

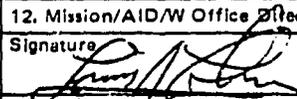
CLASSIFICATION
PROJECT EVALUATION SUMMARY (PFS) - PART I

Report Symbol U-447

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|--|--|--|--|--|
| 1. PROJECT TITLE BOTSWANA AGRICULTURAL COLLEGE EXPANSION | | | 2. PROJECT NUMBER 633-0074 | 3. MISSION/AID/W OFFICE USAID/Botswana |
| 5. KEY PROJECT IMPLEMENTATION DATES A. First PRU-AG or Equivalent FY <u>79</u> B. Final Obligation Expected FY <u>82</u> C. Final Input Delivery FY <u>83</u> | | | 6. ESTIMATED PROJECT FUNDING A. Total \$ _____ B. U.S. \$ <u>9,149</u> | 4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <u>3 FY 81</u> <input type="checkbox"/> REGULAR EVALUATION <input checked="" type="checkbox"/> SPECIAL EVALUATION |
| 7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>4/79</u> To (month/yr.) <u>4/81</u> Date of Evaluation Review <u>3/23-4/6/81</u> | | | | |

| 8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR | | |
|--|---|--------------------------------|
| A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.) | B. NAME OF OFFICER RESPONSIBLE FOR ACTION | C. DATE ACTION TO BE COMPLETED |
| 1. Approximately \$100,000 to be transferred to participant training category | USAID | June 1981 |
| 2. U.S.-trained D.V.M. to be recruited for long-term position. Contract to be amended accordingly | SDSU/USAID SDSU/AID/W | Sept. 1981 |
| 3. Consideration be given to adding Educational Psychology course to BAC curriculum. Behavioral objectives to be developed for all curriculum materials developed through short-term consultancy reports. | SDSU/BAC | Dec. 1981 |
| 4. A diversity of quality U.S. institutions of higher education located in climates similar to Botswana's are to be sought as training sites for the remaining participant-trainees. | SDSU | Sept. 1981 |
| 5. Need for advanced training for the BAC Principal to be determined. | MOA/USAID | July 1981 |
| 6. A five-year staffing pattern to be drawn up by the Principal, BAC to assist MOA and the Directorate of Personnel in ameliorating BAC staff shortfalls due to long-term training. | BAC | June 1981 |

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| 9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS <input type="checkbox"/> Project Paper <input type="checkbox"/> Implementation Plan e.g., CPI Network <input checked="" type="checkbox"/> Other (Specify) <u>SDSU Contract</u> <input checked="" type="checkbox"/> Financial Plan <input checked="" type="checkbox"/> PIO/T <input type="checkbox"/> Logical Framework <input type="checkbox"/> PIO/C <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Project Agreement <input type="checkbox"/> PIO/P | 10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT A. <input checked="" type="checkbox"/> Continue Project Without Change B. <input type="checkbox"/> Change Project Design and/or <input type="checkbox"/> Change Implementation Plan C. <input type="checkbox"/> Discontinue Project |
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|---|---|
| 11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles) H. Gunther, Asst. Agricultural Officer, USAID/Botswana D.M. Jones, Agricultural Officer, USAID/Botswana D. Everett, Chief of Party, SDSU K. Bingana, Deputy Permanent Secretary, MOA E. Maloiso, Principal, BAC | 12. Mission/AID/W Office Director Approval Signature  Typed Name <u>Louis A. Cohen</u> Date <u>JUN 81</u> |
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P R E F A C E

This is the first major outside evaluation of the Botswana Agricultural College Expansion Project (633-0074) since its inception in 1978. The evaluation team was headed by Joan Atherton, Social Science Analyst, PPC/PDRR/RA and included Clifford Nelson, Agricultural and Extension Educator, University of Maryland, and Stafford Baker, Engineer, USAID/Botswana. The evaluation was carried out in collaboration with the USAID project manager, the JSU Team, Senior staff of the BAC and other representatives of the GOB. Interviews were held with key GOB officials including HQ staff of MOA and MFDP. District agricultural officers, and other staff were contacted for their views about the appropriateness of the curriculum for field needs.

Draft recommendations and findings of the evaluation team were discussed at a briefing session with Mr. K. Bingana, Deputy Permanent Secretary, MOA, on April 3, 1981. A short discussion paper (see Addendum 2) was prepared prior to the meeting and served as a guide for the discussion. Comments and changes resulting from this meeting are reflected in the Project Evaluation Summary.

Helen Gunther
Project Manager (633-0074)
Asst. Agric. Development Officer
USAID/Botswana

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SUMMARY

The Botswana Agricultural College Expansion Project (074) was designed to increase the supply of trained lower- and middle-level agricultural personnel. The BAC is to be largely localized by the end of the project and is to have expanded and revised its certificate programs and added diploma programs in Agriculture and Animal Health.

The major components of the project are: 1) the provision of physical facilities and associated furniture and equipment; 2) long- and short-term technical assistance; 3) training at the diploma and degree levels for BAC staff and 4) assistance in improving administrative practices at BAC. The latter three components are being implemented via a contract with South Dakota State University (SDSU).

The evaluation has found that the project is proceeding in a timely manner and has every prospect of achieving its purpose of augmenting the BAC's capacity to train personnel for agricultural service in the rural areas of Botswana. While the goal of reaching small-scale farmers and herders to improve their welfare is dependent on many factors external to the project, the expansion of the BAC will contribute to reaching that goal.

No major problems were encountered in the course of the evaluation. A number of questions were raised by those familiar with the project, and some issues surfaced during extensive interviews conducted as part of the evaluation. These included:

1. delays and cost overruns in construction;
2. quality and appropriateness of curriculum development work;
3. adequacy of the contractor in terms of both personnel and training supplied;
4. communication among BAC staff and between BAC and the MOA;
and
5. staffing shortfalls caused by the absence of the long-term participant trainees.

Several other minor issues were also addressed by the evaluators. Major action decision recommendations are found on the PES face sheet; others are embodied in the evaluation report, Addendum 1.

Evaluation Methodology

This is the first major outside evaluation of the project, which was authorized in 1978. A collaborative approach was used to carry out the evaluation. Documentation relating to the project, particularly the proposal for curriculum revisions embodied in the consultancy reports, was reviewed. The instructional and administrative staff of BAC, members of the SDSU team, key personnel in the line departments and on the central staff of the MOA, MFDP staff and AD's and VA's stationed in two districts were interviewed. Project financial records were

examined with the assistance of the USAID Controller. Construction financed by project funds was inspected by the evaluation team and the USAID engineer.

Issues were raised and discussed with relevant personnel as the evaluation proceeded. A draft Findings and Recommendations paper (Addendum 2) was presented for discussion and review, and comments on the paper were considered in preparing the final evaluation report. Major Action Decisions were reviewed by the USAID Director and the Deputy Permanent Secretary, MOA prior to finalization of the report.

External Factors

Major factors that have directly affected the project have been escalations in the cost of construction and the technical assistance/training contract with SDSU. These were accommodated in an amendment to the Project Paper dated September 22, 1980 which augmented USAID's obligation by \$2,000,000. The GOB has agreed to absorb any further construction overruns and it is not anticipated that other costs will exceed available funds.

The project may be indirectly affected by several other factors. Discussions have begun on the establishment of Agricultural Education and Home Economics courses at BAC. This will affect many aspects of the college including teaching loads, administrative responsibilities and physical facilities and should be closely monitored to see that it does not impede the progress of the project. Also of note is the increased attrition rate (6%) of AD's over the rate used in the PP (4%). If the attrition rate continues to be higher than projected in 1978 the project may not be as successful in narrowing the disparity between available trained manpower and employment vacancies as had originally been planned. This is considered an outside factor because the cause of the attrition does not appear to be related to the training at BAC in any direct way.

Inputs

Inputs are detailed in the report (Addendum I) attached to this summary. Major project inputs have been expanded physical facilities (Table 1, Addendum 1), technical assistance (Tables 2 & 3, Addendum 1) commodities and training (Tables 4, 5 & 6, Addendum 1). At the time of the evaluation, inputs appeared fully adequate to produce outputs, and were being provided in a timely manner.

Outputs

Listed in the PP

As of 4/1/81

Staff trained

10 staff in U.S. on long-term training
5 staff identified for long-term training

Facilities completed and equipped

3 dormitories, 1 classroom building and 5 houses have been completed and equipped. Construction has begun on all remaining facilities, and equipment has been ordered.

| | |
|--|---|
| Teaching materials developed | 15 short-term consultancies have produced curriculum materials in fifteen subject areas. |
| Curricula improved for certificate level | Revised curricula, based in part on the fifteen reports cited above, have been used since the entrance of the 1980 class. |
| Curricula created for diploma level | Curriculum has been developed and approved for Animal Health; has been developed for Agriculture with final approval meeting to take place shortly. |
| Administrative procedures | Admissions and business practices have been reviewed and revised. Daily decision-making has been facilitated by project staff. No major breakdowns have occurred in doubling enrollment in the certificate classes. |

Outputs appear at this time to be sufficient to achieve project purpose.

Purpose

The purpose of the 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". Progress toward end of Project Status is excellent:

1. The numbers of trainees in the certificate level training courses in Agriculture and Animal Health have risen to 54 and 62, respectively in the 1981 class (the 1980 class was also expanded).
2. Selection of students for the diploma programs is to take place in the week of April 12-17, 1981. Fifteen students will be accepted into each of the Agriculture and Animal Health programs.
3. Staff training is proceeding: Ten BAC staff are in the U.S. on long-term training; fourteen have been sent by the GOB to UBS for diploma training. Five additional candidates have been identified for degree training. In-service training courses have been held for BAC staff and two staff members have been sent abroad for short-term training.
4. The administration of the college is entirely localized. Additional training has been provided for the Vice Principal and Registrar, and the Principal is proposed for long-term training in Educational Administration. Business practices have been the subject of one short-term consultancy, and procurement another.

5. Changes resulting from the work of the two long-term project personnel and the fifteen short-term consultancies have been made to the curricula. Teaching techniques are more interactive and make greater use of visual aids. All materials have been focused on assuring relevance to the field service futures of BAC graduates.

There may be a shortfall in the number of veterinarians trained under this project. At present, there is only one candidate likely to receive a D.V.M. before 1986. However, pre-veterinarian training is being offered to several individuals, who may then be sent on for veterinary training under other-project funding. Other than this area, EOPS conditions are expected to be met and are still considered realistic.

Goal

The goal of this project is "to improve the welfare of Botswana's small-scale farmers and herders". The project is to contribute to attaining this goal by "addressing one of the key constraints to Botswana's agricultural development; namely, the critical lack of skilled manpower to serve rural sector needs". Expansion of the BAC will clearly assist in increasing the number and improving the quality of trained manpower available to the various GOB, parastatal and private organizations engaged in rural development. Teaching Botswana's small farmers and herders is dependent on many factors external to the project as well, such as working conditions in the field, effective support of extension personnel, development of sound techniques or ideas to extend and individual dedication to reaching the small-scale farmers and herders as well as the large cattle owners. While USAID can alleviate some constraints, as it proposed to do through projects such as the Rural Sector Grant and Agricultural Technology Improvement some are a matter of policy for the GOB to act upon.

Beneficiaries

Direct beneficiaries will be the 28-31 members of the BAC staff who are trained to the diploma or degree level under the project. Also directly benefitting will be present and future classes of BAC students in both certificate and diploma programs. Several new staff positions have been or will be created at BAC, thus benefitting the incumbents.

Indirectly, the more interactive teaching techniques and new materials incorporated into all curricula should assist BAC graduates to better assess the problems and needs of their small farmers/herders clientele and to provide appropriate advice and assistance. This project must thus be seen as complementary to USAID and other-donor efforts to augment the agricultural planning capabilities and research base on which programs of agricultural development can be founded.

Unplanned Effects

Not pertinent at this time.

Lessons Learned

The design of this project may be replicable in Botswana if the funding of physical facilities can be undertaken by other sources. The amount of management time taken up in the construction and supply aspects of this project appear to have been rather costly, although no precise data are available. In contrast, the combination of a core long-term technical staff supplemented by a cadre of short-term consultants is a viable design in Botswana's environment of trained manpower shortage.

Working in the collaborative mode with SDSU has proved extremely beneficial both to USAID and the GOB. As a relatively small institution with only one international project, SDSU has been able to draw quality faculty and staff to work on the project and to tailor participant-trainee programs to meet individual needs. Furthermore, project back-stopping and "hometown support" have contributed to a very well-run project. This would suggest that institutions with a limited number of international project activities may be better able to provide the support that such undertakings require. USAID and host governments should therefore consciously diversify their collaborations with Title 12 institutions and not overlook the smaller land grant universities, either as individuals or consortia.

One of the communication problems that has arisen appears to be attributable to differences in decision-making styles in the U.S. and Botswana. The evaluation team feels that it is important that all USAID personnel, whether direct-hire or contract, receive adequate orientation to the salient aspects of Botswana society. This is usually accomplished through the existing week-long orientation program.

EVALUATION REPORT

BOTSWANA AGRICULTURAL COLLEGE EXPANSION PROJECT (074)

The special evaluation of the Botswana Agricultural Expansion Project was undertaken at the end of the second year of the project implementation. The project, funded jointly by USAID and the GOB, is being implemented via a contract with South Dakota State University (SDSU). This report summarizes the findings of an independent evaluation and recommendations for the remainder of the project life. As specified in the Project Paper, the independent evaluation was conducted during the course of a two-week visit to Botswana from March 23 - April 4, 1981. Project and related documents were reviewed and interviews were held with USAID officers, SDSU project personnel, BAC staff, and other GOB personnel, primarily in the MOA, including some district-level staff. The evaluators were Joan Atherton, PPC/PDRR/RD, and Dr. Clifford Nelson, University of Maryland, and Stafford Baker, USAID/B.

The report will present background information, and then an assessment of the progress to date focusing on four major areas: 1) physical expansion, 2) curriculum development, 3) training of BAC staff and 4) administration. External factors which may affect the project will then be discussed, and the final section will summarize the evaluation team's recommendations.

Background

One of the primary constraints to development in Botswana has been the shortage of trained manpower at all levels. In the agricultural sector, there has been a growing need for trained lower- and middle-level personnel to serve in the agricultural extension and animal health areas. These cadres are the backbone of Botswana's agricultural extension and animal health services under the Ministry of Agriculture (MOA); and as such, are instrumental in the Government of Botswana's (GOB) rural development efforts. At the time the Project Paper (PP) was written, there were an estimated 185 vacancies in government, parastatal and private employment for agriculture and animal health workers. Projected growth indicated that there would be close to 600 vacancies by 1988.

Given this projected growth rate, the need for a more adequate training facility for entrants into the extension and animal health fields was evident. The Botswana Agricultural College (BAC) has been training to the certificate level in agricultural extension and animal health since 1966. Its graduates are employed as Agricultural Demonstrators (AD's) and Veterinary Assistants (VA's), respectively, by the Ministry of Agriculture (MOA). There is at present a small but growing demand for these individuals in the parastatal and private markets.

To supply the middle-level cadre of employees in agriculture and animal health, who serve as District Agricultural Officers and Livestock Officers, the GOB has placed approximately 35 students per year in the diploma courses at the University of Botswana and Swaziland (UBS). For a variety of reasons, the GOB determined that Botswana should establish its own diploma program.

The BAC Expansion Project was designed to assist the GOB in strengthening its agricultural and animal health services to rural dwellers, and thus to achieve its rural development objectives. This was to be accomplished by strengthening an existing institution to enhance its capacity to train the individuals who embody the critical link between the central government and the rural population. The specific means by which the project was to accomplish the objective included the following elements:

1. Enlargement and improvement of the physical facilities;
2. Technical assistance to develop curricula and instruct;
3. Training for BAC staff to achieve complete localization; and
4. Assistance in the development of appropriate administrative practices.

Prior to the inception of the project, the BAC offered programs at the certificate level in Agriculture, Animal Health and Community Development. The decision was made during the project design to focus on the Agriculture and Animal Health Programs for a number of reasons, most importantly because these two programs fall under the jurisdiction of the Ministry of Agriculture, while the Community Development program is associated with the Ministry of Local Government and Lands.

Thirty students per year were being graduated in each of the certificate programs in Agriculture and Animal Health in 1978. The project was to double the number of graduates in each program at the certificate level, to sixty per class per year and was to initiate a diploma program, graduating fifteen students in Agriculture and fifteen in Animal Health each year. This increased output of trained manpower in the agriculture and animal health areas was deemed necessary to narrow the gap between the demand for extension and veterinary service personnel and the supply then available from BAC and the diploma course at UBS.

The expansion in the number of graduates implied the following changes in BAC: (1) Additional physical facilities (see Table 1) to accommodate the larger number of students were necessary, (2) curricula for the diploma courses had to be developed, and it was felt that improvements could be made in the certificate-level curricula to make them more relevant to Botswana's needs and to avoid any duplication with the diploma level, (3) the level of training of the localized staff was to be upgraded, the number of staff increased by eight positions, and all positions were to be filled by Botswana by project completion. Administrative activities such as admissions, student record keeping, financial management, staff evaluations and assignment of teaching loads were to be investigated and improvements made.

A seven-year contract with South Dakota State University was signed on April 15, 1978 to provide the following:

1. Three expatriate professionals to assist in long-term curriculum development, and eighty person-months of supplemental short-term technical assistance;

2. Two expatriate professionals to serve as full-time lecturers while BAC staff were in training;
3. Training of fourteen Batswana at the Bachelors and Masters levels in fields of agriculture and animal science.

The project was also to provide funds for construction of new facilities and staff housing (see Table 1) and training at the diploma level for seven additional BAC staff, and the purchase of furniture and commodities.

Project Financial Status

The project was originally funded at \$7,149,300, but was amended on September 22, 1980 to increase funds to a total of \$9,149,300. The approximate distribution of the funds is as follows:

| | |
|--|--------------|
| <u>Technical Assistance</u> | |
| SDSU Contract | \$ 3,594,000 |
| Livestock OPEX, and Miscellaneous PIO/T's | 94,070 |
| <u>Construction</u> | 3,704,000 |
| <u>Commodities</u> | 503,000 |
| <u>Support</u> | 774,000 |
| <u>Contingency</u> | 454,300 |
| | <hr/> |
| | \$ 9,149,300 |

Of these funds, approximately \$454,300 have not yet been programmed for specific uses. Of this amount USAID has determined that \$100,000 will be utilized to defray the costs of training three BAC faculty who have recently returned. Originally funding for their training had been programmed under another project however it has been determined that the cost of their training is an appropriate expenditure under this project and the necessary adjustments to cover those costs under this project are being made. Elsewhere in this report the team has recommended that a D.V.M. be added to the project personnel. This will require a contract amendment increasing the amount of funding for the SDSU contract to about \$200,000. Also, the team has recommended degree training for three or four additional participants, to which the remainder of the funds could be devoted. This would also require amending the SDSU contract. Thus, the \$450,000 would be programmed as follows:

| | |
|----------------------------|------------|
| BAC faculty training | \$ 100,000 |
| Add on to SDSU contract | 200,000 |
| Additional degree training | 150,000 |
| | <hr/> |
| | \$ 450,000 |

The \$450,000 is the minimum amount thought to be available for reprogramming. Additional savings on other budgeted items are also likely to be available. It appears that three to five months of short-term technical assistance may not be required and savings of as much as \$100,000 from the commodities line item, due to the allocation of funds from the construction item to cover the cost of kitchen and laundry equipment will be available for reprogramming. Reliable estimates for these items were not available at the time of the evaluation, however. Regarding the construction line item, more detailed information appears later.

Progress to Date

At the time that the evaluation was carried out, all major aspects of the project had achieved significant progress. Construction and associated commodity purchase were delayed but are moving forward; project staff are in place and the number of positions has been increased; the certificate-level student body has doubled in the Agriculture and Animal Health programs; the diploma curricula have been designed and the certificate curricula modified; and participants have been identified for long-term training. In addition, some short-term and in-service training has been offered and various administrative and business practices have been reviewed and revised.

Physical Facilities

Construction of physical facilities for the BAC expansion is about a year behind schedule and \$2.5 million over the budget planned in the PP. Construction delays have not adversely affected achievement of project objectives. Critical buildings have been completed or are scheduled for completion to allow the college to increase its enrollment as planned. Construction cost overruns were first discussed by USAID and the GOB in October 1979 and an agreement to share those overruns was reached by January, 1980. Additional overruns are now estimated, but it is recommended that USAID do not provide any additional construction funds. At present, the GOB has agreed to fund any further cost overruns.

Construction of the remaining facilities is now proceeding without any major foreseeable problems. The completed facilities are very attractive but buildings areas are not luxurious or excessively large. Inspection of ongoing construction indicates that the good quality of workmanship is continuing. While the problems have been costly to both USAID and the GOB, it is believed that the completed facilities will serve the BAC well for many years to come.

Most of the delays in the construction program are attributable to the architectural design stage of the project. The PP had planned for the GOB to contract for architectural services within two months of the PP approval. The appointment of an architect was delayed almost three months. This delay forced the GOB and USAID to adopt a two-phase construction program (see Table 1) in the interest of expediting construction of critically needed dormitories and a classroom building. Whereas the total design period had been estimated at three months in the PP, design of Phase I buildings alone took over six months. Completion of Phase II design and tender documents took another nine months. The final facilities will probably be completed a year later than scheduled in the PP.

TABLE 1

PHYSICAL FACILITY CONSTRUCTION PHASESPhase I

Three hostels^{1/}
 One classroom building^{2/}
 Kitchen/dining
 Laundry extension
 Electrical Sub-station
 Site works^{3/}

Phase II

Engineering
 Animal Health
 Administration Block
 One classroom building
 Teaching staff office
 Visual aids
 Laboratory extension for Science
 Library extension
 Five M-3 (medium cost) houses
 Thirteen M-2 (medium cost) houses
 Thirteen industrial (low cost) housing
 Site works^{3/}

^{1/}Capacity: sixty students each

^{2/}Contains three classrooms and storage

^{3/}Includes electrical, water and sewage work

Delays in the construction program, while serious, are not the entire reason for the cost overruns. The dollar has lost over 11% of its value relative to the Pula since the PP design. Inflation of construction costs, estimated at 15% per year in the PP, reached almost 25% per year in 1979 and 1980. The PP estimated inflation only up to the start of construction following standard procedure, which assumes that a fixed-price contract will be negotiated. However, Botswana tendering procedures provide for inflation payments throughout the construction period thus invalidating the inflation estimation method used. Finally, the building areas have grown between the PP design and final design stages. Much of the growth is a result of the eventual design concept that adopted extensive overhangs to facilitate passive building ventilation.

The evaluation team found that USAID management of the construction program for the project has not been very effective. There have been

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NO. //

five engineers from REDSO/EA involved in the project to date. One worked on the PP design; another reviewed preliminary plans; a third reviewed and approved Phase I final plan, Phase I contract and Phase II first plans; another reviewed the Phase II contract and the fifth has monitored Phase I and II construction. All have had to rely on the GOB Ministry of Works for most information on costs and timing of activities. The lack of continuity and background in Botswana or Southern African construction procedures has resulted in confusion about project status and acceptance of overly optimistic GOB advice.

Construction problems have not adversely affected the program to improve and increase the capacity of BAC. A first critical classroom building was completed and occupied a month later than planned by the PP. The first dormitory was six months late, but the student overflow shared other quarters until the dormitory was finished. A second class of new students was able to move into another new dormitory recently, but have had to share toilet and shower facilities at the first dormitory while sewer connections are being completed. It is now estimated that the second classroom will be ready for occupation a month later than needed by BAC, but the college is prepared to make temporary accommodations elsewhere. The problems have been inconvenient but have not delayed the planned increases in BAC enrollment.

If the Project Paper designers knew during the PP preparation what they know now about costs, the cost estimates for construction would have been calculated differently. For example: the USAID/GOB construction estimate during the PP design was:

| | | |
|----------------|----------------|-------------|
| Construction | P 1 614 000 | |
| Infrastructure | <u>310 000</u> | |
| Total | | P 1 924 000 |

Using exchange rate of $\$1.30^{\frac{1}{2}} = P1.00$

| | | |
|-------|--|--------------|
| Total | | \$ 2,501,500 |
|-------|--|--------------|

Using 24%^{2/} inflation for 1 1/2 years,^{3/}

| | | |
|-----------|------------|--|
| Inflation | \$ 900,500 | |
|-----------|------------|--|

| | | |
|-----------|--------------|--|
| Sub-total | \$ 3,402,000 | |
|-----------|--------------|--|

| | | |
|------------------------------|----------------|--|
| 5% contingency ^{4/} | <u>170,100</u> | |
|------------------------------|----------------|--|

| | | |
|---|--|--------------|
| Total AID contribution would have been: | | \$ 3,572,100 |
|---|--|--------------|

To date, USAID has obligated:

| | | |
|-------------|--------------|--|
| Original PP | \$ 2,846,000 | |
|-------------|--------------|--|

PP Amendment No. 3

| | | |
|----------------------|----------------|--|
| Dated Sept. 22, 1980 | <u>850,000</u> | |
|----------------------|----------------|--|

| | | |
|-------|--|--------------|
| Total | | \$ 3,696,000 |
|-------|--|--------------|

^{1/} Exchange Rate - this has been as high as $\$1.36 = P 1.00$ but most costs have been incurred while it was between $\$1.2$ and $\$1.30$ equal to P 1.00. If the PP designers could have accurately foreseen events, they probably would have used a rate of $\$1.30 = P 1.00$ instead of $\$1.2151 = P1.00$.

^{2/} Inflation Rate - the 15% in the PP was low be between 7% and 9%. A figure of 24% was and remains more accurate for construction costs.

^{3/} Inflation Period - inflation was only considered through the start of construction. Given tendering procedures in Botswana, it would have been more reasonable to assume inflation at the above annual rate through the midpoint of construction. The midpoint was a little over two years from the time of the PP design, although a year of that time can be attributed to unreasonably slow architectural design. A conservative estimate during the PP design would have been 1 1/2 years to the midpoint of construction.

^{4/} Contingency - the PP designers accommodated unforeseen factors such as changes in exchange rates and inflation rates, weather caused delays to construction and slight alterations to building sizes in the contingency item. Accurately predicting exchange rates, inflation rates and inflation periods would reduce the required contingency. A contingency of 5% would have been sufficient.

Total USAID obligations for construction slightly exceed the cost that PP designers would have estimated if they had known what actual exchange rates, inflation rates and inflation periods were going to be. Therefore, it is suggested that AID remain at their current funding level for the construction component of the project and let GOB assume cost overruns.

The evaluation team is relatively certain that costs have continued to escalate, due to inflation and delays attributable primarily to unusually heavy rains this year. Exact figures were not available at the present time, however. In discussions with MOA personnel, the team found that the GOB appears to be prepared to absorb the additional costs of construction. As is detailed elsewhere in the report, the team has made alternative recommendations for use of project funds available for reprogramming, and does not recommend that additional funding be allocated to construction at this time. The circumstances presented above indicate that the situation has been subject to considerable change in the past, and that USAID will need to remain flexible in its consideration of contributions to this element of the project.

In addition to the construction element, the physical facilities are to be equipped and furnished under the project. Furniture for the completed classroom building is in place, and several large orders for laboratory and shop equipment have been placed. Local procurement is due to begin as soon as adequate storage facilities are available. (It is anticipated that completion of the kitchen-dining hall will allow the old kitchen area to be converted to storage. The GOB has almost trebled its recurrent budget expenditure on books, which will supplement project funds in this area.

The lists of materials ordered were reviewed by the team and found to be adequate without being excessive. BAC should have up-to-date, well-equipped laboratory, agricultural mechanics areas, and library, with audio-visual aids for all aspects of the program. Although the procurement process appears rather cumbersome and has experienced some delays, the team's assessment is that satisfactory progress is being made in this area.

Curriculum Development

Curriculum development efforts have taken a variety of forms, including the activities of the SDSU long-term personnel and the short-term consultants in cooperation with BAC and MOA personnel. The curriculum development efforts have retained the half-classroom and half-practical ratio of training established prior to the inception of the project. The main contributions to the curriculum development have been found in the courses unique to the Agriculture curriculum and in the courses jointly taken by the Agriculture and Animal Health students in the certificate and in the planned diploma programs. The latter curricula have only recently been established.

The following courses have been modified as a result of the syllabus development by SDSU long and short-term personnel: Soils, Horticulture, Plant Production, Biology, Mathematics, Entomology, Extension, Chemistry/Physics, Agricultural Engineering and Soil Conservation and Irrigation.

Additional materials have been prepared in Dairy Production and Livestock Nutrition. While the evaluation was in progress, a short-term consultant on Beef Production arrived to begin curriculum development work.

Areas of the curriculum which have yet to be fully reviewed include: Agricultural Economics/Marketing, Rural Sociology and Animal Health. There have been recent changes in the Animal Health program to make the content more relevant to Botswana, but these were initiated by BAC faculty.

SDSU long-term and short-term consultants have collected significant numbers of teaching materials, texts, and teaching aids that were used in curriculum development efforts. Some of the texts have been selected for BAC adoption. Other materials and teaching aids have been ordered to enrich the courses being offered. Examples of this input are discussed below.

The evaluation team examined fourteen recent mathematics texts and workbooks that were supplied for the Science and Mathematics Department. These texts have been reviewed by BAC teaching staff, but a choice of text has not yet been made. Presently, texts are regularly being used for classroom assignments and examples.

Collections of U.S.-developed teaching materials and excerpts from these materials were found in Extension, Agricultural Engineering and Soil Conservation syllabuses. Sources included AAVIM materials (the largest publisher of teaching materials in the broad Agricultural Mechanics field), HOBAR, Texas A&M Instructional Materials Service, Vo-Ag Service (University of Illinois), plus citations to California Polytechnic, San Louis Obispo, John Deere and others. Nationally developed materials including some from the Agricultural Editors' Handbook of Communication and rural sociology material on diffusion of innovation were also included in the syllabuses. Current catalogs of major commercial textbook and teaching materials are on hand. SDSU short-term consultants and long-term advisors regularly encourage BAC faculty to use or order these materials.

In addition to technical books, there have been significant "popular" additions to BAC's library. Two SDSU consultants plus one faculty member, in one trip to South Africa, purchased R2,800 worth of paper- and hardback novels and books for student recreational reading. This was done to encourage students to read and thus to improve their capacity to read technical material. Since project inception, the GOB budget for BAC library acquisitions has been increased from P4 000 to P11 000.

In all but the Conservation and Irrigation and the Agricultural Mechanics consultancy reports, the syllabuses constructed as part of the curriculum development efforts of the short-term consultants have more depth and/or breadth of subject matter content than can reasonably be expected to be covered in the courses offered. This is beneficial in the evaluation team's view, because it will allow the instructors to modify course content and emphasis readily from the additional materials on hand.

Although excellent progress has been made in curriculum development, all parties involved in the project agree that work must continue. Plans for future work were reviewed with project staff and the report mentions here only those items not immediately evident in these plans. The evaluation team noted a lack of educational psychology content in the courses offered in both the Agriculture and Animal Health curricula. Certificate and diploma graduates of BAC will, in most cases, be adult educators. Some graduates will work with youth, for example, in 4B clubs. In all cases a basic knowledge of how youth and adults learn is essential. The efficacy of the agricultural or veterinary assistance given by graduates will be determined by the amount of individual farmer and cattle-owner learning that takes place. It is felt by the evaluation team that the study of educational psychology is as basic for professional agricultural extension and veterinary assistance personnel as is basic biology and chemistry to the agricultural scientist.

The team is aware that changes initiated by BAC staff have occurred in the methodology and to a very limited extent in the content of the instruction in the Animal Health curriculum. A number of factors have contributed to the slow change in this program, and will be taken up in the section on administrative issues. In order for the project to fully accomplish its objectives, the team feels that more work must be done in this area, and that to facilitate the review of the animal health courses a Doctor of Veterinary Medicine (D.V.M.) should be sought as a technical assistant to the project.

The project is shortly to be provided with a long-term staff member from SDSU with expertise in Agricultural Extension. Although this individual has already provided curriculum materials while on short-term consultancy, it is anticipated that further work will be done to strengthen the syllabuses in this area. Specifically, the team suggests that further work be done on an extension methodology that is more carefully tailored to Botswana and the preparation of appropriate teaching materials. The Extension syllabus contains material on rural sociology, which also needs this type of tailoring. The team has found that abundant local resources are available to assist project personnel in this area. Finally, details of GOB programs for rural development are at present included in the extension syllabus, but they must be constantly updated. The team feels that the extension expert is the appropriate focus of liaison activity with other sections of the MOA and rural programs personnel in other ministries to maintain currency of information.

A further issue was raised by the team's review of the materials prepared for the curriculum by the short-term consultants. With the exception of the Agricultural Extension and Entomology reports, measurable behavioral objectives for students to attain were not specified. For example, an appropriate behavioral objective for a student in an animal production course might be: each student will be able to name and describe the function of the four stomachs of ruminant animals. A behavioral objective that might be appropriate in a pasture class would be: each student will identify, with common and scientific names, the ten major grasses (in seed, post germination and mature stages) that are recommended for Botswana pastures. In each case, the behavioral

objective describes the mental and physical (cognitive and psychomotor)^{1/} tasks that the student will be able to perform after successfully completing the activities of a given course.

The team recommends that the long-term staff include the development of curriculum behavioral objectives in the scope of work of each of its short-term consultants. The development of behavioral objectives is recommended because, if the objectives are appropriate for Botswana, it will focus teachers' attention on selecting materials that are most appropriate to reach those objectives. Measurable behavioral objectives will assist MOA and other government agencies, who have interest in BAC offerings, to determine the emphases of the courses and what the graduates will be expected to perform at course completion.

Finally, the team has ascertained that the Community Development curriculum includes a lecture by a Family Welfare Lecturer during each class orientation. The evaluators believe that such a lecture could be included in the Agriculture and Animal Health curricula to the benefit of all students, and recommends that it be arranged for all present and future classes.

While major changes have been accomplished, continual curriculum development efforts are needed at BAC. The viability of the proposed content cannot be fully evaluated until the first graduates are active in the field. Agricultural research is constantly issuing new findings that will have curriculum change implications. The return of the Botswana staff currently studying in the United States will also contribute to curriculum development efforts at BAC by incorporating the materials and knowledge gained in training. Generally, though, the team feels that the major structure and content (where short-term consultancies have taken place) are in place and that "fine-tuning" will be needed as the new curriculum is taught and graduates enter field service.

In terms of the curriculum development, the adequacy of both project design and technical assistance supplied were examined by the evaluation team. On the issue of project design, programming and the need for the involvement of so many short-term personnel was questioned. The qualifications of the project personnel, of course, are directly relevant to project success.

SDSU support of the personnel assigned to BAC seems to be excellent. The University has a formal policy that international work such as the project will be given full recognition in promotion and tenure decisions. A positive indication of this was the promotion of one of the long-term personnel from Associate Professor to Professor while he was stationed in Botswana.

SDSU has utilized sixteen short-term consultants in the contract to date (see Table 3). Their average length of stay has been two months. The evaluation team was generally impressed with the quality of their contributions. Each consultant was charged with developing a "course syllabus, manual or textbook". The consultants were also directed to

^{1/} It is felt that the development of affective domain objectives (attitudes) would be very difficult at this stage of BAC development. However they will be more important as the curriculum development has completely identified the cognitive and psychomotor objectives for the BAC programs.

work with individual staff members in the development of teaching materials, course content, course outlines and improvement of teaching methods in the classroom.

TABLE 2

LONG-TERM PROJECT PERSONNEL

| Name | Major Area of Expertise | Arrival | Anticipated Departure |
|---|-----------------------------|---------|---------------------------|
| <u>1/</u> Duane Everett (Chief of Party) | Vocational Agriculture | 4/79 | 5/83 ^{<u>4/</u>} |
| <u>1/</u> Leon Bush (Curriculum Coordinator) | Livestock | 6/79 | 5/83 |
| Dale Reeves (Curriculum Coordinator) | Agronomy | 4/79 | 4/81 |
| Thomas Bare | Agricultural Communications | 7/80 | 7/82 |
| Richard Butterfield | Range Management | 9/79 | 9/81 |
| <u>2/</u> Paul Carson | Soil Science | 5/81 | 5/83 |
| <u>3/</u> Lloyd Hansen | Agricultural Extension | 9/81 | 9/83 |
| Daniel Rasmussen (PCV) | | 1/80 | 1/82 ^{<u>4/</u>} |
| Vacant Livestock Position (OPEX) | | 7/81 | 7/83 |

1/ Have extended for second tour

2/ Nominated to replace Agronomy position

3/ Nominated to replace the Range Management position

4/ May extend for an additional year

The following additional long-term personnel may be provided during the life of the project: 1 Agronomist and 1 DVM under the SDSU contract and 1 Agricultural Communications Instructor provided by the Peace Corps.

Due to the late arrival of one long-term staff member, it is anticipated that there will be an overlap of two persons, temporarily raising the number of staff from five to six. If the DVM is added, however, the number of on-site staff will be permanently raised to six.

From reviews of vita and written reports of consultants, the evaluation team feels that South Dakota State University has selected a commendable group of short-term personnel to offer consultative services to the project. As a group, they are characterized by excellent and appropriate academic preparation, significant experience (both practical and academic) and an apparent interest and capacity to work at the applied level. The evaluators feel that the latter trait is perhaps the most important characteristic that was identified among the consultants. Expertise at the practical level is the most germane to the BAC program, as the graduates of both certificate and diploma programs will be operating at the applied level in the field.

It is apparent that SDSU long-term and support personnel have carefully selected each consultant. This is a strength of the project. SDSU personnel are concerned with the individual expertise of each consultant, but even more so with their philosophy and capacity to function well in another culture. The results of these concerns are evident in the uniformly supportive comments gathered from BAC faculty and MJA officials concerning the short-term consultants.

The team does a recommendation regarding the orientation of the short-term personnel. They believe that it would be helpful if the Chief of Party would develop a one page handout for short-term consultants comparing the Botswana and U.S. educational systems. This would facilitate the comparison the understanding of certificate, diploma levels of training and preparation for entry.

TABLE 3

SHORT-TERM CONSULTANTS

| <u>Project Personnel</u> | <u>Expertise</u> | <u>Arrival</u> | <u>Departure</u> |
|--|--|----------------|------------------|
| P. Carson | Plant Science (Soils) | 9/2/79 | 10/28/79 |
| W. Wolpart | Purchasing & Business Practices | 9/23/79 | 11/18/79 |
| J. Waples | Horticulture | 10/15/79 | 12/9/79 |
| W. Gardner | Plant Science (Plant Protection/Pathology) | 10/15/79 | 12/6/79 |
| D. Dearborn (Dean of Agric) | Administrative Overview and Evaluation | 11/30/79 | 12/23/79 |
| J.W. McCarty | Livestock Breeding and Campus Coordination | 2/1/80 | 4/16/80 |
| L. Hanson | Agricultural Extension | 2/1/80 | 3/30/80 |
| R. Broschat | Basic Math | 2/1/80 | 3/30/80 |
| R. Walstrom | Entomology | 2/3/80 | 3/30/80 |
| C. Hansen | Agricultural Mechanics/ Education | 3/30/80 | 5/30/80 |
| D. Zlab (Wilbur Nebr. H.S. Science Ins.) | Chemistry (Basic Science) | 11/24/80 | 5/23/80 |
| M. Owens | Dairy Production and Extension | 4/25/80 | 6/20/80 |
| R. Wahlstrom | Livestock Nutrition | 7/11/80 | 9/2/80 |
| M. Horton | Plant Science (Soils and Water) | 10/10/80 | 11/30/80 |
| J. Fielder | Business Practices | 2/8/81 | 4/3/81 |
| J. Minyard | Beef Production | 4/3/81 | |

Training of BAC Staff

One of the objectives of the project is a fully localized staff at BAC by project completion in 1986. To this end, the PP proposed that eighteen people be trained under the project. The original design indicated that eleven Batswana were to receive degree training at U.S. universities, and seven were to be trained to the diploma level at UBS, the latter financed by the GOB. The PP was subsequently amended and adequate funds were made available for one more BAC staff member to receive degree training in the U.S. In addition, three BAC staff persons have been trained under the SAMDP project.

At the time of the evaluation, training was proceeding apace. All candidates for U.S. degree training have been identified (see Tables 4 & 5), and ten are now abroad. The list of proposed candidates (see Table 6) for diploma training has been expanded with the acquiescence of the GOB, and four of these individuals have completed their training.

Of the ten Batswana degree students in the U.S., all are presently attending SDSU. The students have been successful as a group. One student had academic difficulties but these seem to have been corrected at this time. Another student has a good chance at being accepted at a major school of veterinary medicine for the fall of 1981.

The undergraduate and the graduate catalogs of SDSU have been examined by the evaluation team. The majors selected for the students in advanced study at SDSU contain required courses and elective possibilities that could appropriately meet the need of the students and BAC.

To date, all students have been sent to SDSU for advanced study. There are obvious advantages to having all of the participants from the BAC project study at one U.S. institution. Admission for the students can be secured more rapidly. This way, as a system of evaluating student qualifications has been established and entry procedures streamlined. In contrast, U.S. universities take as much as six months to process an application in the international students' office before the admission group sees the application. Another advantage is that the SDSU personnel at BAC have the capacity to evaluate the strengths and weaknesses of the individual students and then prescribe a special program for the student. It is also possible in a smaller institution, such as South Dakota State University, to closely monitor the progress of the undergraduate and the graduate students.

Conversely, there are several disadvantages to having all of the students supported under the contract study at South Dakota State University. There is a possibility that the students who study there will have a very narrow view of their major field. Compared to many other agricultural colleges, SDSU is a relatively small institution. The students might not get exposed to the breadth of expertise available elsewhere. Students would definitely profit from educational experiences in other states with similar climatic conditions to Botswana. Each of the agricultural universities of the western U.S. has something unique to offer. Staff at BAC who have been proposed for training in the U.S. have some unanswered questions about SDSU: How good is SDSU when compared to other institutions? Is SDSU making a big profit on us?

TABLE 4

BAC STAFF IN TRAINING AT SDSU

| Name | Degree Sought | Major | Departed | Anticipated Completion |
|------------------|---------------|--|----------|------------------------|
| Joseph Omphile | BSc | Range Management | 8/79 | 12/81 |
| Peter Rabanna | BSc | Animal Science | 8/79 | 5/82 |
| M. Raborokgwe | Pre-Vet-DVM | Veterinary | 8/79 | 5/85 |
| Florah Tladi | BSc | Agric Communication | 12/79 | 12/82 |
| Ricks Chabo | Pre-Vet-DVM | Veterinary | 12/79 | 5/86 |
| Mike Sekambo | Pre-Vet-DVM | Veterinary | 12/79 | 5/86 |
| Mick Mahabile | BSc | Agric Economics-Math | 12/79 | 12/82 |
| Dan Seabo | BSc | Animal Science | 8/80 | 5/83 |
| Pat Sinombe | MS | Agric Economics | 8/80 | 5/82 |
| L. Mogotsi | BSc | Agronomy/Horticulture Extended to MS study 1/81 | 12/79 | 5/82 |
| K. Mosetlhanyane | BSc (SAMDAP) | Animal Science | | 1/81 |
| P. Motsepe | MS | Agricultural Science | 1/81 | 12/82 |

BAC staff who have completed training at SDSU

| | |
|-------------|--------------|
| D. Ramahobo | BSc (SAMDAP) |
|-------------|--------------|

It would be well to have some of the trainees study at institutions other than SDSU. The basis for comparison established by diversifying training sites would enhance the value of the SDSU education for all participants. It is felt that seeking new sites for study would strengthen the project. Thus, the evaluation team recommends that strong consideration be given to placing the remaining participants at other high-quality U.S. universities. Some flexibility will need to be maintained in the placement of participants, as all parties involved in this evaluation recognize.

Although the September, 1980 PP amendment slightly augmented the funds available for degree training in the U.S., it is not evident that attrition from the BAC staff was adequately planned for in the original project design. According to the SDSU Chief of Party, at the time of the PP design, funds were not projected to be available for additional participant training. The evaluation team has found in its budgetary review that sufficient funds will be available to train three or four additional BAC staff members, and recommends that this be done.

TABLE 5
PROPOSED BAC STAFF FOR U.S. TRAINING

| Name | Degree Sought | Major | Anticipated Departure |
|-------------|---------------|------------------------------|-----------------------|
| R. Matilo | BSc | Extension | 8/81 |
| S. Machacha | BSc | Soils-Agronomy | |
| J. Sesenko | BSc | Agric Science | 8/81 |
| E. Maloiso | PhD | Administration- Livestock | 5/81 |
| B. Busang | MS | Agronomy | 5/81 |

In regard to full localization of the BAC staff by 1986, the evaluation team found that this is unlikely to occur among the veterinarians teaching in the Animal Health curriculum. It is difficult to enter veterinary training almost anywhere in the world. It is thought that only one of the four potential candidates now at SDSU will succeed in entering veterinary training; thus the DVM positions at BAC will continue to be filled by expatriates beyond the project completion date.

If additional candidates are sent to the U.S. for degree training, one or two of these might qualify to study veterinary medicine. While the DVM training could not take place under present project funding, other sources such as SAMDAP do exist. It is important, however, to identify candidates and begin training in the near future in order to complete initial degree programs within the life of the project.

The Faculty of Education of Wolverhampton Polytechnic of Great Britain has offered in-service training for BAC faculty. Nineteen staff members have attended the two sessions offered to date. The course, sponsored by the U.K., was highly regarded by BAC personnel and SDSU consultants. The course concentrated on visual aids and the development of regular, systematic student evaluations (examinations) as opposed to annual student evaluations that were the norm under the pre-project system at BAC.

Significant changes have been observed in the teacher-student transactions (as defined by Hull and Drawbaugh) at BAC. Instruction is now more interactive. Professors depend less on lecture and rote memory response by students. The Animal Health Course Director and his faculty have moved away from rote student response. Students now are more likely to ask questions and faculty more likely to pause, respond, and rephrase so students might have better understanding.

Wolverhampton caters to teachers of agriculture in institutions preparing individuals as field extension officers, farmers or other natural resource areas. Wolverhampton courses are directed by tutors who have overseas experience.

TABLE 6

BAC STAFF RECEIVING DIPLOMA TRAINING

| Individual | Major | Departed | Completion |
|------------------------------|---------------|-------------|------------|
| J. Sesenko | Agriculture | May 1978 | May 1980 |
| R. Matilo | Agriculture | May 1978 | May 1980 |
| A. Abotseng ^{1/} | Animal Health | May 1978 | May 1980 |
| T. Bathokebofe ^{1/} | Animal Health | May 1978 | May 1980 |
| M. Madimabe | Animal Health | May 1979 | |
| G. Legwaila | Agriculture | May 1979 | |
| S. Sefo | Agriculture | May 1979 | |
| L. Tlageland | Animal Health | May 1979 | |
| M. Nsinamwa | Animal Health | May 1979 | |
| N. Sebine | Agriculture | May 1980 | |
| A. Kebitsang | Animal Health | May 1980 | |
| E. Ndadi | Animal Health | May 1980 | |
| J. Mokgethe | Animal Health | May 1980 | |
| A. Moatshe | Horticulture | August 1980 | May 1983 |

^{1/}Did not return to BAC

The evaluation team concurs with BAC and project staff that Wolverhampton training has much to offer BAC faculty. The British High Commission has offered to fund a year-long course in in-service training methods for a BAC staff member. The evaluation team recommends that the offer be accepted. The Wolverhampton objectives and approach appear to be complementary to project objectives, but again, will provide a comparison with the SDSU approach thus broadening the Botswana staff's professional background.

It could be useful to BAC faculty to have additional in-service training. Typical courses might be:

1. Advanced audio visual aids development,
2. counseling of college-level students,
3. technical updates (in subject matter areas),
4. administration for course directors and department heads,
5. field seminars (conducted tours of Botswana development projects),
6. library use (after the library becomes more complete).

There are just some possibilities of what might be provided. The evaluation team suggests that as the project progresses and the precise level of funds for this activity becomes available, project personnel actively seek such courses. Other-donor support, as in the Wolverhampton program, might also be sought.

One of the candidates for long-term training is the Principal of BAC. There has been considerable discussion of the type and length of his training, including the alternative mentioned below. The evaluation team felt that there was sufficient reason for Doctoral-level training for the Principal, partially based on plans now taking shape within the GOB on the future of agricultural education.

There is a strong possibility that additional curricula (Agricultural Education and Home Economics) will be added at BAC. There is also a long-range possibility that a Faculty of Agriculture will be located at BAC. It is the evaluators' view that even to currently administer BAC, the Principal could profit from additional training and/or education in administration. There are several ways that additional administrative expertise can be developed. These include:

1. Short courses offered at sites in other nations;
2. Advanced graduate specialist certificates, or the like, offered by many major U.S. Universities (a planned program of thirty credits or one academic year beyond the Masters degree);
3. Doctoral study in educational administration.

The evaluators recommend that the BAC principal be sent to the U.S. for doctoral study as proposed in the Project Paper. The reasons for the recommendation follow:

1. If a university faculty is placed at BAC, the prestige of all the two-year programs would suffer if the Principal lacked academic training similar to that held by the Faculty of Agriculture personnel.
2. As the staff of BAC continue to upgrade their educations, there is likely to be an increasing demand for graduate-level training. A forward-looking personnel policy would dictate that the demand be met gradually by beginning now.

Administration

The evaluation brought to light several administrative areas which need to be strengthened. It is possible that some of these have been caused or exacerbated by the implementation of the project and will diminish at project completion. Nevertheless the team feels that all require attention to obtain maximum benefit from the project. Briefly, the areas are:

1. Staffing of the BAC;
2. communication both within the BAC and with the MOA;

3. teaching load distribution;
4. admissions;
5. student and staff evaluations;
6. women student enrollment.

Staffing of the BAC

Presently, there are forty-two staff members in Agriculture and Animal Health on BAC's vote from the MOA. In addition, there are five PR-Expert positions for the SDSU long-term personnel and three (1 PR and 2 T) positions on the MOA Department of Animal Health vote. Two of the PR-Expert positions will revert to the BAC vote when the positions are localized, bringing the total to forty-four. This is an increase of seventeen over the twenty-seven on the staff prior to the project.

At the time that the PP was written, it was anticipated that other donors would supply six expatriate personnel, three in Animal Health and three in Agriculture, to BAC during the life of the project. In fact, only three (one in Animal Health and two in Agriculture) have been provided. One, a Lecturer in Science funded by ODM, is scheduled to depart in September, 1981. Notwithstanding the addition of the OPEX Livestock person and the possible FAO funding of an individual to do follow-up work on recent graduates, this will leave a shortfall of personnel in the Science and Agricultural Communications areas (where a Motswana could not be found to fill the position) and other rather thinly staffed areas. The situation is temporary, as Batswana on long-term training will return to occupy their positions, now carried on the BAC vote. It would be very useful in this interim if the present and projected staffing pattern were detailed so that the MOA and Directorate of Personnel can review the situation and consider ways to ameliorate it. The team recommends that the Principal undertake this task and present the data as soon as possible, and that the MOA should consider supporting a request for supernumerary positions if necessary to meet the temporary shortfall. One final note on this issue: departure of the remaining BAC staff scheduled for U.S. degree training could be delayed if shortfalls in school faculty are not remedied. This delay could affect anticipated project completion date, so USAID should take an interest in this issue.

Another staffing problem that has arisen concerns the secondment of personnel from the Department of Animal Health to the BAC without consultation with the BAC administration. The Principal or his designated representative should be consulted in all matters of personnel at BAC, in the view of the evaluation team. It is felt that the turnover and some of the past placements (although not the present staff) have impeded the process of curriculum development in the Animal Health course. Working relationships have improved substantially, and the team is hopeful that this may extend to the issue of personnel placement at BAC.

Communication and Coordination

The evaluation team found significant gaps in communication among BAC staff, including project personnel. Even given the considerable amount of staff turnover, the team found that many staff members were unaware of the project purpose, progress other than construction, or the anticipated arrival of the short-term consultants and the purpose of their consultancies. A good example of this comes from the agricultural mechanics staff, who, when interviewed, were unaware of the anticipated arrival of a large amount of equipment for their new work area. The list of these commodities had been presented to the department head, but as none of the staff had inquired, and the list was not in final form, it was not circulated. The evaluation team does not intend in any way to single out this department, rather, the example is cited as typical of the flow of information.

In analyzing this problem the evaluation team has concluded that information has been treated as valuable good, and that the appropriate remedial course would be to intensify the flow of information to devalue it as a commodity. The team believes that this treatment of information has a historical basis in the formerly authoritarian structure of staff and student relations at the school. The change will likely occur gradually, and there has already been some progress, but it does need to be accelerated, especially with respect to the staff.

The team recommends that the following steps be taken to increase the flow of information:

1. Monthly departmental meetings should be held;
2. All-staff meetings should be held at least quarterly;
3. Information pertaining to all aspects of the project-curriculum revision, anticipated consultancies (dates and purpose), construction progress, commodity orders, staff changes and training - should be posted on the bulletin board in the Senior Commons Room. Other non-project information should be made available in the circulating file, as is now done, but should also be placed in the Senior Commons Room for more timely circulation. Both outlets for information should be updated weekly.

The team suggests that the SDSU Chief of Party be particularly responsible for implementing these recommendations.

The team found that in the initial round of curriculum revision in 1979, the Departments of Animal Health and Agricultural Field Services felt that they had been inadequately consulted concerning the proposed changes. The project personnel have revised their method of consultation, and personnel from these departments are now consulted much earlier in the planning process. In addition, the MOA persons directly concerned with the substance area worked on by each short-term consultant has worked to some extent with that consultant in developing curriculum materials. The team feels that the SDSU staff should intensify its consultation both with BAC staff members and line MOA personnel and

and recognize that it must be performed in a more iterative manner than the "review and comment" prevalent in the U.S.

In interviewing MOA staff outside the BAC, and in informal discussion with other ministries' personnel, the evaluation team found that while specific elements of the curriculum had been reviewed by specific individuals, there was a general lack of knowledge about the BAC programs. However, all were eager to contribute information on their specific activities should the opportunity arise. In view of this, the team felt that more of the guest lecturing that occurs from time to time at BAC would be appropriate, and that the number of staff seminars with MOA technical experts should be increased. In addition, copies of the course syllabuses should be sent to the relevant MOA expert to elicit contributions. Other ministries with rural programs might also be involved.

Conversely, it was felt that BAC faculty have much to offer the MOA field staff, and that intensified efforts should be made to provide more in-service training to the line MOA departments. For example, in the team's district visits, a specific request was received from the VA's for instruction on new drugs and dips that have become available.

Two more issues of coordination might be mentioned here. The first concerns the administrative relationship between the Agriculture/Animal Health programs under the MOA and the Community Development program under the Ministry of Local Government and Lands. The second concerns the multivariate extension services of the GOB and the need for BAC graduates to interact with other services in the field.

Although the Community Development program is not being expanded under this project, the BAC administrative responsibility extends to include it. The program shares procedures such as admissions, student and staff evaluation and some financial transactions as well as all physical facilities. Recent revisions in the Community Development curriculum have necessitated schedule and course content changes that have taken many hours of negotiation by the BAC administration and the two involved ministries to resolve satisfactorily for all parties. Thus, time and attention have been diverted from other, more productive tasks. The team strongly feels that a protocol should be established between the MOA and MLGL as to which decisions are to be taken by the school administration and which by the ministries. To the extent that more specific details, such as the curriculum content can be agreed upon while still allowing some flexibility, this should be done.

In regard to the multiplicity of extension or community-level services now proliferating throughout the GOB, it is felt that BAC students should not only be aware of the others, but should be introduced to methods of working in a collaborative manner. Students should know about the Village Extension Committees now being formed and what roles they will be expected to play. They should also know how and when to request assistance from regional representatives of various programs. As this is a rapidly changing area of GOB policy and program, the evaluators suggest that it would be helpful for the Principal to sit on the Rural Extension Coordinating Committee to keep abreast of the issues and to contribute from his position as head of three training programs for rural area service personnel.

Teaching Loads Distribution

BAC teaching loads appear to be somewhat unevenly distributed. Some BAC staff members have well over fifteen student contact hours per week while others have only three to six. Twenty-five to thirty student contact hours are common in U.S. elementary and secondary schools. The latter teacher-student contact ratio can also be found in post-secondary and technical institutions, where, in most cases, over 80% of the instruction is in laboratories and/or practicals.

BAC is teaching college-level subject matter. In most U.S. educational institutions, the higher the level of instruction, the more preparation time for lecture is required. Generally, in U.S. community colleges a full-time load in four-year colleges is typically twelve hours of lecture per week. Universities usually consider 9-10 hours per week a full load. Laboratories or practicals are generally counted on a 2:1 ratio with lectures, that is, two hours of laboratory equalling one hour of lecture.

Agriculture is a collection of dynamic applied sciences. New research results often change 10-20% of the subject matter of advanced classes in a year. Instructors must carefully study the current literature to see that their teaching is up to date.

Laboratories and practicals take significant time to prepare. This could be done with technical level personnel. However BAC has a shortage of technical level support (especially in the sciences, communications and animal health). Therefore senior personnel spend considerable time developing laboratory activities. It could be expected that additional preparation time for teaching would increase the likelihood of more up-to-date course content and use of specially prepared teaching aids for the classes.

BAC course content has been evaluated as community college (first two years of college) level by U.S. universities. It is reasonable to expect that optimum teaching loads for full-time BAC faculty should be determined at community college level, or approximately fourteen hours of lecture or twenty-eight hours of laboratory or a combination, thereof to equal a full-time load.

Similar optimum load figures could be developed for part-time staff. A half-time appointment (20 hours) would equal seven hours of lecture or supervision of fourteen hours of laboratory or practicals per week. Approximately two hours of preparation for each hour of lecture and one-half hour of preparation for each hour of laboratory or practical are necessary.

It is desirable for administrators with appropriate academic preparation to teach a limited load. This aids the administrator to know individual students in the school and assess their performance. It also assists the administrator to determine students' attitudes, concerns, and aspirations. It assures student-administrator feedback.

It is not likely that the Principal and Vice Principal will be able to teach each term at BAC because of their administrative responsibilities. However, it would be desirable for each to teach a course annually to first-year students.

The evaluation team feels that the Registrar, Course Directors and Department Heads should regularly teach. The amount should be less than the fourteen student-contact hours recommended for full-time faculty. The optimum amount of time available will be dependent on the administrative duties of each administrator. The evaluation team also feels that the development of optimum teaching load figures by the BAC administrator would point to load inequities and encourage more equitable distribution.

Admissions

The admissions procedures have been significantly revised over the past two years. The entrance examination now focuses on basic language and mathematics skills rather than on technical knowledge. Some of the oral examination questions have been changed. The selection committee travels to outlying areas to interview and test applicants. The BAC Registrar assumed his duties in September 1980, shortly before departing for short-term training with the Office of the Registrar, SDSU. In discussions with him, the evaluators learned of further plans to revise admissions procedures. The team endorses these, particularly the intent to allow a month to six weeks between notification of acceptance to students and the commencement of the term. The implication is that the entire admissions procedure will begin at least a month earlier than its present February timing.

Student and Staff Evaluation

As mentioned earlier, student evaluation is changing from a once-a-year final examination to more frequent testing of both a written and oral nature for a more continuous assessment of student performance. Student records will need some corresponding changes to provide for periodic reporting and in general for improved information. This has been noted by both BAC and project staff, but at the moment the latter problem is partially constrained by the cramped office conditions, expected to be alleviated by the completion of construction.

On the staff evaluation concern, little progress has been made thus far. A GOB personnel evaluation form is now in use, but a more qualitative, and perhaps more frequent form of evaluation should be developed in the remaining years of the project. This would also point out the need for various types of in-service training.

Acceptance of Women Students

With the 1981 entering class, women have been accepted into all three programs at BAC. This is an indication of commitment to employment of women in extension services, particularly by the MOA (MLGL has consistently had a large number of women community development workers). On the less positive side intake of women particularly into the Agricultural program, appears to fluctuate according to available dormitory space. The 1980 class included thirteen women, while the 1981 class has only eight, apparently due to lack of dormitory rooms for women, as they must all be housed in the same building. Thus far, women have been moved from a twenty-four-person dormitory to a fifty-person facility. It is difficult to perceive this as a major constraint, as both sixty-person

dormitories and the combination of the twenty-four and fifty-person buildings could be made available to women students.

The evaluation team was also informed that in some instances, less well qualified men were accepted while better qualified women were denied admission. As one of the objectives of the project is to upgrade the quality of personnel available for rural sector service, this does not seem the most sensible choice. It is recognized that the GOB's capacity to employ women in field service may restrict enrollment of women students, and a plan for placement of women might be requested of the Agriculture Officer/Women's Extension and the Director of the Department of Animal Health so that dormitory space will not be cited as the major constraint to increasing the enrollment of women.

External Factors

Recently, the MOA has entered into discussions with the Ministry of Education concerning the establishment of two additional programs, Agricultural Education and Home Economics, to the BAC. This would have obvious implications for the administration of the school as the responsibilities would be nearly doubled, and for the physical facilities. To the extent that discussions on this topic are proceeding, the present project is contributing administrative time and expertise but will not likely be directly affected by the outcome.

The team has considered the implications of the additions of the two curricula to BAC. The most immediate is the ministerial relationship between the MOA and MOE. Thus far, discussions are proceeding satisfactorily from the point of view of the BAC administration. The team again recommends, however, that a formal agreement be made between the two ministries concerning the delegation of certain authority to the BAC administration, if the two additional curricula are added to the program at BAC.

The team examined the implications for the college and for possible USAID support of each curriculum. For agricultural educators the need at the secondary level is somewhat limited because of the few (20) secondary schools in Botswana. Therefore in Botswana Agricultural Education would need few graduates. However, if Agricultural Education were introduced in the pre-Form 7 educational curriculum in Botswana schools, there could be a large demand for BAC graduates.

Current curriculum content at BAC in Agricultural Science, Communication, Science and Mechanized Agriculture would serve the Agricultural Education curriculum well. The main difference between the Agriculture diploma curriculum and Agricultural Education would be the substitution of teaching methods for extension methods and the substitution of student teaching and observation in the schools for part of the practical placements of the Agriculture program. If Agricultural Education were to start on a limited basis (i.e. in the secondary schools only) an Agriculture diplomate could be prepared in an "add-on" session of intensive teaching methods and student teaching. The latter would be a relatively inexpensive way to "pilot-test" Agricultural Education in Botswana in a pedagogically sound manner.

Another alternative that is being considered is two years of study at BAC, then one additional year elsewhere to complete the agricultural education preparation. The newly initiated Diploma program in Agriculture at BAC could be adopted without modifications if the educational psychology emphasis were added to the program as recommended elsewhere in this report. Four-year BSc training (U.S. model) does not appear to be cost efficient given level of instruction needed and the critical shortage of trained agricultural manpower.

The evaluation team feels that USAID should be cautious in supporting Agricultural Education for the current limited number of secondary schools in Botswana. The introduction of Agricultural Education in pre-Form 7 education might be a more viable alternative in the future.

Certificate and diploma level programs in Home Economics are also being considered for BAC. The existing Basic Science, Communication and Extension courses at BAC appear to be the only course offerings that could serve Home Economics students. Courses in Foods, Nutrition, Child Development, Household Equipment, Textiles, Clothing, etc., would need to be developed for the new curriculum.

Equipment required for a complete Home Economics program is relatively expensive and would require special facilities not available presently at BAC. Food preparation, clothing preparation, and household equipment entail a high recurring cost factor because of the regular wear caused by student use and the necessity to update equipment frequently.

The evaluation team can see no compelling reason to house Home Economics at BAC, given the physical facilities and projected capital cost, but most importantly, the absence of any data on the need for introduction of Home Economics instruction. It should be noted that the evaluation team did not pursue the justification of the addition of Home Economics course, as this was beyond the scope of the evaluation. Insofar as the addition of the Home Economics curriculum would affect the BAC expansion project, the team believes that it would further tax the administration, hinder the progress of the SDSU project, and tax BAC facilities. USAID support of such additional BAC expansion could be counterproductive to their current BAC investment. The team recommends that the GOB thoroughly assess the need for the cost implications of establishing the Home Economics program, and the appropriateness of BAC as the locale for this curriculum. It would not be appropriate, in view of its overall development strategy, for USAID to be involved in this activity at this time.

Other factors that will not directly affect the project outcome, but are germane to USAID's larger goal of strengthening extension services to rural areas, are the increased attrition rate of AD's to other than DAFS employment and the apparent disparity between the amount of training received by the Animal Health students and their duties as VA's.

The project is premised on the projection of a substantial differential between the number of trained personnel and the numbers of positions available by 1988 should BAC's capacity have remained the same. It was estimated that there would be a shortfall of 174 diplomates and 668 certificate holders in both Agriculture and Animal Health without the BAC expansion. These estimates were based on a 4% annual rate of attrition for AD's which has escalated to 6%. The VA rate has remained relatively low.

Some of the AD's have taken positions in the parastatals, but it appears that the private sector has expanded more quickly than projected. No exact figures on this growth, or on parastatal employment were available to the evaluation team, but the interviews held gave good indications that a perceptible shift has occurred. There may also be a push factor here, as AD working conditions are said to be very difficult. While at face value private sector employment may not contradict the project goal, it is doubtful that AD's so employed continue to work primarily with small-scale agriculturalists. USAID may wish to explore this issue further with the MOA to ascertain its view and plans, especially with regard to the affect on other programs, such as the Agricultural Technology Improvement Project.

In talking with VA's and instructors at BAC who had served as VA's, it became evident that the primary role of the VA at present is as an inoculator against cattle diseases. Inoculation campaigns occupy a minimum of six months' time in each year, during which the VA is usually away from his assigned area. Thus, it is difficult to perform any other veterinary services and almost impossible to extend other services to livestock owners for at least half the year. The evaluators questioned the need for the kind of in-depth training VA's receive in the BAC certificate program and were told that the last three or four years have been extraordinary, and that particularly with the eradication of foot-and-mouth disease, a normal schedule of activities can be resumed. The team suggests, as mentioned elsewhere, that consideration be given to improved in-service training for VA's, especially if more free time for extension service work is to become available to them.

Summary

Overall, the evaluation found that the project was very sound. It is making good progress toward localizing BAC, expanding student enrollment and upgrading the curricula, and is expected to achieve these objectives in a timely manner. Physical facilities, albeit delayed in construction, are expected to be completed within this calendar year. Project personnel are in place and seventeen short-term consultancies have been carried out. The curriculum development has generally proceeded quite well. All participants for long-term training have been identified, and ten are now studying in the U.S. while fourteen have been sent to UBS. Some of the administrative practices have been reviewed and revised, such as admissions and business office procedures. The evaluation team found no major deviations from any component of the project design.

The team did note some areas in which efforts might be intensified, or in which questions were raised. Most of the recommendations made by the team can be considered "fine-tuning" rather than major overhaul. The team has recommended that USAID not devote any additional project funds to construction of physical facilities. They have recommended that educational psychology be added to the curricula of all programs and that the short-term consultants and BAC staff devise behavioral objectives to guide them in preparation of course materials. In the area of training, the major recommendation was to diversify the U.S. institutions to which BAC participants are sent, and to send three or four more staff members than originally planned to the U.S. for degree

training. The administrative area poses some of the most difficult issues, as they are the most subjective. The recommendations in this area included increased communication among BAC staff and between the college and the MOA, preparation of a staffing pattern for the remainder of the project life, formal agreement among the ministries on campus as to the delegation of authority to BAC administration and the addition of a U.S.-trained veterinarian to the project staff.

Finally, issues external but relevant to the project were briefly considered. The establishment of Agricultural Education and Home Economics curricula were considered and a case made for the former but against the latter, especially with respect to USAID assistance. The attrition rate of AD's and the role of the VA were commented upon as well, as issues of which USAID should be cognizant in its efforts to support rural development in Botswana.

BOTSWANA AGRICULTURAL COLLEGE EXPANSION PROJECT EVALUATION (633-0074)

Findings and Recommendations (Draft)

1. Overall, the project appears to be on schedule and making good progress toward accomplishing its objectives.

2. There have been some problems with both cost of construction and timeliness. The cost overruns were addressed in a September 1980 amendment to the Project Agreement. The completion of the buildings in Phase II of construction will be approximately three months behind schedule, causing temporary overcrowding of some facilities. This is not expected to seriously impede project progress.

3. The technical assistance provided to the project appears to be of high quality.^{1/} To date, five long-term staff members and sixteen short-term (average length of stay: two months) have been provided for both curriculum composition and instruction. In addition, one Peace Corp Volunteer and one FAO Associate Expert have been provided to the BAC as instructors. Staff anticipated to arrive between May and September 1981 include: 1 Livestock Production Specialist (OPEX), 1 participant trainee with a B.S. in Animal Science, 1 Agronomist, 1 Agricultural Extension Specialist and 1 Plant Scientist (replacing present project Agronomist).

Issue: A CUSO position in Livestock Production, a UN position in Rural Sociology a Peace Corps position in Horticulture were to have been provided to the project. (The latter was not approved by the Directorate of Personnel.) In addition, an OSAS position is to be terminated in September 1981. This will leave a shortfall of staff in the Science and Agriculture Communications areas.

Issue: The team has observed some inequitable distribution of staff between the departments. Part of this is due to the vacancies left by the participants in long-term training in the U.S., but there is over-staffing in the agricultural mechanics area, for example.

Recommendation: The Principal and the Directorate of Personnel should agree on a scheme of staffing to adequately cover all areas of instruction until the last participant has returned from training. The Directorate of Personnel should be encouraged to allow supernumerary positions where there are temporary staff shortages.

4. Communication among BAC staff on all aspects of the project is extremely poor.

Issue: Although periodic reports on the progress of construction are given, staff concerned with laboratories or shops and corresponding equipment were not informed of construction and commodities to be provided under the project.

Issue: While the Course Director or Department Head might be aware of the timing and purpose of a short-term consultancy, the majority of the staff are not. Consultation with members of the staff below the course Director level has been difficult to gauge, due to high staff turnover the past two years.

^{1/} The Evaluation Team is awaiting the arrival of resumes for all project staff before making a more definitive statement.

Issue: Outside of the academic committee, staff are for the most part informed of curriculum changes without what they consider adequate consultation. It is apparent that there are different definitions of this among project staff and B.A.C. staff. In addition, the high staff turnover has created discontinuities in knowledge and understanding of changes.

Issue: Many staff members have not raised questions concerning the project with their supervisors. Questions were asked of the evaluation team for which answers have been available for some time among both project personnel and upper-level B.A.C. staff.

Recommendation: The flow of information in both directions must be increased. Quarterly or monthly meetings of the entire staff and at the departmental level should be held. Information pertaining to all aspects of the project - curriculum revision, anticipated consultancies (dates and purpose), construction progress, staff changes and training should be posted on a bulletin board in the Senior Commons Room so as to be more accessible to all staff members. The Chief of Party should be directly responsible for implementing this recommendation.

5. Communication with the MOA line departments - Field Services, Veterinary Health and Research - has improved significantly in the second year of the project. However, the team found that each technical specialist interviewed had suggestions for inclusions in the B.A.C. curriculum. In some instances, these individuals had been consulted by SDSU short-term consultants, and in no cases were their suggestions intended as a criticism of the present program.

Issue: There appears to be no regularized interchange between B.A.C. staff and MOA line staff at operational levels.

Recommendation: The B.A.C. and MOA should formalize consultations with the line staff. This will have a salutary effect on information flows in both directions. There are a number of possible forms this might take: brown-bag seminars, circulation of publications and in-service training materials; in-service training courses to be taught by B.A.C. staff; technical specialists invited to lecture to B.A.C. students as part of course syllabi at B.A.C. This might be expanded to information exchanges with rural programs in other ministries.

Issue: Curriculum changes initiated under the project have been completed in the Agriculture program. Potential improvements in the Animal Health curriculum have yet to be extensively explored under project auspices.

Issue: The secondment of the Course Director in Animal Health and the 15 instructors from the Division of Animal Health, MOA creates divided loyalties among the B.A.C. personnel in Animal Health.

Issue: Interest in funding a long-term position for a D.V.M. trained in the United States was expressed to the evaluation team.

Recommendation: A U.S.-trained D.V.M. (with specific training in tropical medicine) should be recruited for a short-term consultancy to assist the long-term SDSU staff member responsible for the Animal Health curricula. Should this person perform well, a long-term contract, using project funds, might then be tendered.

Recommendation: The staff for B.A.C.'s Animal Health program should be chosen in consultation with the Principal, as is done in the Division of Field Services.

7. The short-term consultancies have been valuable additions to the long-term staff expertise. With only two of the long-term project staff working full-time on curriculum development, these specialists have provided important subject matter expertise and an opportunity for a one-to-one working relationship with individuals on the B.A.C. staff. The written products left by the short-term consultants appeared to be valuable additions to the school's current certificate and future diploma programs.

Issue: With the exception of two products, behavioral objectives and student level were not clearly indicated.

Recommendation: Project and B.A.C. staff should jointly develop a list of behavioral objectives for each course. This would guide instructors in the selection of materials and teaching content and the remaining short-term consultants in preparing their reports.

8. To date, almost all of the project staff (long and short-term) have been drawn from the SDSU faculty and staff. SDSU has a comprehensive agricultural college, and the intimate knowledge that the long-term project staff have of the SDSU faculty and field professionals has given them an advantage in choosing well-qualified personnel. This approach is also consistent with Title XII objectives of involving tenured faculty expertise in overseas development work and strengthening the capabilities of U.S. universities to do this work.

9. All of the participants in long-term training under the project have been sent to SDSU. The team has discerned both advantages and disadvantages to this approach.

Recommendation: Strong consideration should be given to seeking training at other high-quality universities for the remaining participants to be trained under this program.

10. The Principal of B.A.C. is scheduled to begin long-term training toward a Ph.D. in Education Administration during the coming year.

Issue: Is this training necessary? It is likely that B.A.C. may become part of or attached to a Faculty of Agriculture. It is also likely that additional majors (Agricultural Education - Home Economics) will be added to the B.A.C. program. The Principal will require increased administrative expertise and professional standing appropriate to the head of a Faculty of Agriculture. Short-term training might provide part of the needed expertise. However it would appear that it would be more efficient and more important to B.A.C.'s future to have the Principal prepared at the doctoral level.

Recommendation: The Principal of B.A.C. should be supported for doctoral level education with a Botswana-based and conducted dissertation at a U.S. university, as was proposed in the original Project Paper.

11. Currently, no distinct educational psychology course offering is available to students. Agricultural Demonstrators, Veterinary Assistants and potential Agricultural Education and Home Economics graduates will function professionally as adult and youth educators.

Issue: Basic to the professional preparation of an educator is the study of how people learn. There is little B.A.C. emphasis on this topic.

Recommendation: An educational psychology course should be added to the various B.A.C. programs.

12. Discussions have begun with the Ministry of Education on the establishment of Agricultural Education and Home Economics courses at B.A.C.

Issue: Agricultural Education curriculum could be added to B.A.C. with a little modification of current AD curriculum offerings. The major modifications needed would be:

1. substitution of teaching methods content for the current Extension offerings. All other course work appears to be appropriate.
2. Modifying field placements for the ADs to include practicum in student teaching in schools now offering vocational agriculture.
3. Addition of a basic Educational psychology course on how youth and adults learn.

Recommendation: USAID may wish to consider funding the establishment of the Agricultural Education curriculum at B.A.C. This additional contribution to Botswana's potential for development could be instituted for relatively minimal investment to prepare faculty to direct the program.

Issue: Home Economics expertise is perceived as a need for Botswana homes and families. The Home Economics course as envisioned is relatively expensive, as it is distinct in content from other B.A.C. programs, unlike the Agricultural Education course. Home, clothing construction and kitchen equipment must be available for students' practicals. This should range from the most modern to simplest found in the remote parts of Botswana. Recurrent costs for this equipment would be high, as the equipment ages and becomes obsolete.

Recommendation: The GOB should consider commissioning a consultancy report on the cost and demand for the establishment of a Home Economics curriculum at B.A.C.

Issue: Even the existing B.A.C. relationship with the Ministry of Local Government and Lands is taking up a disproportionate amount of administrative time and attention. The additional relationship with the Ministry of Education implied by the new programs could disrupt the smooth running of the B.A.C.

Recommendation: Protocols between the involved ministries should be established and adhered to in the administration of the B.A.C. The GOB may wish to consider the separation of B.A.C. from any specific ministry affiliation at some future date.

13. According to the USAID controller, there is a surplus of approximately \$560,000 in project funding. Approximately \$100,000 will be used to fund the OPEX Livestock Specialist position, and \$180,000 will be "reimbursed" to the SAMDP for prior training of B.A.C. project participants. The team recommends that the remainder, approximately \$280,000, be used to fund a long-term U.S. trained D.V.M. project staff member and to train additional instructors for B.A.C. (NB: No provision was made for faculty attrition in the original training plan.)

14. The team understands that the following items will be addressed in the remaining years of the project:

- the establishment of an FAO-funded position to follow up on the field performance of B.A.C. graduates;
- training of an individual at Wolverhampton to provide in-service training to the B.A.C. staff;
- more equitable distribution of teaching loads;
- continued work on the student selection and admission process, so that, among other things, students are accepted six weeks in advance of the beginning of the school term;
- exploring the possibility of having the Principal sit on the Rural Extension Coordinating Committee;
- better orientation to the Botswana system of education for the short-term consultants;
- continued assignment of teaching duties to the long-term project personnel as necessary to relieve temporary shortages caused by absence of B.A.C. staff for training;
- an affirmative action policy to continue the upward trend in female student enrollments, consistent with the equal opportunity employment stance of the GOB;
- the dissemination of family planning information by the Ministry of Health as part of the orientation of all Agriculture and Animal Health program entrants.

LIST OF DEFINITIONS AND ACRONYMS

| | |
|----------|---|
| AD | Agricultural Demonstrator |
| AH | Animal Health |
| AID | See USAID |
| BAC | Botswana Agricultural College |
| Batswana | More than one person of Botswana citizenship |
| Botswana | The Country |
| DAFS | Department of Agricultural Field Services, MOA |
| DVM | Doctor of Veterinary Medicine |
| FAO | Food and Agriculture Organization, U.K. |
| GOB | Government of Botswana |
| MLGL | Ministry of Local Government and Lands |
| MOA | Ministry of Agriculture |
| MOE | Ministry of Education |
| Motswana | One person of Botswana citizenship |
| OPEX | Operational Expert, funded under SAMDP |
| PCV | Peace Corp Volunteer |
| PP | Project Paper |
| PR | Professional - Directorate of Personnel position designation for employees who hold degrees |
| SAMDP | Southern Africa Manpower Development Project |
| SDSU | South Dakota State University |
| USAID | United States Agency for International Development |
| VA | Veterinary Assistant |

LIST OF PERSONS CONTACTED DURING EVALUATION

| | |
|------------------|--|
| D. Everett | Chief of Party, Education Specialist, SDSU/BAC |
| V. Amann | Chief Agricultural Economist, MOA |
| T. Bare | Lecturer, Head of Communications, BAC |
| F. Bettles | Agriculture Officer/Women's Extension, MOA |
| K. Bingana | Deputy Permanent Secretary, MOA |
| L. Bush | Livestock Specialist, BAC |
| B. Busang | Assistant Lecturer, Head of Crops, BAC |
| R. Butterfield | Senior Instructor, Survey, BAC |
| Dr. G. Coleman | Senior Veterinary Officer, BAC |
| C. E. Hisayi | Course Director, Community Development, BAC |
| Dr. P. Iverson | Veterinary Officer, BAC |
| W. Jeffers | Communal Area Coordinator, Rural Development Unit, MFDP |
| E. J. Kemsley | Senior Lecturer, Head of Engineering, BAC |
| Mr. Kgomotso | Veterinary Assistant (Mochudi), MOA |
| L. King | Instructor, Animal Health, BAC |
| D. T. Leero | Instructor, Animal Health, BAC |
| K. Lesole | Lecturer, Science, BAC |
| Mr. Linchwe | Veterinary Assistant (Mochudi), MOA |
| S. Machacha | Instructor, Poultry, BAC |
| Mr. Mada | Veterinary Assistant (Mochudi), MCA |
| E. Makagwa | Chief Assistant Instructor, BAC |
| E. Maloiso | Principal, BAC |
| R. C. M. Matilo | Instructor, Extension/Soils, BAC |
| C. Matsheka | District Agricultural Officer (Molepolole), MOA |
| M. Manathoks | Deputy Director, Veterinary Field Services, MOA |
| P. Mazwiduma | Instructor, Engineering, BAC |
| A. Meie | Veterinary Assistant (Molepolole), MOA |
| T. R. Mloheli | Senior Assistant Instructor, Extension, BAC |
| M. Mokone | Senior Agricultural Economist, MOA |
| K. Mosetlhanyane | Instructor, Animal Husbandry, Training |
| K. Morriss | Horticultural Officer, Department of Field Services, MOA |
| M. Mosimanyane | Lecturer, Engineering |
| P. Nelson | Director, Agricultural Field Services, MOA |
| V. Pilane | Assistant Lecturer, Engineering, BAC |
| N. Raditapole | Course Director, Animal Health, BAC |
| D. Ramahobo | Head of Animal Husbandry, Acting Course Director, BAC |

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|---------------|---|
| D. Rankgate | Assistant Instructor, Crops, BAC |
| D. Rasmussen | Lecturer, Agricultural Economics, BAC |
| D. Reeves | Crops Specialist, BAC |
| J. Ratau | Veterinary Assistant (Molepolole), MOA |
| K. Ricks | Group Development Officer, MOA |
| G. H. Roberts | Senior Instructor, Survey, BAC |
| M. Seekene | Veterinary Assistant (Molepolole), MOA |
| J. Sesenko | Instructor, Science, BAC |
| T. F. Sibanda | Instructor, Head of Extension |
| S. Take | Livestock Officer (Mochudi), MOA |
| K. S. Tibi | Vice Principal, BAC |
| B. Tlale | Deputy Director, Agricultural Field Services, MOA |
| J. K. Tootoo | Senior Assistant Instructor, Crops, BAC |

TELEPHONE: 52381: 52384

TELEGRAMS: AGRICOLA

REFERENCE: BAC/D/9(b)



REPUBLIC OF BOTSWANA

BOTSWANA AGRICULTURAL COLLEGE

PRIVATE BAG 0027

GABORONE

ANNEX III

21st April, 1981

The Director
Agency for International Development
Box 90
GABORONE

(ATTENTION: JOHN PIELEMEIER)

Dear Sir,

BOTSWANA AGRICULTURAL COLLEGE EXPANSION PROJECT
USAID PROJECT NO. 633-0074
PROJECT EVALUATION

I have thoroughly studied the Botswana Agricultural College Expansion Project Evaluation Report by Joan Atherton and Clifford Nelson and I agree with the issues they raise in the project. I am also in agreement with their recommendations and I will in my capacity as the Principal ensure that these recommendations are implemented as far as possible.

Yours sincerely,

E. K. Maloiso
E. K. Maloiso
PRINCIPAL, B.A.C.