most of Africa.

The educational quality of the national labor force (all of those over 15 years) is presently unbalanced, with fewer educated members of the workforce than are required to fill positions. The problems derived from this unbalanced economic structure are giving rise to inequalities in access to income-earning opportunities. Individuals with little or no schooling are the least likely to be in formal employment; only 20% of the labor force with no schooling are wage employed, compared to 49% of those with secondary schooling.

Certain better paid occupations are only open to those with formal educational qualifications. Each extra year of schooling raises the chances of being employed by about 2 percentage points for the average person. This relationship is found in both rural and urban areas, although it is stronger in urban areas.

Present available employment positions are concentrated in urban centers. Since wages are low in agricultural work, a phenomenon is occurring whereby both the educated and the uneducated are seeking work away from small rural locations. In 1982 it was estimated that 51,000 people were seeking work, with 54% of those job seeking being primary school leavers. The continued flow of the labor force to urban areas accentuates the differences between those with middle and higher levels of education and therefore good job prospects and primary school leavers for whom formal sector employment is limited. Sex differences also enter into this equation of stratification, for females are less likely to obtain wage employment even in urban centers, than males of comparable education and age.

Access to education is not dependent, by and large, on considerations of gender, ethnicity and in the case of primary education, on the variable of wealth. Approximately 85% of the school age children in Botswana are in primary schools. Of that group, an estimated 53% are females and 47% males, with no significant differences in gender participation among schools of different sponsorship. At the primary level, female achievement is slightly higher than that of males. Primary school leaving examination scores, for 1983 Cambridge students, listed a female mean score of 312 versus the male mean of 309. The costs of primary education are essentially paid by the GOB, thereby facilitating access for the general population, regardless of class position. There are, nevertheless, groups which do not have equal access to education. These are remote groups, such as the hunting and gathering Basarawa. The primary reasons for this inequity are the prohibitive cost of establishing and maintaining schools in remote areas.

Secondary school is presently limited to one-fifth of the children in the secondary school age group. To date, this has been circumscribed by lack of physical facilities and qualified teachers. In contrast to primary schools, a percentage of the costs of secondary education is borne by the household. This can range from 10% to 62% of annual costs, depending on the type of school. Students attending community junior secondary schools paid an average cost per annum of P200 for tuition in 1983. This is beyond the reach of many households in Botswana. Economic stratification, therefore, limits student enrollment and contributes to student attrition.

In 1982 females accounted for 63% of enrollments in community junior secondary schools. However, drop-out rates are particularly high. Lack of funds is frequently cited as a prime reason for drop out (for both male and female students). In addition, if a student is pregnant, she is

required to leave school immediately for at least one year. If and when she returns, she must attend a different school. Considering the geographical dispersement of schools, few women return after their one year of expulsion. It has been estimated that between 300 and 500 students leave school annually because of pregnancy.

There is considerable evidence for a substantive disparity between male and female achievements, at the junior secondary level, as well as a difference in overall achievement between community and government aided schools. Table I lists the 1983 Junior Certificate scores at community junior secondary schools while Table II lists the scores for government-aided schools. At the Junior Certificate level for community schools, males perform significantly better statistically in most subjects. The present quality of education is also reflected in achievement level differences between community and government-aided schools.

Table I
COMMUNITY JUNIOR SECONDARY SCHOOLS

	Male		Female		Significance
	Number	Mean	Number	Mean	
English	540	37.38	842	36.89	.160
Setswana	528	37.13	811	41.81	.001
Math	540	39.57	842	35.99	.001
Integ. Sci.	211	40.58	299	32.45	.001
Geography	440	44.80	693	36.24	.001
History	491	44.79	753	37.22	.001
Agriculture	499	43.87	710	37.46	.001
Relig. Educ.	184	45.92	270	42.70	.021
Average	537	44.62	825	40.33	.001

(Transformed scores for each subject Mean = 50
Standard Deviation = 15)

Table II
GOVERNMENT AIDED SCHOOLS

	Male		Female		Significance
	Number	Mean	Number	Mean	
English	1746	55.56	1923	52.80	.001
Setswana	1718	52.08	1869	55.82	.001
Math	1746	57.01	1923	51.31	.001
Integ. Sci.	1739	57.01	1892	47.39	.001
Geography	1655	58.92	1799	48.89	.001
History	1618	59.53	1767	48.43	.001
Agriculture	1368	58.42	952	50.65	.001
Advanced Math	290	52.01	198	46.79	.001
Relig. Ed.	280	55.96	297	53.87	.480
Average	1744	58.74	1899	53.05	.001

(Transformed Scores for Each Subject Mean = 50
Standard Deviation = 15)

Regional differences in achievement levels have also been documented. A positive relationship was demonstrated between the variables of geographical location of schools and student achievement as determined by Primary School Leaving Exam performance. Four major categories of primary school locations were tested in 1982: town, major village, service center and rural. Schools in urban areas scored a mean of 53.2, major villages a mean of 52.1, service centers a mean of 49.5 and rural schools a mean of 48.7. The rural/urban difference was 4.5. In overall achievement, students in Gaborone far exceeded those in all other districts and townships. While this relationship was established for primary schools, it is assumed to exist for junior secondary schools.

BENEFICIARIES

The beneficiaries of this project will include 450 preservice junior secondary school teachers, who will benefit from the new teacher training program at Molepolole's Junior Secondary Teacher Training College, the participants in the staff training program at the Curriculum Development and Evaluation Unit, as well as other departments of the MOE.

Certain inputs will be targeted directly to relatively disadvantaged groups. Specifically, inservice teacher education will offer a mechanism by which 1,000 teachers can up-grade their skills. The project is also offering a mechanism whereby individuals will be able to obtain additional formal training and credentials. An estimated 18 professional staff of the MOE departments will receive training to the Master's level. In the aggregate, the project will deliver 36 person/years of long-term training, and 140 person/months of short-term training U.S. and Third Country training and 2,200 person/months of short-term in-country training..

Other beneficiaries of this project will be the students enrolled in the junior secondary cycle. There were about 37,000 students in these grades during 1981, and this number is projected to increase to over 90,000 (including old Standard 7 or new Form I students) within the life of the proposed project.

It is clear that even moderate success of this project will improve the quality of junior secondary education. While many positive aspects will be derived from the project, it is necessary to acknowledge that, until tuition costs are adjusted, the main student beneficiaries will most likely be the wealthier segments of society. There is some indication, however, that the National Development Plan VI may address the issue of secondary school tuition, with an aim of eventually reducing fees. In a related area, until a policy decision is made within the MOE regarding female pregnancy, and/or the establishment of sex education into the school system, females will continue to be discriminated against in their attempt to obtain an education. Finally, there remains the particularly troubling issue of the disparity between male/female achievement levels. It is hoped that improvement of the overall quality of education will somehow

impact on this situation. A consultancy directed at providing insights into the causes for this disparity, and recommending corrective measures, will be considered under this project.

PARTICIPATION

Participation is recognized as a necessity to secure lasting benefits from the project. It is also recognized as a basic right of beneficiaries, since project interventions will affect peoples' lives, standards of living and access to other resources. Participation, albeit indirect, will be used as a tool to allow better design of the curricula. For curriculum development, it is envisioned that syllabi will continue to be produced by a selected panel of Batswana. A National Junior Secondary Panel has been formed to review each of the subjects. This panel will consist of teachers, teacher trainers, and education officers throughout the country. This panel will convene regularly to evaluate content and materials that have been developed and tested in the schools.

At Molepolole Junior Secondary Teacher Training College, teachers will have a similar representational input into curriculum development. The Chairperson of the Association of Head Teachers of Community and Private Secondary Schools will sit on the advisory committee to review the studies developed for Molepolole. The Botswana Teachers Union will also be represented on this committee.

Although the junior secondary teachers will not have direct inputs into the project, it is assumed that this will not affect their motivation for participation. Inputs from students will also be indirect and will occur via feedback from the evaluation and testing of new materials.

SOCIAL FEASIBILITY

The social feasibility of any project is primarily dependent on local receptivity. The GOB receptivity to the project is evidenced by both the National Commission of Education of 1977 and the National Development Plan V recommendations that universal secondary education be made available. With unemployment estimated at 13%, and with the keen awareness of the part of the population of the relationship between education and employment opportunities, it is expected that local receptivity to the various types of training offered under the project will be high.

In the majority of cases, there will not be a direct link between interventions provided under this project and school leavers who will be immediately employable. While it is intended that more practical courses will be introduced at the junior secondary level, the planned curriculum remains strongly biased toward academic subjects. Nevertheless, the new curriculum will place far more emphasis on adult living skills and practical arts than the present curriculum.

Some behavioral changes will be required if the project intends to produce students who are academically better prepared for further education or training. Both teaching and learning techniques will have to be altered from those grounded in rote memorization. At present the Research and Testing Center is initiating examinations that encourage teachers to change their teaching methods and thereby assist students to move away from learning by memorization. Rates of success have been limited. However, by attacking the problem simultaneously from several different directions, i.e. through changes in curriculum, dissemination of instructional materials, inservice and preservice teacher education, as well as through examination procedures, the probability of achieving widespread success increases considerably.

Particular caution is needed in curriculum development, and in the selection of forms of instruction, to ensure against western educated technicians unknowingly fostering cognitive styles derived from their own primary group socialization. Similar cognitive capacities are shared by all human groups regardless of culture. However, there are marked differences in the ways these cognitive capacities are used in the solution of particular problems in different cultures. There is an internal consistency between cognitive styles and patterns of socialization that foster them. Relational thinking, which is based on holistic, analogic or imitative expression derives from socialization in an extended family nexus, which is characteristic of many developing countries, including Botswana. Relational thought is also profoundly nominalistic, in that particulars do not refer back to an abstract universal. Non-relational thinking isolates and abstracts information from its context and its knower. It is far more characteristic of western societies, particularly where socialization occurs in the nuclear family, and it is systematically privileged in western public schools.

In principle, accommodation to western culture and cognitive styles need not mean abandonment of Botswana ways. The retention of traditional cultural patterns of problem solving and analysis is completely compatible with learning the westernized aspects of science and mathematics. However, the social consequences of entirely changing Botswana cultural patterns of cognition could be staggering and could result in underachievement, and as an inherent bias against Botswana students. Therefore a consultancy will be considered to review variations in learning styles, leadership types, cognition and cultural values and their relationship to the present educational learning environment.

In addition to the kind of cultural relativism needed to avoid a conflict between cognitive styles, curriculum should be sensitive to the history and culture of Botswana. Indications lead one to believe that this will occur. At present, folklore, myths and traditional knowledge, in terms of local medicines and foodstuffs, are integrated into various subjects.

SOCIAL IMPACT

The project itself, and its diffusion to the wider population, will affect different groups in different ways. The project will target community junior secondary schools, a category of schools that has not benefited from quality education in the past. Benefit incidence for this group is therefore compatible with equity objectives. The project activities will have a favorable impact on the secondary school teachers. At present, 63% of these teachers are male. However, it appears that the number of female teachers is increasing. There is also a slightly larger percentage of unqualified female teachers than males (23% females versus 20% males in community junior secondary schools). Project inputs will positively affect female earning capacity and overall job security by upgrading female teachers through inservice training. The project should take particular measures to ensure that a comparable number of qualified women as well as men receive long-term training. The benefits that accrue to the students will be substantial. As more teachers are trained, particularly those stationed in remote areas, the education that students receive will improve qualitatively. However, unless measures are undertaken regarding tuition costs, student access to resources offered by the project will be unequal and will be concentrated in the hands of the wealthier and the already privileged. Finally, the project inputs are expected to counterbalance the present geographical variations that occur in achievement levels.

The project will have an important impact in two areas beyond those identified in the principal project objectives. By addressing the male/female disparities in achievement and by developing strategies to correct this inequality, benefits will accrue directly to female students. By attacking what may be an interrelated problem, regarding the need for the learning environment to be conducive to the culturally cognitive styles of Botswana, benefits will flow to all students.

Moving from the level of individuals, the principal question for impact analysis becomes: to what extent will the project impact on larger social conditions, specially unemployment? At present, employment difficulties facing individuals with a primary education are most acute. The Junior Certificate marks the threshold for employment in the public sector. Yet will the current policy towards universal access to junior secondary education create similar difficulties for this latter group in the near future? Current predictions on job creation in the formal sector argue that it is unlikely that sufficient openings can be provided to absorb the supply.

Unemployment will undoubtedly continue and may move up the educational hierarchy. At the same time it should be acknowledged that Botswana is addressing unemployment through a combination of strategies. Required educational prerequisites will be laid by this project to improve the long range opportunities for students to have access to productive employment. In 1981, there was an unmet formal sector labor requirement for approximately 10,000 trained Junior Certificate holders. The student beneficiaries of this project will be better prepared for further academic training or for entry into vocational training programs, and will be provided with an increased probability for a later entry into the formal economy.

The long-term benefit distribution of additional and improved education, and thereby employment, has the potential for increasing the income of both rural and urban households. The project will therefore provide opportunities for participation in the formal sector, increase access to productive resources, assist in the restructuring of present economic disparities and have a measurable impact on the quality of life.

This assessment of the distribution of the benefits and burdens of the project indicate that the social consequences will be strongly positive. While the ultimate success necessarily depends on the quality of project implementation, analysis of the project in terms of the social factors involved indicates that the project is soundly designed to meet its stated objectives.

ENGINEERING ANALYSISI. CONSTRUCTION REQUIREMENTS

The three major components of the Junior Secondary Education Improvement Project (JSEIP) are (1) Curriculum and Instructional Materials Development, (2) Preservice and Inservice Education of Teachers, and (3) Supervision and Management Improvement to the Ministry of Education. Preservice education activities will take place at the recently completed Junior Secondary Teacher Training College in Molepolole. Housing for the four project technical advisors involved in preservice education is also available at the college. Construction of new facilities is required to support the other components of the project. A Curriculum Development Building and five technician houses will be constructed in Gaborone (one other technical advisor will be provided with houses from the USAID/B housing pool). New education centers for inservice teacher education will be constructed in Maun, Gomare, Masunga, Selebi-Phikwe, Mahalapye and Ghanzi.

The present Curriculum Development and Evaluation Department is dispersed in four different locations in Gaborone and has one unit in Francistown. This dispersion makes the administration of the Department unwieldy and difficult. The project plans to combine the Curriculum Development Unit, and the Examinations Unit together with the Education Officers and Administrators of the Department of Secondary Education in a Curriculum Development Building. The Ministry of Works and Communications (MWC) Office of the Chief Architect has prepared preliminary plans (drawings ED/GAB/15/-) for a three story building that accommodates about 60 offices and a Curriculum Resource Center that includes a library, a display area and a conference room. The ground floor is for the Examination Unit; the first floor is for the Curriculum Unit and the second floor for the Secondary Education Officers and the Materials Development Unit. The total net area of the building is 1466 m² not including staircases and other service areas. The office space designed for the building is in accordance with the "Office Accommodation Standards" agreed to by the GOB Office Accommodation Committee of April 1977, e.g. 15 m² for heads of departments, 12 m² for section heads and 5 to 8 m² for junior officers and secretaries.

Education centers are used as multi-purpose resource centers for all aspects of education, including curriculum workshops for teachers, training of literacy assistants and literacy group teachers, literacy classes, teaching aids production workshops, non-formal education courses and regional education seminars. Five existing education centers are located at Kang (new), Tlokweng (new), Serowe, Lobatse and Molepolole and a temporary center at Maun. Nine other districts are currently without a permanent center. The GOB would like to construct the nine new centers and renovate the three old centers over the next five year development period.

Based on the availability for utilization within the life of the project, AID will assist the construction of the first six new centers. Using predicted usage of the centers (with total numbers of teachers in a district as an indicator) and needs for inservice training (with percentages of untrained teachers and of students with poor grades as indicators) as criteria, top priority for new education centers is given to Masunga, Selebi-Phikwe, Maun, Gomare, Ghanzi and Mahalapye. The basic physical facilities of the Centers are two classrooms, a small library, a storeroom, office space for an administrative assistant, two education officers and a secretary, hostel accommodations for 36 people, kitchen and dining facilities for 60 people and two staff houses.

There is a severe shortage of housing in Gaborone. Recruitment of expatriate advisors by GOB has been frozen since 1983 because of the lack of housing accommodations. AID has managed to continue providing technical assistance on its projects in Botswana by providing housing from the pool of houses previously financed by AID. All of the AID pool houses are currently occupied, and the BFAST project will continue to make demands on the housing as current occupants complete their assignments. However, two houses will be made available to JSEIP technical advisors, leaving five advisors in need of housing. The Botswana Housing Corporation (BHC) is a parastatal organization responsible for developing all medium and high cost housing for the GOB in Gaborone. BHC has standardized on three high cost house plans, each providing 3 bedrooms, 2 bathrooms, a kitchen, a dining room, a living room and a garage. The project plans to finance construction of five type H 123 houses in Gaborone. This is the middle of the three standard plans in terms of size and cost. The 123 m² of living space is comparable with the existing housing in USAID's pool.

II. STANDARDS, SPECIFICATIONS AND SITES

The Curriculum Development Building design is based on a facade module of 900 mm which provides for brick piers with windows in between, wide enough to accommodate individual room air conditioners. The multi-story building will have a concrete framework with structural concrete columns at every fourth module. The building materials and design are normal for multi-story buildings in Botswana, and many construction contractors in Gaborone are experienced in the construction methods required. A site for the building has been selected near the University and Non-Formal Education Department.

Education center facilities and technician houses share similar, simple construction specifications and materials. These buildings have concrete strip foundations, reinforced concrete floors, concrete block walls, wood rafters, corrugated steel roofing, metal door and window frames and wood doors. Hardware for plumbing and electrical systems and items such as door locks are produced in South Africa and widely stocked throughout Botswana. Even small contractors in rural villages are familiar with the construction techniques required and generally produce work of good to excellent quality.

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Sites for education centers will be selected by District Land Board authorities based on town development plans prepared by the Department of Town and Regional Planning. Sites are inspected by the Chief Architect's Office for suitability before official GOB approval is given. Sites for the technician houses will be allocated by the Department of Surveys and Lands from the plots available in the Gaborone West development area. These plots are fully serviced with roads, electrical and sewage connections and a surface storm water drainage system.

III. CONTRACTING

The Chief Architect's Office of the MWC will administer the construction of the Curriculum Development Building and the education centers, and BHC will administer the construction of technicians' houses. The GOB has provided funds for contracting with local architectural firms for the final design, site plans, site work specifications, tendering and construction supervision of the Curriculum Development Building and the education centers. The GOB will also contribute BHC's fee for performing the same work for housing construction. Construction will be advertised for tender, and a contract will be awarded according to standard GOB Tender Board procedures.

Fixed Amount Reimbursement (FAR) procedures will be utilized to finance the construction, with AID's contribution determined by 60% of the estimated construction costs. When AID makes its FAR commitment for construction, the GOB Ministry of Finance and Development Planning warrants sufficient funds for the total construction to the Chief Architect's Office or BHC, and construction contracts can then be awarded. AID reimbursement will only be requested after construction is completed except for the Curriculum Development Building, for which FAR advances based on progress payments will be made at quarterly intervals during the construction period. FAR procedures are used almost without exception by AID on other project-financed construction in Botswana and have proved to work extremely well for both AID and the GOB.

IV. AID MONITORING

AID approval of preliminary plans (for education centers), final plans, site plans, specifications and contract award will be required before award of the contracts and inspection, and approval of completed buildings will be required before reimbursement.

USAID/Botswana's General Engineering Officer will be responsible for these reviews, inspections and approvals until he is reassigned in 1985. USAID/B will then call upon the services of REDSO engineers to continue the remaining AID monitoring requirements. To assist REDSO engineers who may not be totally familiar with Botswana construction procedures and costs, the project will finance the occasional services of a local consulting firm for services including:

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A. Review of construction plans for adequacy and consistency with general purpose as described in this analysis.

B. Inspection of building sites for suitability, review of site work specifications for adequacy and review of site plans for accuracy.

C. Review of cost estimates for accuracy and comparison of total program costs to costs estimated in this analysis.

D. Advising on quality and capabilities of contractors recommended for tendering or for award of contracts.

E. Inspection of construction work in progress for adherence to plans and specifications.

F. Advising USAID/B when visits by an AID engineer are required for official AID reviews, inspection and approvals.

G. Advising AID engineers on results of consultants reviews and inspections.

V. IMPLEMENTATION SCHEDULE

<u>Activity</u>	<u>Parties</u>	<u>Date</u>
Grant Agreement Signed	AID/GOB	February 1985
Contract Awarded for Detailed Design of CD & E Building and Education Centers	GOB	February 1985
Construction Contract Awarded for Five Staff Houses	BHC	April 1985
Construction Contract Awarded for 2 Education Centers (Maun, Selebi-Phikwe)	GOB	October 1985
Construction Contract Awarded for CD & E Building	GOB	October 1985
Construction of Five Staff Houses Completed	BLDG. Contractor	December 1985
Construction of 2 Education Centers Completed	BLDG. Contractor	June 1986
Construction Contract Awarded for 2 Education Centers (Masunga, Gomare)	GOB	July 1986
Construction of 3rd and 4th Education Centers Completed	BLDG. Contractor	March 1987

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Construction Contract Awarded for 2 Education Centers (Ghanzi, Mahalapye)	GOB	April 1987
Construction of CD/E Building Completed	BLDG. Contractor	Sept. 1987
Construction of 5th and 6th Edu- cation Centers Completed	BLDG. Contractor	December 1987

The scheduling dates are based on BHC development plans for Gaborone West, current GOB commitments of funds for architectural services, AID experience with design and construction periods on other construction in Botswana and the availability of GOB contributions for construction costs.

VI. COST ESTIMATES

A. Curriculum Development Building

Cost estimates for the Curriculum Development Building are based on a review of preliminary plans by the Principal Quantity Surveyor for the Chief Architect's office in May 1984, with inflation added (at 10% per year) to reflect 1985 costs.

Building	1,047,000	
Site Works	47,000	
Electrical	<u>250,000</u>	
Total	P1,344,000,	\$1,075,000

B. New Education Centers

Cost estimates for new education centers are based on a description of space requirements developed by the Ministry of Education, on plans for hostel units prepared by the Chief Architect's Office, on standard GOB housing, and on costs for similar construction in 1984 with inflation added (at 10%) to reflect 1985 costs.

Classrooms	2 x 60 m ²	=	120 m ²	
Library		=	30 m ²	
Offices	2 x 15 m ²	=	30 m ²	
Storeroom		=	10 m ²	
Hostel		=	220 m ²	
Kitchen/Dining		=	60 m ²	
Service Area		=	30 m ²	
Total Area		=	500 m ²	
Buildings Cost	500 m ² x 400 p/m ²	=		200,000
Staff Housing	-- 2 x 30,000 P	=		60,000
Sub-Total		=		<u>260,000</u>
Site Works and Services (25%)				<u>65,000</u>
TOTAL		=		P325,000

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This base cost is for construction in Gaborone. For construction in other towns, the base cost is multiplied by a cost factor calculated by the Chief Architect's office based on GOB experience with construction costs throughout the country.

<u>Location</u>	<u>Cost Factor</u>	<u>Total Cost</u>	
		(P)	(\$)
Maun*	1.50	652,500	522,000
Selebi-Phikwe	1.50	487,500	390,000
Gomare	1.65	532,250	429,000
Masunga	1.20	390,000	312,000
Mahalapye	1.20	390,000	312,000
Ghanzi	1.55	503,750	403,000
TOTAL		2,956,000	2,368,000

*Hostel for Maun Center is doubled in size from basic center.

C. Staff Houses

BHC has not built any high cost houses in Gaborone for over a year, but has recently awarded a contract for houses in Jwaneng. The cost estimate for H 123 houses is based on a comparison of the contract in Jwaneng to the average cost per m² for similar building construction in Gaborone with inflation added to reflect 1985 costs. House H 123 5 x P60,000 = P300,000, \$240,000. This cost includes minimal but adequate site works such as fencing around the plot and graveling of the driveway.

D. Construction Cost Summary

Curriculum Development Building	\$ 1,075,000
Education Centers	2,368,000
Staff Houses	240,000
CONSTRUCTION TOTAL	\$ 3,683,000

BY PROJECT YEARS
Construction Costs (\$000)

	Year 1			Year 2			Year 3			All Years		
	AID	GOB	Total	AID	GOB	Total	AID	GOB	Total	AID	GOB	Total
CD Bldg.	161	108	269	323	215	538	161	107	268	645	430	1075
Ed Centers	365	243	608	627	418	1045	429	286	715	1421	947	2368
Houses	144	96	240							144	96	240
Totals	670	447	1117	950	633	1583	590	393	983	2210	1473	3683

Note:

Ed Center Starts Year 1 Maun, Selebi-Phikwe
 Year 2 Gomare, Masunga
 Year 3 Ghanzi, Mahalapye

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E. Consultant Services

The Consultant activities described in Section IV of the analysis have been translated into work-days required to monitor design and construction stages for AID. The estimates for each type of facility are:

Curriculum Development Building

Design 5 Days
Construction 25 Days

Sub-Total 30 Days

Education Centers

Design 15 Days
Construction 25 Days

Sub-Total 40 Days

Staff Houses

Design 0 Days
Construction 5 Days

Sub-Total 5 Days

TOTAL 75 Working Days

COSTS

Salary & Overhead 75 x P300/Day = 22,500
Per Diem 22 Days = 2,000
Travel 12 Round Trips = 5,000
Other Costs = 1,750

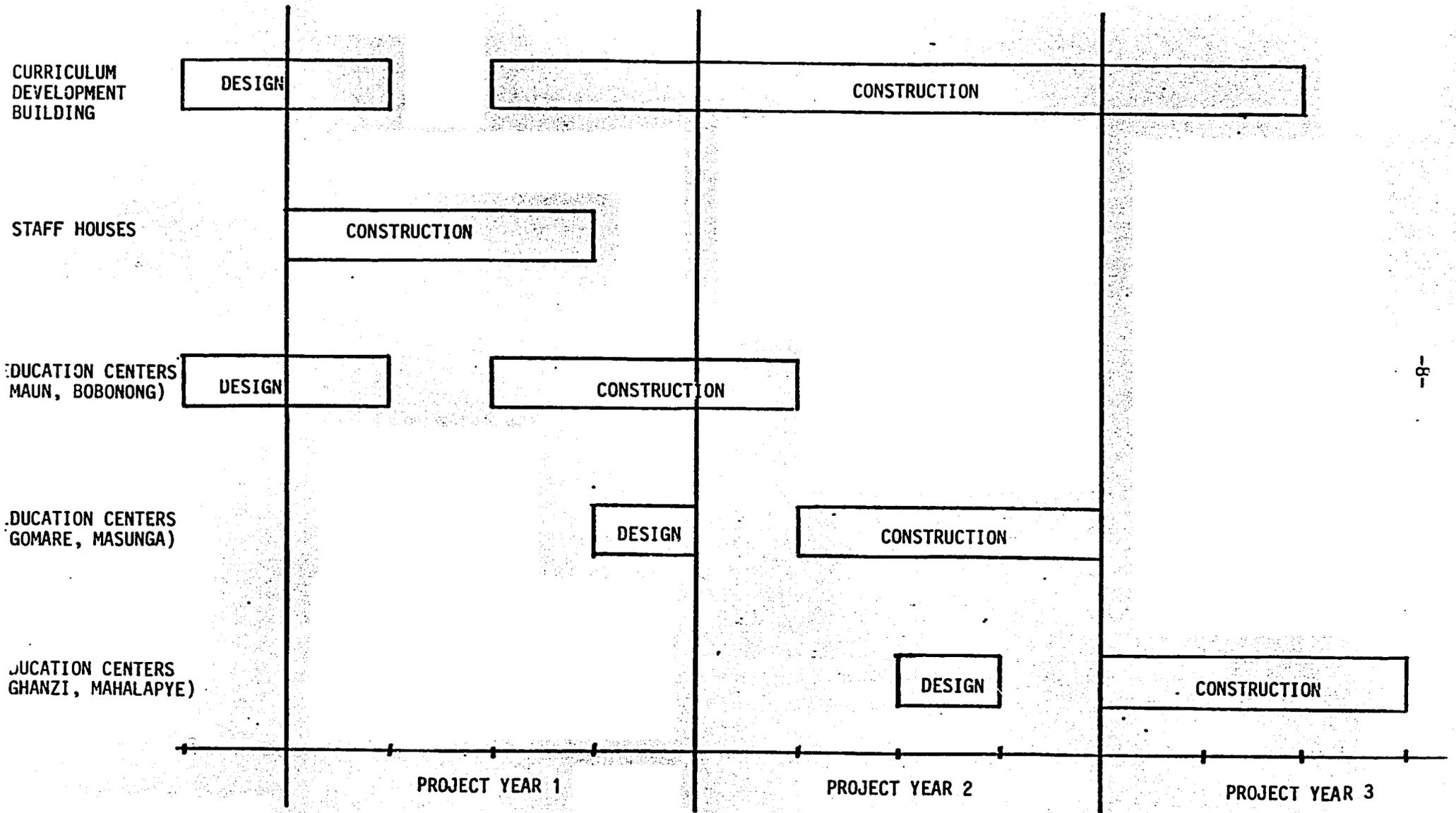
TOTAL P31,250 = \$25,000

VII. CONCLUSION

The facilities to be constructed under the project are necessary to achieve the project objectives. The project design team has examined GOB proposals for facilities and made alterations as appropriate. For example, an expensive basement alternative for the Curriculum Development Building has been deleted and only education centers that meet need and usage criteria and can be built in time to contribute to project implementation are included. Standard GOB specifications and procedures are planned to ensure smooth implementation of the program and minimal construction and recurrent maintenance costs. The USAID/Botswana engineering review of the requirements, designs, contracting arrangements, payment procedures, monitoring plans, implementation schedule and cost estimates concludes that the planning is adequate and costs are reasonably firm and acceptable. Therefore, the construction program is considered to meet all 611 (a) requirements of the FAA Act of 1961 (as amended).

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CONSTRUCTION PROGRAM



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CONTRACTING PLAN

Under JSEIP, one major contractual arrangement will be made. A delivery order under the Improving the Efficiency of Education Systems (IEES) Project (Contract No. DPE 5823-C-00-4013-00 of 11 June, 1984) will be drawn for the provision of technical assistance, participant training, and for the procurement of certain commodities. The IEES contractor, Florida State University in a consortium with Howard University, Institute for International Research, and the State University of New York at Albany, would be tasked, subject to the approval by the GOB, to assist the MOE in implementing the project. The IEES contract complies with small business concerns owned and controlled by socially and economically disadvantaged individuals.

By delivery orders under IEES contract line item 0002, the contractor can provide assistance for an amount not to exceed \$20,000,000. It is the intention of US AID/Botswana, after project authorization and signing a bilateral grant agreement with the GOB, to enter into an agreement with IEES to carry out clearly delineated tasks under JSEIP.

All building components of JSEIP will be handled by local construction contracts administered by the GOB. Payment will be made on a Fixed Amount Reimbursable basis to the GOB by USAID. Procedural steps are delineated in Section IX E and Annex F.5, Engineering Analysis.

The AID/Botswana Field Support Office will assist project implementation by serving as procurement agent for certain commodities and services. This is the normal practice with all projects in Botswana. Travel, household logistics, shipping at the completion of technicians contracts, schooling fees and other miscellaneous items are handled by the Field Support Office.

SCOPES OF WORK FOR RESIDENT
TECHNICAL ADVISERS

Training, experience, qualifications, and functions to be performed by the JSEIP Resident Technical Advisers. English is the only language requirement.

Ministry of Education (MOE)

Planning and Systems Management Specialist
Inservice Teacher Education Specialist
Inservice School Management and Administration
Specialist

Department of Curriculum Development and Evaluation (CD/E)

Program and Materials Evaluation Specialist
Senior Instructional Systems Design Specialist
Instructional Media Specialist

Junior Secondary Teacher Training College (JSTTC)

Instructional Systems Design Specialist
Staff Development Specialist
Teacher Education Certification Specialist
Technical Education Specialist

PLANNING AND SYSTEMS MANAGEMENT SPECIALIST (MOE)

Training and Experience: Doctorate or equivalent experience in Educational systems planning and management. Successful experience managing a large educational project in a developing country is mandatory. Should be familiar with macro educational systems operations. The position is for six years.

Scope of Work: This specialist will be assigned to support the overall planning and management functions of the MOE, especially those related to expansion and quality enhancement of the junior secondary cycle. This specialist will be assigned to the planning Unit and will further relate to the management staff of the Department of Secondary Education, the Department of Curriculum Development and Evaluation and the Teacher Training sections. This specialist will be responsible for assisting the MOE with the wider applications in educational planning, information storage, retrieval and management; fiscal management; budgeting; cost analysis and control; financial reporting; program management; organizational development; interdepartmental communications; and overall quality control. Knowledge of school mapping will be required.

This person will serve as the JSEIP Coordinator and will facilitate coordination between the USAID/Botswana HRDO and the MOE.

INSERVICE TEACHER EDUCATION SPECIALIST (MOE)

Training and Experience: Doctorate or equivalent experience in education with an emphasis on inservice teacher training and curriculum development. Developing country experience in education is required. Experience in planning, developing, delivering and administering an inservice education program for teachers in a developing country, particularly in Africa, is highly desirable. The position is for five years.

Scope of Work: The person in this position will work with the Ministry of Education's inservice education staff to help expand and improve the existing program of inservice education for junior secondary school teachers. In assisting in these tasks, the specialist will work with the Curriculum Development and Evaluation Department to test and then use newly developed curriculum materials and improved methods for inservice teacher training as part of a nation-wide program to support a revised junior secondary curriculum. Related training will be given to the Ministry's education officers, inspectors, headmasters and teachers. Training will be coordinated with the Junior Secondary Teacher Training College program at Molepolole and will be offered through regional education centers.

INSERVICE SCHOOL MANAGEMENT AND ADMINISTRATION SPECIALIST (MOE)

Training and Experience: Doctorate or equivalent, experience in education with an emphasis on inservice teacher training and school management. Developing country experience in education is required. Experience in planning, developing, delivering and administering an inservice program in school management, particularly in Africa, is highly desirable. This position is for four years.

Scope of Work: The person in this position will work with the Ministry of Education's inservice education staff to help improve the present system of school management in junior secondary schools. The person should be familiar with school management practices, efficient allocation of resources, and must also assist in inservice management training. The specialist will assist in organizing training programs for Boards of Governors, school managers, headmasters and bursars of the junior secondary schools.

PROGRAM AND MATERIALS EVALUATION SPECIALIST (CD & E)

Training and Experience: Doctorate or equivalent experience in educational evaluation and measurement. Residential educational project work in Africa or other developing regions is highly desirable. The position is for four years.

Scope of Work: This person should be competent in the full range of evaluation methodologies, including project evaluation, test development, instructional materials validation and research design. This specialist will assist with the design and implementation of all required evaluation activities and will be responsible for training CD & E staff in all of the relevant evaluation methods. The specialist will plan and coordinate the use of short-term consultants in the evaluation and measurement area. This person must be expert in formative evaluation as it relates to curriculum and test development, in criterion-referenced test development, and in the design and validation of formative and summative student achievement tests. The person must be competent in state-of-the-art computer applications to data analysis, test item analysis and procedures such as multivariate correlational analysis, analysis of variance and use of the Statistical Package for the Social Sciences or related data analysis programs.

SENIOR INSTRUCTIONAL SYSTEMS DESIGN SPECIALIST (CD & E)

Training and Experience: Doctorate or equivalent in Instructional Systems Design or Curriculum Development. Familiarity with applications of low cost learning technologies. Should also be competent in one or more content areas. Residential technical assistance experience with education in developing countries, especially Africa, is highly desirable. The position is for five years.

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Scope of Work: This specialist will work closely with the Director of the Curriculum Development and Evaluation Department. This person must be able to provide advice to the head of the CD & E Department and other senior staff members in a wide range of technical areas. These include organizing interdisciplinary curriculum development teams, providing training to such teams in state-of-the-art ISD applications to curriculum planning and instructional materials development, and planning and monitoring development work to ensure that production stays on schedule and that quality controls are operational. Must be able to survey and evaluate the full range of subject matter resource materials, to ensure that course content definition is valid, up-to-date and relevant to Botswana's needs, and coordinate with the other parts of the junior secondary school program. The specialist must be able to demonstrate various forms of integrated media combinations for low cost instructional materials development.

INSTRUCTIONAL MEDIA SPECIALIST (CD & E)

Training and Experience: Doctorate or equivalent experience in instructional technology or instructional media development. Residential educational project work in Africa or other developing regions is highly desirable. The position is for five years.

Scope of Work: Principal functions will be to assist the curriculum development panels for the several subject areas to select, adapt, or develop the teaching materials and media which will be most appropriate for the subject matter and targeted group of learners. Print media will be the most widely used form of instruction. This will include teaching guides, textbooks, workbooks, student guides and possible short modules of programmed instructions. Some of the materials will need to be made appropriate for small-group or individualized instruction. There is likely, however, to be a requirement for other instructional media that will have to be carefully integrated with the print forms and the teacher delivered instruction. These latter probably will include audio taped lessons, visual slides, laboratory demonstrations, wall charts and others. Design, development and recurring operational costs will be crucial variables in instructional media selection decisions, as are the logistics feasibility and ease of use. The specialist must be competent to advise on all these matters and to help train CD & E personnel in these aspects of instructional media development.

INSTRUCTIONAL SYSTEMS DESIGN SPECIALIST (JSTTC)

Training and Experience: Doctorate or equivalent experience in Instructional Systems Design, Curriculum Development, or a related field, with particular strengths in designing and developing curricula and instructional

programs. Competency in one or more content areas (e.g., mathematics, science, English, social studies or practical arts). Experience in providing technical assistance in developing countries, especially Africa, is highly desirable. The position is for four years.

Scope of Work: The person appointed will be a member of the faculty at the Junior Secondary Teacher Training College (JSTTC) at Molepolole, a residential school for preparing diploma level teachers for the junior secondary schools of Botswana. The person in the position will coordinate the JSTTC's Curriculum Development efforts. In addition, some limited teaching in the Professional Studies course would be expected, in the areas of instructional systems design, teaching methodology, and curriculum development. The person filling this position is expected to provide technical assistance to other faculty members in defining the goals and objectives of the college program, specifying the intended learning outcomes, developing methods, media, and materials, and evaluating the effectiveness and efficiency of the teaching. Assistance would be expected in helping to select appropriate materials for multi-media resource collections. A part of the assignment will be in working with inservice teachers to improve their competence.

STAFF DEVELOPMENT SPECIALIST (JSTTC)

Training and Experience: Doctorate or equivalent experience in staff development of teachers or a closely related field. Experience working to integrate the full range of related information into a closely coordinated program of staff development for preservice and inservice teacher training. Work with preservice and inservice teacher training in developing countries, particularly in Africa, would be useful. The position is for six years.

Scope of Work: The person appointed will serve as Deputy Chief of Party for the Junior Secondary Teacher Training College (JSTTC) advisory group and will be a member of the faculty at the JSTTC at Molepolole, a residential school for preparing diploma level teachers for the junior secondary schools of Botswana. The person appointed will develop and teach courses that are a part of the Professional Studies area of the curriculum development work would be closely coordinated with other teachers. Would provide assistance to the JSTTC faculty members in defining the goals and objectives of their courses, specifying learning outcomes, developing appropriate instructional strategies, and in general using the Instructional Systems Design (ISD) approach in their teaching. The overall goal would be to enable teachers at the JSTTC to impart the means and methods of the ISD approach to the inservice and preservice teachers.

TEACHER EDUCATION CERTIFICATION SPECIALIST (JSTTC)

Training and Experience: Doctorate or equivalent experience in Educational Measurement and Evaluation, Educational Psychology, or related field with an emphasis on educational measurement for certification and evaluation. Experience in measuring outcomes of courses for teacher training, achievement test design, test item development, and course and program evaluation. Interest in applications of certification examinations for preservice and inservice teacher training. Interest in contributing to a closely integrated curriculum of pedagogical studies and an ability to teach in a second field of competence, e.g., educational psychology or curriculum development. Residential work experience in developing countries, particularly in Africa, would be useful. The position is for three years.

Scope of Work: The person appointed will be a member of the faculty at the Junior Secondary Teacher Training College (JSTTC) at Molepolole, a residential school for preparing diploma level teachers for the junior secondary schools of Botswana. The person appointed will teach courses in the Professional Studies curriculum in such areas as educational measurement or test development. Assisting other faculty in developing competency-based tests and other measures of learning outcomes will be a part of the assignment, including working on the measurement of teaching performance. Working with inservice teachers in the development of their achievement measures will also be expected.

TECHNICAL EDUCATION SPECIALIST (JSTTC)

Training and Experience: Doctorate or equivalent experience in overall technical education training at the secondary level. Should have a background of education in technical skills and arts and craft skills with knowledge of up-to-date technology. The specialist should also be an experienced teacher educator, with wide experience in Africa. This appointment is for six years.

Scope of Work: Will be part of faculty at the Junior Secondary Teacher Training College (JSTTC) at Molepolole. The person will assist in establishing an 'option' for interested students and build up a Department to handle the 'Education of the Hands' as a main teaching subject. The person will also teach technical and manual skills in Professional Studies and will assist the inservice team to introduce the teaching of technical subjects into the Junior Secondary Schools. The college will have a workshop for making teaching aids and the specialist is expected to assist in the production of teaching aids.

JUNIOR SECONDARY SCHOOL PROJECTIONS

TABLE 1 Student enrolment 1984-91

	1984	1985	1986	1987	1988	1989	1990	1991
Form 1	10818	11034	11923	13000	17000	19000	21000	23000
Form 2	7084	10169	10372	11208	12220	15980	17860	19740
Form 3 (JC)	5651	6234	8949	9127				
Form 3 (SS)					4639	5257	5876	6494
Form 4	2196	2250	2400	3300	3900	4500	5100	5700
Form 5	1577	2130	2183	2328	3201	3783	4365	4947
JC	23553	27437	31244	33335	29220	34980	38860	42740
SS	3773	4380	4583	5628	11740	13540	15341	17141
TOTAL	27326	31817	35827	38963	40960	48520	54201	59881

NB: Junior Secondary Form 3 comes to an end in 1988.

Source: Ministry of Education Planning Unit, 1984

TABLE 2 Proportion of St.7 leavers entering F.1 1985-91

	St.7 leavers (previous year)	Form 1	% of st.7 entering Form 1
1983	27554	7430	27.0
1984	27339	10818	39.6
1985	27659	11034	39.9
1986	30045	11923	39.7
1987	31800	13000	40.9
1988	32896	17000	51.7
1989	28939	19000	65.7
1990	29245	21000	71.8
1991	32621	23000	70.5

Source: Ministry of Education Planning Unit, 1984

TABLE 3 Net teacher recruitment 1984-92

	JC teachers required	JC net recruit- ment	SS teachers required	SS net recruit- ment	Teachers required	Net recruit- ment
1983	805		179		984	
1984	927	122	207	28	1134	150
1985	1096	169	242	35	1338	204
1986	1240	144	255	13	1495	157
1987	1298	58	308	53	1606	111
1988	1129	-169	614	306	1743	137
1989	1348	219	711	97	2059	316
1990	1495	147	809	98	2304	245
1991	1643	148	902	93	2545	241
1992	1790	147	995	93	2785	240
1983-92		985		816		1801

Source: Ministry of Education Planning Unit, 1984

TABLE 4 Physical Facilities required 1985/86-1990/91

	CJSSs		G/A schools		Total extra rooms
	Extra class- rooms	Extra special- ist rooms	Extra class- rooms	Extra special- ist rooms	
1985/86	82	105	4	8	199
1986/87	55	55	12	24	146
1987/88	114	114	0	0	228
1988/89	85	85	4	8	182
1989/90	108	108	0	0	216
1990/91	74	74	8	16	173
Total	519	542	28	56	1145

Source: Ministry of Education Planning Unit, 1984

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EDUCATION CENTERS UNDER JSEIP

Introduction

Crucial to the effective delivery of the revised curriculum and instructional program for junior secondary education is a network of education resource centers, located in district headquarters throughout Botswana, which will reach 90-95% of all teachers, headmasters, inspectors, and education officers, both primary and secondary, serve as multi-purpose focal points for agriculture, health, community development, social welfare, and local administration activities and operate on a regional basis to help the Ministry of Education decentralize many of its current administrative practices which now subject local decision-making to needless delay, unnecessary paperwork, travel time and expense. At present, six centers, in various stages of repair, are being used. Only one has its own hostel facility and needs no renovation. Two operate in temporary quarters which can be repossessed at any time. One is in such bad condition that it must be relocated entirely. Three need renovations and additions, but manage to carry out full programs during the year, quite successfully.

The Ministry of Education is responsible for the education centers currently in operation. Several are the responsibility of the Department of Non-Formal Education; the others are run by the Department of Primary Education, all under the MOE. When a Department of Teacher Education is established, both preservice and inservice education will be under a Chief Education Officer who will assign responsibilities to Regional Education Officers, who, in turn, will supervise those staffing the centers. Secondary education officers use the centers for workshops in subject areas, especially on the junior secondary education level. Although primary inservice education workshops held by the PEIP and MOE groups comprise a good share of each center's daily activities, there would be room for junior secondary inservice education workshops on a regular schedule if additional centers were built to accommodate the growing demand for localized training programs. Food and lodging are very expensive items in budgets for workshops, especially when only hotels are available for project activities; so hostels, kitchens and dining areas are necessary for each center if other nearby accommodations are lacking.

Under the JSEIP project, at least 1,000 trained and untrained junior secondary teachers would be attending inservice workshops involving professional and educational studies, curriculum revisions and teaching methodologies. Since JSEIP is being designed as a logical sequence to PEIP to insure nine years of quality basic education, it is essential that both primary and junior secondary personnel work closely together. The education resource centers would be the focal points for dissemination of the revised curricula for both primary and junior secondary school. Dissemination would take place under the training coordinators appointed by the MOE, the regional inspectors, education

the regional inspectors, education officers and local education secretaries under the Ministry of Local Government and Lands (MLGL).

With the opening of the Tlokweng Primary Teacher Training College near Gaborone, and the Molepolole Junior Secondary Teacher Training College in January, 1985, two additional educational centers will be able to function on a regular basis; however, they will not service the rural areas which have urgent needs for teacher training under the MOE primary and secondary expansion procedures. At least nine new centers are needed in addition to the renovation of three. (See attached map.) Whenever possible, education centers will work closely with established PTTCs; but where there are no PTTCs, education centers are essential if both JSEIP and PEIP are to realize project goals. For example, there is a special need for a center in Tsabong, located in the southwestern section of Kgalegadi District. In the surrounding area, children, teachers, and parents speak Afrikaans and find it difficult to master Setswana or English without special day and evening courses for adults who, in turn, can work with children to help eliminate many frustrations, resulting from the language handicap. There is no center of any kind in the area which could be used for adult classes or teacher workshops.

A center in Ghanzi would eliminate the current two-day round trip of teachers to Maun or Kang at considerable expense to the MOE and to the detriment of children who are often left without teachers for two weeks, instead of one. The staff at Ghanzi would be able to reach schools more easily and, if necessary, conduct workshops on an extension basis. Similar situations prevail at Kasane, Gomare, and Masunga, which prevent teachers from benefiting from local workshops.

The MOE has plans to establish a Department of Teacher Education which would administer preservice and inservice training under a Chief Education Officer (CEO) for Teacher Education. The Teacher Training Colleges and Education Centers would work together to develop courses, to be approved by the University of Botswana, to strengthen skills needed in teaching. As revised curricula and instructional materials are developed for the improved junior secondary program, they will be introduced to teachers at the education centers for trial, revision, and dissemination. There is also a proposal to enable inservice teachers to upgrade their positions and salaries on the basis of merit.

To accomplish the goal of universal basic education of nine years, the approach cannot be piecemeal; a carefully planned network of ECs and TTCs comprising a minimum of fourteen locations is crucial to the success of the instructional delivery system in Botswana.

EC Building Projections

Year One: Gomare and Tsabong
Year Two: Kasane and Masunga*
Year Three: Ghanzi, and Maun
Year Four: Selebi-Phikwe, Mochudi, and Mahalapye

EC Renovations

Year Five: Serowe*, Lobatse*, and Molepolole*

*Near TTCs.

JSEIP proposes to build those centers underlined, in accordance with the Model for Assignment of Construction/Renovation Priority to Education Centers.

A typical education center has a varied schedule from week to week. Those which are close to primary teacher training colleges (Lobatse, Francistown and Serowe) or schools (Matsha) share facilities, such as hostels, kitchens, libraries, audio-visual equipment and classrooms. With the opening of a PTTC in Tlokweng (Gaborone) and the JSTTC in Molepolole, both with inservice centers on campus, opportunities for primary, junior secondary, and non-formal education workshops will be greatly increased. Until the JSTTC at Molepolole is operating at full capacity (in 1987), the hostels on campus could be used by the Molepolole Education Center even though the JSTTC campus is some distance away from the education center itself. Since only the Matsha Education Center has hostel and kitchen facilities, most of the other centers must run on a limited basis, depending upon food and lodging in surrounding villages.

A typical center has two classrooms, one of which is used for a workroom in which teaching materials/visual aids are made. A small library contains reference books, pamphlets, teachers' guides, syllabi, textbooks and supplementary materials which teachers can read or borrow, as needed. Two offices are used by an administrator or director and his or her assistant or workshop coordinator. A clerical officer, a typist, a janitor, a driver, and a messenger are standard positions for each center. In some cases, education officers share the facilities if no other office space in the community is available. When a hostel (36 beds) is available, a matron or warden is assigned by the MOE to be responsible.

Because centers near TTCs must build their programs around day-school schedules, those centers with electricity have late afternoon and evening courses for local teachers and use the hostels when day school is not in session for day-time workshops. Since vacation time for TTCs is not always the same, education center activities are programmed for out-of-town teachers between TTC sessions. Since Maun, Molepolole, and Matsha are heavily utilized for non-formal education activities, primary and junior secondary education workshops must be held around NFE activities; although MOE departments have cooperated very well, some primary and secondary programs must be delayed or curtailed because centers are overbooked. Extensive training of Tirelo Setshaba (national service) participants for their work in rural primary schools on a national scale has created a further demand for the use of the centers in recent months.

Depending upon the size of the center, community organizations use classroom space, especially in the evenings, for public meetings, agriculture cooperative sessions, town council affairs, film showings and exhibitions. The director is responsible for planning a yearly schedule of events through a center planning committee.

To help determine which of the planned centers should be built first, USAID's project economist prepared a "Model for Assignment of Construction/Renovation Priority to Education Centers." (Attached) By computing utilization and need in the catchment areas, the economist was able to help the MOE and USAID decide which centers needed to be built first in order of priority to provide inservice education facilities where need and utilization would likely be the greatest. The map attached includes the locations of the four Primary TTCs, the one Junior Secondary TTC, and the locations for the Education Centers. Under this project, USAID and GOB will build six new centers at Masunga, Phikwe, Gomare, Mahalapye, Ghanzi and Maun at the rate of two during each of the first three years of project implementation, using the FAR arrangement of 60% - AID and 40% - GOB.

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MODEL FOR ASSIGNMENT OF
CONSTRUCTION/RENOVATION PRIORITY TO EDUCATION CENTERS

I. MODEL

Order of Const. or Ren. = f (Utilization, Need)
Utilization = g (Number of Teachers in Catchment Area)
Need = h (% Teachers Untrained, Student Acad. Perf.)

II. VARIABLES

1. Teachers in Catchment Area = Total number of primary and secondary teachers in each of the areas served by the education centers as of 1983.
2. Percentage Teachers Untrained = The number of untrained primary and secondary teachers in area divided by total number of primary and secondary teachers as of 1983.
3. Student Academic Performance = The proportion of students receiving either an A or B on the 1982 Primary School Leaving Examination. This proportion is an indicator of the relative number of students eligible for admission to secondary school.

III. HYPOTHESES

1. The larger the absolute number of primary and secondary teachers in the area served by the education center, the greater is the likely utilization of the facility. This assumes that the number of teachers is also an indicator of the number of other district level workers who would be served by the center.
2. The higher the proportion of primary and secondary teachers untrained, the greater is the need for inservice training in the area served by the center.
3. The lower the proportion of students receiving either an A or a B on the Primary School Leaving Examination, the greater is the need to improve the quality of the teaching force through inservice teacher training.

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Table 1: Primary and Secondary Teachers, Percent Teachers Untrained, Primary School Leaving Examinations, and Pass Rate on Junior Certificate Examinations by Education Center Catchment Area
(Column Rank in Parenthesis)

EDUCATION CENTER	Number Primary & Secondary Teachers in 1983						Percent Primary & Secondary Teachers Untrained 1983						Prim. School Leaving Exam 1982		Junior Cert. Exam 1982	
	TOTAL		PRIMARY		SECONDARY		TOTAL		PRIMARY		SECONDARY		% A's + B's		% Pass	
	c2	(R)	c3	(R)	c4	(R)	c5	(R)	c6	(R)	c7	(R)	c8	(R)	c9	(R)
1. Gomare	188	(10)	177	(10)	11	(12)	38.3	(2)	37.9	(2)	45.5	(1)	15.8	(2.5)	0	(13)
2. Maun	283	(9)	238	(9)	45	(9)	32.9	(4)	34.9	(3.5)	22.2	(7)	23.3	(5)	75.1	(9)
3. Kasane	56	(14)	56	(14)	0	(13.5)	26.8	(12.5)	26.8	(12)	0	(13.5)	13.0	(1)	0	(13)
4. Masunge	1184	(1)	1045	(1)	139	(4)	29.5	(7)	30.9	(7)	18.7	(9.5)	35.4	(12)	70.5	(6)
5. Phikwe	857	(3)	753	(3)	104	(5)	27.7	(10)	28.0	(11)	25.0	(4)	24.9	(6)	81.6	(10)
6. Serowe	789	(6)	602	(5)	187	(3)	26.9	(11)	29.4	(9)	18.7	(9.5)	25.6	(7)	72.8	(7)
7. Mahalapye	530	(7)	470	(7)	60	(8)	26.8	(12.5)	26.4	(13)	30.0	(2)	19.7	(4)	63.6	(3.5)
8. Mochudi	426	(8)	359	(8)	67	(6)	29.3	(8)	31.8	(5)	16.4	(11)	32.4	(11)	69.4	(5)
9. Ghanzi	145	(12)	128	(12)	17	(11)	29.7	(6)	30.5	(8)	23.5	(6)	15.8	(2.5)	52.3	(1)
10. Tsabong	124	(13)	124	(13)	0	(13.5)	38.7	(1)	38.7	(1)	0	(13.5)	30.7	(10)	0	(13)
11. Molepolole	790	(5)	724	(4)	66	(7)	31.0	(5)	31.2	(6)	28.8	(3)	40.8	(13)	60.1	(2)
12. Lobatse	1133	(2)	941	(2)	192	(2)	28.0	(9)	29.2	(10)	21.9	(8)	26.5	(8)	63.6	(3.5)
13. Tlokweng	794	(4)	559	(6)	235	(1)	22.7	(14)	26.3	(14)	14.0	(12)	50.2	(14)	74.0	(8)
14. Matsha	174	(11)	149	(11)	25	(10)	33.3	(3)	34.9	(3.5)	24.0	(5)	30.5	(9)	81.7	(11)
TOTAL/AVERAGE	7473		6325		1148		28.6		30.1		20.5		30.6		69.6	

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IV. RANKING OF EDUCATION CENTERS

1. Three Cases

- Case 1 = Giving more weight to need.
- Case 2 = Treating need and utilization equally.
- Case 3 = Giving more weight to utilization.

2. Selection Criterion

Construct or renovate if Rank Score < average rank.

3. Three Groups:

- Priority 1
- Priority 2
- Priority 3

V. CALCULATION BY CASE

1. Case 1: Need given more weight than utilization

Formula = Rank column 2 + Rank column 5 + Rank column 8
 Mean Rank = 21

Note: Ranks for each variable found in parenthesis in respective columns. For example "Rank column 2" refers to ranking in column 2 for the education centers.

<u>Ranking</u>	<u>Sum of Ranks</u> <u>(low to high scores)</u>	
Gomare	14.5	
Maun	18.0	
Phikwe and Lobatse	19.0	
Masunge	20.0	
Ghanzi	20.5	
-----		Mean = 21
Molepolole and Matsha (New)	23.0	
Mahalapye	23.5	Marginal
Serowe and Tsabong	24.0	
Mochudi	27.0	
Kasane	27.5	
Tlokweng (New)	32.0	

Priorities under Case 1

Renovations
 Lobatse

 Molepolole

New
 Gomare
 Maun
 Phikwe
 Masunga
 Ghanzi

 Matsha (New)
 Mahalapye

2. Case 2: Need and Utilization Given Equal Weight
Formula = 2 Rank column 2 + Rank column 5 + Rank column 8
Mean = 28

<u>Ranking</u>	<u>Sum of Ranks</u> <u>(low to high scores)</u>	
Masunga + Lobatse	21.0	
Phikwe	22.0	
Gomare	24.5	
Maun	27.0	
Molepolole	28.0	
-----		Mean = 28
Serowe	30.0	
Mahalapye	30.5	Marginal
Ghanzi	32.5	
Matsha (New)	34.0	
Mochudi	35.0	
Tlokweg (New)	36.0	
Tsabong	37.0	
Kasane	41.5	

Priorities Under Case 2

Renovations

Lobatse
Molepolole

Serowe

New

Masunga
Phikwe
Gomare
Maun

Mahalapye

3. Case 3: Utilization Given More Weight than Need
Formula = 3 Rank column 2 + Rank column 5 + Rank column 8
Mean = 35

<u>Ranking</u>	<u>Sum of Ranks</u> <u>(low to high scores)</u>	
Masunga	22.0	
Lobatse	23.0	
Phikwe	25.0	
Molepolole	33.0	
Gomare	35.5	
-----		Mean = 35
Serowe + Maun	36.0	
Mahalapye	37.5	Marginal
Tlokweg (new)	40.0	
Mochudi	43.0	
Ghanzi	44.5	
Matsha (new)	45.0	
Tsabong	50.0	
Kasane	55.5	

Priorities in Case 3

Renovations
Lobatse
Molepolole

Serowe

New
Masunga
Phikwe
Gomare

Maun
Mahalapye

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VI. COMPARISON OF THREE CASES

First Priority = Center a priority regardless of case.

Group 1

Renovations

Lobatse

New Construction

Masunga
Phikwe
Gomare

Second Priority = Center a priority or marginal in one or more cases.

Group 2

Renovations

Molepolole
Serowe

New Construction

Mahalapye, Maun
Ghanzi
Matsha (new)

Third Priority = Center not a priority or marginal in any case.

Group 3

Renovations

Tlokweng (new)

New Construction

Mochudi
Tsabong
Kasane

ANNEX K

MAJOR STEPS IN CURRICULUM AND INSTRUCTIONAL DEVELOPMENT PROCESS	PROJECT YEAR					
	1	2	3	4	5	6
1. Integrate JSEIP advisors with curriculum development panels for major subject areas, e.g., math, science English, etc.	—					
2. Analyze content and instructional resources of existing curriculum.	—					
3. Form interdisciplinary committees of private and public sector subject specialists to review educational goals and objectives.	—					
4. Compile exemplary curricula from other educational systems where possible and appropriate.	—					
5. Analyze teaching/learning requirements in terms of social, personal and work preparation requirements by area and level.	1	—				
6. Elaborate educational purposes to be served by jr. secondary program.	—	—				
7. Compare existing curriculum content with these defined educational purposes.	1	—	1			
8. Specify curriculum areas where subject matter content must be revised, updated or created anew.	1	—	1			
9. Develop and sequence student learning objectives for each block of instruction.	1	—	2	1		
10. Survey off-the-shelf instructional materials to judge their adequacy for effectively teaching the objectives.	1	—	1	1		

Note: Numbers are the expected months of short-term consultants associated with each task.

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	1	2	3	4	5	6
11. Identify the objectives for which no suitable materials exist and for which new materials must be developed.		1	1			
12. Determine which type of media will be developed for which objectives consistent with cost and logistical feasibility.	1					
13. Develop needed instructional materials: textbooks, workbooks, student guides and teaching aids.	1	3	2			
14. Develop diagnostic, criterion referenced tests for learning progress checks by learners and teachers.	2	4	3	2	2	
15. Develop provisional teacher guides.	1	2	2			
16. Train teachers in limited number of demonstration schools in new curriculum implementation processes.		1	1			
17. Implement modular curriculum units for in-school tryouts.			1			
18. Collect for each module, learner achievement data and student/teacher reactions.			1	1	0	
19. Revise modular curriculum units as indicated by field tryouts.			1	1	1	
20. Repeat this cycle until all units or modules for all subjects have been validated in terms of their instructional effectiveness.				1	2	
21. Develop interim and end-of- course achievement tests.				1	1	
22. Develop final Teacher Guides for each subject and grade level.			1	1	1	

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	1	2	3	4	5	6
23. Produce teaching/learning materials in quantity for nationwide dissemination.				—————		
24. Train field teaching staff to implement the revised curriculum.		—————				
25. Distribute new materials and implement nationwide.				—————		

TOTAL STC PERSON MONTHS:

10

16

16

9

9

60

ANNEX L

INSERVICE TEACHER TRAINING	Project Year					
	1	2	3	4	5	6
1. Analysis of skills/knowledge of jr. secondary teachers in the field.	.5					
2. Establish priorities for most urgently needed training areas.	.5					
3. Implement "high priority" inservice courses.	1					
4. Coordinate with JS curriculum development of CD/E.	.5	1				
5. Identify teaching subjects for skill upgrading.	1					
6. Identify ISD skill/knowledge applications for teachers.	1					
7. Identify skill/knowledge deficiencies of field teachers.	1	1				
8. Design and organize inservice teacher training program.	.5	2	1			
9. Implement initial training sessions, evaluate and revise.		3.5	5			
10. Implement inservice training programs nationwide according to plan.		2.5	5	6	5	
11. Evaluate outcomes.			1	1		
TOTAL STC Person Months:	6	10	12	7	5	

ANNEX L

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COUNTRY CODE 935 WAIVER JUSTIFICATION

Requested are waivers, for source and origin from Code 941 to Code 935 for commodities, vehicles and technical services.

- a. Cooperating Country - Botswana
- b. Project - Junior Secondary Education Improvement Project (633-0229)
- c. Nature of Funding - Grant
- d. Source of Funding - ESF
- e. Description of Goods:
 1. Commodities - including furniture, office equipment, kitchen equipment, instructional materials, production equipment, books and periodicals.
 2. Vehicles - nine 4WD off road vehicles, two passenger van type vehicles and their replacements, for conducting preservice and inservice training activities.
 3. Technical Services - consultant architect, engineering and quantity surveying services to assist AID monitoring of construction activities.
- f. Approximate Value: (includes estimated inflation and contingency)
 1. \$1,100,000
 2. \$ 520,000
 3. \$ 25,000
- g. Probable Source:
 1. RSA
 2. RSA
 3. Botswana
- h. Probable Origin
 1. Japan, U.K. or RSA
 2. RSA or Japan
 3. RSA or U.K.

DISCUSSION

1. Commodities. The commodities will be used to furnish contractor staff houses, to furnish and equip offices in the new Curriculum Development/Evaluation building, and to furnish and equip the new education centers being built under the Junior Secondary Education Improvement Project (Botswana 633-0229). Details of commodities are shown in the notes on cost estimates (Annex F.2 of the JSEJP Project Paper).

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Very little furniture and equipment are manufactured in Botswana. All these items will probably be procured from South Africa. Much equipment is electrical and U.S. equipment is not equipped with 220V 50 HZ. Furthermore, the very long lead time required for procurement of goods from the U.S. would seriously delay the project. There is a lack of repair services for U.S. products in Botswana. Most furniture and equipment currently used in Botswana is from South Africa. Such a waiver is based on criteria nos. 2 and 7, pp. 7-8, HB 1, Supp. B, Chapter 5 B.

2. Vehicles. The vehicles required include nine (9) 4WD off the road, right hand drive, long wheel-base vehicles suitable for extended field work and their eventual replacement, as well as two right hand drive, passenger van type vehicles and their eventual replacement. These vehicles will be used principally for conducting preservice and inservice training activities for teachers and administrators.

There are no local repair capabilities or spare parts for U.S. vehicles in Botswana. Road traffic moves on the left side of the road in Botswana giving RHD vehicles a definite safety advantage over LHD vehicles. No RHD vehicles of the type required are manufactured in the U.S. The vehicle fleet consists of RSA assembled European and Japanese RHD vehicles. Blanket source/origin waivers for procurement of left hand drive vehicles in Southern African countries were approved for Calendar year 1983 and 1984 based on these same justifications. USAID/Botswana assumes that this waiver authority will be continued and therefore would utilize it to procure 22 vehicles for the project.

In addition to procurement source waiver under AID HB15, a waiver is requested under Section 636 (i) of the FAA for special circumstances "...such as a need for right hand drive or other types of vehicles not produced in the United States."

3. Technical Services. AID will contract directly for an estimated 75 working days of architect, engineer and quantity surveyor services, to be provided over the three year construction period. The services will assist USAID/B and regional AID engineers with monitoring the construction program. Their services are only useful if they are provided by a firm doing business in Botswana, familiar with construction practices in Botswana and able to provide the required expertise at short notice and for irregular intervals.

There are no U.S. owned firms of this type with established offices in Botswana. Only one firm that qualifies as a Botswana owned firm is known. It is a new and small firm in the business and may not have the capability of providing the services required by AID. At least nine other firms are well established in Botswana and can provide the required services. Most are owned by British or South African citizens. A waiver of nationality from Code 941 to 935 is therefore requested based on criteria 1 (b), page 15, HB 1, Supp B, Chapter 5 D.

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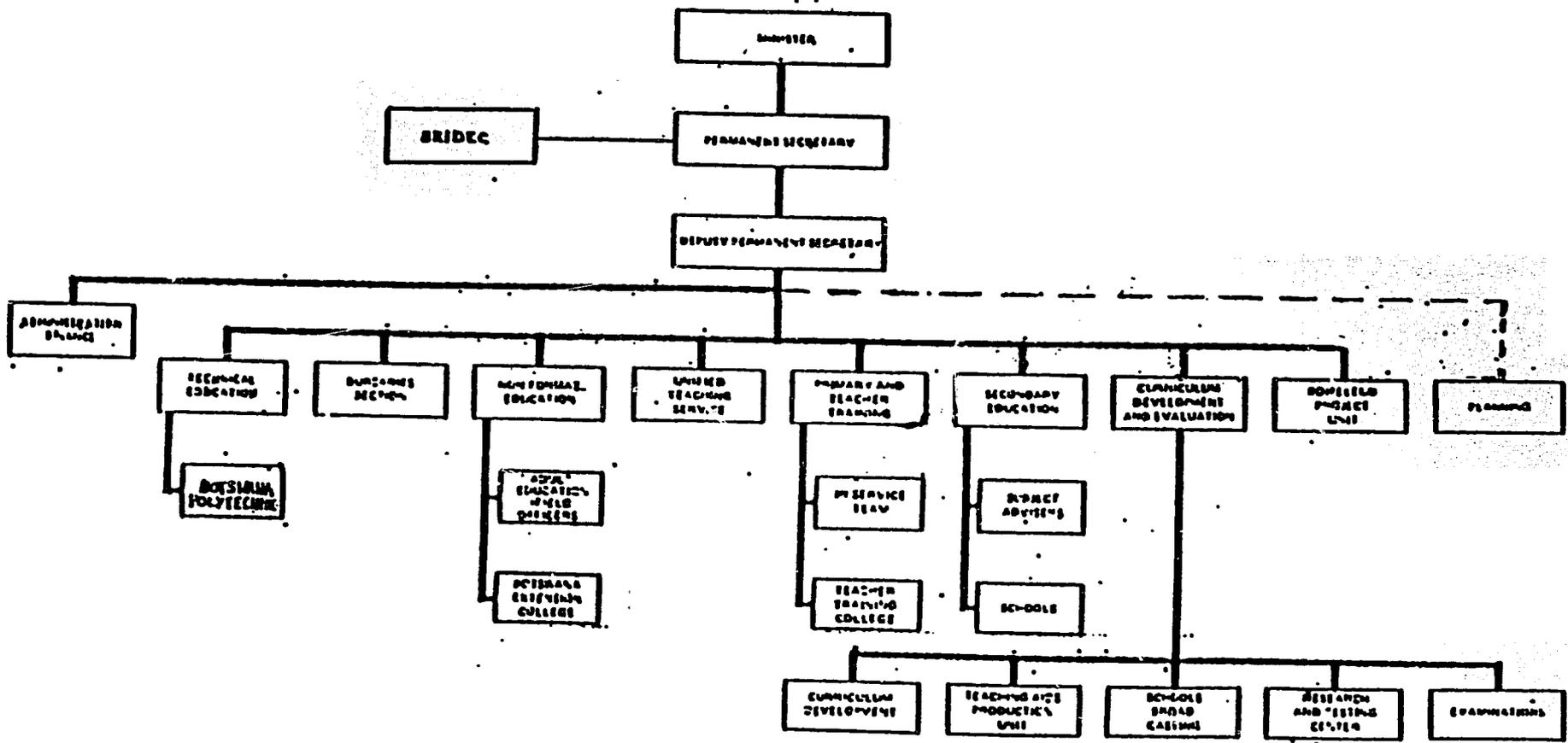
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ANNEX 0: MINISTRY OF EDUCATION ORGANIZATION



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