

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/DR, ^{J.W. Koehring} John W. Koehring

Problem: Your signature is requested for the attached Action Memorandum for the Administrator recommending authorization of the Botswana Agricultural College Expansion Project (633-0074). Your approval is also required for a negative determination of the Initial Environmental Examination (IEE).

Discussion: Total project costs are \$7,149,300. A waiver is being requested for approximately \$1,424,000 of construction materials and approximately \$91,000 of other commodities to permit procurement of these items from Code 935 countries.

Recommendation: That you approve the recommendation for a negative determination by signing the attached IEE and that you sign the Action Memorandum to the Administrator recommending authorization of the project and requested waivers.

Attachments:

1. Action Memorandum for the Administrator
2. IEE
3. Detailed Justification for waivers

Clearances:

AFR/DR/SA: JPGuedet	<u>JPG</u>	Date	<u>8/15/78</u>
AFR/DR/ARD: WJohnson	<u>WJ</u>	Date	<u>8/15/78</u>
AFR/SA: VAnderson	<u>V.A.</u>	Date	<u>8/15/78</u>
AFR/E-R: GCorinalde	<u>G.C.</u>	Date	<u>8/15/78</u>
AFR/DP: JLiebeson	<u>JL</u>	Date	<u>8/15/78</u>
AFR/DP: CWard	<u>CW</u>	Date	<u>8/15/78</u>
AFR/SA: THEQuimby	<u>TEQ</u>	Date	<u>8/15/78</u>

AFR/DR/SAP: ^{J. Kline} DKline:agb:9/14/78:X28818

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EXECUTIVE SECRETARIAT

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SEP 25 1978

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ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: AA/PPC, Alexander Shakow *Chadwick*

THRU: ES *ES*

FROM: AA/AFR, Goler T. Butcher *G.T.B.*

Problem: Your approval is required for a grant of \$7,149,300 to Botswana for the Botswana Agricultural College Expansion Project (633-0074).

Discussion: The proposed project is designed to assist the Government of Botswana (GOB) alleviate the constraint to development imposed by the extreme shortage of lower and middle level personnel in animal health and agriculture to serve the agricultural sector. Presently, at the working levels of the Ministry of Agriculture there are 70 vacant positions for agricultural extension demonstrators and veterinary assistants and 85 additional vacancies for such skills in the private and quasi-public sectors. At the planning and administrative levels there are some 30 additional vacancies. It is anticipated that given the current capacity of the Government of Botswana (GOB) to train individuals in agriculture that there would be nearly 600 vacancies in the Ministry of Agriculture and in the private and parastatal sectors by 1983. The project will focus on improving and increasing the capacity of the Botswana Agricultural College (BAC) to train agricultural manpower. Accordingly, the purpose of the project is to establish BAC as a largely localized training institution capable of serving Botswana rural sector needs for low and intermediate level agricultural personnel. It is anticipated that this improvement in BAC's capacity will help alleviate the acute manpower shortage in the agricultural sector thereby enabling the GOB to better plan, administer, and implement programs in the agricultural sector. The availability of more trained manpower should contribute to the project goal of improving the welfare of Botswana's small scale farmers/herders.

To accomplish the project purpose, \$2,000,000 is requested for obligation in FY 1978. The life-of-project funding required is \$7,149,300 to be expended over the six year funding period. The project life will be seven years due to the long-training period for students in veterinary medicine. The following budget outlines dollar expenditures by component for funds requested.

CG03381

	FY 1978 Life of Project			
	FX	LC	TOTAL	
Construction	925	925	1850	2846.3
Technical Assistance	136	--	136	3002.0
Participant Training	14	--	14	788.8
Equipment	---	---	---	<u>512.2</u>
	1075	925	2000	7149.3

The Government of Botswana will contribute \$2,912,700 to this project which will finance the final design, supervision of construction, 50% of the infrastructure costs to support new facilities (sewerage, water supply, electrical, roads and landscaping) salaries for additional staff required by the expansion, and the costs of building and vehicle maintenance.

The activities proposed in the project are socially, technically, and economically feasible. The Botswana Agricultural College has been thoroughly examined and believed to have the capacity to undertake the activities proposed under the project. Botswana's manpower profile has been examined and the country will be able to effectively utilize and absorb the increased number of BAC graduates resulting from the project. There appear to be no financial constraints to preclude the GOB from providing the required funding for project implementation. Finally, the social analysis identifies no cultural barriers which would impede project implementation.

I have approved a negative determination for the Initial Environmental Examination. There is one condition precedent to disbursement which is included in the authorization. It requires that the GOB submit to A.I.D. prior to any disbursement for construction (a) final plans, specifications and bid documents for the construction, (b) an executed contract for such construction with a firm acceptable to A.I.D., and (c) evidence that adequate sites are available for the construction of technicians' housing. In addition to this condition precedent, there are

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five covenants included in the authorization. The first requires that the GOB submit, within 90 days from the date the project agreement is submitted, evidence that other donor support will be forthcoming on a timely basis to provide necessary technical and other assistance to the BAC. Such a requirement will help ensure that other donor support will be timed so as to complement planned A.I.D. inputs. The second covenant requires that Botswana sent for training occupy the positions intended for them at BAC upon their return. The remaining three covenants are self explanatory. In addition to A.I.D. regulations the following waivers are also required:

The policy set forth in Handbook 3 limiting the length of a project to six years is waived to allow a project life of approximately seven years.

2. The requirement set forth in Handbook 1 Supplement B that commodities procured with grant funds have their source and origin in countries included in A.I.D. Geographic Code 941 (and Botswana) is waived to permit procurement of approximately \$1,424,000 of construction materials and approximately \$91,000 of other commodities and equipment which have their source and origin in countries included in A.I.D. Geographic Code 935. Exclusion of procurement of these construction materials from Code 935 countries would seriously impede attainment of U. S. foreign policy objectives and the objectives of the foreign assistance program.

3. The requirement under Handbook 1, Supplement B that commodities procured with grant funds have their source and origin in the U.S. is waived to permit the procurement of four project vehicles, at an approximate cost of \$45,000, which have as their source and origin countries included in A.I.D. Geographic Code 935. Exclusion of procurement of the project vehicles from countries included in Code 935 would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program; and special circumstances exist which justify waiver of the requirement of Section 636 (i) of the Act.

4. Approval to deviate from the policy expressed in A.I.D. Handbook 11, Chapter 2 which limits employment of third country Nationals on A.I.D.-financed construction to 20% of the non-local work force.

The project committee reviewed and recommended approval of this Project on August 22, 1978. The Congress was notified of the increase in funds required for the project on September 11, 1978 and the 15 day waiting period expired on September 25, 1978. The responsible officer in the field will be Mr. John Morris and the AID/W backstop officer will be Douglas T. Kline, AFR, DR, SAP.

*the source
of procurement
for both
business will
be the
Republic of
South Africa.
Doy
9/27*

The Christopher Committee on Human Rights has raised no issues with respect to this project.

There are no outstanding issues regarding GAO or AID audits, internal or external evaluations, or congressional inquiries.

Recommendation: That you sign the attached PAF II and thereby authorize the proposed project and the requested waivers.

Attachments:

PAF II
Project Paper

Clearance:

GC: MBall MB Date 9/1/78
GC/AFR: JPatterson JP Date 9/1/78
PPC/PPR : EHogan EH Date 9/1/78
COM/ALI: BViragh BV Date 9-15-78

D. Klare
AFR/DR/SA: DKline:agb:9/13/78:28818

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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON

DEPUTY ADMINISTRATOR

September 27, 1978

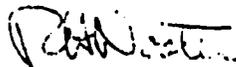
MEMORANDUM FOR: Mrs. Goler Butcher, AA/AFR

SUBJECT: Botswana Agricultural College Expansion
Project (633-0074)

Please refer to your memorandum of September 25 requesting approval of the above project and the several waivers relating to procurement sources, the employment of third country nationals and a life-of-project span of 7 years.

Inasmuch as you have authority to approve the project itself, I believe it would be preferable and more consistent with our decentralization concepts if you would also approve the required waivers pursuant to the following redelegation of my authority:

"Pursuant to the authority vested in me, I hereby authorize the Assistant Administrator for the Africa Bureau to approve the waivers described in the attached Project Authorization and Request for Allotment of Funds."



Robert H. Nooter

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ANNEX C

PROJECT AUTHORIZATION AND REQUEST FOR
ALLOTMENT OF FUNDS

PART II

NAME OF COUNTRY: BOTSWANA
NAME OF PROJECT: BOTSWANA AGRICULTURAL COLLEGE EXPANSION
NUMBER OF PROJECT: 633-0074

Pursuant to Part II, Chapter 4, Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to Botswana (the "cooperating Country") of not to exceed two million United States Dollars (\$2,000,000) (the "Authorized Amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraphs.

The Project will assist the Grantee to improve and increase the capacity of the Botswana Agricultural College (BAC) to train agricultural personnel. To this end, the Project will assist the Grantee to localize teaching and administrative positions at BAC, establish and reorient curricula, and expand the physical facilities of BAC, so as to increase the number of qualified agricultural personnel available to serve the needs of the rural sector in Botswana. To carry out the objectives of this project AID will provide financing for technical assistance, commodities, participant training, and construction and other services.

I approve the total level of A.I.D. appropriated funding planned for this project of not to exceed seven million one hundred and forty nine thousand three hundred (\$7,149,300) (Grant) during the period FY 1978 through FY 1983, subject to the availability of funds and in accordance with A.I.D. allotment procedures.

I hereby authorize the initiation of negotiations and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Goods and Services

Goods and services financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed under the Grant shall be procured in the United States or the Cooperating country, except as A.I.D. may otherwise agree in writing.

b. Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance the physical expansion of the Botswana Agricultural College including staff housing, the Grantee will submit for A.I.D. approval, in form and substance satisfactory to A.I.D., (a) final plans, specifications and bid documents for the construction, (b) an executed contract for such construction with a firm acceptable to A.I.D., and (c) provide adequate sites for the construction of technicians' housing. Should the Grantee decide to let more than one contract for this construction the above conditions precedent may be satisfied separately for each such contract.

c. The Grantee shall covenant, in substance, as follows:

1. To submit, within 90 days from the date the Project Agreement is executed, or such later date as A.I.D. may agree to in writing, evidence that other donor support will be forthcoming on a timely basis to provide necessary technical and other assistance to the BAC.

2. To establish, prior to the return of participants from training in the U.S., all required positions in Government or the BAC which the Parties have agreed will be occupied by these participants.

3. To provide all required personnel, on a timely basis, to serve in counterpart positions or to undergo A.I.D.-financed participant training. Also, that upon their return, participant trainees will be placed in positions established for them by the Grantee or such other positions, commensurate with the nature and level of their training, as the Parties may agree to in writing.

4. To provide adequate housing, on a temporary basis, for AID-financed technical assistance personnel in the event permanent housing is not available for this personnel upon their arrival in Botswana.

5. To undertake necessary construction of expanded infrastructure facilities for the BAC as soon as possible after the Project Agreement is executed. The Parties will agree to consult on a regular basis to discuss progress in the construction of these facilities and steps which may be taken to remedy any difficulties which may have delayed construction.

d. The following waivers to A.I.D. regulations are hereby approved:

1. The policy set forth in Handbook 3 limiting the length of a project to six years is waived to allow a project life of approximately seven years.

2. The requirement set forth in Handbook 1 Supplement B that commodities procured with grant funds have their source and origin in countries included in A.I.D. Geographic Code 941 (and Botswana) is waived to permit procurement of approximately \$1,424,000 of construction materials and approximately \$91,000 of other commodities and equipment which have their source and origin in countries included in A.I.D. Geographic Code 935. Exclusion of procurement of these construction materials from Code 935 countries would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

3. The requirement under Handbook 1, Supplement B that commodities procured with grant funds have their source and origin in the U.S. is waived to permit the procurement of four project vehicles, at an approximate cost of \$45,000 which have as their source and origin countries included in A.I.D. Geographic Code 935. Exclusion of procurement of the project vehicles from countries included in Code 935 would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program; and special circumstances exist which justify waiver of the requirement of Section 636 (i) of the Act.

4. The policy set forth in A.I.D. Handbook II, Chapter 2 which limits employment of third country nationals on A.I.D. financed construction to 20% of the non-local work force.

Robert H. Nooter

Robert H. Nooter
Deputy Administrator

9/28/78

(Date)

* Pursuant to 9/27/78 delegation of authority by DA/AID

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET	1. TRANSACTION CODE <input type="checkbox"/> A ADD <input type="checkbox"/> C CHANGE <input type="checkbox"/> D DELETE	PP 2. DOCUMENT CODE 3
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3. COUNTRY/ENTITY BOTSWANA	4. DOCUMENT REVISION NUMBER <input type="checkbox"/>	
5. PROJECT NUMBER (7 digits) 633-0074	6. BUREAU OFFICE A SYMBOL: AFR B. CODE: 1	7. PROJECT TITLE (Maximum 40 characters) BOTSWANA AGRICULTURAL COLLEGE EXPANSION
8. ESTIMATED FY OF PROJECT COMPLETION 86	9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY: 78 B. QUARTER: 4 C. FINAL FY: 83 (Enter 1, 2, 3, or 4)	

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY 78			LIFE OF PROJECT		
	B. FY	C. L/C	D. TOTAL	E. FY	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	1075	925	2000	5693.3	1456.0	7149.3
(LOAN)						
OTHER U.S.:						
1. Peace Corps				92		92
2.						
HOST COUNTRY	-	110.3	110.3	-	2912.7	2912.7
OTHER DONOR(S)	-	-	-	2058		2058
TOTALS	1075	1035.3	2110.3	7842.3	4368.7	12212.0

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 78		H. 2ND FY 79		K. 3RD FY 80	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) SSA	101B	010		2000		1196.3		1378.8	
(2)									
(3)									
(4)									
TOTALS				2000		1196.3		1378.8	

A. APPROPRIATION	N. 4TH FY 81		O. 5TH FY 82		LIFE OF PROJECT		12. IN-COMPLETION EVALUATION CHECKED
	C. GRANT	P. LOAN	H. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) SSA	770.4		814.3		7149.3		MM YY 01 81
(2)							
(3)							
(4)							
TOTALS	770.4		814.3		7149.3		

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

1. NO
 2. YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE: Ted D. Morse TITLE: Acting Regional Development Officer	15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION DATE SIGNED: 08 01 78
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* FY 1983 Funding Totals \$991.5.

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PART I. SUMMARY AND RECOMMENDATIONS

SECTION A. RECOMMENDATIONS

Authorization of a grant of \$7,149,300 subject to the following waivers and approvals:

1. A procurement source and origin waiver from A.I.D. Geographic Code 941 to Code 935 for the procurement of approximately \$1,424,000 of construction materials, and approximately \$ 91,000 of commodities.
2. A procurement source and origin waiver from A.I.D. Geographic Code 000 (U.S. only) to Code 935 for the procurement of four project vehicles, and a determination that special circumstances exist which would allow waiver of the requirements of Section 636 (i) of the Foreign Assistance Act (Value approximately \$45,000).
3. Approval to deviate from the policy expressed in A.I.D. Handbook II, Chapter 2, which limits employment of third country nationals on A.I.D.-financed construction to 20% of the non-local work force.
4. Approval to permit the life of this project to exceed six years as recommended in A.I.D. Handbook 3.

SECTION B. PROJECT DESCRIPTION

1. The Problem

Botswana is experiencing a manpower shortage in nearly all sectors of its expanding economy. Particularly acute is the shortage of lower and middle level personnel in animal health and agriculture to serve the agricultural sector. Presently, at the working levels of the Ministry of Agriculture there are 70 vacant positions for agricultural extension demonstrators and veterinary assistants and 85 additional vacancies for such skills in the private and parastatal sectors. At the planning and administrative levels there are some 30 additional vacancies. It is anticipated that given the current capacity of the Government of Botswana (GOB) to train individuals in agriculture that there would be nearly 600 vacancies in the Ministry of Agriculture and in the private and parastatal sectors by 1988.

The lack of trained manpower in the lower and middle levels -- both current and projected -- will have an increasingly serious and cumulative impact on the GOB's capacity to plan, administer, and implement agricultural development programs. Particularly vulnerable to this manpower shortage are the governments new arable agriculture and tribal land grazing programs which require additional manpower both in the field and at the national levels for successful implementation.

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2. The Project Focus

The project will focus on improving and increasing the capacity of the Botswana Agricultural College (BAC) to train agricultural manpower. Accordingly, the purpose of the project is to establish BAC as a largely localized training institution capable of serving Botswana rural sector needs for low and intermediate level agricultural personnel. It is anticipated that this improvement in BAC's capacity will help alleviate the acute manpower shortage in the agricultural sector thereby enabling the GOB to better plan, administer, and implement programs in the agricultural sector. The availability of more trained manpower should contribute to the project goal of improving the welfare of Botswana's small scale farmers and herders.

3. End of Project Status

By the end of the project as a result of the project inputs it is anticipated that BAC will: (a) have doubled its annual number of certificate graduates in animal health and agriculture; (b) have institutionalized a new diploma program in animal health and agriculture graduating 27 students annually*; (c) be staffed with largely localized teaching personnel whose skills have been significantly upgraded through both long- and short-term training programs; (d) will be staffed with a localized administration capable of education planning and administration in all key areas; and (e) have established curricula and teaching techniques which are providing practical training in skill areas relevant to GOB needs.

4. Project Inputs

To assist BAC in the improvement of its capacity to train agricultural manpower, USAID/Botswana is proposing an integrated package of project elements. These elements include: (1) 19.5 years of long-term technical assistance in vocational administration, animal husbandry, extension, range management, agricultural communication, science and agronomy, and 30 person/months of short-term technical assistance in areas such as animal breeding, horticulture, rural sociology and extension; (2) the construction of facilities in which to instruct and house additional students and equipment for these facilities, and (3) 41.5 years of long-term training to upgrade BAC's teaching staff and administration.

* This assumes a 10% attrition rate among the 30 students admitted annually into the diploma program.

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Total Project Funding

	AID Funding			GOB	Other *		
	FX	LC	Total	Funding	LC	FX	Total
A. Construction	1423.0	1423.3	2846.3	992.0	-	-	3838.3
B. BAC Staff & Consultants	3002.0	-	3002.0	290.2	2124.4	-	5416.6
C. Furnishings & Equipment	479.5	32.7	512.2	25.4	-	-	537.6
D. Training	788.8	-	788.8	82.8	25.6	-	897.2
E. Other Recurrent	-	-	-	1522.3	-	-	1522.3
Total	5693.3	1456.0	7149.3	2912.7	2150.0	-	13212.0

Includes Peace Corps

PART II. BACKGROUND AND DETAILED DESCRIPTION

SECTION A. PROJECT BACKGROUND

1. General Economic Profile

Botswana is a country of 570,000 square kilometres and lies at the base of the Southern African Plateau. It is landlocked, surrounded by South Africa, Namibia, Zambia and Zimbabwe - 80% of its borders are on territories administered by the Republic of South Africa. It has a continental and semi-arid climate with highly erratic rainfall averaging only 450 mm annually, but varying from less than 250 mm in the southwest to more than 650 mm in the northwest. Over 80% of the country is covered by the Kalahari Desert whose sandy soils support vegetation ranging from semi-arid thorn bush to savanna grasslands. Only about 6% of the land is suitable for farming, the remainder being desert and suitable in some areas for extensive livestock production. The Limpopo Valley Region on the eastern side of the country has nearly 80% of the population, relatively good soil, and generally just sufficient rainfall for some dryland crops and cattle.

Population growth is estimated at 3% with urban growth at 16%. As in other LDC's the population is young; 46% of the population is 14 or younger. In 1977, out of the total population of 766,000, some 46,000 were migrant workers in South Africa or Rhodesia; 39,000 were employed in Botswana's own industrial and service sectors; and the remaining 340,000 derived their livelihood from agriculture. Despite urban migration, the rural population is expected to increase by 40% between 1976 and 1991.

Botswana's economy is small, underdeveloped, and vulnerable. After a long period of stagnation, Botswana has witnessed high investment levels and rapid economic growth. This transformation is largely due to the renegotiation of the Customs Union revenue sharing arrangement with South Africa and exploitation of Botswana's substantial mineral resources (diamonds, copper, nickel, coal and brine). Private foreign investment in the Orapa diamond mine and the Selibi-Pikwe copper/nickel mine during 1970-73 was about \$350 million, twice the GDP level.

From 1965 to 1976/77 mining increased from 0.6% to 18% of GDP and agriculture declined from 34% to 25%. Livestock accounts for 30% of the agricultural output - with Botswana being one of two African countries which meets stringent EEC animal health stipulations and is allowed to export large quantities of beef. 1/

1/ The other is Swaziland which exports negligible quantities to the EEC.

GDP at market prices has increased at an annual compound rate of 19%. While per capita GDP rose from \$87 in 1965 to about \$605 in 1976/77, income distribution probably became more skewed with the lowest 40% earning a smaller share of income as modern sector employment grew. For these individuals outside the mineral and cattle dominated modern economy, subsistence farming is the only means of existence; their lives are affected only to the extent that the GOB is able increasingly to pass on the proceeds of the modern sector through the projects and programs contained in the development plan.

2. The Government's Policy Toward Agricultural Development

The government is genuinely concerned with the problems of income distribution and acknowledges that the benefits of increased output have been confined largely to a minority of enterprises and individuals. Accordingly, the GOB emphasizes in its five-year plan the importance of involving the lower 40% of Botswana's population in the country's growth process. Thus one of its national principles is the achievement of social justice which "requires that all citizens should benefit from the nation's economic development". These benefits, according to the plan, will be spread directly through the employment of more Batswana in the expanding sectors of the economy, and indirectly through the Government's use of the additional revenues to promote shared economic growth.

Because the majority of poor Batswana live in rural area, the principle focus of the government's policy of shared growth is on families whose rural incomes are generated from traditional agriculture and associated subsistence activities. This concept of shared growth is being implemented through an increased emphasis on arable agriculture and through the implementation of a tribal land grazing policy. With regard to arable agriculture, the government feels that given the limited income potential for small herders and the scarcity of formal employment opportunities in other areas that arable agriculture should be emphasized as a source of income. In fact, research recently undertaken by the GOB indicates that the income potential for farmers engaged in arable agriculture (particularly in sorghum) is greater than for small livestock holders. Accordingly, the results of these studies have led to the intensified promotion of arable agriculture as a source for increasing rural incomes.

The tribal land grazing policy, which is also geared toward increasing incomes of the rural poor, is designed to improve range management through more formal land allocation. Within the limits of Botswana's delicate ecology, it is anticipated that more formal land allocation will enable small livestock owners to increase their income from livestock production through improved range and livestock management and increased productivity.

3. Implementation of Programs in Agricultural Development

To implement its programs in arable agriculture and livestock production, the Government has planned a 12% annual growth rate in constant prices in the Ministry of Agriculture's recurrent budget. However, as pointed out in its five-year plan the "Government's limited capacity

to implement programs is a greater constraint on rural development than the shortage of finance". This limited capacity is the result of a severe shortage of skilled manpower at nearly all levels of the agricultural sector to plan, administer, and implement programs in agricultural development 1/. The GOB must have the capacity to undertake further research in arable agriculture and must also have personnel to plan and implement programs geared toward disseminating this research to small farmers. To implement this tribal grazing land policy, skilled agricultural personnel must be available to plan for and provide technical and management assistance to farmers in improving animal husbandry and range management practices. Additionally, veterinary assistants are needed to attend to sick animals, inspect livestock and encourage farmers to use improved techniques in cattle and small stock husbandry. Presently, at the working levels of the Ministry, there are 70 vacant positions for agricultural extension demonstrators and veterinary assistants and 85 additional vacancies for such skills in the private and parastatal level. At the planning and administrative levels there are some 30 vacancies. It is anticipated that given the current capacity of the GOB to train individuals in agriculture, at current projected growth levels there would be almost 600 vacancies in the Ministry of Agriculture and in the private and parastatal sector by 1988 2/.

Thus, successful implementation of the agricultural development program as outlined above requires a significant increase in the availability of trained manpower. The current capacity of the Ministry's training programs in Agriculture is severely limiting the output of trained personnel available for current and future manpower needs.

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- 1/ A corollary to the acute manpower shortage which currently exists in the agricultural sector is a strong desire on the part of the GOB to reduce its dependence on expatriates who at present hold key positions in nearly all levels of the government's bureaucracy. Thus, although the GOB's emphasis on training manpower is to fill both current and anticipated vacancies in the government, private and parastatal sectors, of at least equal importance is a desire on the part of the GOB to fill vacant positions with Batswana and replace expatriates with qualified Batswana on a timely basis.
 - 2/ The Ministry of Agriculture plans to expand its staff by 5% a year until 1988. Such expansion would increase the staff of the agriculture extension service so that each AED would cover 150 farm families. Currently each demonstrator handles 300 farm families. By African standards this is a favourable ratio. However, the extensive pattern of agricultural activity has proven this ratio to be both inefficient and ineffective. For veterinary assistants, the Ministry of Agriculture is planning to increase the ratio from the current 1 to 30,000 per head to 1 to 15,000 per head by 1988 projecting an increase of the nation's herd from 3.3 to 5.2 million.

4. Training Botswana's Agricultural Manpower

a. The Botswana Agricultural College

The Botswana Agricultural College (BAC) is the institution which trains students in agriculture to serve primarily as agricultural extension demonstrators (AED's) and in animal health to serve primarily as Veterinary Assistants (V.A.'s). The AED's are assigned to the Ministry of Agriculture's Department of Agricultural Field Services and serve as the Ministry's key link with rural Botswana. It is the AED's who are ultimately responsible for the actual execution of programs designed by the central ministry. The AED's introduce more effective methods of land use, new crop practices and soil and management techniques emanating from research on and techniques associated with the implementation of the arable agriculture program. Additionally, it is these individuals who are playing an instrumental role in promoting improved range management and animal husbandry, and thus greater livestock production which are the goals of the tribal land grazing policy. The V.A.'s are assigned to the Ministry of Agriculture's Department of Veterinary Health and serve as the Ministry's key link with Botswana's livestock producers. These individuals assist producers through their participation in inoculation campaigns, by attending to diseased animals and by demonstrating to farmers improved techniques in cattle and small stock husbandry.

Students trained at BAC in veterinary health and agriculture graduate with a two-year certificate. Entry is generally direct from school and a junior certificate (equivalent to three years of high school) is required for admission. The BAC curriculum stresses practical training and students in both the animal health and agriculture program spend half-time in the field and half-time in classroom study.

Presently, the BAC only admits 30 students per year in each of the two certificate level courses offered for a total of 60 students. With the attrition rate averaging 10% for the two year course, 54 students graduate annually. Thus, its capacity is not nearly sufficient to meet the demand for trained agricultural personnel. Expansion of BAC's capacity to train sufficient students to meet Botswana's manpower needs in agriculture will require an increase in staff, an increase in the size of facilities, and significant improvements in the administrative ability to handle a larger student body.

Additionally, certain improvements (discussed in detail in Part III, Section A and Annex ID) in curriculum and teaching techniques and an upgrading of staff would be highly desirable to ensure that students receive the training necessary to carry out their responsibilities in the agricultural sector. Because of the high cost of such an undertaking, USAID assistance has been requested in this effort.

b. The University of Botswana and Swaziland (UBS)

Two-year diploma training in agriculture and animal health generally follows certificate level training at BAC and is undertaken at UBS in Swaziland which admits 35 Batswana annually 1/. Individuals with diploma level training assume middle and senior level posts in the Ministry of Agriculture. At the field level, individuals trained to the diploma level in agriculture serve as District Agricultural Officers and provide supervision and management support to AED's. In the Central Ministry, these individuals assume key roles in project and program planning. Individuals trained to the diploma level in animal health serve as district animal health supervisors and provide supervision and management support to the V.A.'s. At the ministerial level, these individuals serve a key planning function for programming livestock health.

Training of middle and senior level agricultural staff in Swaziland is not well suited to Botswana's needs. Swaziland's very different agricultural environment characterized by abundant rainfall and fertile soils which are ideal for tropical crops (such as sugar, pineapple, and citrus fruits) makes it difficult for students to relate their studies to the semi-arid conditions of their own country - conditions which require very different farming techniques. Additionally, students entering UBS after 2-year certificate training at BAC find much of the first year coursework to be repetitive (as evidenced by the extremely high grades received by Batswana in Swaziland), since the Swazi certificate is obtained after only a year of study. Finally, in March, 1978, Swaziland reduced Botswana's quota to 15. Although after some negotiation the number was increased to 35, this cast further doubt on the prospects for renewal of the agreement to train Batswana in Swaziland which expires in 1981. 2/

Because of Botswana's critical shortage of diploma level graduates, and the critical role which diploma graduates play in the planning and supervision of Botswana's programs in agricultural development, the government has requested USAID assistance in helping provide the necessary facilities and technical assistance to establish a diploma program at BAC.

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- 1/ A limited number of students are accepted directly from Form V (equivalent of a high school degree) for such training.
 - 2/ The University of Botswana and Swaziland (UBS) may terminate their ties in all fields of study in 1981.

SECTION B. DETAILED PROJECT DESCRIPTION

1. Goal

The general USAID agricultural sector goal and the goal of this project is to improve the welfare of Botswana's small scale farmers and herders. GOB targets or measures of goal achievement in AID terms are found in the Fourth National Development Plan and will be largely attained if key government programs such as the Tribal Grazing Land and Arable Agriculture programs are successful. The project will contribute toward the accomplishment of this long-term objective by addressing one of the key constraints to Botswana's agricultural development; namely, the critical lack of skilled manpower to serve rural sector needs. ^{1/}

2. Purpose

The purpose of the proposed project is to establish within the BAC a largely localized training institution capable of serving Botswana rural sector needs for low and intermediate level agricultural personnel. The project will provide a series of inputs which will result in a significant increase in the capacity of the BAC to train certificate graduates to serve as agricultural extension demonstrators and veterinary assistants in rural areas and will create within BAC a diploma program to train Botswana to serve in key middle-level administrative posts as district agricultural officers and veterinary assistant supervisors both in Gaborone and in Botswana's rural areas. It is anticipated that the provision of increased manpower will improve the GOB's capacity to implement agricultural development programs, thereby contributing to the USAID sector goal.

3. End of Project Status

By the end of the five-year project, it is anticipated that BAC will: (a) have doubled the number of annual certificate level graduates in animal health and agriculture (increasing the number of certificate level graduates from 54 to 108);

^{1/} In the Fourth National Development Plan, page 135 the GOB identifies the lack of trained manpower as the major constraint to the implementation of agricultural development programs.

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(c) have institutionalized an ongoing diploma program in animal health and agriculture graduating 27 students annually; 2/ (c) be staffed with largely localized teaching personnel whose skills will have been significantly upgraded through both long- and short-term training programs; (d) be staffed with a localized administration capable of educational planning and administration in all key areas; and (e) have established curricula and teaching techniques which are providing practical training in skill areas relevant to GOB needs.

4. Project Focus

a. BAC

The project will focus on the improvement, expansion, and localization of the Botswana Agricultural Institute's capacity to train manpower in animal health and agriculture in those skill areas identified by both USAID and the GOB as requiring the highest priority attention. Although improvement in BAC administration will also positively affect the school's capacity to support the community development program also carried out at BAC and possibly to administer an agriculture education program in the future, both the GOB and USAID have determined that direct support of these activities is not warranted at this time because: (1) no decision has been made by the GOB as to how and whether these programs should be treated within the context of the overall BAC program; (2) within the context of the GOB's priorities animal health and agriculture remain the highest priority; and (3) the expansion of the certificate program and the establishment of a diploma program in two skill areas offers a significant challenge to BAC institutionally at this time.

b. The Target Group

The direct project beneficiaries will be the men and women receiving diploma and certificate level training annually at BAC and the Botswana teaching and administrative staff which will be upgraded through the technical assistance and training being provided for under the project. Additionally, rural Botswana will benefit from the increase in agricultural manpower because (1) an improved ABE/farmer ratio; (2) an improved veterinary assistant/cattle ratio; (3) a higher quality field staff; and (4) improved administration of programs because of the increase in both the number and quality of diploma graduates to fill administrative posts in Gaborone and in the field. Since GOB rural development efforts focus on the small farmer through the Tribal Grazing Land and Arable Agriculture programs, these same small farmers will be project beneficiaries.

2/ 120 students will be admitted per year in the certificate program. With an anticipated attrition rate of 10% over the two-year period, only 108 will graduate annually. Similarly 30 students will be admitted annually in the diploma program. With an anticipated attrition rate of 10% over the two year period, only 27 will graduate annually.

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PROPOSAL FOR BAC EXPANSION

	Number Students Admitted 1st Year	Number Students 2nd Year	Number Students ^{1/} Graduating	Total Enrollment at BAC
<u>Current Capacity</u>				
1. <u>Certificate Program</u>				
Animal Health	30	29	27	
Agriculture	<u>30</u>	<u>28</u>	<u>27</u>	
	60	56	54	116
2. <u>Diploma Program</u>				
	0	0	0	
	0	0	0	
<u>Capacity with Proposed Expansion</u>				
1. <u>Certificate Program</u> (added students enter March 1980)				
Animal Health	60	57	54	
Agriculture	<u>60</u>	<u>57</u>	<u>54</u>	
	120	114	108	234
2. <u>Diploma Program</u> (program begins Sept. 1981)				
Animal Health	15	14	13	52
Agriculture	<u>15</u>	<u>14</u>	<u>14</u>	
	30	28	27	292

^{1/} Attrition rate of 10 percent

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5. Project Design

The following activities will take place under the project: (1) doubling the number of certificate level graduates in animal health and agriculture; (2) the planning for and establishment of diploma level courses in animal health and agriculture graduating 27 students annually; (3) the upgrading and localizing of the teaching staff for instructors at the diploma and certificate level; and (4) the planning for and implementation of a series of improvements in curriculum design and teaching techniques. Each of these activities is discussed below.

- a. Doubling the number of certificate level graduates in animal health and agriculture. 1/

The project background and technical analysis discuss the critical manpower needs of the Ministry of Agriculture and the private and parastatal sectors for certificate level graduates in animal health and agriculture. The project proposes to double the number of certificate graduates in these areas (increasing the number of graduates from 54 to 108 by 1982, with the first enlarged entering class scheduled to enroll at BAC in 1980). To accomplish this objective, the following activities will take place under the project: (1) improvement of college administration; (2) expansion of current teaching staff; and (3) expanding facilities to accommodate additional students.

- (1) Improvement of college administration

The expansion of the certificate program and the establishment of a diploma program at BAC will require significant upgrading in the capacity of the College's administrative staff. As discussed in the Project's institutional analysis (Annex I D) certain deficiencies exist at the College's administrative level which could preclude the successful expansion of the college. These weaknesses include erratic teaching loads, problems with scheduling of staff leaves; the admissions policy, problems with the budgeting and expenditure of funds, and a lack of a system for staff evaluation. Additionally, long and medium term training is needed to upgrade the skills of certain key members of BAC's administration. As envisaged, the process upgrading the administrative capability of BAC will begin

1/ Although the certificate level program (discussed above) and the diploma program have several project activities in common they are for purposes of the project description being treated as discreet elements.

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prior to the action certificate level expansion which is planned to begin in 1980. Accordingly, the program contemplates the provision of a long-term technician in educational and vocational administration for a period of four and one-half years beginning the first year of the project (January 1979-two years prior to the entrance of the certificate level graduates). It is anticipated that this technician will have extensive experience in support areas as well as long-term planning and will play a key role in upgrading the college's administrative capability. This individual will provide BAC administrators with on-the-job training coupled with a series of short-term seminars in key school administrative, functional and planning areas. To supplement this advisor, short-term technical assistance will also be provided for a total of nine person months. This assistance will include a short-term registrar to review admissions policies, assist in setting up an admissions procedure, and remain at the school through one pre-admission and admission period to assist in the implementation of this procedure. Additionally this or a similar individual will help set up a system for maintaining student records and will review the student evaluation process. In the area of budgeting and expenditure of funds, a short-term technician will be project funded to assist the School in developing an improved budgetary and accounting process. An individual will also assist BAC in setting up a system for staff evaluation.

In addition to the short- and long-term technical assistance provided the administration at BAC, the project will also finance long-term training for BAC's Principal. It is planned that this individual will be present during the first two years of the project so as to play an instrumental role in planning, preparing, and implementing the proposed expansion program. During the third year, however, he will be trained for two years to the Ph. D. level in the United States in educational administration. This training is seen as both necessary and highly desirable since BAC's principal currently has limited training in educational administration. The School's vice-principal will also receive upgrading through a prescribed six-month training course in educational administration offered and financed by the United Nations. Finally, BAC's registrar will be sent to the United States with project funds for one year of on-the-job training in a United States vocational school.

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(2) Expansion of current teaching staff and housing facilities

To accommodate the increased number of students and maintain student/teacher ratios at an acceptable level (in order to ensure individualized attention so necessary in a practical agriculture/training institution), the current teaching staff of BAC will be expanded from the current teaching staff of 27 to 35 teachers.^{1/} The additional eight instructors are programmed to begin teaching at BAC in 1980 concurrent with entry of the expanded certificate level class and will serve as instructors for both the diploma and certificate level programs. As explained later, the expanded staff will initially be made up of both Batswana and expatriates. The expatriates, two of which are project funded with the remaining six financed by other donors, will merely be serving as temporary staff members while Batswana are being trained to fill these instructional positions. Additionally, the GOB will increase support staff for building maintenance, food service, and office assistance.

To accommodate the increased staff, the project will finance housing to be built on BAC's campus. Five low cost three bedroom houses (type E) will be built with project funds for BAC instructors. Two will be used temporarily by Peace Corps personnel serving as teachers in the project with the remaining three to be used for instructors in animal health, animal husbandry and communications.

Construction of these five houses is seen as necessary because: (1) the current housing on the BAC campus is insufficient for current staff and therefore would be totally inadequate for the expansion; (2) the distance of the campus from Gaborone makes commuting difficult due to the lack of public transportation; (3) most lower level employees cannot afford the private cars which would be necessary to commute from Gaborone; (4) many of these jobs require that personnel be on campus during odd hours and; (5) the severe housing shortage in Gaborone makes locating housing for personnel extremely difficult.

^{1/} Although the student body will double during the project life, staff will only be increased by eight due to plans for an improved distribution of the teaching load.

(3) Expansion of facilities to accommodate additional students

Increasing BAC's student body will require some expansion in BAC's current facilities. Accordingly, the program calls for the construction of three dormitories to house 180 students, six additional classrooms, new and expanded laboratory facilities for science, animal health and engineering, expansion of the library, construction of new dining facilities to accommodate the increased student body, and additional office space for administration and faculty. The construction of these facilities will begin during the first year of the project with completion of an initial dormitory and one classroom building scheduled for January 1980 - just prior to the arrival of the enlarged class of certificate level students. Other facilities will be completed in early 1981.

Current facilities at BAC are inadequate to carry out the expansion. For example, the engineering laboratory which is inadequate for current use consists of a metal roof and opened sides. It is too small to accommodate sufficient students for agricultural mechanics courses and has no storage space for tools and parts. Thus a new engineering building will be constructed under the project. The administration building and the teaching office building are inadequate with as many as four staff sharing offices. Several members of the administration are using the student dispensary as office space leaving no place for student health services. Construction of new staff and administrative offices, modest in size, will help morale and assist in fostering student/teacher relationships. The current kitchen/dining facilities are being used to capacity. Adding to this facility is not possible because of its proximity to other campus buildings. Thus a new kitchen/dining facility will be constructed with the old kitchen used as badly needed storage space and the dining room as the College's only assembly hall. The number of classrooms will be the minimum needed to allow for the certificate program expansion and the addition of the new diploma program. Currently the student body is divided into four course groupings, first year certificate and second year certificate in both Animal Health and Agriculture. The doubling of numbers in the Certificate program will create four additional course groupings of students (for a total of 8). The diploma program will create four additional groups with first and second year students in Animal Health and Agriculture. Essentially the expansion will move the BAC facilities from current support of four groups to support of twelve groups. Nevertheless, only seven new classrooms will be required due to improved efficiency in classroom utilization. The size of the science laboratory will be increased by adding on to the existing structure. This addition will be sufficient to accommodate the expanded student body. Finally, a new animal health facility will be constructed since the old one is too small to accommodate even current needs. The new facility will be used for the certificate students while the old facility will be adequate for the diploma course.

Four four-wheel drive station wagons with capacity for 10 to 12 students will be purchased to transport students to and from field exercises. Because field and laboratory work comprises 50 percent of the coursework at BAC, these vehicles are necessary to transport students to neighboring villages and farms for extension, animal health, soil, rural sociology, and other related activities. One field class can be transported in two vehicles. These two classes can undertake field exercises concurrently. Because of the increase in the number of course groupings, this is the absolute minimum of vehicles necessary for field work activities. Minor maintenance of these vehicles will be done at BAC in conjunction with the agricultural mechanics course. All major maintenance will be done by the GOB's Central Transport Office (CTO).

- b. Planning for and establishing a Diploma level course in Animal Health and Agriculture.

Both the project background and the technical analyses discuss the acute need for diploma level graduates in the Ministry of Agriculture as well as the rationale for establishing a diploma level program at BAC. The project proposes to enroll 30 students in a two-year diploma program in animal health and agriculture (15 in animal health and 15 in agriculture) at BAC beginning in September 1981. By the second year of the project, 57 students will be enrolled in the program. To establish the diploma program, the following activities will take place under the project; (1) the development of a diploma level curriculum; (2) improvement of the college administration; (3) expansion of current teaching staff; and (4) expanding facilities to accommodate an additional 60 students.

- (1) The development of a diploma level curriculum

To prepare for the first 30 BAC diploma students in animal health and agriculture in 1981, a curriculum will be developed using short- and long-term technical assistance provided by the project. In the design of the curriculum, every effort will be made to ensure its applicability to Botswana's social and agricultural conditions. Additionally, course work will be tailored with a view toward positions to be filled by the Ministry to ensure the relevance of training to basic skill requirements. The continuous interplay which now exists between the staff of the central Ministry and BAC regarding the relevance of curriculum will be both fostered and encouraged in the design of a diploma level curriculum. Finally, the curriculum will be designed to avoid the current problems of certificate/diploma level duplication which now exist when BAC certificate graduates transfer to the diploma program in Swaziland.

Two long-term advisors, one in animal health and one in animal husbandry, will play key roles in the design of the curriculum in animal health and agriculture respectively. The long-term technician in educational administration will coordinate the overall curriculum revision efforts. During the two years prior to the initiation of the diploma program these technicians will prepare course materials relevant to both job skills required and to GOB agricultural conditions. In this effort to design and implement a new curriculum and prepare course materials, the long-term technical assistance personnel will be assisted by short-term technicians -- in areas outside their fields of expertise. It is anticipated that approximately 30 person/months of short-term technical assistance in areas such as crops and weed control, animal breeding and horticulture will be needed in this effort.

(2) Improvement of college administration

With the establishment of a new diploma program at BAC, improvement of college administration is essential. Project elements designed to improve the administration at the certificate level discussed above are also being programmed to support BAC's capability to administer the Diploma program.

(3) Expansion of current teaching staff

The teaching staff at BAC will serve as instructors for both the diploma and certificate level expansion. Thus, the increase contemplated in faculty size from 27 to 35 discussed above will provide sufficient teaching staff to serve the diploma program.

(4) Expansion of current facilities

Facilities being planned for the increased enrollment in the certificate level program also take into account the establishment of the diploma program. Thus, the discussion on the certificate level program again applies.

c. Upgrading and localizing of the teaching staff for instructors at the diploma and certificate levels.

Nine instructors at BAC are expatriates (or 25.7 per cent of the BAC staff). One of the objectives of the government and USAID in the development of this project is to largely localize and upgrade most of the Barswana BAC staff

by the end of the project (1983). ^{1/} Thus, a significant element of the project is long-term training which will be provided with project funds. During the first year of the project (FY 1979 prior to the expansion of the certificate program and the initiation of the diploma program in 1981), 10 Botswana instructors currently on the staff and one to be brought on board will be sent to the United States for long-term training in Ag Economics, Range Management, Soils, Animal Health, and other related disciplines. Over the life of the project 8 instructors will have received a bachelors degree, two will have earned masters degrees, and 1 will have earned a Ph. D. ^{2/} Additionally, 7 Botswana will complete the diploma level program at UBS in Swaziland and will return to BAC as instructors. The training of these individuals will be financed by the GOB. Finally, three individuals will attend six-month workshops in their respective fields funded by the United Nations. In total, the project will fund 41.5 person years of long-term training, with 23 person years being funded by other sources. By the end of the project, most of the BAC staff will be localized with the exception of three veterinary positions who, due to the length of training, will not be localized until 1986. ^{3/}

The principal problem encountered in localizing the staff was to locate and finance qualified teachers to replace Botswana instructors who are sent for training. In an effort to locate such substitutes, the team held intensive discussions with Peace Corps both in Botswana and in the United States and they have agreed to supply three volunteers for two years each in Agricultural Economics, Agricultural Communications, and Horticulture. The Peace Corps has consented to allow the contracting University to select these individuals

^{1/} Three students in veterinary medicine, because of the length of the training period, will complete training in 1986 and assume lecturer positions in Animal Health at BAC.

^{2/} As currently envisaged, training is designed so that all BAC staff with the exceptions noted above will be localized. However, it is possible that one or two individuals may be unable to complete training for academic or personal reasons.

^{3/} OSARAC is discussing the possibility of CDM financing the three candidates for veterinary training. If agreement is reached, veterinary training will not be financed under this project.

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to help ensure that they are qualified and that they are compatible with long-term technical assistance personnel. The only cost borne by the project for these substitutes will be the construction of three support staff type houses at a cost of \$12,500 each. In addition to these three individuals, the United Kingdom will pick up the cost of four teachers for a period of five years, FAO will pick up one individual for a period of four years and the project will finance the remaining four individuals for two years each.

- d. Planning for and implementating a series of improvements in curriculum design and teaching techniques. 1/

In addition to the facilities construction, staff expansion, and improvements in the college administration designed to expand the certificate program and create a diploma program, it is anticipated that both short- and long-term technical assistance will be utilized to upgrade the BAC curriculum at the certificate level in animal health and agriculture and improve current teaching techniques at the school. Under the direction of the educational administrator with the assistance of the animal husbandry and extension technicians and supplemented with short-term technicians, an initial intensive review will be made of the entire BAC curriculum in an effort to highlight weakness in key areas. After the review, BAC instructors will be assisted in modifying and developing new syllabi to use as guides for teaching. Additionally, overall course sequencing will be addressed so that courses will follow a sequential learning pattern. Basic introductory courses (e.g. English, Math and Science which are taught in the first term) will be strengthened considerably to give students a better base for more advanced coursework.

With regard to teaching techniques, technical assistance personnel will work with Botswana instructors to help in properly organizing daily presentations. Staff workshops will also be conducted relating to a variety of teaching methods including the use of visual aids. Methods for student assessment and testing will be institutionalized. For this component of the project, 35 man months of short-term technical assistance will be utilized in Range Management, Agricultural Engineering, and Soil Fertility to supplement the long-term technicians assigned to the project.

6. Project Inputs

AID grant funds will be used to finance the following project elements:

^{1/} For details on the current curriculum see Annex I-2.

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(a) Technical Assistance (\$3,002,000)

Long-term Technical Assistance

Project funds will be used to finance 19.5 years of long-term technical assistance. This technical assistance will include long-term advisors in vocational/educational administration for four and one-half years, and extension and animal health for three and one-half years each. Additionally, contract technicians will be brought in to substitute for Batswana in training for two years each in range management, agricultural communication, agronomy, and general science.

Short-term Technical Assistance

Project funds will be used to finance 80 person/months of short-term technical assistance. This assistance is intended to supplement the expertise of long-term advisors in areas such as animal breeding, horticulture, rural sociology and extension (for a list of short-term technical assistance, see Annex IK).

(b) Construction: \$1,240,

Project funds will finance construction of three dormitories to house 180 students, seven additional classrooms, new and expanded facilities for science, animal health and engineering, expansion of the library, construction of new dining facilities to accommodate the increased student body, and additional office space for administration and faculty. Additionally, five type II houses will be constructed to house long-term technical assistance, and five type E houses, will be used to house Peace Corps volunteers and additional members of the SAC staff. Finally, AID will finance approximately 51 percent of the infrastructure cost for this expansion.

(c) Long-term Training (\$788,800)

Project funds will finance 41.5 years of long-term training for Batswana SAC staff and administration. Such long-term training will include bachelors and/or masters degree education in the United States in agricultural economics, range management, horticulture, agronomy, veterinary medicine and educational administration.

(d) Equipment: \$512,000

Vehicles

The project will finance four 4-wheel drive vehicles seating 12 individuals each. These vehicles will be used to transport SAC students to and from field exercises.

Commodities

Project funds will be used to purchase furnishings for classrooms, laboratories, the library, dormitories, eating facilities, and administrative offices. A detailed list of this equipment is included in Annex III A.

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PART III. PROJECT ANALYSES

SECTION A. TECHNICAL ANALYSIS

1. Manpower Requirements in Agriculture

The level of Botswana Agricultural College's proposed expansion is predicated upon the demand for lower and middle level skills in the agricultural sector. As part of an AID-financed manpower study, key individuals in government, parastatals and the private sector with knowledge of the agriculture manpower needs in their particular organizations were interviewed. They provided data on existing positions and projected demand for certificate and diploma graduates through 1988. The data in Table III-A-1 shows the positions that are expected to be available for certificate holders in agriculture ^{1/} and animal health in 1988. At present there are 617 established positions in the Ministry of Agriculture of which 70 are vacant and 100 established positions of which 85 are vacant in the private and parastatal sector. The Ministry of Agriculture plans to expand its staff with certificates by five percent a year until in 1988 when they have a staff of 827 or a 50.4 percent increase above present levels.^{2/} The private and parastatal group expect to increase by 6.8 percent per year to a projected staff of 170 in 1988. Thus the total positions projected to be available in the agricultural sector in 1988 will be 1,097, which is a 5.2 percent increase per year. As discussed in the Project Background, the five percent increase per year in positions in the Ministry at the certificate level is based on the GOB's desire to provide more AED's and V.A.'s in the field. The current ratio of AED's per farmer is 1 to 300 while that ratio of V.A.'s to head of cattle is 1 to 30,000. Although the 1:300 ratio is better than in many African countries, given the extensive pattern of agriculture in Botswana, the vast distances and the poor transportation network the government's goal is to improve coverage by establishing a ratio of 1 to 150. This ratio seems essential if adequate assistance is to be provided to Botswana's small farmers.

1/ The Supply and Demand for Trained Agricultural Personnel in Botswana, Frank Bobbitt, May 4, 1978 Multinational Agribusiness Systems Inc.

2/ The increase is based on 5 per cent of the current occupied positions and is not compounded.

TABLE III-A-1

POSITIONS AVAILABLE IN BOTSWANA FOR INDIVIDUALS WITH AGRICULTURE
AND ANIMAL HEALTH CERTIFICATES

Agency	1978 Established Positions (of which vacant)	Number of Positions Available ^{1/}											(1978-88 %)
		1979	%	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Ministry of Agriculture	617 (70)	648	(5.0) ^{1/}	679	710	741	772	803	834	865	896	927	(50.4)
Private and Parastatal	100 (85)	107	(6.5) ^{2/}	114	121	128	135	142	149	156	163	170	(70.0)
TOTAL	717 (155)	755	(5.2)	793	831	869	907	945	983	1021	1059	1097	(53.0)

^{1/} Based upon a five per cent constant increase in the number of positions using positions occupied in 1978 as the base figure.

^{2/} Based upon a 6.5 per cent constant increase in the number of positions using positions occupied as the base figure.

Adapted from Bobbitt, p96.

The data in Table III-A-2 show the supply and demand for individuals with agriculture and animal health certificates over the next ten years. This demand is based on the following: (1) the current number of vacant certificate level positions (155) in the private and parastatal sector; (2) the need over the next ten years to increase the ministry certificate level staff by five per cent per year (by 31); (3) the need to increase the numbers in the private and parastatal sector by 6.5 per cent (or 7); (4) a four per cent attrition rate for certificate level graduates occupying positions due to death, retirement, resignation, etc; and (5) a desire on the part of the GOB to localize those 23 certificate level positions occupied by expatriates. The sum total of this demand is 928 for certificate level individuals.

The new supply of agriculture and animal health certificates will be 54 per year until 1982 when the results of BAC's expansion will produce 106 per year. Over the ten-year span this is projected to produce 918 new certificate holders. The difference between supply and demand for certificate holders thus shows a deficit of 290 individuals over the ten-year period. Without the planned expansion, the deficit would total 668.

Thus even with the expansion a deficit is projected. This has been intentional, however, since it is anticipated that the demand for certificate level holders will not continue to rise at the same rates after 1988 -- particularly on the government side since goals for greater coverage will have been achieved shortly thereafter. Thus, government demand will eventually be to fill positions due to attrition rather than to fill new positions. On the private sector side, demand will probably continue at a somewhat increased rate. Also the recurrent costs (as discussed in the financial section) of this expansion are significant and a larger expansion would place an even greater burden on the government's limited financial resources, particularly since a greater capacity will not be needed in the future. Finally, it is felt that the level of expansion is a sufficient undertaking for BAC institutionally at this time.

The data in Table III-A-3 show that the Ministry of Agriculture expects to increase its posts that require a diploma holder from 132 in 1978 to 305 in 1988. This increase would represent 12.8 per cent increase annually based on the number of positions occupied in 1978 (or by 17 per year). The private and parastatal sector currently have established positions for seven diploma holders and expect to increase their annual demand to 17 during the next ten years based on 13 per cent annual increase of the number of positions occupied in 1978.

Using the same methodology employed for the certificate level, the data in Table III-A-4 show the supply and demand for agriculture and animal health diplomates projected over the next

TABLE III-A-2

SUPPLY AND DEMAND OF INDIVIDUALS WITH ANIMAL HEALTH AND AGRICULTURE CERTIFICATES

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	TOTAL
<u>Demand</u>												
Vacant Positions 155 Public & private (from Table III-A-1)												155
New Positions- Public & private		38	38	38	38	38	38	38	38	38	38	380
Attrition <u>1/</u>		30	32	33	35	36	38	39	41	42	44	370
Localization of established positions <u>2/</u>	23											23
TOTAL DEMAND (78-88)	178	68	70	71	73	74	76	77	79	80	82	928
<u>Supply</u>												
BAC graduates <u>3/</u>	-	54	54	54	108	108	108	108	108	108	108	918
Training attrition		<u>-20</u>	<u>-20</u>	<u>-30</u>	<u>-280</u>							
NET SUPPLY		34	34	24	78	78	78	78	78	78	78	638
TOTAL SHORTFALL with BAC ex- pansion	178	212	248	295	290	286	284	283	284	286	290	
TOTAL SHORTFALL without BAC expansion	178	212	248	295	344	398	452	506	560	614	668	

1/ Estimated at 4 per cent of established positions annually.

2/ Based on GOB desire to localize those 23 certificate level positions now occupied by expatriates.

3/ Assumes 10 per cent attrition rate for students entering the certificate program.

TABLE JJJ-A-3

POSITIONS AVAILABLE IN BOTSWANA FOR INDIVIDUALS WITH AGRICULTURE
AND ANIMAL HEALTH DIPLOMAS

Agency	1978	1979	%	1980	1981	1982	1983	1984	1985	1986	1987	1988	%
	Established Positions (of which vacant)												
Ministry of Agriculture	132 (30)	149	(12.8) ^{1/}	166	183	200	217	234	251	268	285	305	(131.1)
Private and Parastatal	7 (1)	8	(13.0) ^{2/}	9	10	11	12	13	14	15	16	17	(142.8)
TOTAL	139	157		175	193	211	229	247	265	283	301	322	(131.6)

^{1/} Based upon a 12.8 per cent constant increase in the number of positions occupied in 1978 as the base figure.

^{2/} Based upon a 13.0 per cent constant increase in the number of positions occupied using positions occupied in 1978 as the base figure.

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TABLE III-A-4
SUPPLY AND DEMAND OF INDIVIDUALS WITH ANIMAL HEALTH AND AGRICULTURAL DIPLOMAS[†]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	TOTAL
<u>Demand</u>												
Vacant Positions- Public & private (from Table)	31											31
New Positions- Public & Private (from Table)		18	18	18	18	18	18	18	18	18	18	180
Training Attrition ^{1/}		14	14	14	14	14	14	14	14	14	14	140
Other Attrition ^{2/}		6	7	7	8	9	9	10	10	11	13	90
Localization ^{3/}	37	—	—	—	—	—	—	—	—	—	—	37
Total Demand (78-88)	68	38	39	39	40	41	41	42	42	43	45	478
<u>Supply</u>												
HAC	—	—	—	—	—	—	27	27	27	27	27	135
UCS ^{4/}	21	21	21	21	21	21	5	5	5	5	5	147
TOTAL	21	21	21	21	21	21	32	32	32	32	32	282
Total Shortfall <u>with</u> DAC expansion ^{4/}	47	64	82	100	119	139	148	158	168	179	192	
Total Shortfall <u>with</u> <u>out</u> HAC ex- pansion ^{5/}	47	64	82	100	119	139	166	193	226	247	274	

^{1/} Students going for further academic training.

^{2/} Estimated at 4% of established positions annually.

^{3/} Based on GOB to localize those 37 diploma level positions occupied by expatriates.

^{4/} Assumes 5 Botswana will enter UCS annually directly upon secondary school graduation beginning in 1984.

^{5/} Assumes 5 positions at UCS will continue to be available for Botswana students.

[†] Adapted from Bobbit, The Supply and Demand for Trained Agricultural Personnel in Botswana.

ten years. Presently (1978), there is an existing deficit of 68 diplomates. Thirty one positions are vacant and 37 need to be localized. In order to meet the projected requirements for diplomates in agriculture and animal health, there will be a (a) expansion of 180 positions; (b) attrition to further training, 140; (c) other attrition, 90; and (d) localization, 37.

The supply side of the ledger appears to be uneven and to some extent unpredictable in the near future. Twenty-one diplomates are expected to enter the work force this year (1978). Most of these are trained at UBS in Swaziland but others are coming from training in other countries. However, in March 1978, UBS reduced the positions available for Botswana entries into diplomate training in agriculture, animal health and agriculture education from 35 to 15. They later raised the level to 35. If the BAC were expanded to include the production of diplomates, it would be 1984 before these diplomates would be available. Thus, the supply of diploma graduates will increase by over 50% beginning in 1984 despite the decreased number of student positions assumed to be available in Swaziland.

Potential Candidates for Training in Agriculture

The supply of potential certificate (and hence diploma) students in Botswana is abundant. The BAC receives about 1500 applications every year for its 60 available certificate program positions. Most of these applicants are secondary school leavers (having completed a minimum of Form III) from the previous school year but others have been out of school for several years. Approximately 60% of the current BAC entrants are Form III leavers and 40 per cent have failed the COSC (university entrance) exam. Table III-A-5 from the Bobbitt manpower study confirms the availability of qualified students for the expanded BAC certificate program.

Table III-A-5

SUPPLY OF POTENTIAL TRAINEES FOR ADVANCED
AGRICULTURE TRAINING

	<u>1978</u>	<u>Projected</u> <u>1982</u>
Form III leavers	650	1,200
Dropouts Form IV and V	100	50
COSC failures	<u>450</u>	<u>525</u>
TOTAL :	1,200	1,775
Form V leavers	225	300
Dropouts third levels	<u>20</u>	<u>30</u>
TOTAL:	245	330
Third level graduates	<u>140</u>	<u>225</u>
GRAND TOTAL:	140 1,525	225 2,330

1585 recent secondary school leavers are qualified for certificate-level training in 1978 and 2330 should be qualified in 1982 as the Botswana Secondary School System expands. In 1978 there are 15 government or aided secondary schools, with an additional 8 to be opened during the next two years.

Presently BAC absorbs only 60 or 3.8 per cent of the supply of potential trainees (1585). Under the project-supported expansion in 1982 BAC will absorb 120 or 5.5 per cent of the 2330 potential trainees. Thus, the quality of the BAC entrants should be easily maintained as the school expands and the BAC expansion should not significantly decrease the number or quality of young Botswana available for other sectors of Botswana's growing economy.

2. Appropriateness of Technology

a. The BAC Certificate Curriculum.^{1/}

The current curriculum offerings in the Certificate Program at BAC in animal health and agriculture includes an opening term in which basic skills are emphasized and english, math, science and field work are stressed. For the subsequent three semesters students in the agriculture field are trained in crops, horticulture, animal husbandry, extension, range management, engineering, surveying, soil conservation and farm management. Students in animal health take courses in anatomy, physiology, animal husbandry, range management and engineering. For both curricula, field and laboratory work are stressed with students spending nearly 50 per cent of their time engaged in these activities.

As discussed in the project background, the majority of certificate level graduates in agriculture become Agricultural Extension Demonstrators and are posted in rural areas. The AED's provide practical help, advice and assistance to the farmers in their assigned areas. They demonstrate and advise on improved methods of land use introducing more effective cultural and crop practices, soil and water management techniques and tillage and new crop varieties. Most students specializing in animal health help livestock producers and are posted in rural areas. This assistance is through the prevention of disease in vaccination campaigns, attending to sick animals, inspection of all livestock, and by encouraging farmers to use the improved techniques in cattle and small stock husbandry. V.A.'s also assist the Veterinary Officer by interpreting, assisting with operations, sample collections, providing treatment and collecting statistical data.

Because the majority of certificate level graduates become agricultural demonstrators or Veterinary Assistants in the Ministry of Agriculture, it is extremely important that they be trained in skill areas which are both relevant and applicable to the Ministry of Agriculture's activities and programs in rural areas. Thus, the curriculum at BAC must continue to be largely

^{1/} For the entire BAC certificate curriculum, see Annex I-E.

vocational - emphasizing skills which are applicable on the job. Because of the constant dialogue and interchange of ideas which occurs between the Ministry of Agriculture's Departments of Agricultural Field Services and Veterinary Health and the administration and staff at BAC, there is now an ongoing, albeit informal, procedure which has established a curriculum to meet the needs of the Ministry. Modifications which occur during the project life will emanate in part from the continuation of this dialogue. Thus, changes made in curriculum will improve instruction at BAC and will not alter the general emphasis of providing practical training to Botswana to better serve rural sector needs. Changes currently contemplated include improved course sequencing, a development of new course materials, introduction of a greater variety of teaching methods and improved teacher presentations.

In course sequencing, for example, the animal husbandry course contains information regarding species of livestock and comparison of these species. Currently, the discussion of individual species are separated by other discussion relating to animal husbandry. The separation makes it impossible for the student to adequately compare the characteristics of each breed against another. If students are to understand the difference and make recommendations to clients they must have a good basic understanding of the desirable traits of each species. The modification of this course will take place in close coordination with the relevant divisions of the Ministry of Agriculture.

With regard to teaching materials, there is a general lack of reading material tailored to individual courses. Course materials relevant to Botswana agriculture will be developed during the life of the project using project funded long- and short-term technical assistance. The preparation of such materials at BAC will be geared toward the teaching of applicable skills and all such materials will be prepared in close coordination with the Ministry.

Emphasis on new teaching methods will include, for example, instruction of BAC staff on the use of visual aids in teaching presentations. It is felt that an introduction of a greater variety in teaching techniques will enable instructors to increase the absorptive capacity of the students thereby increasing the amount of material which can be presented.

- b. The diploma level curriculum to be offered at BAC. 1/

Under the project, a curriculum will be developed for the diploma level at BAC. Courses will be more advanced than those offered at the certificate level and will be designed to avoid the problems of course duplication which currently exists for students entering the diploma course at UBS from BAC. In

1/ For the proposed diploma curriculum, see Annex I-F.

structuring the curriculum, every effort will be made to structure course offerings to take into account Botswana's agricultural conditions. As currently envisaged, the diploma curriculum at BAC in agriculture will include courses in accounting, statistics, field administration, farm management, and more advanced technical courses in soils/plant pests/breeding/pathology, range management and cooperative organization. In the animal health field, course work in administration will be similar to that offered to agriculture students but on the technical side more emphasis will be placed on advanced course work in animal health.

As discussed in the project background, the majority of diploma graduates in the agriculture field assume positions as Regional and District Agricultural Officers and in middle-level administrative posts at the Central Ministry. At the regional and district levels these individuals supervise the filled based certificate staff and provide them with management support. At the national level, these individuals do project and program planning and supervise overall management and implementation at the regional and district levels. Similarly, animal health diploma graduates become veterinary assistant supervisors and supervise veterinary assistants at the district level providing them with management support.

Although coursework of the diploma level will be more advanced than that offered at the certificate level, BAC is determined that such coursework will emphasize vocational training so that diploma graduates can readily assume supervisory responsibilities in the Ministry. In keeping with this philosophy, there is already discussion at BAC that diploma admissions be restricted to individuals who have successfully completed a minimum of nine months of field work between the certificate and diploma levels.

BAC and the Ministry have already begun to discuss the proposed curriculum for the diploma level course to be offered at BAC. It has been agreed that this program will place considerable emphasis on various aspects of agricultural administration since these individuals will assume posts where such skills will be needed.

As in the case of the certificate program, the project will encourage continuation of the vocational/practical approach to education. All course materials and teaching methods employed for the diploma curriculum will emphasize skill areas relevant to Botswana conditions as well as to the needs of the Ministry.

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SECTION B. ENGINEERING ANALYSIS

1. Preliminary Studies and Plans

The physical facilities to be extended or constructed under this project have been selected as a result of in house facility analysis of future needs made in September 1977 by the BAC staff, further analysis by a USAID consultant in May 1978, and the current efforts of the SDSU team.

A brief description of the physical facilities in each main area of the BAC campus follows. The areas are identified on the plot plan in Annex III B. Plans to date have been the product of the Chief Architects Office of the Ministry of Works and Communication.

The physical configuration and arrangement of the buildings within these areas has been determined by the Chief Architect's Office in consultation with BAC and AID. The areas delineated on the plot plan in Annex III B have been inspected by REDSO Engineers and found to be adequate for the proposed facilities. The areas are uniformly flat and location of the structures within the delineated areas will not effect the projected costs. The Chief Architect's Office has also prepared specific floor plans for basic structures. Cost estimates are based on current data for actual structures in eastern Botswana and include estimates for contingency and escalation.

2. Description of facilities

The following lists the general descriptions of the building sizes and their intended use. The equipment proposed for the building is listed in the equipment lists in Annex III A.

a. Expanded Campus Area

The expanded campus area is immediately south of the existing campus area in a section of land which is currently unused. This area has some trees and a great deal of waist high bush. The physical arrangement of the six new buildings in this area will be such that student access from the existing campus area will be easily accomodated. Two existing campus buildings will be extended in this area. Building arrangement and configuration will take into consideration the location of several trees which are to be retained. There is a road through this area which will be closed because it currently creates a traffic hazard at the entrance to the campus. This closing will facilitate the orderly arrangement of the buildings into an attractive campus atmosphere. The buildings in this area that are to be extended are:

The Library. An extension to the west eleven metres by eleven metres will create 121 square metres of additional space for shelving and reading areas, a work room and new checkout counter.

The Laboratory. A nine metre by eighteen metre extension will provide an additional 162 square metres of laboratory space as well as office, storage and toilet facilities.

The new buildings in the campus area are as follows:

Administration. This building (9 x 32 metres - 288 square metres) will provide space for the admissions and bursars offices, clerical, filing and typists, toilet facilities, storekeepers office and storage, duplicating work room and storage, and storage for stationary and visual aids equipment and supplies.

Teaching Staff Office. (620 square metres). This building will provide 21 offices for the principal and senior and junior staff, four seminar rooms and toilet and storage facilities.

Animal Health Building. (297 square metres of indoor and 33 square metres of covered outdoor space). Space for laboratory and clinical services and storage and office space and outdoor space for animal handling with overhead hoist and trolley beam.

Classroom Buildings (three buildings aggregating 567 square metres). These buildings will provide six classrooms with storage and student toilet facilities. There will also be a special visual aids area for use of slides and movies and a graphic arts work-room.

b. Engineering Area. This area is just west of the existing campus in an area with existing small temporary shelters which are to be removed and replaced with the following facilities:

Welding and metal shop (144 square metres),
Water supply area (108 square metres),
Storage (36 square metres),
Maintenance Shop (84 square metres),
Tractor Equipment Area (144 square metres), and
Offices (12 square metres).

c. Dormitory Area.

This area lies northwest of the existing campus and dormitory area in a large parcel of land currently unused except for informal athletic activities. It is an area of tall grass and brush with few small trees. The dormitories that are proposed will be single storey structures based on a design currently being used by the GOB for a nursing facility. Three dormitories will be built with each accommodating 60 students. Each building will have two parallel living wings connected at one end by a toilet/washroom area and at the other end commons area. The dining and laundry facilities will be constructed adjacent to the dormitories.

d. Support Staff Housing (Type D) and Industrial Quarters

Twelve low cost two bedroom houses are to be built for the use of the assistant instructors and office workers to be added to the staff. Additionally industrial quarters for 13 employees assigned to the maintenance operation will be constructed. All of these buildings are standard MOW design and will be financed by the GOB.

e. Support Staff Housing (Type E)

Five houses are to be built in this area which will be a continuation to the northwest of the existing housing. These houses will be for the use of BAC instructors. They are low cost three bedroom houses and are a standard design of the Buildings Department of the MOW. Two of these houses will be used temporarily by Peace Corps volunteer teachers until Botswana instructors return from training.

f. In Town Houses.

Five homes are to be built in Gaborone in the Broadhurst Area for the use of the project-funded United States advisors. These homes are medium cost three bedroom homes in accordance with the standard designs of the MOW.

g. Infrastructure.

The existing water, sewage, electrical, roads and landscaping facilities will have to be expanded and extended in order to serve the facilities described above. This cost will be shared by AID and the GOB.

3. Construction Standards

The General Specification (Metric Edition Revised 1977) of the Ministry of Works and Communications, Buildings Department, will apply to all construction under this project. This document describes the standards for materials and workmanship for buildings. In general the construction is to be of reinforced concrete foundations and floors with concrete block walls. Exterior wall surfaces will be face brick. Roof construction will be of timber trusses with Harvey tile surfaces which are sheet metal tiles with a sand point surface to simulate clay tile. Ceilings are of plasterboard and floors are vinyl or asphalt tile except in heavy traffic areas where quarry tile or hard surfaced concrete is used. Window and door frames are steel. Doors are to be of wooden construction.

4. Construction Contracting Labour and Materials.

Adequate construction labour and experienced local contractors are available in Gaborone. Contractors are licensed according to size and capability and visual inspection of construction currently being done indicates that it is far superior to that found in most LDC's. The construction contract will be open to Botswana and Code 941 firms.

f. Construction Implementation Plan

The GOB will finance the costs of final engineering design. It is expected that final design, bidding tender and contract award and execution will take three months from time of grant agreement execution with the GOB in the case of the housing where designs are already prepared and up to six months for the other structures where designs have yet to be completed. The actual construction period will take another fifteen to eighteen months. Therefore, the earliest that housing could be expected to be available for occupancy would be eighteen months after funds are available for disbursement and the earliest date for occupancy of the dormitory and teaching facilities would be twenty-one months with exception of a classroom and dormitory facility to be given priority and to be completed 15 months into the project. The MOW has established standard procedures and criteria for tendering, preparation of IFB and contracting which are acceptable to AID and would be used for this construction contract. Normal timing for these events are:

Advertising	30 - 45 days
Bid Review	15 days
Award	10 days
Surety Arrangements	20 days
<hr/>	
TOTAL	75 - 90 days
<hr/>	

Prior to contracting AID will approve final designs and specifications. When the contractor is recommended to be awarded the contract AID will review the procedures to assure technical competency, financial responsibility and that proper procedures were followed in selection of the contractor, prior to award. In addition AID will monitor the progress of the work as it progresses and make a final inspection upon completion of the work.

SUMMARY

The physical facilities being proposed are adequate for their intended purpose and are not elaborate. The design conforms with local customs and constraints. The conceptual design and cost estimates have been reviewed and analyzed by REDSO Engineering and are deemed to be reasonable. The unit prices are based on current data for actual structures in the area (Lobatse, Gaborone, Francistown) and have been escalated to cover the period until actual contracting. A physical contingency of 10% has been included. The sites of the proposed work at the BAC and the houses in Gaborone have been inspected by REDSO Engineering and found to be adequate for the intended purpose. As stated earlier, certain infrastructure has to be expanded by the GOB to make the facilities proposed herein functional.

REDSO Engineering will review and approve the final design prior to solicitation of bids and the contracting arrangements prior to execution of a construction contract. The grant agreement will contain language

requiring the GOB to provide construction supervision either through MOW personnel or through the consulting engineer. REDSO will also provide periodic monitoring of the design and construction activities.

Thus, it is concluded by REDSO Engineering that the proposed design, planning for the execution of the final design and construction, arrangements for construction supervision are adequate and that the cost estimates are reasonably firm and acceptable and therefore meet the 611(a) requirements of the FAA Act of 1961 as amended.

In addition, as discussed in the Initial Environmental Examination (IEE) Annex IV, E, the project construction will not entail any negative environmental impact.

SECTION C. ECONOMIC ANALYSIS

1. Comparison of Alternatives

The nature of this Project (establishing within the BAC a largely localized training institution) makes traditional benefit/cost analysis difficult to apply. Quantified measures of several of the outputs contributing to purpose achievement can be identified (e.g. doubling the number of certificate graduates and establishment of a diploma program), but these measures are only indicators and measure neither the impact of the outputs nor the purpose of improving the welfare of Botswana's small scale farmers. Moreover, several cannot be given reliable monetary values. Particularly difficult to quantify are the values of improvements in curriculum design and teaching techniques, and the upgrading and localizing of the teaching staff.

An alternative under these circumstances is to use least cost analysis. For such an analysis it would not be necessary to measure outputs, only inputs. However, least cost analysis should be applied to alternatives which produce identical or near identical outputs to assist in distinguishing between different approaches. The alternatives available to Botswana for alleviating the manpower constraint would not result in the desired end; namely the provision of sufficient qualified agricultural manpower to serve the rural sector with the costs of this training being within the financial capability of the GOB. Nevertheless, the two alternatives considered were utilizing existing facilities for training agricultural personnel and conducting training outside of Botswana. A discussion of these two alternatives follows:

a. Utilization of Existing Facilities for Training Agriculture Personnel

OSARAC considered the impact on the agricultural sector of the GOB continuing to utilize the existing facilities at BAC and UBS for training agricultural personnel. This alternative was considered to be unacceptable because (1) the demand for trained agricultural personnel currently far outweighs the supply available (See Part III A) with a current deficit of 185 positions in the government, private and parastatal sectors. At projected growth rates, this deficit would grow to over 500 by 1988. Such a deficit would be unacceptable to the GOB since it would preclude the comprehensive and successful implementation of a wide range of agricultural programs (such as the Tribal Lands Grazing Program and the Arable Program discussed in Section II A) and thus seriously impede further rural development; (2) although the project team considered the possibility of continuing diploma training at UBS in Swaziland, there is (as discussed in Part II and III A) a great deal of uncertainty as to the likelihood of continuing to use UBS as a training facility

for Botswana students. 1/ Should Botswana be unable to utilize this training facility for their diploma students, there would be no source (within Botswana's limited financial capacity) for training diploma graduates; (3) even if training at UBS would continue, the current problems of differences in climatic conditions in Swaziland and the duplication in course curriculum would not be alleviated.

b. Training Outside Botswana

The feasibility of conducting training outside of Botswana to meet the demand for manpower within the agricultural sector has been investigated. It has been found that the costs of such training would be extremely high in relation to the resources which the GOB has to commit to training activities. In the United States, for example, costs for vocational training similar to that offered at BAC would average \$13,000 per year and in Kenya such training although less expensive, would still average close to \$8,000 per year. In contrast, training offered at BAC with the expansion proposed in the project description (Part II B) would average \$3,491 by FY 82/83 in constant dollars. Aside from these high costs, training undertaken outside Botswana for low and middle-level staff positions would not necessarily be geared to the needs of the country in terms of specific preparation for job skills required by the Ministry of Agriculture and soil/climatic and social conditions of the country. Also, it is highly unlikely that space would be available to certificate and/or 30 diploma students in Africa and U.S. schools.

2. Costs of Training at BAC

The design of the project is oriented toward the establishment of an institution offering both high quality and efficient student instruction - thereby maintaining student costs at an acceptable level. Per student costs at BAC for FY 78/79 are estimated to average \$3,620. By the end of the project even with the improved curriculum, new and improved teaching methods, a greater variety of teaching materials, and a better trained staff (which will result in placing many instructors at a higher wage level), it is anticipated that in constant dollars the cost of education per student will be reduced to \$3,491 per year. This projected reduction in costs is a function of two factors. First, the present student/instructor ratio and the average number of student contact hours at BAC reflect an inefficient utilization of the current teaching staff. The ratio averages nine students per faculty member 2/ with the range being 25 hours of teaching per week/instructor for the

-
- 1/ This includes faculty who teach a substantial number of additional students in the community development curricula.
 - 2/ Several recent studies in Swaziland, including a manpower analysis financed by AID as part of Rural Development Area Project (RDAP) PP have recommended increasing the number of Swazi certificate and diploma graduates.

more junior level staff to seven hours per instructor for the senior staff. In the calculation of student contact hours, the inefficiency in the use of staff becomes even more revealing with the number of contact hours averaging only 140 and ranging from 313 for junior instructors to 73 for more senior staff. By the end of the project, efficiency in the use of staff resources will have improved considerably with student/teacher ratios being increased to 15:1 and average student contact hours being increased to 300. As a result, although the number of students will have increased by 120 per cent, the number of faculty members will increase from 27 to 35 or by 22 per cent. These ratios reflect a considerable improvement in the efficiency in utilizing present staff and a more equitable distribution of the work load. Moreover, they are well within acceptable levels for comparative vocational education offered in the United States and other African countries.

The second factor contributing to the decrease in per student costs is improved utilization of facilities. At present, although dormitory and eating facilities are utilized to capacity, it has been found that classroom space is not used efficiently. Accordingly, the project will finance the construction of only seven additional classrooms. Thus classroom utilization time at BAC will be increased from the present rate of approximately 55-60% to approximately 80-85%, a much more acceptable rate for large institutions of this nature. Accordingly, the recurrent costs for building maintenance and costs of replacing of equipment will be correspondingly low.

Thus, two alternatives were considered during Project preparation. It has been found that these alternatives are neither feasible nor viable. Accordingly, the project proposes the least cost alternative which is both suitable to Botswana's needs and within the GOB's financial capacity to support.

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SECTION D. SOCIAL ANALYSIS

1. Social Feasibility

The project has been designed to address the needs of Botswana's agricultural sector through the training of skilled manpower capable of administering and implementing programs geared toward increasing agricultural production. Accordingly, the key issues of social feasibility are:

- (1) Whether project-assisted training for BAC staff and BAC students will be socially/culturally acceptable and appropriate, and
- (2) Whether the BAC graduate will be prepared to carry out his/her professional functions in ways that are sensitive to the social and cultural traditions, attitudes and behaviour patterns of Botswana's rural populace.

a. Training of BAC staff and students

Most, if not all, Botswana, who will receive long-term U.S. training have been educated in a western-oriented education system in Botswana and have already lived and studied in institutions outside Botswana (Swaziland, short courses in Europe, etc.). Thus, it is not anticipated that they will have any major problems in adjusting to the educational and cultural milieu of U.S. training institutions. Also long-term training programs will be individually tailored to the educational background and the future career development needs of the participant. In order to make participant training as relevant as possible, the participant, the BAC director and the AID-funded advisors at BAC will develop individualized programs which offer practical as well as theoretical training experiences. For example, the overseas training program of an Agronomy major might include extensive field experience in dryland farming techniques complemented by working with an extension agent whose territory includes an American subculture that is somewhat resistant to agricultural innovation (e.g. an American/Indian community).

Another student might specialize in range management and work closely with a livestock farmer who is ranching in a semi-arid environment. A student specializing in agricultural extension might work with a state agency which plans programs to improve agricultural extension activities. Finally, most BAC instructors trained in the United States will have some opportunity to teach in a United States vocational school. It is anticipated that this experience will afford the trainees the opportunity to learn a variety of teaching techniques which can be used at BAC.

Short-term training in the form of seminars and short courses taught by the members of the technical assistance team and project funded short-term technical advisors will afford Botswana BAC instructors the opportunity to improve their teaching skills and upgrade their technical areas of expertise on site. It is anticipated that this training will not only provide BAC staff with up to date knowledge of technical innovations in dryland farming, for example, but will also provide new ideas for teaching techniques. Accordingly, the programmed technical assistance includes a horticultural specialist and also includes a specialist in teaching methodology. It is hoped that combining technical experts in agriculture with specialists in teaching techniques will assist instructors in disseminating course material to BAC students.

The curricula and teaching techniques used to teach certificate and diploma candidates at BAC will also be culturally sensitive to the Botswana environment. Course materials directly applicable to Botswana will be developed by project funded short- and long-term technicians in co-ordination with the BAC staff in areas such as horticulture, range management, and livestock. These materials will facilitate the transfer of instructor skills to BAC students, thereby facilitating the learning process.

- (b) Preparation of the BAC graduate for work in a culturally sensitive environment.

Most BAC graduates will work directly with small farmers who do not now participate in the modern sector economy and whose farming traditions are strong and resistant to change. If GOB goals of improved livestock productivity, increased crop production and conservation of the country's fragile environment are to be attained with the participation of the small Botswana farmer, BAC graduates must be fully attuned to the cultural and social sensitivities of these farmers to instill this sensitivity. Increased emphasis in the BAC curricula will be placed on subject matter such as rural sociology and extension techniques. In addition, the substantial amount of student time devoted to practical training and field work will be retained in the curricula and the quality effectiveness of this training will be improved wherever possible. For example, students will actually attempt to teach new farming methods to traditional farmers under the guidance of seasonal agricultural extension agents working in the vicinity of BAC.

It is therefore increasingly likely that the social/cultural impact of BAC graduates on rural Botswana farmers will be positive.

2. Role of Women

The time expended on the three broad activities in rural Botswana (household, crops, livestock), as well as the related decisions, are almost the exclusive province of each sex. In traditional Botswana society women have been responsible for food production and household related activities. Men spend only about 6% of their available time on crops (plowing, land clearing, planting) and women spend only about 4% of their available time on livestock. On the other side, men spend about 41% of available time on livestock. Women spend 56% of their available time in household activities and 13% of their time on crops. So far as attitudes are concerned, there is fairly clear distinction between what are considered men's and women's activities:

Activities considered suitable for

MEN

clearing land
ploughing
small stock keeping
cattle care and milking
caiving help
castration
dehorning
dam building
kraal building

WOMEN

weeding and bird scaring
harvesting and threshing
poultry keeping
all household activities
beer brewing
house building

Since much of the GOB's Rural Development Strategy is aimed at changing the patterns of land and cattle use, and since attitudes about the appropriate roles of men and women are closely related to land and cattle use, this project will have an indirect effect on both sexes. Projects designed in support of the arable lands policy, for example, must consider that, after planting, crop production is considered women's work and, as a result, some production goals may not be feasible without changes in the traditional roles of the sexes. 1/

There are currently five women serving as AED's. The BAC currently has six women enrolled in the agriculture program. Through adjustments in the present BAC admissions policy the project will assist the BAC in identification and recruitment of additional women to be trained in these areas as BAC and the MOA are aware of the importance of women in the agricultural development process. This posture is in agreement with the goals set forth in the National Development Plan 1976/81.

1/ The role of women in agriculture is not ignored by the GOB. The MOA has an officer specifically concerned with women's roles and rights and attempts are being made to employ women in the extension services.

SECTION E. FINANCIAL ANALYSIS AND PLAN

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1. Overall Financial Plan

Table A

Total Project Funding

	<u>AID Funding</u>			<u>GOB</u>	<u>Other</u>	
	<u>FX</u>	<u>LC</u>	<u>Total</u>	<u>Funding</u>	<u>Donors</u>	
				<u>LC</u>	<u>FX</u>	<u>Total</u>
A. Construction	1423	1423.3	2846.3	392.0	-	3238.3
B. BAC Staff & Consultants	3002.0	-	3002.0	290.2	2124.4	5416.6
C. Furnishings & Equipment	479.5	32.7	512.2	25.4	-	537.6
D. Training	788.8	-	788.8	82.8	25.6	897.2
E. Other Recurrent	-	-	-	1522.3	-	1522.3
Total	5693.3	1456.0	7149.3	2912.7	2150.0	12212.0

Table B

Projections by United States - Fiscal Year (Thousand of Dollars)

<u>Fiscal Year</u>	<u>AID</u>	<u>Host Country</u>	<u>Other</u>	<u>Total</u>
1978	2000	110	-	2110
1979	1196	889	440	2525
1980	1377	141	501	2019
1981	770	318	432	1520
1982	814	578	425	1817
1983	392	577	351	1320
Total	7149	2912	2150	12212
Percentage of Project Contribution	58	24	18	100

As will be noted in Table B, the GOB contribution is 24.0 per cent of the total project.

The GOB is committed to fund recurrent costs for the activity. Those additional recurrent costs for 83/84 will reach approximately \$956,000. Were this cost applied to the project total, the GOB contribution would be greater than 25%. No attribution of land costs are included in GOB contributions. The GOB's commitment to this project is adequately demonstrated, and we believe that the spirit of demonstrating commitment through contribution has been satisfied.

Detailed financial tables listing yearly expenditure by category are included in Annex III. Explanatory notes on cost elements and inflation and contingency rates are also contained in Annex III. It is anticipated that this project will begin late in FY 1978. The tables in Annex III are based upon projected accrued expenditure rates, and provide for obligation and expenditure of costs with disbursement to follow.

Based on analyses set forth in this and other appropriate sections, it is demonstrated that the financial plan is adequate and firm and the project is financially sound.

2. Recurrent Budget Analysis

The following budget analysis sets forth the recurrent budget for SAC from 77/78 through 82/83. Figures for 77/78 are actual and 78/79 approved. Figures for recurrent budget requirements for 79/80 through 82/83 are based upon planned project increases without inflation factors in Table C, and based upon increases with inflation factors in Table D. Table E indicates projected costs without expansion but with inflation factors. Each table indicates current and projected student levels and the resultant per student costs.

Table C

SAC Recurrent Costs with Project Expansion (Thousands of Dollars)

Item	Actual FY 77/78	Approved FY 78/79	Without Inflation Factors Projected			
			FY 79/80	FY 80/81	FY 81/82	FY 82/83
Salaries:						
Teaching	145.2	156.2	211.1	222.8	262.7	290.9
Other	26.5	35.1	43.7	70.1	80.5	85.6
Student Rations	58.0	103.7	103.7	151.6	199.5	247.3
Other Recurrent	107.3	175.7	175.7	296.3	377.1	458.3
Total	347.5	470.7	534.2	740.8	920.1	1,082.3
Current & Pro- jected Student Level	130	130	130	190	250	310
Per Student	2.67	3.62	4.11	3.89	3.68	3.49

The 25% contribution requirement does not apply to SSA funded projects.

As shown in Table C per student costs in current dollars rises initially from \$3.62 in FY 78/79 to \$4.11 in FY 79/80, but eventually show a lower cost in FY 82/83 than at present due to the efficiencies entailed in utilizing staff and facilities for the new diploma program. As shown in Table E at present student levels BAC per student costs would rise from \$3.62 in FY 78/79 to \$5.99 in FY 82/83 without project-instituted efficiencies.

Table D

BAC Recurrent Costs with Project Expansion (Thousands of Dollars)

Item	Actual FY 77/78	Approved FY 78/79	With Inflation Factors Projected			
			FY 79/80	FY 80/81	FY 81/82	FY 82/83
Salaries:						
Teaching	145.2	156.2	229.3	243.9	285.0	317.2
Other	26.5	35.1	47.2	74.8	88.0	94.6
Student Rations	68.0	103.7	122.8	209.7	324.0	466.5
Other Recurrent	107.8	175.7	203.0	380.9	559.9	777.2
Total	347.5	470.7	602.3	909.3	1256.9	1655.5
Current & Pro- jected Student Level	130	130	130	190	250	310
Per Student	2.67	3.62	4.63	4.79	5.02	5.34

A comparison of the per student costs in Tables C and D shows that were it not for inflationary affects, the operation of the school becomes more efficient, and the per student costs drop as the school expands its output.

The per-student costs, at current prices, of \$3,490 are comparable to other non-university training facilities in Botswana and are substantially lower than the \$4,800 - \$5,500 factor for the local university.

Table E

BAC Recurrent Costs Without Expansion (Thousands of Dollars)

Item	Actual 77/78	Approved 78/79	With Inflation Factors Projected			
			79/80	80/81	81/82	82/83
Teaching Salaries	145.2	156.2	182.7	195.5	209.2	223.8
Other Salaries	26.5	35.1	41.3	44.1	46.8	49.5
Student Rations	68.0	103.7	122.8	143.7	168.0	196.5
Other Recurrent	107.8	175.7	203.0	233.5	268.5	308.6
TOTAL	347.5	470.7	549.8	616.8	692.5	778.6
Per Student at Level of 130	2.67	3.62	4.23	4.75	5.33	5.99

There are no current figures available projecting the Ministry of Agriculture Recurrent Budget. However, preliminary budget guidelines for the 5th National Development Plan (in preparation) limit increases to 12 percent per year in constant prices. On this basis, and beginning with the approved 1977/78 level, Table F projects these budgets and compares additional recurrent costs attributable to the project.

Based on Table F, the total additional recurrent costs compared to projected budgets increases over the project period represent a 5 year average of 10.7 percent of the incremental budget increases. The BAC portion of the MOA incremental budget reaches its peak in 1980/81 and decreases thereafter.

This project will clearly absorb a substantial portion of the incremental MOA budget over the next 5 years. The GCB Ministry of Finance and Development Planning has finally indicated its willingness to accept this burden because the government's agricultural manpower constraint has clearly limited the MOA's capacity to implement planned agricultural development projects (the MOA used only 30% of available funds in 1974/75 primarily for this reason). Thus until the manpower constraint is broken, alternative uses of MOA capital and recurrent funds are effectively limited.

In conclusion, the additional recurrent costs during the project, and the recurrent costs burden after project completion appear reasonable and within the capacity of the Government which anticipates major increases in revenues during the 1980's due to expanded mineral production.

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Table F

PROJECT RECURRENT COSTS

Item	Approved 1977/78	78/79	79/80	80/81	81/82	82/83
1. Incremental Growth in MOA Budget <u>a/</u>		1,078.9	1,208.4	1,353.4	1,515.8	1,697.7
2. Additional Recurrent Costs (Constant prices from Table C)	-	123.2	63.5	206.6	179.3	162.2
3. Percentage Incremental Budget increase	-	11.4%	5.3%	15.3%	11.8%	9.6%

a/ Projected at 12% increase annually in constant prices.

PART IV. IMPLEMENTATION ARRANGEMENTS

SECTION A. Administrative Responsibilities in Project Implementation

The following discussion outlines the responsibilities of the contractor, OSARAC and the GOB under the Project.

1. The Contractor

Under this project, the institutional contractor will be responsible for all long- and short-term technical assistance recruitment described in the Project Paper. This responsibility includes all administrative arrangements related to recruitment, transportation, shipment of household effects, etc. Additionally the contractor will be responsible for implementing all project funded short- and long-term participant training (both in-country and in the United States). All administrative responsibilities related to the selection of trainees, design of individually tailored training programs, placement of students, transportation and other related administrative responsibilities will be the responsibility of the contractor.

2. OSARAC

OSARAC will monitor the project through the AID Operations Officer (AOO) in Gaborone. The Agricultural Officer currently posted in Gaborone will have responsibility for project supervision and management and will call on technical personnel from OSARAC and REDSO/E as needed. He will maintain communications with the Chief of Party of the technical assistance team, note and take action to assure that the GOB is performing its agreed-to services, and keep close watch on performance indicators, recommending corrective action in the event of slippages.

Responsibility for very general monitoring of construction activities will rest with AID. It is anticipated that the Project Manager will keep track of events leading to and taking place during construction and call on the REDSO engineer for technical advice as needed.

Administrative responsibility for long-term technicians, once they have arrived in country, will be the responsibility of USAID/Gaborone through the administrative officer who is currently responsible for PASA personnel. This individual will provide the five man team services relating to housing repair and maintenance, furnishings of housing, assist with travel arrangements, shipment of household effects from Botswana, etc. It is anticipated that the contractor will reimburse AID for one-quarter of this individual's salary, as well as one-half time reimbursement for a local employee.

Procurement of U.S. source commodities will be the responsibility of AID using standard PIO/C type commodity procurement.

3. The GOB

a. BAC

BAC is the project's principle implementing agent and will, therefore, play the major role in project administration. Accordingly, the college will: (1) supply personnel for long- and short-term training under the project; (2) play a major role in developing programs for long-term training; (3) have the primary responsibility with technical assistance personnel for orchestrating the certificate expansion and the creation of the diploma programs; and (4) play the key role in the improvement of administration, curriculum and teaching methods.

b. The Ministry of Works and Communication

Through the Ministry of Works and Communication, the GOB will have the overall administrative responsibility for supervising construction. They will, using their standard bidding procedures, let the contract for final architectural engineering design, issuing the IFB and let the contract for the construction. Although the supervision for construction will rest with the GOB, AID will reserve its right to approve all bid documents and contracts involving AID funds. AID will reimburse the GOB for contractor costs based on submission of monthly progress reports.

In addition to construction, the GOB through the Ministry of Agriculture's purchasing department (and the GOB Tender Board for procurement over P10,000) will be responsible for procuring all project funded equipment and commodities from Southern Africa, using standard GOB procedures. This purchasing will be done with the assistance of the contract team to ensure that the items needed for the project are procured.

SECTION 3. Contracting Procedure

1. Technical Assistance

The Project Paper was prepared by OSARAC with the assistance of a team of three technicians (a vocational education specialist, an extension specialist and a livestock specialist) from South Dakota State University (SDSU). This institution was selected under the collaborative approach and submitted a proposal along with two other universities selected by the Board for International Food and Development (BIFAD).^{1/} Under this collaborative approach, the university selected to design the Project would, assuming good performance, be given priority consideration for selection as the implementing contractor. Thus,

^{1/} Three other universities were invited to submit proposals but declined.

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if both the GOB and USAID determine that SDSU is the appropriate institution to carry out the Project the normal competitive bidding procedures are not required.

2. Construction

Contracting procedures for the construction element of the Project will be the standard competitive tendering procedure employed by the government of Botswana. These procedures have been used successfully on several AID projects in Botswana and are acceptable to REDSO and OSARAC.

SECTION C. The Sequence of Events

A list of critical events for the Project is included in Annex IB. It is anticipated that the Project will be authorized in early September 1978, with Project Agreement signature scheduled for no later than September 30, 1978. The technical assistance contract will be signed by mid-November with three of the long-term technicians arriving in Botswana no later than January 15, 1979. The most critical events are those relating to technician arrival, initiation and completion of construction, the timely arrival of instructors scheduled to substitute for Botswana trainees, and the timing of trainees return. The project PACD will be January 1, 1986 when the last project participant completes his/her training.

SECTION D. Training Plans and Philosophies

1. Long-term Academic Training

Training programs will be prepared by the vocational education specialist and the Principal of BAC with assistance when appropriate from the extension advisor and the animal husbandry specialist. Training programs will be forwarded to the university contractor for action.

Most long- and short-term training will take place at the contractor's university where individual programs will be tailored as closely as possible to the positions which trainees will be filling at BAC, to the candidates preferences and abilities, and to the needs of the Botswana agricultural sector. Any remedial training required in math and related areas will be the responsibility of the contracting university where supplemental tutorial programs will be arranged as needed.

The long-term training program for all participants will include on-the-job training experience in the United States. Such experience will include, where appropriate, student teaching in U.S. vocational institutions, working with extension agents, and working directly with students and faculty in farming and livestock activities. As shown in

Annex Ib, 14 individuals will be trained with project funds. Ten of the fourteen individuals have been identified. Four more will be identified by the GOB by May 1979.

Annex IH, shows the individuals who will serve as instructors at BAC while Batswana are being trained. Staff positions will be filled using individuals financed by the Project and by other donors. By the end of the Project (1983) all Batswana being trained will have returned and be teaching at BAC with the exception of the three veterinary trainees who will not return until 1986. It is anticipated that the United Kingdom will continue to finance expatriates for these positions.

2. Courses in Botswana

In addition to preparing course specific curricula, project funded short-term technical assistance will be used to provide in-service training courses to the BAC staff in a wide-range of subject areas (for a list of short-term technical assistance See Annex IK). The purpose of this short-term technical assistance is to supplement the skills of long-term technical assistance in areas outside their fields of expertise.

SECTION E. Evaluation Plan

1. Annual Evaluations

In January of every year the vocational education specialist and the BAC principal will prepare an Annual Work Plan and an Annual Training Plan for the project. After review and approval by the GOB and AID, the work plans will become the basis for annual evaluations. These evaluations will be directed by AID staff in Botswana but will be carried out with the full participation of the BAC principal, the contractor and the Ministry of Agriculture. The evaluation will examine progress toward achievement of project outputs and the performance of the involved parties in meeting project commitments and requirements.

Project Evaluation Summaries (PES) will be prepared and corrective action will be taken to solve any identified problems.

2. External Evaluation

Additionally, two external evaluations will be project funded and will be administered jointly by the GOB and AID. The first of these evaluations will take place two and one-half years into the project and will examine the whole project concept to examine the continuing validity of project goal, purpose and output statements and progress towards achievement of project objectives. The second and final external evaluation will take place at the end of the Project after the first diploma and expanded certificate level classes have graduated.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Project Title and Number: Botswana Agricultural College Expansion

Life of Project
From FY 78 to FY 83
Total U.S. Funding
Date Prepared: July 31, 1978

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: Improve the welfare of Botswana's small-scale farmers and herders</p>	<p>Measures of Goal Achievement: -Objectives of tribal Grazing land and arable land programs achieved -Manpower needs met for low and middle level skills in GOB and private and Parastatal sector</p>	<p>GOB Development Plan BAC records Ministry of Agriculture records</p>	<p>Graduates become employed in rural sector</p>

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Project Purpose	Conditions that will indicate purpose has been achieved:	Verification	Assumptions for achieving purpose:
Establish within BAC a largely localized training institution capable of serving rural sector needs	<ul style="list-style-type: none"> - Doubled number of certificate graduates - Institutionalized diploma program in animal health and agriculture Graduating 27 students annually - Staffed with 31 local staff members - Staffed with localized administration with skills upgraded - Curricula and teaching techniques which are practical training in skill areas relevant to GOB needs 	<p>BAC Records</p> <p>Contractors records</p>	<p>Attrition of graduates from BAC working at MOA remains the same</p> <p>Government can continue to absorb recurrent costs</p> <p>Government continues to see training of manpower a high priority</p>

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Outputs:	Magnitude of Outputs	Assumptions for achieving outputs:
<ul style="list-style-type: none">- Staff trained- Facilities completed and equipped- Teaching materials developed- Curricula improved for certificate level- Curricula created for diploma level- Administrative procedures improved	<ul style="list-style-type: none">14 Staff trained6 Classrooms and other facilities completed- Administration capable of supporting 300 students	BAC records USAID files
		<ul style="list-style-type: none">- AID project funds remain available- Staff available to train- Staff receptive to new curriculum and teaching techniques

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Inputs:	Implementation Target (Type and Quantity)	USAID files	Assumptions for providing inputs:
1. Tech. Asst. Long-term short-term	1. 19.5 years 80 months	USAID files	- Contractor able to institute training program - AID funds are made available - Construction contract signed
2. Training	2. 41.5 years		
3. Equipment and Commodities for BAC facilities	3. See Annex III - A		
4. Other Cost (Construction of facilities)	4. See Section III - A		

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List of Critical Events

IMPLEMENTATION SCHEDULE

<u>Date</u>	<u>Action</u>	<u>Responsible Organization</u>
August 78	Preliminary Design Completed	GOB
August 78	Project Paper Approved	AID/W
September 78	Signing of Project Agreement	
October 78	Signing of A and E Contract for Housing	
	Signing of A and E Contract for Construction of facilities	
November 78	Advertisement for bids for Housing	
November 78	Technical Assistance Contract Signing	AID/W
December 78	Bid review for housing Contract Award for housing	Mission/GOB
January 79	Housing Construction begins Advertisement for bids for Construction of facilities	
	Team Leader and Technical Assistance Team Arrive	Contractor AID W
	First Non-AID Sponsored participants depart for training	Contractor
	Furniture and equipment ordered Vehicles ordered	GOB/AID/W/Mission

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<u>Date</u>		<u>Action</u>	<u>Responsible Organization</u>
March	79	Bid review for Construction of facilities	GOB/Mission
March	79	Curriculum Review for Certificate expansion begins	Contractor
April	79	Contract Award for Construction of facilities	GOB/Mission
May	79	Construction of facility begins	GOB
June	79	First AID Sponsored Trainees begin Training	Contractor
		First Peace Corps Volunteer Arrives for Staff replacement	Contractor
July	79	First Non-AID Sponsored trainee returns	Contractor/GOB
		First Short-Term Technical Assistant Arrives	Contractor
September	79	First AID Sponsored staff replacement personnel arrive	Contractor
		Vehicles arrive	
October	79	First year review of Project	Mission/Contractor/GOB
November	79	First furniture and equipment arrives	
January	80	Planning for Certificate program increase complete	Contractor
January	80	Dormatory for sixty students and one classroom building	GOB

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<u>Date</u>		<u>Action</u>	<u>Responsible Organization</u>
		Construction Inspected and Accepted	Contractor/GCB
February	80	Planning for Diploma Program begins	
March	80	Expansion of Certificate program begins with arrival of 60 students on campus	Contractor/GCB
June	80	Housing for technical Assistance complete	GCB
October	80	Second year review of Project	GCB Mission Contractor
February	81	Remainder of construction completed, Inspected and accepted	GCB
February	81	Furniture and equipment arrive and in place	GCB
March	81	Second class of Expanded number of certificate students arrive on campus (60)	GCB/Contractor
May	81	First evaluation of Project	GCB/AID Contractor
June	81	First AID Long-Term trainee returns to campus	GCB/Contractor
July	81	Planning for Diploma Program, Curriculum, Course Contract and Field experience complete	GCB/Contractor

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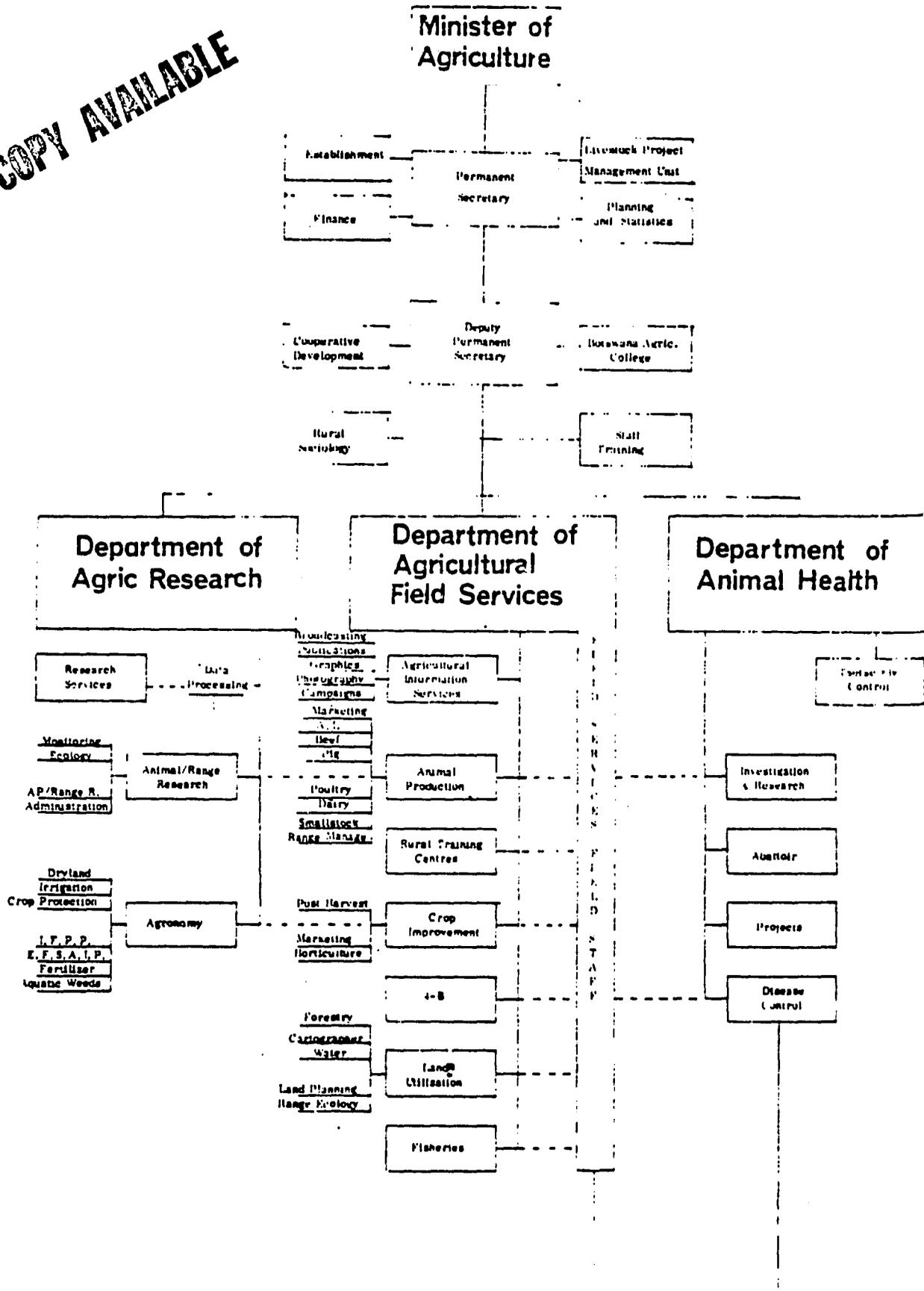
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<u>Date</u>		<u>Action</u>	<u>Responsible Organization</u>
September	81	First enrollees for Diploma program arrive on campus (30)	GOB/Contractor
October	81	Third year review of Project	GOB/Mission/Contractor
December	81	First class of expanded certificate level students graduate	GOB/Contractor
July	82	Thirteen Long-Term trainees sponsored by AID and other funding sources have returned to campus	GOB/Contractor
September	82	Second class of established diploma program arrives on campus (30)	GOB/Contractor
October	82	Fourth year review of Project	GOB/Mission/Contractor
December	82	Second class of expanded certificate level students graduate	GOB/Contractor
March	83	Certificate level classes start	GOB/Contractor
September	83	First class of diploma level students graduate	GOB/Contractor
September	83	Final Project review	GOB/Mission/Contractor
September	83	4 Long-Term technical Assistance depart	Contractor
December	83	Graduation of certificate class	Contractor GOB
December	83	Last long-term technical assistance departs	Contractor

Ministry of Agriculture - Administrative Structure

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Farming Public

Administrative and Managerial Analysis, Ministry of Agriculture responsibilities to the Project

The BAC is administratively housed under the Ministry of Agriculture (See Annex I-C). The BAC Principal reports directly to the Deputy Permanent Secretary of Agriculture and indirectly to the Permanent Secretary of the Ministry. BAC is an integral part of the Ministry and the only supplier of trained Agricultural Personnel in Botswana. BAC staff are expected to be on call to serve on Ministry Committees. The BAC Principal is a member of several committees, for example he chairs the housing Committee at Selebe and is a member of the Localization Committee.

The MOA has placed a high priority on the BAC expansion project. The Ministry has a close working relationship with BAC and Ministry personnel. Working co-operatively on BAC concerns, for example, they assist in Identification of Potential Staff members with the final interview and selection to be recommended by the Principal of BAC to the Permanent Secretary. Ministry personnel will serve on appropriate committees relating to their speciality in the building of curriculum. This working relationship will insure that instruction offered at BAC is responsive to the needs of the Ministry.

Botswana Agricultural College Project Responsibilities

The BAC must provide office space and working quarters for AID-funded technicians. They will schedule meetings of staff and appropriate Ministry Personnel in Curriculum/Census reviews. As part of their normal responsibilities the BAC Administration Staff will be responsible for the College Admissions Policies, Scheduling of Staff and Faculty Staff Evaluation, Staff Improvement, Staff Leave Policies, Student Records, Budgeting and Fiscal Management; Purchasing and Accounting, Library Management and Non-Teaching Staff Management. Weaknesses have been observed in the present operation of these administrative duties.

Project Action to Strengthen Observed Administration Weaknesses

The Chief of Party will work as an Advisor to the Administrative Staff of BAC. The Chief of Party will co-ordinate short-term technical advisor activities and arrange for background and instruction in each of the areas of weakness of the administrative function of the BAC. The Chief of Party will be responsible for co-ordination of all activities of the AID-funded contract technicians in the project, a job description for this individual appears in Annex I, i.

BAC Staff and Staff Inter-Relationships

The organizational structure of BAC has the Principal in a position of leadership. The principal is assisted in these duties by the Assistant Principal. Course directors in Animal Health and Agriculture

work with staff on curricula. The Bursar reports to the principal and is in charge of maintenance, dormitories, purchasing, food services, etc. For a more complete relationship of the BAC administration and staff, see the Organizational Chart in Annex I-D.

Expatriate Staff

Currently BAC has nine expatriate staff members provided by ODM, FAO, GOB, USAID and CUSO. These persons have been serving in a high degree of leadership. One person, formerly the principal, will serve until September 1978 as an advisor to the principal and teachers in crop production. Another serves as a course director for the animal health program. Two other persons also serve in animal health. Another expatriate is in charge of the agriculture program at BAC and four other expatriates work in this area. There appears to be a good working relationship between the expatriates and the Batswana staff. The principal's position has been localized and plans are to localize the course director position in Agriculture in 1978.

Classification of Teaching Staff

The teaching staff is classified by level of academic achievement. The PR or lecturer classification is awarded to persons with the BSC degree or above. An individual joining the staff with a diploma is classified as a T-3 or instructor, with successful teaching experience. They may be recommended for advancement to the T-2 level and then to the T-1 level or Senior Instructor. A person entering with a certificate is classified as a T-5 or assistant instructor; with successful experience he/she may be advanced to the T-4 level. This system provides for upward mobility of the teaching staff. Many persons acting at the T-5 level have gone for diplomas and then been placed at the T-3 level. The project plans to continue the practice with T-3's being sent for the BSc degree and returning at the lecturer level. Each level has steps or sub-levels which allow the individuals to receive salary increments within his/her level. These designations are also the operational levels within the Ministry of Agriculture. Thus, a person is currently neither penalized or rewarded within the Ministry for teaching at BAC and mobility between BAC and other MOA positions is possible.

Roles of US-funded advisors

The long-term AID-funded advisors will work closely with the Batswana staff. The Chief of Party will be responsible for co-ordination of these activities. The long-term advisors in livestock and agriculture will work directly with the animal health and agriculture areas of the curriculum, in revision of the certificate curriculum and materials and development of the diploma curriculum and materials, and will carry out their functions in co-operation with the BAC principal, respective course directors and BAC teaching staff. They will be assisted by short-term technical assistants.

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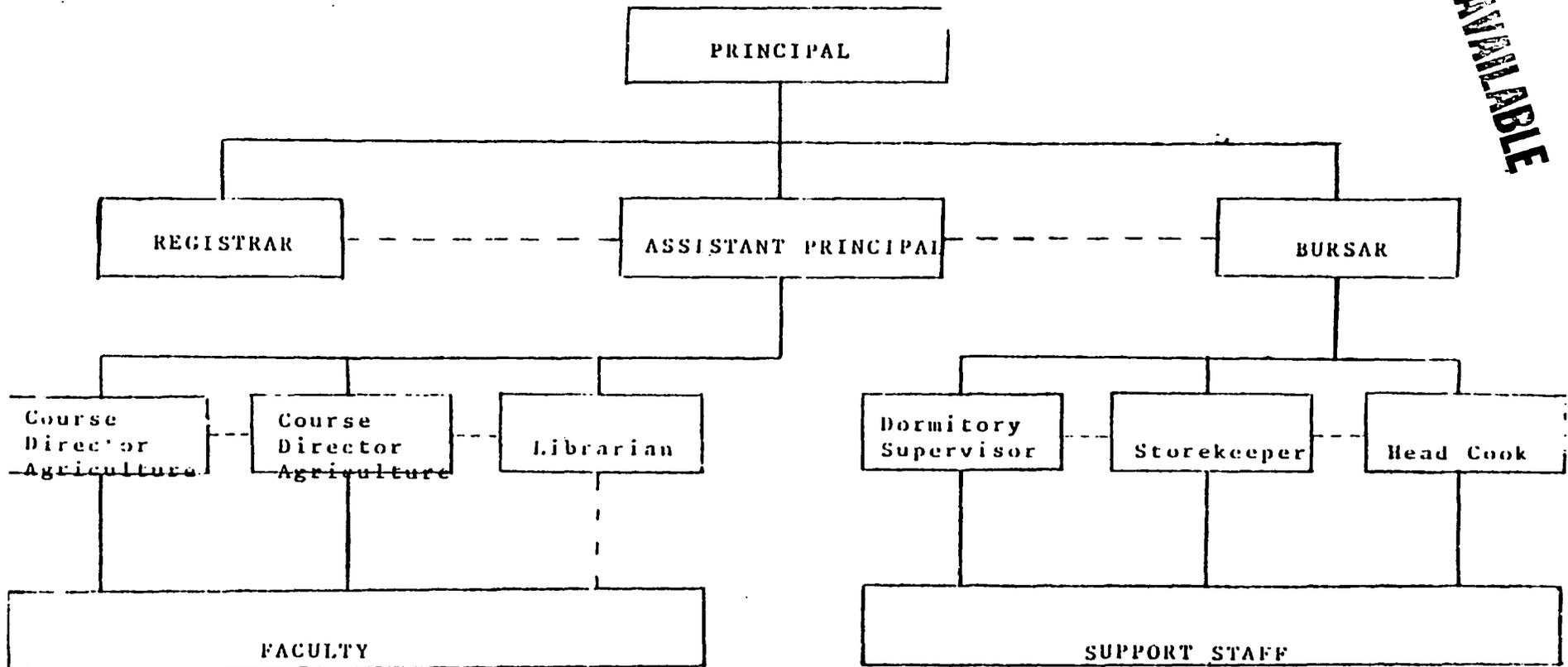
ANNEX I-B

Page 3

The staff replacement persons who will function as instructors will be responsible to the principal and indirectly to the Chief of Party in his advisory capacity. The individuals from the contracting institution will also be responsible to the Chief of Party in his institutional leadership role. The Chief of Party is responsible for preparing annual work plans for contract staff in January of each year.

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ADMINISTRATIVE STRUCTURE
BAC



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ANNEX I-1
Page 1

**Present Course Structure For Certificate
in Agriculture**

First Year

Farm Practical
Botany
Animal Kingdom
Communication
Mathematics
Genetics
Anatomy and Physiology
Principal of Crop Production
Crops
Horticulture
Animal Husbandry
Animal Diseases
Range Management
Agricultural Engineering
Agricultural Economics
Extension

Second Year

Communication
Principal of Social Research
Crops
Horticulture
Animal Health
Animal Disease
Range Management
Agricultural Economics
Extension
Agricultural Engineering
Surveying and Soil
Conservation
Field Administration
Field Experimentation

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ANSEN 1-3
Page 2

Present Course Structure For Certificate
in Animal Health

First Year

Farm Practicals
Communication
Mathematics
Animal Kingdom
Genetics
Anatomy and Physiology
Animal Diseases
Animal Pathology
Livestock
Livestock Practical
Animal Health Practical
Laboratory Techniques
Range Management
Agricultural Engineering
Social Studies

Second Year

Livestock
Livestock Project
Animal Disease
Parasitology
Animal Pathology
Drugs and Vaccines
Animal Health Practical
Breeding and Fertility
Range Management
Agricultural Engineering
Extension

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Proposed Course Structure For Diploma
in Agriculture

First Year

Induction (1st Term)
Sciences
Elementary Statistics
Accounting
Field Administration
Farm Management
Agricultural Engineering
Genetics
Animal Diseases
Plant Pathology
Plant Breeding
Plant Pests

Second Year

Mathematics
Communication
Extension
Agricultural Legislation
Cooperative Organization
Range Management
Grain Storage
Surveying and Soil
Conservation

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ANNEX C-F
Page 7

Proposed Course Structure For Diploma
in Animal Health

First Year

Induction (1st Term)
Sciences
Elementary Statistics
Accounting
Field Administration
Farm Management
Agricultural Engineering
Genetics
Range Management
Animal Breeding
Animal Diseases

Second Year

Mathematics
Communication
Extension
Agricultural Legislation
Cooperative Organization
Livestock
Drugs and Vaccines
Laboratory Techniques

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Training Schedule for SAC Staff

Project Starts Oct. '78	1979			1980			1981					
	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.
Trainee	Level											
Maloiso	PhD											
Tibi	Workshop - Adm. - - -											
Sinombe	MSc			Ag Econ								
Omphile	BSc			Range Mgt.								
Busang	MSc											
Mogotsi	BSc			Horticulture								
Matilo	BSc											
Sibanda	BSc			Rural Society								
Ngkane	BSc			Soil Conservation								
Kemsley	Workshop			Ag Eng.								
Makgwa	Workshop - -			Ag Eng.								
Sebina	Dip.			Agriculture								
Ramahobo	BSc			Livestock								
Madimabe	Dip.			Agriculture								
Seabo	Dip.			Agr.								
Seabo	BSc			Livestock								
Sesenko	Dip.			Agriculture								
Sefo	Dip.			Agriculture								
Sefo	BSc											
Unidentified	Dip.			Agriculture								
Legwaila	Dip.			Ag Communications								
Mpaphadzi	BSc			Animal Health								
Mostlhengane	BSc			Pre Vet - Vet								
Chabo	DVM			Livestock								
Unidentified	BSc			Livestock								
Unidentified	DVM			Livestock								
Unidentified	DVM			Livestock								
Unidentified	BSc			Math.								

Project Support _____

Other Source Support - - - - -

1982		1983		1984		1985		1986		Funding Source		
Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.
<u>(Administration)</u>												AID
												UN
												AID
<u>Agronomy</u>												AID
- - - - -												AID
<u>Soils</u>												SAAST
												AID
												SAAST
												AID
												UN
												UN
- - - - -												GCB
												CUSEC
												GCB
<u>Production</u>												GCB
												AID
												GCB
<u>Science</u>												GCB
												AID
<u>- Animal Health - - - - -</u>												GCB
												GCB
												AID
												SAAST
												AID
												AID
<u>Pre Vet - Vet</u>												AID
<u>Pre Vet - Vet</u>												AID
												AID
												AID

Schedule of Substitutes for
Batswana in Training

Project Starts Oct. '78	1979				1980				1981			
	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.
Individual Replaced	Expertise											
Sinombe	Agri. Economics - - - - -											
Omphile	Range Mgt. _____											
Busang	Agronomy _____											
Mogotsi	Horticulture - - - - -											
(Bayer)	Extension - - - - -											
Ramahobo	Livestock - - - - -											
Sefo	Science											
Mpaphadzi	Agr. Communications _____											
"	" " " - - - - -											
Tech.Asst.	Administration _____											
Tech.Asst.	Livestock _____											
Tech.Asst.	Agronomy _____											
Project Support _____												
Other Source Support - - - - -												

1982	1983	1984	1985	1986	Sponsor
Jan. Apr. July Oct.	Jan.				

Pe. Corp

AID

AID

Pe. Corp

FAO

CUSO

AID

AID

Pe. Corp

AID

AID

AID

Position Title: Chief of Party, Botswana Agricultural College
Expansion Project.

Location: Botswana Agricultural College, Sebele, Botswana

Dates: Jan. 1979 - Oct. 1983

Qualifications: MSc or above in Educational Administration with background in agriculture and knowledge of Administration of vocational schools. Ten or more years of professional experience, two years or more as a school director, Department head or equivalent. Experience in school/department management and Administration. Demonstrated interpersonal skills and ability to work effectively with staff. Must be able to work with and advise host country counterparts in a patient and understanding manner.

Duties: Advise PAC Administrators on all matters of an administrative nature, study and make recommendations for change in administrative procedures including Budgeting and Accounting. Assist staff and technical assistants in coordination of the unrolling of the

Certificate level curriculum and development of courses, course content and assessment procedures for the Diploma program being established. Advise IAC administrators in matters dealing with the expansion project. Conduct workshops with teaching staff relating to the improvement of teaching. Coordinate staff training activities under the project. Provide logistical support for long and short term technical assistants. Coordinate all activities with Director of International Programs at parent University.

Position Title: Long Term Technical Assistant in Agronomy

Location: Botswana Agricultural College, Sebele, Botswana

Dates: Jan. 1979 - Oct. 1983

Qualifications: MS Degree or above in Agronomy. Professional experience in teaching and/or extension field in an agricultural institution. Field experience in an Arid or Semi-Arid environment desirable. Knowledge of Arid/Semi-Arid Crop Production and Crop Production practices. Ability to work as a team member. Must be able to work with host country counterpart in a patient and understanding manner.

Duties: Serve as a coordinator of activities related to the College expansion in Extension Activities, Crops and Crop Production, Soils and Soil Fertility, and all other related topics. Work directly with staff in analysis of current course content and sequence making appropriate recommendations for changes. Responsible for coordination of the development of courses, course content and field experiences relating to Agronomy for the Diploma program being established. Conduct seminars and workshops for staff relating to expansion of EAO. Assist Project Director in activities relating to expansion of EAO.

Position Title: Long Term Technical Assistant in Livestock
Production

Location: Botswana Agricultural College, Sebele, Botswana

Dates: Jan. 1979 - Oct. 1983

Qualifications: VC or above in Animal Husbandry. Experience
in Veterinary Medicine desirable. Field
experience in Arid or Semi-Arid environment
desirable. Significant teaching experience.
Ability to work as a team member. Must be able
to work with host country counterparts in a
patient and understanding manner.

Duties: Serve as a coordinator of activities relating to the
College expansion in Livestock Production and Animal
Health. Work directly with staff in analysis of
current course content and sequence making appropriate
recommendations for changes. Responsible for
coordination of the development of courses, course
content and field experiences relating to Livestock
Production and Animal Health for the diploma program
being established. Conduct seminars and workshops for
staff relating to Expansion of BAC. Assist project
director in activities relating to expansion of BAC.

Position Title: Lecturer in Range Management

Location: Botswana Agricultural College, Bebele, Botswana

Dates: Sept. 1, 1979 - Aug. 31, 1981

Qualifications: MS or above in Range Management. Applicants with a BS in Range Management with significant experience will be considered. Teaching experience desirable. Ability to work as a team member. Must be able to work with host country counterparts in a patient and understanding manner.

Duties: Serve as a lecturer in Range Management during the absence of regular staff member. Organize teaching activities, teaching materials and assessment procedures. Assist fellow staff in the development of curriculum and materials designed to improve the school. Organize and provide field experience for enrollees. Work as a team member in designing courses, course content, materials and experiences for the Diploma level program being developed at the school.

Position Title: Lecturer in Agricultural Communication

Location: Botswana Agricultural College, Sebelo, Botswana

Dates: Sept. 1, 1970 - Aug. 31, 1981

Qualifications: BS or above in English, Speech or Journalism with strength in each area. Knowledge of the use of visual aids and their production. Teaching experience desirable. Ability to work as a team member. Must be able to work with host country counterparts in a patient and understanding manner.

Duties: Serve as a lecturer in English during the training period of regular staff member. Organize teaching activities, teaching materials and assessment procedures. Develop and present techniques of production and use of visual aids (charts, tables, graphs, slides, etc.) in laboratory teaching situation, assist fellow staff in the development of curriculum and materials designed to improve the school. Work as a team member in designing courses, course content and materials for the Diploma level program being established.

Position Title: Lecturer in Crops and Crop Production

Location: Botswana Agricultural College, Sebele, Botswana

Dates: Sept. 1, 1981 - Dec. 20, 1983

Qualifications: MS or above in Agronomy with emphasis in Crops and Crop Production. Applicants with BS in Agronomy with significant experience will be considered. Teaching experience desirable. Ability to work as a team member. Must be able to work with host country counterparts in a patient and understanding manner

Duties: Serve as a lecturer in Crop Production during the absence of regular staff member. Organize teaching activities, teaching materials and assessment procedures. Assist fellow staff in the development of curriculum and materials designed to improve the school. Organize and provide field experience for enrollees. Work as a team member in designing courses, course content, materials and experiences for the Diploma level program being developed at the school.

Position Title: Lecturer in Science and Mathematics

Location: Botswana Agricultural College, Sebele, Botswana

Dates: Jan. 1, 1982 - Dec. 31, 1983

Qualifications: BS or above in Physical Sciences. Coursework in Chemistry and Mathematics. Evidence of successful teaching experience. Ability to work as a team member. Must be able to work with host country counterparts in a patient and understanding manner.

Duties: Serve as a lecturer in Science and Mathematics during the absence of the regular staff member. Organize teaching activities, teaching materials, laboratory activities and assessment activities. Assist fellow staff in the development of curriculum and materials designed to improve the school. Organize and provide appropriate laboratory experiences for enrollees. Work as a team member in designing courses, course content, materials and experiences for the Diploma level program being developed at the school.

Position Description
(Peace Corps Employee)

Position: Instructor, Agricultural Economics

Location: Botswana Agricultural College, Sebele

Reports to: Principal of Botswana Agricultural College

Qualifications:

A. Academic

B. S. in Agricultural Economics with an interest in Agricultural Marketing and Accounting.

B. Experience

Must have a background in arable agriculture with a knowledge of range livestock management and arable crop production.

C. Personal

Must have inter-personal skills and the ability to work effectively with and train host country counterparts in a patient and understanding manner. Must be able to work and travel under difficult conditions.

D. Duties

1. To instruct and teach courses in Basic Economics, Agricultural Marketing, Farm Management and Farm Accounting.
2. To assist in developing course outlines and suitable course materials for students.
3. To work with and train counterparts in technique of teaching Agricultural Economics.

Recruiting Data: South Dakota State University
College of Agriculture and Biological Science
Brookings, South Dakota, 57007

Proposed Starting Date: July 1, 1979

Foribick, International
(Peace Corps Employee)

Position Title: Horticulture Instructor
Location: Botswana Agriculture College, Gaborone
Reports to: Principal of SAC

Qualifications:

A. Academic

B.S. Degree in Agriculture required with major emphasis in Horticulture Crop Production.

B. Experience

Dryland farm background essential, experience in arable agriculture production and practical knowledge of vegetable and fruit growing necessary.

C. Personal

Must have inter-personal skills and the ability to work effectively with and train host country counterparts and students of SAC in a patient and understanding manner. Must be able to work and travel under difficult conditions as required.

D. Duties

1. Instructs and teaches the fundamentals of vegetable and fruit production, including the fundamentals of cultural practices, propagation, harvesting and marketing.
2. Acquaints the techniques and systems for encouraging home use of horticulture crops and fruits, as well as for commercial production.
3. To assist in developing course outlines and suitable course materials for students.
4. All instruction must be related to the rural setting of the country where the majority of the SAC production will be occupied in government, parastatal or private agricultural positions of responsibility.

Recruiting from: South Dakota State University
College of Agriculture and Biological Sciences
Brookings, South Dakota, 57000

Proposed starting date: September 1, 1971

Position Description
(Please Insert Name)

Position Title: Agricultural Communications Instructor

Location: Botswana Agriculture College, Gaborone

Reports to: Principal of PAC

Qualifications:

A. Academic

B.S. Degree in Speech and/or English and minor in sociology desirable.

B. Experience

Dryland farm background essential, experience in livestock management and arable crop production necessary for effective communication with rural community settings.

C. Personal

Must have inter-personal skills and the ability to work effectively with and train host country counterparts and students of PAC in a patient and understanding manner. Must be able to work and travel under difficult conditions as required.

D. Duties

1. Instructs and teaches fundamentals of English in efficient, accurate reading and in clear effective writing. Instruction includes standard English grammar, usage and punctuation.
2. Instructs and teaches fundamentals in the development of skills of style, delivery and listening techniques necessary for effective oral communication.
3. Acquaints the techniques and usage of effective visual aids, business letter writing, field office operation, inclusive filling of forms.
4. To assist in development course outlines and suitable course materials for students.
5. All instruction must be related to the rural setting of the country where the majority of the PAC graduates will be occupied in government, para-statal, or private agricultural positions of responsibility.

Recruiting Area: South Dakota State University
College of Agriculture and Biological Science
Brookings, South Dakota 57007

Proposed Starting Date: September 1, 1982

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ANNEX I-K

Project *
Short-term Technical Assistance

<u>Expertise</u>	<u>Anticipated Man Months</u>
Animal Breeding	6
Weed Control and Crops	6
Agricultural Mechanics and Engineering	3
Rural Sociology and Extension	3
Soil Fertility	3
Agriculture Economics and Marketing	4
Student Activities	2
Agricultural Communications	3
Math and Physics	3
Botany, Biology and Chemistry	4
Horticulture	3
Bookkeeping and Accounting	0
Library	4
Student Assessment	3
Student Admissions	3
Plant Diseases and Entomology	3
Project Evaluators	6
Total	<hr/> 80

* Illustrative List

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GOB Expenditure by U.S. Fiscal Year
(Thousands of Dollars)

	Infla- tion Rate	1978	1979	1980	1981	1982	1983	Total
<u>Infrastructure</u>								
Design & Supervision	1/	-	290.0	40.0	-	-	-	330.0
Water Supply	1/	35.0	-	-	-	-	-	35.0
Sewerage	1/	75.3	150.0	-	-	-	-	225.3
Electrical	1/	-	100.0	-	-	-	-	100.0
Roads/Landscaping	1/	-	30.0	-	-	-	-	30.0
Other (Furnishing and Staff and Industrial Housing)	1/	-	-	25.4	-	-	-	25.4
		110.3	841.7	65.4	-	-	-	1017.4
<u>Training</u>								
Participants	10%	-	20.8	22.8	25.2	14.0	-	82.8
		-	20.8	22.8	25.2	14.0	-	82.8
<u>Additional Recurrent Costs</u>								
Salaries (Teaching)	10%	-	26.2	46.4	48.4	75.8	93.4	290.2
Salaries (Other)	10%	-	-	5.9	30.8	41.3	43.1	123.1
Student Rations	17%	-	-	-	66.0	156.0	270.0	492.0
Other Recurrent	15%	-	-	-	108.0	252.0	429.0	789.0
<u>Recurrent Costs in Other Budgets</u>								
Vehicle Maintenance	2/	-	-	-	16.4	16.4	16.4	49.2
Building Maintenance	2/	-	-	-	23.0	23.0	23.0	69.0
		-	26.2	52.3	292.6	564.5	376.9	1312.5
		110.3	888.7	140.5	317.8	578.5	376.9	2912.7

1/ No inflation has been computed on these items. However, a 15% price escalation and 10% contingency have been applied.

2/ No inflation has been computed as these changes are based upon rate charges by other government agencies and we have been assured that they are reasonable.

AID Expenditures by U.S. Fiscal Year
(Thousands of Dollars)

	Infla- tion Rate	1978	1979	1980	1981	1982	1983	Total
<u>Final Engineering*</u>								
Design	1/	-	-	-	-	-	-	-
Sub-Total Design		-	-	-	-	-	-	-
<u>Construction</u>								
Staff Housing	1/	283.0	-	-	-	-	-	283.0
Student Housing	1/	861.7	305.1	-	-	-	-	1166.8
Engineering Area	1/	-	138.7	-	-	-	-	138.7
Teaching Area	1/	330.0	552.5	-	-	-	-	882.5
Infrastructure (water supply, sewerage, electrical and roads)	1/	177.3	-	-	-	-	-	177.3
		1850.0	996.3	-	-	-	-	2846.3
<u>Technical Assistance</u>								
Long-Term	10%	100.0	150.0	240.0	484.0	599.0	663.2	2436.2
Short-Term Consult.	10%	36.0	35.0	316.8	129.5	47.4	-	564.7
		136.0	185.0	756.8	613.5	646.4	663.2	3000.9
<u>Participant Training</u>								
	10%	14.0	14.0	107.8	156.8	167.9	328.3	788.8
		14.0	14.0	107.8	156.8	167.9	328.3	788.8
<u>Equipment</u>								
Vehicles	2/	-	-	56.5	-	-	-	56.5
Furniture & Equipment	2/	-	-	455.7	-	-	-	455.7
		-	-	512.1	-	-	-	512.2
		2000.0	1196.3	1376.8	770.4	814.3	991.5	7249.3

1/ No inflation rates have been computed on these items. However, a 15% price escalation and 10% contingency have been applied.

2/ No inflation rates have been computed on these items. However, a 20% escalation and 10% contingency have been applied.

* Based upon 15% of estimated construction costs excluding staff housing where designs are standard.

Other Donor Expenditure by U. S. Fiscal Year
(Thousands of Dollars)

	Infla- tion Rate	1978	1979	1980	1981	1982	1983	Total
Technical Assistance								
Food & Agricul- ture Office (FAO)	10%	-	60.0	66.0	72.6	79.9	-	278.5
FAO (Danish)	10%	-	120.0	132.0	72.6	79.9	87.8	492.3
(UK) Overseas Development Ministry	10%	-	180.0	198.0	217.8	240.0	263.5	1099.3
Canadian Univ. Service Org. (CUSO)	10%	-	60.0	66.0	36.3	-	-	162.3
Peace Corps	10%	-	20.0	22.0	24.0	26.0	-	92.0
Technical Assistance		-	440.0	484.0	423.3	425.8	351.3	2124.4
Training								
Netherlands	10%	-	-	16.5	9.1	-	-	25.6
Total Other Donor		-	440.0	500.5	432.4	425.8	351.3	2150.0

Explanatory Notes

1. Cost estimates were prepared in July, 1978 by the design team including members from USAID/Gaborone, Africa Bureau, REDSO and South Dakota State University.
2. Conversion rate 1 Pula = \$1.2151 \$1 = .823 Pula
3. Technical Assistance: U.S. Technicians are costed at \$100,000 per year based upon the latest estimates received from the Contracts Office AID/W.

Short-term U.S. Consultants have been costed at \$6,000 per technician month.

Technical assistance from other donors is costed at \$60,000 per technician year.

Technical assistance from the Peace Corps is costed at \$10,000 per technician year.

All of the above have been subjected to a 10 per cent inflation rate. See explanatory notes on inflation in this section.

4. Participants: Training costs for the U. S. are costed at \$14,000 per year. This is based upon discussions with the SDSU team. Other donor training is costed at \$15,000 per year based upon recent training costs in the SAAST project.

GOB training is costed at \$5200 per year based upon estimates given by the Ministry of Finance.

All of the above costs have been subjected to a 10 per cent inflation factor. See explanatory notes.

5. Furnishings, Equipment and Vehicles:

Costs for commodities have been estimated by the SDSU team. They have been adjusted upward by 20 per cent to cover escalation and freight, and by 10 per cent to cover contingencies.

6. Construction: Construction estimates were reviewed by REDSO staff and appear reasonable. They have been adjusted by 15 per cent for escalation and 10 per cent for contingencies.

7. Recurrent Costs: Recurrent costs contributions by the GOB were calculated as follows:

Beginning with the currently approved budget for the BAC, additional costs for staff have been added in accordance with the implementation plan. Variable costs have been added based upon per student costs for the appropriate year. Varying rates of inflation have been applied. See explanatory note on inflation.

8. Inflation: Inflation rates have been applied at varying rates to different cost elements based upon current trends. The detailed tables in this Annex contain a column explaining rates applied.

A 10 per cent inflation factor has been applied to GCB salary costs; 15 per cent to basic recurrent costs. Student rations is the only exception. Seventeen per cent has been applied to rations due to a recent sharp upward swing in these costs.

All inflation rates have been compounded year by year.

9. Price Escalation and Contingencies:

Price escalation and contingency factors have been applied only to the costs of construction and equipment. The rates applied are explained above and in the detailed tables in this Annex.

U.S. PARTICIPANT TRAINING PROGRAM COSTS

ESTIMATED COST OF U.S. TRAINING.B.Sc. Candidates (assuming 2 years, 9 months in the U.S.)Training Fees:

Tuition, 7 Semesters @ \$800:	\$ 5,600
Summer short courses at second location:	1,400
Special non-academic programming, 40 days:	<u>840</u>
Subtotal:	\$ 7,840

Participant Maintenance Allowances:

15 days @ \$35 for "settling in":	525
108 days @ \$31 for special course, field trips:	3,348
29 months @ \$330 :	<u>9,570</u>
Subtotal:	13,443

Miscellaneous:

Typing of term papers:	245
Books:	660
Shipment of books:	60
AID Communication Seminar:	375
U.S. Travel:	600
Professional Society membership:	<u>75</u>
Subtotal	2,015

Contractor/AID Overhead:

\$300 per month:	9,900
------------------	-------

<u>International Transportation:</u>	<u>2,000</u>
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Total:	\$ 35,198
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Per Year Cost:	\$ 12,800
----------------	-----------

M. Sc. Candidates (assuming 1 year, 9 months in the U.S.)Training Fees:

Tuition, 4 Semesters @ \$800 :	\$ 3,200
Special non-academic programming, 22 days :	570
Summer short courses at second location :	<u>1,400</u>
Subtotal:	\$ 5,170

Participant Maintenance Allowances:

15 days @ \$35 for "settling in":	525
17½ months @ \$330 :	5,775
90 days @ \$31 for special courses, field trips:	<u>2,790</u>
Subtotal:	9,090

Miscellaneous:

Thesis allowance:	200
Typing of term papers:	125
AID Communication Seminar:	375
Books:	420
Shipment of Books:	60
U.S. Travel:	400
Professional Society membership:	<u>75</u>
Subtotal:	1,655

Contractor/AID Overhead:

\$300 per month:	6,300
------------------	-------

International Transportation:

2 round trips:	<u>4,000</u>
----------------	--------------

Total:	\$ 26,215
--------	-----------

Per Year Cost:	\$ 14,980
----------------	-----------

TECHNICAL ASSISTANCE COSTS

BASIC SALARY	34,000
FRINGE BENEFITS (20%)	6,800
POST ALLOWANCE (10%)	3,400
OTHER ALLOWANCES (115%)	39,100
CONTRACTOR OVERHEAD (45 %)	15,300
	<hr/>
(rounded to \$100,000).	98,600
	<hr/>

Other allowances includes the standard overseas allowances and benefits; transfer to post and return to the U.S. for technician and family; U.S. storage; HHE shipment, car shipment, R and R travel; education allowance; utilities; household application etc.,

EQUIPMENT AND FURNITURE COST SUMMARY

QTY	DESCRIPTION	DOLLARS
1	Office, Principal (Office block)	2,023
1	Senior Common room (office block)	4,652
21	Staff office (Office block) at \$1,585	33,289
3	Typing office (Office block) at \$2,696	8,089
2	Seminar room (office block)	2,698
1	Animal Health Laboratory	10,980
1	Animal Health Clinic	8,925
1	Science Laboratory	17,472
4	General staff teaching office at \$1,164	4,656
1	Reception & typist (Admin.)	3,086
1	Registrar office (Admin.)	1,994
1	Typist pool (Admin.)	5,510
1	Bursar office (Admin.)	1,639
1	Storekeeper office (Admin.)	1,639
1	Clerical office (Admin.)	1,658
1	Duplicating room (Admin.)	2,520
8	Classrooms (Classroom block)	26,414
1 ^{1/2}	Library extension	26,526
1	Lecture Theater	5,400
1	Engineering block	62,400
1	Kitchen and dining hall	43,000
1	Laundry	35,394
4	Land Rover Station Wagon at \$10,560	42,240
	Removal of existing built-in desk, lecture Theater	360
	Text Books	13,000
	Chemicals, laboratory	6,000
	TOTAL :	<u>\$383,143</u>

^{1/2} Including Library Books

B A C PLOT PLAN

NORTH

New staff housing

New dormitory area

Present staff housing

Park

New Engineering Area

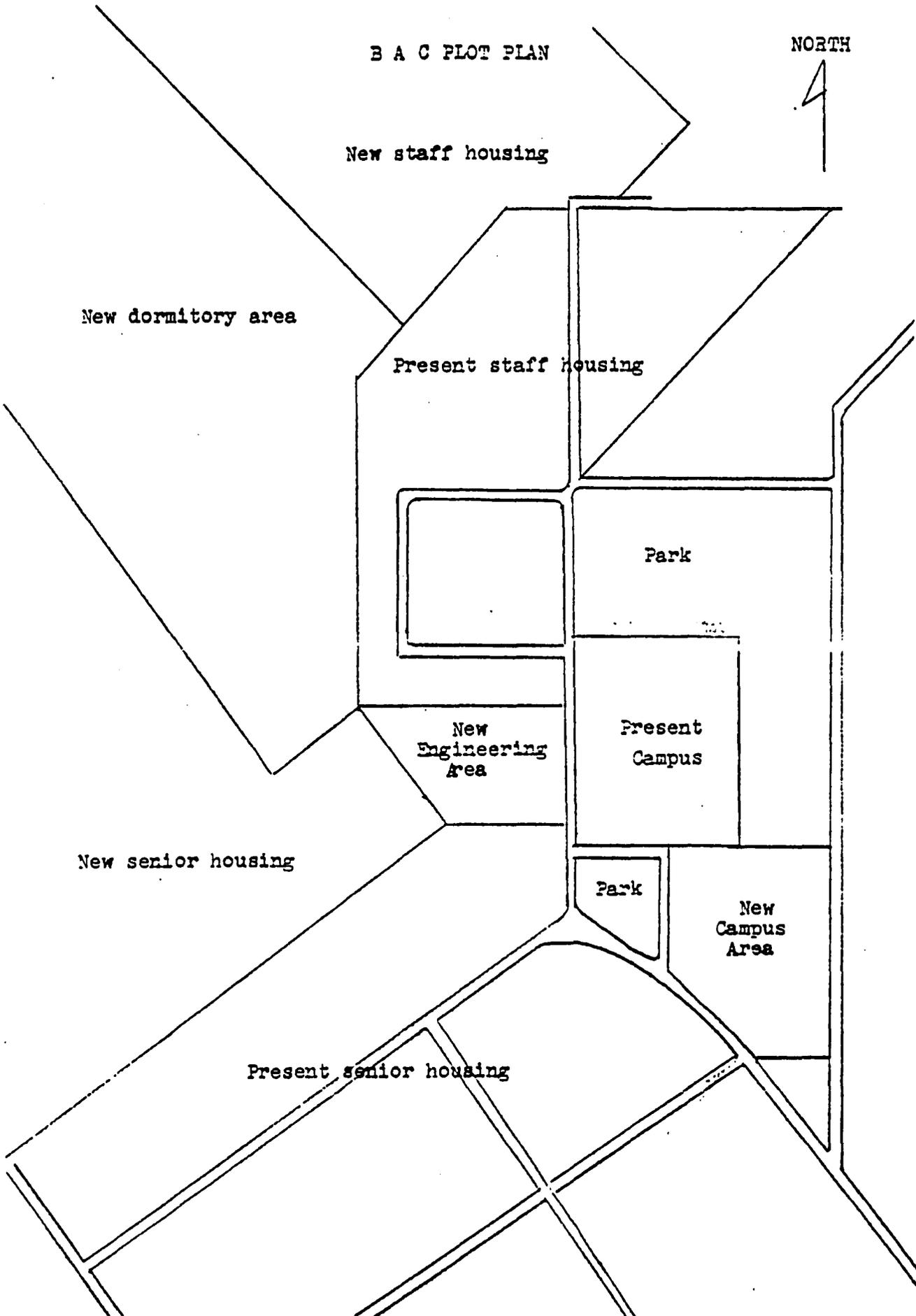
Present Campus

New senior housing

Park

New Campus Area

Present senior housing



SUMMARY COST ESTIMATES FOR CONSTRUCTION

Susing	\$ 185,000	
SHousing/Dining/Laundry	762,315	
Engineering Area	90,600	
T Area	576,555	
	<hr/>	
	\$1,614,000	
Eon to Mid-79 (.15)	242,100	
	<hr/>	
	\$1,856,100	
Cncy (.10)	185,610	
	<hr/>	
	\$2,041,710	
llar/Pula	<u>\$2,471,000</u>	
	<hr/>	
	275,300	(50% of
	<hr/>	infrastructure
	\$2,846,300	costs,

C O S T E S T I M A T E

PHYSICAL STRUCTURES WITHOUT FURNITURE/EQUIPMENT

STAFF HOUSING

Type II Houses (in Town)	5 @ P 24,500 =	
Type E Houses	5 @ P 12,500	
		P 185,000

STUDENT HOUSING/DINING/LAUNDRY FACILITIES

Dormitories (3 Units @ 60 students)

2 Living areas @ 8 x 59 = 944 SM @ 175 P/SM =	P 165,000
Commons Area @ 8 x 10 = 80 SM @ 175 =	P 14,000
Service Area @ 8 x 13 = 104 SM @ 230 =	<u>P 23,920</u>
Cost per Unit =	P 203,120
x 3 Units =	P 609,360

Dining

Kitchen 15 x 16.5 = 247.5 SM @ 250 =	P 61,875
Dining 24 x 16.5 = 396 @ 150 =	P 59,400
Outside area 39 x 4 = 156 @ 150 =	<u>P 23,400</u>
	P 144,675

Laundry 6 x 6 = 36 x 230 =	P 8,280
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P 762,315

ENGINEERING AREA

Welding and Metal Shop	12 x 5 = 60 @ 200 P/SM =	P 12,000	
Covered Area	7 x 12 = 84 @ 150 =	P 12,600	
Water Supply	12 x 9 = 108 @ 200 =	P 21,600	
Storage	12 x 3 = 36 @ 150 =	P 5,400	
Maintenance Shop	12 x 7 = 84 @ 150 =	P 12,600	
Tractor Equipment	12 x 12 = 144 @ 150 =	P 21,600	
Offices & Misc.	3 x 4 = 12 + 20 = 32 @ 150 =	<u>P 4,800</u>	
			P 90,600
Visual Aids	39 x 9 = 351 @ 175 P/SM =	P 61,425	
Outside Area	39 x 4 = 156 @ 150 =	23,400	
Administration	32 x 9 = 288 @ 175 =	P 50,400	
Outside Area	64 x 2 = 128 @ 150 =	19,200	
Classrooms	63 x 9 = 567 @ 175 =	P 99,225	
Outside Area	63 x 4 = 252 @ 150 =	37,800	
Animal Health	33 x 9 = 297 @ 260 =	P 77,220	
Outside Area	3 x 11 = 33 @ 150 =	4,950	
Staff Teaching	620 SM @ 175 =	P 108,500	
Outside Area	240 SM @ 150 =	P 36,000	
Library Extension	11 x 11 = 121 @ 175 =	P 21,175	
Science Lab Extension	9 x 18 = 162 @ 230 =	<u>P 37,260</u>	P 576,555

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ANNEX IV - 3I. WAIVERS AND APPROVALS REQUIRED

- A. A procurement source and origin waiver from A.I.D. Geographic Code 941 to Code 935 for the procurement of approximately \$ 1,424,000 of construction materials, and approximately \$91,000 of commodities.
- B. A procurement source and origin waiver from A.I.D. Geographic Code 000 (U.S. only) to Code 935 for the procurement of four project vehicles, and a determination that special circumstances exist which would allow waiver of the requirements of Section 636 (i) of the Foreign Assistance Act.
- C. Approval to deviate from the policy expressed in A.I.D. Handbook II, Chapter 2, which limits employment of third country nationals on A.I.D.-financed construction to 20% of the non-local work force.
- D. Approval to permit the life of the project to exceed six years as recommended in A.I.D. Handbook 3.

II. JUSTIFICATION FOR SOURCE AND ORIGIN WAIVER FOR CONSTRUCTION MATERIALS, COMMODITIES AND PROJECT VEHICLESA. SUMMARY WAIVER INFORMATION:

Co-operating country	:	Botswana
Authorizing Document	:	PAF II
Project	:	Botswana Agricultural College Expansion.
Nature of Funding	:	Grant
Description	:	Construction materials for facilities and infrastructure to be constructed at the Botswana Agricultural College and for housing to be constructed for All technicians. (\$1,414,000). Kitchen and laundry equipment (\$85,000), typewriters, calculators and duplicating equipment (\$6,000) and 4 Landrover-type station wagons (\$-3,000).
Source	:	Republic of South Africa

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Total Value : 3,000,000

B. DISCUSSION AND JUSTIFICATION CONSTRUCTION MATERIALS

Construction materials will be used in the extension of the library and one laboratory. Additionally, an administration building, teaching staff offices and housing, animal health building, dormitories and three classroom buildings (for a total of 6 classrooms) will also be constructed.

The cost of construction materials which are not made locally is estimated at \$1,424,000 or 50% of the total cost of construction. The long-lead time required to procure construction materials from the U.S. would seriously delay project implementation. It is imperative that Botswana begin to increase its capacity to train agricultural manpower as soon as possible. Such an increase in manpower requires among other inputs the construction of expanded facilities in which to house the additional 180 students. It is anticipated that the first expanded certificate level course will begin in March 1980 and the diploma program will begin in September 1981. To complete an initial dormitory and classroom building for the first class will take 15 months from project agreement signature and must be completed by that date to accommodate the first-year students in the initial certificate program. Completion of the remaining facilities will take 21 months from project agreement signature, and must be completed by that date to accommodate additional students in the certificate program in the new diploma program. Procurement of materials from the U.S. would delay the schedule proposed by 1 1/2 to 2 years, thereby delaying initiation of the program. Additionally, private dealers in Botswana are equipped only to service and repair facilities (e.g. plumbing and electrical work) made in the U.K. or South Africa further necessitating that construction materials be procured from that area in order to ensure proper maintenance. Finally, electrical work requires 220 wiring materials and plumbing fixtures and roofing materials must be compatible with that available locally.

VEHICLES

This project requests approval to purchase vehicles of local source but of code 935 origin. The vehicles are four land rover type station wagons (each seating 12). The vehicles will be used to transport SAC students to and from field work activities (with 50% of their studies being field work, there is a need for a minimum of four vehicles). A waiver is requested for the procure-

ment of South African vehicles based on:

- (1) the lack of repair capability (both in parts availability and in mechanical skills at the government's central transport office) for U.S. vehicles and,
- (2) safety hazards for the AID-financed technical staff resulting from driving left-hand drive vehicles.

OSARAC has encountered several problems with U.S. manufactured vehicles procured under other on-going projects in Botswana. The Central Transport Office of the Government of Botswana, which has vehicle maintenance responsibility, has serious problems in securing repair parts for U.S. manufactured vehicles.

The office also has no mechanics who understand or have experience in any component area of the U.S. vehicles, i.e. engine, running gear, transmission, axles, transfer case or body. The result is that these vehicles have remained "dead lined" for extensive periods of time and when released, repairs often promptly prove inadequate.

As a further problem, and while noting that to date no accidents have occurred in Botswana, it is clear that improper driving position (i.e. left hand drive) of the U.S. vehicles in all Southern Africa locations is a genuine hazard. OSARAC has discussed this problem with representatives of U.S. manufacturers which state that production costs would be substantially increased for such a small lot order.

In addition to a procurement source waiver under AID Handbook 15, this action request requires a waiver under Section 636 (i) of the Foreign Assistance Act. Section 636(i) limits AID financing to U.S. manufactured vehicles, but permits a waiver of this limitation "where special circumstances exist". According to the appropriate Conference Report, "special circumstances" are deemed to exist in "emergency or special situations such as a need for right hand drive or other types of vehicles not produced in the United States".

Based on the foregoing, we believe that "special circumstances" within the meaning of the legislative history do exist in this case and that a waiver to the U.S. vehicle requirement of Section 636 (i) is justified.

COMMODITIES

Kitchen, laundry facilities, typewriters and calculators, etc. will be procured from South Africa too, because of the lack of repair service and spare parts for U.S. products of this type in Botswana. Additionally, nearly all of BAC's current equipment inventory is South African and, therefore, it would be preferable to procure compatible equipment for future maintenance.

III. JUSTIFICATION FOR DEVIATION FROM POLICY IN AID HANDBOOK REGARDING EMPLOYMENT OF THIRD COUNTRY NATIONALS (TCN's)

Contractors may require technical and supervisory services of TCN's to handle electrical, plumbing and other design and installation since procurement of services may deal with free world firms. Therefore, deviation from the employment policy in AID Handbook 11 to permit hiring of TCN's is considered necessary.

IV. APPROVAL TO PERMIT THE LIFE OF THE PROJECT TO EXCEED SIX YEARS

Although it is anticipated that the Project Funding period will only be five years and that most project activities will be completed by that date, three participant trainees in veterinary medicine will not complete training until 1986 due to the minimum of seven years required for them to complete the veterinary and pre-veterinary programs.

ANNEX C

REQUEST AUTHORIZATION AND REQUEST FOR

ALLOCATION OF FUNDS

PART II

Name of Country: Botswana
Name of Project: Botswana Agricultural College
Number of Projects: 633-0074

Pursuant to Part II, Chapter 4, Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to Botswana (the "Cooperating Country") of not to exceed two million United States Dollars (\$2,000,000) (the "Authorized Amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The Project will assist the Grantee to improve and increase the capacity of the Botswana Agricultural College (BAC) to train agricultural personnel. To this end, the Project will assist the Grantee to localize teaching and administrative positions at BAC, establish and recorient curricula, and expand the physical facilities of BAC, so as to increase the number of qualified agricultural personnel available to serve the needs of the rural sector in Botswana. To carry out the objectives of this project AID will provide financing for technical assistance, commodities, participant training, and construction and other services.

I approve the total level of A.I.D. appropriated funding planned for this project of not to exceed seven million one hundred and forty nine thousand three hundred. (\$7,149,300) (Grant) during the period FY 1978 through FY 1983.

I hereby authorize the initiation of negotiations and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Goods and Services

Goods and services financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in countries included in A.I.D. Geographic Table B-1, except as A.I.D. may otherwise agree in writing. Ocean shipping financed hereunder shall be procured in any eligible source country except the Cooperating Country.

b. Prior to any disbursement, or the issuance of any financing documents under the Project Agreement, the Grantee shall finance the physical expansion of the BAC, including staff housing, the grantee will submit to A.I.D. approval, in form and substance satisfactory to A.I.D., (a) final plans, specifications and cost documents for the construction, (b) an executed contract for such construction with a firm acceptable to A.I.D., and (c) provide adequate sites for the construction of technicians' housing. Should the Grantee decide to let more than one contract to do this construction the above conditions precedent may be satisfied separately for each such contract.

c. The Grantee shall covenant, in substance, as follows:

1. To submit, within 90 days from the date the Project Agreement is executed, or such later date as A.I.D. may agree to in writing, evidence that other donor support will be forthcoming on a timely basis to provide necessary technical and other assistance to the BAC.

2. To establish, prior to the return of participants from training in the U. S., all required positions in Government or the BAC which the Parties have agreed will be occupied by these participants.

3. To provide all required personnel, on a timely basis, to serve in counterpart positions or to undergo A.I.D.-financed participant training. Also, that upon their return, participant trainees will be placed in positions established for them by the Grantee or such other positions, commensurate with the nature and level of their training, as the Parties may agree to in writing.

4. To provide adequate housing, on a temporary basis, for A.I.D.-financed technical assistance personnel in the event permanent housing is not available for this personnel upon their arrival in Botswana.

5. To undertake necessary reconstruction of expanded infrastructure facilities for the BAC as soon as possible after the Project Agreement is executed. The Parties will agree to consult on a regular basis to discuss progress in the construction of these facilities and steps which may be taken to remedy any difficulties which may have delayed construction.

6. The following waivers to A.I.D. regulations are hereby approved:

1. The policy set forth in Handbook 3 limiting the length of a project to six years is waived to allow a project life of approximately seven years.

2. The requirement set forth in Handbook 1 Supplement B that commodities procured with grant funds have their source and origin in countries included in A.I.D. Geography.

Code 921 and Burmese is waived. Local procurement of approximately \$1,424,000 of construction materials and approximately \$91,000 of other commodities and equipment will have their source and origin in countries included in A.I.D. Geographic Code 938. Exclusion of procurement of these construction materials from Code 938 countries would seriously impede attainment of U. S. foreign policy objectives and the objectives of the foreign assistance program.

3. The requirement under Handbook 1, Supplement 3 that commodities procured with grant funds have their source and origin in the U. S. is waived to permit the procurement of forty project vehicles, at an approximate cost of \$48,000 which have as their source and origin countries included in A.I.D. Geographic Code 938. Exclusion of procurement of the project vehicles from countries included in Code 938 would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program; and special circumstances exist which justify waiver of the requirement of Section 401(a) of the Act.

STATUTORY CHECKLIST

6C(1) - COUNTRY CHECKLIST

Listed below are, first, statutory criteria applicable generally to FAA funds, and then criteria applicable to individual fund sources: Development Assistance and Security Supporting Assistance funds.

A. GENERAL CRITERIA FOR COUNTRY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in consistent pattern of gross violations of internationally recognized human rights?
 - a) The project is designed to help the rural poor by training manpower to serve the agriculture sector.
 - b) No such determination.
2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

No such determination has been made.
3. FAA Sec. 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?

No.

- SECRET
4. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement? Yes.
5. 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) debt is not denied or contested by such government? No.
6. 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? No.
7. FAA Sec. 620(f); App. Sec. 108. Is recipient country a Communist country? Will assistance be provided to the Democratic Republic of Vietnam (North Vietnam), South Vietnam, Cambodia or Laos? No.

8. FIA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance or (b) the planning of such subversion or aggression? No.
9. FIA 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? Security and protection measures appear to be adequate and reasonable.
10. FIA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason? No such denial has been considered.
11. FIA Sec. 620(m); Fishermen's Protective Act, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters,
- a. Has any deduction required by Fishermen's Protective Act been made? No such actions.
- b. Has complete denial of assistance been considered by AID Administrator?

12. FAA Sec. 620(a); App. Sec. 504.
a) Is the Government of the recipient country in default on interest or principal of any AID loan to the country? No.
b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds, unless debt was earlier disputed, or appropriate steps taken to cure default? No.
13. FAA Sec. 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).) Until 1977 Botswana had no army, only a police force. In 1977 a small army was just being organized. For 1977, police and internal security expenditures represented 3.8% of G.O.E. budget expenditures or about 1% of G.D.P. Less than 1% of foreign exchange resources are spent on military equipment. No money has been spent on sophisticated weapons systems.
14. 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, not applicable.
15. 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? There is no indication of any arrears.

16. FAA Sec. 620(A). Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism? We have no knowledge of any such action.

17. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA? No.

18. FAA Sec. 669. Has the country delivered or received nuclear reprocessing or enrichment equipment, materials or technology, without specified arrangements on safeguards, etc.? We have no knowledge of any such delivery or receipt.

19. FAA Sec. 901. Has the country denied its citizens the right or opportunity to emigrate? We are not aware of any case.

B. FUNDING CRITERIA FOR COUNTRY.

2. Security Supporting Assistance Country Criteria.

a. FAA Sec. 502B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights? Is program in accordance with policy of this Section? Yes. No.

b. FAA Sec. 531. Is the assistance to be furnished to a friendly country, organization, or body eligible to receive assistance? Yes.

c. 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?

No Grant Commodities will be sold and thus no sale proceeds will be generated.

6C(2) - PROJECT CHECKLIST.

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds:

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b).

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project;

(a) The Congress was notified using normal congressional notification procedures on September 24, 1979.

(b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus 10%)?

(b) Yes.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be

(a) engineering, financial and other plans necessary to carry out 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 country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? None
4. FAA Sec. 611(b); App. Sec. 101. ... If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)? This is not a water or water-related land resource construction project.
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 the country's capability effectively to maintain and utilize the project? Acting RDO has
6. FAA Sec. 209, 619. Is project susceptible of 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. If assistance is for newly independent country, is it furnished through multilateral organizations or No.

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7. FAA Sec. 601(a); and Sec. 201(f) for development loans
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;
 - (c) encourage development and use of cooperatives, 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.

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The project is designed to develop a capacity in the GOB to train agricultural personnel to serve as extension agents, veterinary assistants and middle level agricultural administrators.

8. FAA Sec. 601(b).
Information and conclusion
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. source technical assistance, U.S. university training some U.S. commodities.

9. FAA Sec. 612(b); Sec. 636(h)
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 to meet the
cost of contractual and
other services.

GOB will contribute approximately 24% of project costs.

Not an excess foreign
currency country.

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

3. PROJECT CRITERIA SOLELY FOR SECURITY SUPPORTING ASSISTANCE.

F.A. Sec. 531. How will this assistance support/promote economic or political stability?

The project will support the development of an institution to train agricultural personnel to serve in the rural areas as extension agents and veterinary assistants and to train middle level agricultural administrators. This increased manpower to serve the rural sector will result in improved services to small scale farmers and herders which in turn should lead to a more stable and prosperous nation.

The Standard Item Checklist has been reviewed for this paper.

ANNEX E

A. INITIAL ENVIRONMENTAL EXAMINATION

PROJECT COUNTRY : BOTSWANA

PROJECT TITLE : BOTSWANA AGRICULTURAL COLLEGE

FUNDING : FY(s) 78 - 83

IEE PREPARED BY : REDSO/EA DON REILLY

ENVIRONMENTAL ACTION RECOMMENDED : NEGATIVE DETERMINATION

TED MORSE, ACTING RDO, OSARAC

CONCURRENCE : Ted Morse DATE : Aug. 1, 1978
DATE : _____

ASSISTANT ADMINISTRATOR DECISION:

APPROVAL : Negative _____
DISAPPROVAL : _____
DATE : 1. 1978 _____

Clearances:

AFR/DR, SDP: BBoyd BB Date: 4. 1. 78
AFR/SA: THEQuimby THEQ Date: 9/12/78
GC/AFR: JPatterson EPD Date: 9/12/78

B. PROJECT DESCRIPTION

To assist BAC in the improvement of its capacity to train agricultural manpower, USAID/Botswana is proposing an integrated package of project elements. These elements include :

- (1) 19.5 years of long-term technical assistance in vocational administration, animal husbandry, extension, range management, agriculture commodities, science, and agronomy; and 80 person/months of short-term technical assistance in areas such as animal breeding, horticulture, rural sociology and extension;
- (2) The construction of facilities in which to instruct and house additional students and equipment for these facilities, and
- (3) 41.5 years of long-term training to upgrade BAC's teaching staff and administration.

PROJECT CONSTRUCTION

The project will include construction or expansion of the following facilities at BAC:

Administration Building
Teaching Staff Office
Animal Health Building
3 Classroom Buildings
Library (expansion)
Laboratory (expansion)
Engineering complex
3 Dormitories
Houses (5 type E and 5 Type II)
Expanded infrastructure (water, sewerage, electrical, roads, landscaping) - to be financed by A.I.D. and the GOB.

In addition the project will construct 5 houses for US-funded advisors in Gaborone.

C. IDENTIFICATION AND EVALUATION OF ENVIRONMENTAL IMPACTS

1. LAND USE

The site chosen for the added facilities is adjacent to the existing facilities of the agricultural school on land which is already part of the college grounds. There is ample space for the proposed expansion without crowding. The site has a slight slope from the

north to south. The land use by this facility will have little effect on natural resources, such as water or productive soils.

At the present time the area where the additional buildings are to be constructed is vacant and therefore has little effect on population density. There is access to existing water, sewers and electrical facilities all of which have to be expanded to meet the demands of the increased student body. The existing sewage handling and treatment facilities are inadequate for the existing load but will be expanded by the GOB to meet the projected new loads before the facilities are occupied by new staff and students.

The site has access to transportation. A major paved road runs past the site and the existing access road is suitable for the future needs.

The design of the project is such that it utilizes the natural advantages of the area with minimum disturbance of its natural beauty. Special care is being taken to preserve the existing trees on the site. The facility will not have any major effect on the existing topography.

There will be no relocation of area residents involved as the area is currently vacant. In addition to the impact of facilities construction on local use at BAC, it is anticipated that the project will have a broader impact on national land use. Specifically, students trained at BAC will serve as extension agents, veterinary assistants, and assume middle level administrative and planning positions in the Ministry of Agriculture. In these positions, BAC graduates will plan programs and/or advise farmers on improved methods of land use to increase agricultural production. With the country's delicate ecological environment improved methods of land use play a crucial role in increasing agricultural production, and are crucial to successful implementation of the country's tribal lands grazing policy, and arable policy. Accordingly, courses in range management will be required for both certificate and diploma level students. Additionally, courses in horticulture and extension will stress land use. Finally, course in soil conservation will also be required.

2. WATER QUALITY

The water for this facility will be supplied by the Gaborone City Water System, therefore it is not considered to have any environmental impact on such consideration as housing of the water table or contamination of boreholes. The human wastes will be disposed of

by the sewerage now existing which is to be expanded to meet the new demands. Therefore there should be no contamination of the environment.

3. ATMOSPHERIC

There will be some pollution of the atmosphere from the chimney effluents of the kitchen/dining facilities and hot water heating systems. However, the pollutants that enter the atmosphere from these sources are considered minimal. There are no other sources of air pollutants from this project.

4. NATURAL RESOURCES

There is no known destruction of the natural resources as a result of this project. Every effort is being made to conserve the natural setting and beauty of the area. Trees will be protected and the ground disturbance as little as possible.

5. SOCIOECONOMIC AND CULTURAL

There will be no destruction or altering of important symbols of a culture, monuments, sacred grounds or ancient shrines.

Required courses in rural sociology and extension offered at BAC will be designed to stress the characteristic of Batswana farmers. Such courses will ensure that extension methods employed by BAC graduates are compatible with the socio-cultural framework within which graduates will work.

6. HEALTH

There is no indication that any part of the proposed project will effect the health of man in an adverse way. There will be no altering or destroying of natural environment or eliminating an element in an ecosystem.

7. CONSTRUCTION PERIOD

During construction there will be normal short periods where dirt and dust will present minor problems but there will be no adverse effect on the environment. During examination phases of the project, minor erosion problems might exist but these will be solved in short order by the permanent landscaping being designed into the project.

8. SUMMARY

The adverse effects of this project on the environment range in intensity from none to little. Therefore it is the conclusion that the proposed project gives no indication that it will have any significant effects on the environment, therefore it is recommended that a Negative Environmental Determination be made.

D. IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub Areas

LAND USE

1. Changing the character of the land through
 - a) Increasing the population N
 - b) Extracting natural resources N
 - c) Land clearing L
 - d) Changing soil character N
2. Altering natural defenses N
3. Foreclosing important uses N
4. Jeopardizing man or his work N

WATER QUALITY

1. Physical state of water N
2. Chemical and biological states L
3. Ecological balance N

ATMOSPHERIC

1. Air additives N
2. Air pollution L
3. Noise pollution L

NATURAL RESOURCES

1. Diversion, altered use of water N
2. Irreversible, inefficient commitments N

CULTURAL

1. Altering physical symbols N
2. Dilution of cultural traditions N

SOCIOECONOMIC

1. Changes in economic/employment patterns N
2. Changes in population N
3. Changes in cultural patterns N

HEALTH

1. Changing a natural environment N

2. Eliminating an ecosystem N

GENERAL

1. International impacts N

2. Controversial impacts N

3. Larger program impacts N

FOLLOWING SYMBOLS ARE USED:

N -- No environmental impact

L -- Little environmental impact

M -- Moderate environmental impact

H -- High environmental impact

U -- Unknown environmental impact

ANNEX F
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

OFFICE OF SOUTHERN AFRICA REGIONAL ACTIVITIES COORDINATION (OSARAC)

Botswana

Lesotho

Malawi

Swaziland

Zambia

P.O. BOX 750, MBABANE, SWAZILAND

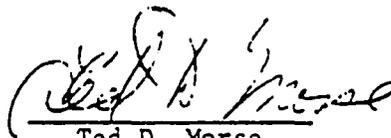
TEL. 2072/2073 2074

August 1, 1978

611(e) CERTIFICATION

Botswana Agricultural College Project

I, Ted D. Morse, the principal officer of the Agency for International Development in the Southern Africa Region (OSARAC) having taken into account, among other things, the maintenance and utilization of projects in Botswana previously financed or assisted by the United States, particularly such capital projects as the Nata-Kazangula Road project to which Botswana provided all required support on a timely basis, and the performance of the Ministries of Agriculture and Education with regard to previous and on-going A.I.D. projects in Botswana, 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 this project.



Ted D. Morse

Acting Regional Development Officer

Aug. 1, 1978
DATE