PD-AAE-443 15
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CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) — PART I

Report Control Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
Botswana Agricultural College Expansion	633-0074	USAID/Botswana

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) No. 1 FY 84-5

☒ REGULAR EVALUATION ☐ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 78	A. Total $ 12,114	From (month/yr.) 4/81
B. Final Obligation Expected FY 81	B. U.S. $ 8,430	To (month/yr.) 10/83
C. Final Input Delivery FY 86		Date of Evaluation Review 11/83

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. Confirm needs for any additional long-term technical assistance during the period remaining under the Project. If further T.A. required, recommend that it be considered through OPEX mechanism.	ADO USAID/B GOB	8/84
2. Assess: a) needs for additional BAC staff training in the U.S., b) funding availability, and C) the feasibility of completing such training prior to the project completion date; recommend training if feasible.	ADO USAID/B GOB	8/84
3. Development of a course catalogue at BAC.	SDSU/COP and BAC Faculty	8/84
4. Conduct of follow-up study of BAC graduates.	SDSU and BAC Faculty	8/84
5. Resolution of commodity procurement problems with assistance from REDSO/ESA.	ADO USAID/B and Procurement Officer, REDSO	7/84

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☒ Implementation Plan e.g., CPI Network
- ☐ PIO/T
- ☐ PIO/C
- ☐ PIO/P
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☐ Change Project Design and/or ☐ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Stafford Baker, USAID Engineer
Robert Maxwell, Agricultural Education Specialist
Handy Williamson, Agricultural Extension Specialist
Tom Taukobong, Deputy Chief, DAS, GOB
Joan Atherton, AID/W, PPC/PDPR, Eval. Team Leader

12. Mission/AID/W Office Director Approval

Signature: J. P. Guedet

Typed Name: J. Paul Guedet

Date: 7/11/84

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PROJECT EVALUATION SUMMARY (PES) - PART II

13. SUMMARY

The Botswana Agricultural College Expansion Project (633-0074) was authorized by USAID in September 1978, and implementation began in 1979. The project was designed to meet Botswana's need for lower and middle-level agricultural extension personnel by improving the training of these cadres. This training is accomplished at the Botswana Agricultural College (BAC). Under the project, the physical plant was to be expanded, commodities to enhance training were to be provided, training of local staff to the degree level or higher was to occur and technical assistance was to be provided to assist in curriculum design, instruction and improvement of administrative practices.

The project is now in its fifth year of implementation. With the exception of training, all components were due to be completed by the end of this year of the implementation plan. The project was designed, and the training and technical assistance aspects implemented, under a contract with South Dakota State University (SDSU) [1/] Commodities were procured via a contract with AAPC, Inc.; and the Government of Botswana (GOB) let two contracts with local firms for the construction. All contracts are due to be terminated by mid-1984. Thus, the project is being evaluated to determine if it has substantially achieved its stated objectives as it nears the end of its most active phase of implementation, and if not, to recommend courses of action that will result in successful project completion.

The evaluation team has found that implementation has generally proceeded very smoothly and that the project should achieve its purpose of establishing within BAC "a largely localized training institution capable of serving Botswana's rural sector needs for low and intermediate level personnel" by the 1986 project completion date. The project has been remarkable for its constant forward progress and relatively smooth implementation.

The evaluation team has recommended several actions or adjustments to the project to address concerns that have arisen during the course of the review. These include the following:

1. extension of the technical assistance component in selected areas (largely via the OPEX mechanism) to assure continuity until remaining Batswana return from training;

2. sending five or six additional Batswana for degree or advanced training to assure a thorough and adequate skills mix on the BAC staff;

3. development of a course catalog or similar document that describes in narrative form each subject offered in all BAC curricula and provision of short-term assistance under the SDSU p oject for compilation and editing;

1/ The SDSU contract will actually continue in a "residual" mode until 1986 to allow participant trainees to complete their studies.

4. the conduct of a follow-up study of BAC graduates; and,

5. resolution of commodity procurement problems by requesting assistance from USAID regional specialist officers.

Additional Findings

The team found that there are areas outside the scope of the project *per se* that will affect its ability to attain the goal of improving the welfare of Botswana's small-scale farmers and herders.

We have thus offered a number of wider-ranging suggestions for the GOB and possibly USAID to pursue. Among the suggestions were the following:

1. establishment of a separate and contiguous teaching farm for BAC under the administration of the Principal;

2. updating of the job descriptions of all animal health and agricultural field workers so that BAC can tailor its curricula and set behavioral objectives accordingly;

3. consider and try to more fully utilize BAC's potential to provide in-service training to field staff;

4. seek policy instruments to improve the linkages between the major departments and divisions of the Ministry of Agriculture (MOA); and

5. update the manpower assessment and training plans for the MOA.

It is the opinion of the team that all parties to project design and implementation are to be congratulated for an extremely well planned and executed activity. We believe it is a fine example of USAID's involvement of a Title XII university, of cooperation between the various entities, and above all, of realism in setting objectives for a development assistance project.

14. EVALUATION METHODOLOGY

This is the second and final outside evaluation of the project. The first external evaluation was conducted in March 1981, and that evaluation report was used as a baseline for the current evaluation. The final evaluation was conducted by a team consisting of five members:

Joan Atherton, AID/W/PPC/PDPR/RD, Team Leader
Stafford Baker, USAID/Gaborone, Engineer
Robert Maxwell, University of West Virginia, Agricultural Educational Specialist
Tom Taukobong, Department of Field Services, MOA
Handy Williamson, Tennessee State University, Agricultural Extension Specialist.

The team reviewed project-related documents, including the PP and mid-term evaluation report, administrative files, instructional and other materials prepared by project technical assistance personnel and materials prepared by BAC staff and administration. The physical plant, including the research/teaching farm, was inspected. The team interviewed instructional and administrative staff of BAC; members of the SDSU technical assistance team; other MOA personnel on the central staff, in line departments and in the field; and relevant USAID officers (See Attachment 1). Field site visits were undertaken in the Lobatse-Baralong Farm areas and in the Mahalapye-Serowe areas [2]/ to observe the work of DAFS and DAH field staffs via interviews with ADs, VAs, and their supervisors and a limited number of interviews with Batswana farmers. Project financial records were reviewed with assistance of the USAID Controller, and commodity procurement files with the assistance of the General Services Officer.

Issues were raised and discussed with relevant personnel as the evaluation proceeded. A listing of MOA policy concerns related to the project was presented for discussion to the Deputy Permanent Secretary, MOA at the midpoint of the evaluation. A draft statement of findings and recommendations was presented for review toward the end of the evaluation work. Responses to both documents were taken into account in preparation of the final evaluation report. Major Action Decisions were reviewed by the USAID Director (Acting) and the Permanent Secretary, MOA, prior to completion of the report.

15. EXTERNAL FACTORS

The major external factors presently affecting project implementation are changes in agricultural education that the GOB is proposing. It is almost certain that a diploma-level course for Agricultural Education at the secondary school level will shortly replace the Community Development and Social Work course now located at BAC. Further, the GOB appears to have determined that it wishes to establish a degree program in General Agriculture. The location and administrative authority of these programs has not been fully determined, but certainly closer working relationships between the Ministry of Agriculture and Ministry of Education are implied by the planning to date. The potential impact on the project is sizable -- staff and facilities may be focused on a higher level of training than the project envisioned. Even at present, the time and attention of the BAC administration and the SDSU Chief of Party are frequently occupied by these matters.

Another factor concerns the rate of attrition of Agricultural Demonstrators (ADs) from the Field Section of the Department of Agricultural Field Services (DAFS) within the MOA. At the inception of the project, vacant positions for agriculture and animal health

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[2]/ The team wishes to acknowledge its appreciation to Mr. I. Senosi, who accompanied us on our visit to Mahalapye and Serowe.

certificate holders stood at 155, and attrition was estimated at 4 percent. Although the vacancy rate has fallen significantly (approximately 80 vacancies exist in both services at present), the attrition rate of ADs has increased. No exact figures are available, but one estimate places it as high as 10 percent. It is clear that both private sector and parastatal employment opportunities for ADs have increased. Each of the latter two alternatives offers better benefits and career opportunities than does the Department of Field Services. The attrition of ADs has the potential to affect purpose achievement if it remains unaddressed. Steps should be taken to assure that MOA has accurate, up-to-date information on attrition, alternate sources of employment and benefit comparisons so that it can assess its alternatives to assure an adequate supply of field workers. The attrition itself is not deleterious to meeting small farmer and herder needs; but the DAFS needs, on which this project was premised, should be assessed and an appropriate course of action determined.

The availability of extendable technologies is another external factor that will affect goal achievement. Affordable innovations for resource-poor farmers remain scarce in Botswana, and the extension cadres will not be fully employed until such time as more appropriate technologies and techniques are produced.

The volatility of the construction industry during the period of project implementation was unanticipated during project design. The March, 1981 evaluation cited significant cost overruns in the construction. These remain a factor, as inflation escalated most during the design phase which had been completed by the time of the evaluation. Some of the losses incurred during that period have been recouped, however, by subsequent devalution of the Pula against the U.S. dollar.

16. INPUTS

Inputs as listed in the Log Frame are listed below with the related sections of Attachment A.

1.	Technical Assistance	Section V	Pg. 16-19
2.	Training	Section VI	Pg. 20-24
3.	E & C	Section III	Pg. 11
4.	Other Costs (Construction)	Section II	Pg 8-10

Major project inputs have been construction and commodities for expansion of the BAC physical plant, technical assistance, and training. Overall, inputs were provided in a timely manner and in appropriate quantity and quality, contributing to project success. Principal concerns with respect to inputs are the following:

1. As noted above, construction initially suffered from problems of inflation. There were also delays that caused overcrowding and inconveniences at the project midpoint, but these concerns have now been satisfactorily resolved.

2. Delays and inaccuracies have occurred in commodity provision utilizing AAPC, Inc. as the procurement services agent.

3. As discussed in the March 1981 evaluation, other donors (or other AID projects) were to have provided six technical assistance staff members to BAC during the life of project. Four of these persons were not provided, and the project changed the composition of its own technical assistance component to address some of these shortfalls. However, some areas are still extremely short of staff, which may cause a near-term problem in sustaining project benefits.

4. Only one of the three candidates originally identified for D.V.M. training has actually qualified for the training. One of the candidates for training in agricultural extension did not complete due to illness.

17. OUTPUTS

Outputs listed in the PP are as follows:

Staff trained
Facilities completed and equipped
Teaching materials developed
Curricula improved for certificate level
Curricula created for diploma level
Administrative procedures improved

The evaluation team estimates that about 90 percent of project outputs have been achieved to date. The remainder consists of staff training, which, according to plan, will extend to 1986. The team believes that the project will come very close to attaining 100 percent of its outputs, and that this is largely attributable to realistic project design and the extraordinary degree of coordination and effort exerted by all parties in project implementation.

18. PURPOSE

The purpose of the project is to "establish within BAC a largely localized training institution capable of serving rural sector needs". End of Project Status indicators, and the evaluation team's comments on each are:

1. Doubled number of certificate graduates. Comment: Achieved.

2. Institutionalized diploma program in animal health and agriculture graduating 27 students annually. Comment: Numbers may vary slightly each year, but on average, status achieved.

3. Staffed with 31 local staff members. Comment: There are now 45 establishment posts staffed by Batswana and an additional seven supernumerary positions staffed by expatriates. Six Batswana staff members remain out on training.

4. Staffed with localized administration with skills upgraded. Comment: All positions are localized and some skills have been upgraded. The team believes that the wording should be changed for this indicator to reflect institutional adjustments that have occurred. That is, rather than relying on individual skill upgrading the EOPS should focus on changes in systems and procedures that transcend individual incumbents. Many of these latter have been improved, and Annex 1 details additional improvements that might be made during the remaining life of project.

5 Curricula and teaching techniques which are practical training in skill areas relevant to GOB needs. Comment: Substantially achieved. Curriculum development is an ongoing process and procedures must be established to allow the process to continue on a regular basis after the end of the SDSU contract.

The team also notes that one of the assumptions at the purpose level, "attrition of graduates from BAC working at MOA remains the same," has not proved valid, as previously discussed in External Factors.

19. GOAL

The goal of improving the welfare of Botswana's small-scale farmers and herders can only partially be met by this project. The project will contribute to meeting the low and middle level trained manpower needs of the public, private and parastatal sectors. However, the goal is also dependent upon many factors beyond the scope of the project ranging from the development of extendable technologies to weather conditions to population growth rates to alternative opportunities for rural employment. The team has attempted a limited projection of the impact of the project on goal achievement in Annex 1, and has recommended a follow-up study of BAC graduates to more accurately assess the contribution toward the goal.

20. BENEFICIARIES

Direct beneficiaries remain BAC staff and students. Over thirty staff members have received training in conjunction with the project, and the team has recommended that five or six more be sent for training, depending on availability of funds. Staff have also benefited from close association with project technical assistance in curriculum revision, individual course development and administrative procedure revision. New staff housing for approximately one-fourth of the current staff complement was constructed during the project.

Students have benefited through increased quality of education. They have enjoyed improved physical facilities for working and living, better equipment, improved course material, a more highly educated teaching staff and a more interactive learning environment.

Indirect beneficiaries have been the GOB and the farmer/herder population. The GOB has a higher quality employee and Diploma

programs tailored to Botswana's particular animal health and agricultural situation. Farmers and herders have begun to benefit as new graduates enter field service. The team has noted that extension techniques are a particular area of improvement -- new BAC graduates frequently employ group formation and other methodologies learned at BAC to reach farmers. Further benefit to the rural population must await improvements in terms of service for ADs and VAs (i.e., housing, transport, support staff, etc.) and affordable innovations developed by research and/or specialty services of extension.

21. UNPLANNED EFFECTS

No major ones noted.

22. LESSONS LEARNED

1. Management of the large construction component of the project was made difficult because it was acomplished through brief visits by many different AID engineers from outside the Mission. Missions should consider having a full time engineer on their staff to manage large construction programs starting from the preliminary design and cost estimating stages.

   Other project management, by contrast, has been remarkably consistent by AID standards. This has contributed to steady progress in achieving project objectives.

2. The team agrees with the finding of the March 1981 evaluation that project implementation by a Title XII university has been entirely appropriate. We believe that U.S. land-grant universities have a comparative advantage in vocational agricultural education, and that this has been amply demonstrated by the design (collaborative mode) and implementation of the project. It has established an institution-to-institution relationship that we feel will be sustained beyond the life of the project.

3. The team believes that a key element of project success has been the realistic project design. The project designers identified a concrete demand for more low-and mid-level skills in agriculture and an existing institution capable of being enhanced to meet that demand. The project essentially used an approach of providing advisors or instructors, and not requiring a large number of highly trained counterparts who would be removed from other duties to concentrate exclusively on satifying donor requirements. The timing of project inputs and outputs was realistically assessed so that as of this evaluation the project remains generally on schedule. With the exception of construction, costs were accurately estimated, and the project does not impose a recurrent cost burden on the GOB that is beyond its financial means. All of these factors have contributed to a "double" effort from which all parties to the project should draw a valuable lesson.

ATTACHMENT A

BOTSWANA AGRICULTURAL COLLEGE EXPANSION PROJECT
FINAL EVALUATION REPORT

I. Introduction

The final evaluation of the Botswana Agricultural Expansion Project (633-0074) has concentrated primarily on determining the overall impact of the project on the stated purpose, and on assessing the sustainability of the benefits after the project officially ends. It takes as its baseline the mid-term project evaluation carried out in March 1981 and looks at progress since that date. It then assesses the likelihood that the achievements will remain intact or continue to grow beyond the project completion date.

The evaluation took place in October-November 1983 to allow for a small amount of fine-tuning before the contract for training and technical assistance with South Dakota State University (SDSU) and other commodity and construction contracts end (approximately mid-1984). The actual project completion date, however, is January 1986, to allow for the return of all Batswana trainees to post.

The authors of this report include Dr. Robert Maxwell, Agricultural Education Specialist; Dr. Handy Williamson, Agricultural Extension Specialist; (See scopes of work in Attachment 5) Mr. Stafford Baker, USAID/B Engineer; and Ms. Joan Atherton, Anthropologist and Team Leader. Significant Assistance in preparing the report was given by Mr. Guy Gibson, USAID/B General Services Officer; Mr. James Brody, USAID/B Controller and Dr. Duane Everrett, Chief of Party, SDSU and Mr. Tom Taukobong, Deputy Chief, DAFS, MOA. A list of persons contacted appears as Attachment 1 and indicates additional personnel who assisted in the preparation of this annex.

Overall, the authors found the project making excellent progress toward its stated purpose of establishing within the BAC "a largely localized training institution capable of serving Botswana's rural sector needs for low and intermediate level agricultural personnel." The report is divided into several sections. Although all aspects bear on the question of sustainability over time, the first six sections, construction, commodity procurement, curriculum, technical assistance, training and administration, deal more closely with the impact of the inputs and outputs on the project purpose. The two final sections that treat the field duties of BAC graduates and general issues speak more directly to sustainability and eventual achievement of the project goal.

II. Building Construction Program

Close to 40% of AID project financing was budgeted for construction and renovation of physical facilities to support the expansion of the BAC. The last building was completed in September 1982, almost a year and a half later than had been scheduled in the PP. Most other buildings were completed six months to one year late.

However, two critical buildings (Classroom #1 and Dormitory #1) were completed nearly on schedule and BAC administrators were able to secure temporary accomodations that allowed them to carry out the expansion of enrollment and educational programs as planned in the PP.

TABLE I

Contract	Facility	Completion Date
Phase I	Classroom #1	FEB 80
	Dormitory #1	JUL 80
	Dormitory #2	MAR 81
	Dormitory #3	AUG 81
	Laundry	JUN 81
	Kitchen/Dining	SEP 81
Phase II	Classroom #2	JUN 81
	Administration	FEB 82
	Teaching Staff	FEB 82
	Staff/Commons	FEB 82
	Visual Aids	FEB 82
	Science Lab	MAR 82
	Library	APR 82
	Animal Health	JUL 82
	Engineering	SEP 82

The following table compares the implementation schedule in the PP to actual accomplishments:

TABLE 2

	PP	Actual	
	Estimate	Phase I	Phase II
Award Design Contract	OCT 78	DEC 78	DEC 78
Issue Construction Tender	JAN 79	JUL 79	APR 80
Award Construction Contract	APR 79	SEP 79	AUG 80
Completion Phase I	JAN 80	FEB-JUL 80	
(1st classroom & dorm only)	(10 mos)	(6-11 mos)	
Completion Phase II	FEB 81		JUN81-SEP82
	(23 mos)		(11-26 mos)

The table shows that estimates of construction periods were reasonably accurate and that overall delays resulted from serious underestimates of design time requirements. The PP estimated 3 to 4 months for the complete design when it actually required 8 months to complete Phase I and 17 months to complete Phase II designs.

Underestimates of architectural design requirements and of Pula/dollar exchange and construction inflation rates resulted in construction costs more than double the estimates in the PP ($2,462,600 PP estimate; $5,652,400 August 1980 estimate). The cost increases were shared by AID and the GOB. Final costs will not be known until the claims submitted by the two main contractors on the project are settled. In dollar terms, the final costs will probably be less than the August 1980 estimate because of the devaluation of the Pula in 1981. To date, AID has obligated $3,558,300 and expended $3,255,006 for the building construction.

The building program was implemented during an extremely volatile period for the construction industry in Southern Africa. Inflation rates varied from 15% at the time of the PP design to 24% at the peak of construction activity. The Pula/dollar exchange rate (P1.00 = $1.21 at the time of the PP design) ranged from a high of P1.00 = $1.36 to a low of P1.00 = $0.90 during the construction period. Construction contractors were so active in Botswana when the contracts were awarded, that competition was minimized (only 2 bids were received on Phase I and 3 on Phase II).

The first evaluation of the project in March 1981 pointed out that AID monitoring of the construction program had been less than optimal. Four AID engineers were involved at different times in reviews and approvals of preliminary designs, cost estimating, final designs, tendering and award stages. None were resident in Botswana or particulary experienced in Southern Africa. Even though the period of the construction program was unstable, it is likely that monitoring of the program by a single engineer with more experience in the region could have reduced the cost overruns and delays.

III. Commodity Procurement

Approximately $520,000 have been obligated for procurement of commodities under the project. Most of the purchases were made to furnish and equip the expanded physical plant. A few commodities were items such as library and other training materials. A PIO/C for $161,000 was issued to a Procurement Services Agent (PSA) and subsequently amended to a total of $234,000. About $80,000 of locally purchased items were funded under a separate PIO/C.

Although the overwhelming majority of the items have arrived intact and are acceptable, project and AID staff are currently experiencing difficulties in securing the PSA's cooperation to address problems on 43 pending items. The problems range from inappropriately shipped items to damaged or missing items. Check-in and uncrating of items were delayed by lack of storage space at BAC. The files at USAID are not complete and the commodities issues have been passed to a number of different offices for action; thus there is little institutional memory. As timing is important for insurance purposes, it is imperative that the outstanding commodity issues be resolved as quickly as possible. The team has examined the files, and the Mission General Services Officer has compiled a complete list of items received. Action will require both procurement and legal advice, however, and the team recommends that services of the REDSO/ESA Procurement Officers and Regional Legal Advisor be requested as expeditiously as possible.

IV. The BAC Curriculum

Curriculum development is a continuous process and the following observations apply only at this point in time, as the majority of the work under this project nears an end. A great deal of time and TA have been consumed in the process of developing the present courses of study at BAC. The courses compare quite favorably with others in comparable country settings. The curriculum revisions that have taken place during the project have been performed in a cooperative manner with the GOB and have referred to country needs and government policies as guiding factors. The net effect of these changes has been to produce a more viable extension worker for the government services.

The present mix of time spent in theory instruction and practicals is acceptable, approximately 50% in each. One also should keep in mind that the division of some subjects into theory and practical is rather arbitrary. In most cases of technical training one should error on the side of the practical training, as this aspect will dominate the future job descriptions of the vast majority of trained students. In the four courses of study at BAC that AID has assisted[1]/, average time spent in instruction varies from 32 to 35 periods per week out of a total available of 40 periods. Theory instruction varies from 15 to 18.5, and practical instruction from 14.7 to 18.2 periods per average week. This information is summarized in Table 3.

Evaluation of student performance is based on both continuous assessment and final examination grades. The balance of contribution from these two sources is roughly equal - 50/50. This represents considerable change and adaptation during the life of the project - i.e. at the outset the students's grades were mainly based on essay responses on year-end comprehensive examinations. Now the balance has changed toward continuous assessment and much more objective short-answer types of evaluative testing. This represents positive change and would make BAC very comparable to similar institutions in similar settings in terms of student assessment and evaluation.

At present, job descriptions for certificate holders and diplomates in the field services of MOA are not only imprecise but are inadequate for accurate field utilization. It has been difficult for BAC to develop a specific list of needed skills in any of the

TABLE 3

COURSE	AVERAGE PERIODS PER WEEK - SIX TERMS	TOTAL PERIODS
Practicals	Inclass/ Theory %	% Available
Agricultural Certificate 18.2 53	15.7 34/40	47
Animal Health Certificate 16.5 47	18.5 35/40	53
Agricultural Diploma 14.8 46	17.2 32/40	54
Animal Health Diploma 14.7 46	17.3 32/40	54

[1]/ This report concerns only the Animal Health and Agriculture programs at Certificate and Diploma levels. The Social Work and Community Development Program is also located at BAC, but has not been a direct recipient of AID assistance under Project 633-0074.

courses under these conditions. This situation is not unusual or unique, but should be addressed during the remaining life of the project. In the meantime, it is clear that BAC is trying to develop skills, understandings and appreciation which are very comparable to other institutions in similar circumstances. Particular reference will be made later to the college teaching farm and the job descriptions.

The breadth and depth of curriculum content is more than adequate for training at the Certificate and Diploma levels. The subject matter presently contained in all syllabi is more than can be adequately taught in a two year period. There is considerable pressure to extend the diploma program by a full year, making it a three year program. The evaluation team supports this effort to provide sufficient time for appropriate topics to be taught in the necessary depth, but with a word of caution. It is imperative that a formal curriculum development process be followed to justify the range and depth of topics necessary to meet the job description prior to adopting a series of changes in range and depth of teaching. This includes a full-blown effort to analyze the job requirements of ADs, VAs and supervisory personnel trained to the Diploma level. Such an analysis might even result in a move in the opposite direction, shortening rather than lengthening training time.

In general, the evaluation team found the range of topics in both the Certificate and Diploma programs quite acceptable. It will only be possible to examine in detail the depth-of-teaching issue at the Diploma level when current BAC graduates have been in post for some time and a careful analysis of job performance has been made. A follow-up study should be planned to accommodate this examination. At the Certificate level, there are definite constraints of language ability and educational background that provide the guidelines for depth of teaching. We believe that the present levels of difficulty are about right and should continue until entry requirements change dramatically. We feel that the capability of incoming certificate students to absorb, internalize and adapt new information is being pretty fully exploited at the moment.

Curriculum-Related Issues

1. BAC must produce a document that clearly outlines the curriculum in each specialty, and includes a summary of content for each course within the overall curriculum, particularly at Diploma level. Many of the top 50% of the diplomates will be engaged in further training in the future, and the availability of detailed course descriptions will have value in the admission procedures for these students. The basic utility of this exercise will be to cement course content into place at this point so that it becomes general information to students, teaching staff and outsiders. The course catalog would then have to be periodically updated in a similar exercise as the curriculum is revised.

2. Course descriptions give one an idea of what is intended. Observations and discussion with students and teaching staff give one an idea of what is actually happening. It appears to the team that a new emphasis should be given to the portion of time set aside for practical work in nearly all of the courses taught at BAC - both Certificate and Diploma. The quality of practicals, given the amount of time allocated is impacted by the distribution of time between gearing up for practicals e.g. transporting students to and from location of farm enterprises and actual hands-on operations.

3. Everything considered, BAC staff have done well on the practicals, given the constraints under which they have had to operate. During much of project implementation the labs and some of the practical teaching facilities were being developed and equipped. Practical instruction in the new facilities has improved immensely. However, farm-related practicals have had to be conducted in facilities with research, all of which are managed under the auspices of the Estate Management Unit (EMU). The Principal of BAC has had no control over the conditions for his teaching staff and trainees. Research work and its own mandate have priority in EMU's activities, and the teaching practicals in the farm for BAC students has suffered grievously. The teaching of farm practicals has also suffered from mandated cuts in transport facilities and from the extended drought.

   The team visited the range management unit and found it to be considerably distant from the classroom complex. Given the cutback in available vehicular transport and the distance for walking, one can conclude that too much of the available time is consumed getting to and from the practical sites. Other practicals locations visited (on the Estate Farm) by the team were the Horticulture section; the beekeeping laboratory area; the poultry and swine management units; the small ruminant compound; the dairy cattle operations barn and facilities; the holding area for draft oxen and donkeys, and the field crops section for arable farming. The mix of exposure to practicals on the Estate Farm appears alright on the surface, but the quality of individual student exposure is limited due to quality of operations and amount of time spent by students in the actual operation of these enterprises.

   Although BAC cannot control transport cutbacks or drought, it appears that MOA could make changes in the farm management at Sebele to allow BAC more authority. We recommend that a separate and contiguous farm for teaching purposes be established at Sebele under the direct and assigned control of the Principal of BAC; and that henceforth all farm practicals for BAC students be conducted on this farm. The team believes that the benefits of such a farm can be shown to outweigh the additional recurrent expense in the BAC budget. Student quality due to improved practicals will address a frequently voiced field criticism. A separate teaching farm could

accommodate all practical agricultural training (including the Agricultural Education Diploma and the B.Sc. degree programs) at the same teaching farm, thereby saving the cost of establishing and maintaining more than one facility. Finally, the students might then be required to spend some time each day on routine farm maintenance as a matter of both pedagogy and defraying some of the costs of farm upkeep (See Section VII.G). The recommended teaching farm in and of itself will not guarantee high quality practicals, but it will shift the responsibility for this qualitative factor to the right person - the Principal.

4. As was pointed out earlier, curriculum development is a continuous process. At the moment there is no clearcut procedure for the involvement of the concerned parties in this "process." It is recommended that a permanent curriculum committee/panel/advisory board or group be formed that meets regularly once each year to consider changes and revisions of the curriculum for all courses. This group should have representatives from Research, Field Services, Animal Health and teaching staff of BAC and be chaired by the Principal. The training of human resources is a costly and very important exercise, and the continuous development of appropriate curricula should be taken seriously and methodically. Without established procedures for this important activity at BAC, curriculum development will continue to be ad hoc and sporadic - mainly reacting to criticism from the user clientele. With an established procedure, appropriate membership for the group, and regular meetings, BAC can take the initiative in making needed changes, thus having a preventive maintenance approach to good training curricula.

5. The organization and management of the BAC library leaves something to be desired. BAC should approach Personnel with a request for a professional librarian under the supervision of the BAC Principal. The library should be managed for the benefit of the students. This means that it should be open and staffed during the times that students have access; full hours during the evening and on the weekends, with a qualified librarian who can respond to needs of teaching staff and students, who can process acquisitions, and who is prepared to deal with a technical subject. The present arrangement with the National Library for a librarian qualified at secondary level is not acceptable for a post-secondary training institution.

6. At the outset of this project, there was a clear expectation from MOA and AID project designers that graduates of both the Certificate and Diploma programs particularly in Agriculture would be utilized in extension activities in the Field Services Department of the Ministry. It now appears that this is not entirely the case. Several graduates are posted each year directly to other sections of the Ministry such as specialist services, Planning and Statistics, Research, etc. There is also a good bit of discussion about the extension role of the VAs and the Animal Health diplomates. MOA should convene a session of its directors in the near future to revise and update the job descriptions for certificate holders and

diplomates in both Agriculture and Animal Health. With accurate job descriptions, BAC could immediately begin to develop behavioral objectives with a task orientation for their courses. At the moment, it is impossible because of the confusion as to "what we are training for."

V. Technical Assistance Provided under the Project

As of early October, 1983, a total of 259 person months of long-term technical assistance and 43.75 person months of short-term technical assistance had been provided at BAC under the project (See Tables 4 and 5). In addition to the long-term TA under the USAID/SDSU contract, other agencies such as Peace Corps, ODA (UK), the United Nations, Danida, the Netherlands, the Baptist Church and other USAID projects have in total provided 251 person months of technical assistance to the on-going program at BAC over the past four years.

The team has concluded on the basis of performance and acceptance by professional peers at BAC that the contractor has selected a uniformly high quality group of professional personnel for posting to the BAC project. These individuals have been committed to the specific goals and objectives of the project, and have performed well in their roles. Very careful selection has been the rule. While in several cases, candidates did not possess the terminal degree in their specialty, their emphasis has been on the practical, "doing" side and this has served the contractor, the Mission and the BAC quite well. Nearly all candidates have had recent professional experiences that served as a good foundation for their assignments in Botswana. Their publications have been widely received in professional journals and are mainly directed at practical problems that agriculturalists face in any part of the world. By and large the contractor has done an excellent job in staffing both long-and short-term technical assistance personnel.

TABLE 4

LONG-TERM PROJECT PERSONNEL

Name	Major Area of Expertise	Arrival	Departure
Duane Everrett	Chief of Party	4/29/79	
Dale Reeves	Techncial Assistant Agronomy & Extension	4/29/79	5/5/81
Leon Bush	Technical Assistant Livestock	5/6/79	8/5/83
Richard Butterfield	Range Management Lecturer	9/1/79	8/22/81
Thomas Bare	Agricultural Communications Lecturer	7/18/80	7/18/82
Paul Carson	Technical Assistant Agronomy & Extension	6/2/81	6/3/83
Lloyd Hanson	Extension Lecturer	9/4/81	
Daniel Miller	Veterinary Lecturer	5/17/82	
Ron Thaden	Agronomy Lecturer	6/3/83	

TABLE 5
SHORT-TERM CONSULTANTS

Name	Expertise	Arrival	Departure
P. Carson	Soils	9/2/79	10/28/79
W. Wolpert	Business Management	9/23/79	11/18/79
J. Waples	Horticulture	10/15/79	12/9/79
W. Gardner	Plant Pathology	10/15/79	12/6/79
C. McMullin	Biology	10/15/79	12/9/79
D. Dearborn	Administration	11/30/79	12/23/79
J.S. McCarty	Animal Science (Beef Breeding)	2/1/80	4/16/80
L. Hansen	Extension	2/1/80	3/30/80
R. Broschat	Math	2/1/80	3/30/80
R. Walstrom	Entomology	2/3/80	3/30/80
C. Hanson	Ag Engineering	3/30/80	5/30/80
D. Zlab	Chemistry	3/24/80	5/23/80
M. Owens	Dairy	4/25/80	6/20/80
R. Wahlstrom	Livestock Nutrition	7/11/80	9/2/80
M. Horton	Irrigation	10/10/80	11/30/80
J. Fiedler	Business Practice	2/8/81	4/3/81
J. Minyard	Beef Production	4/3/81	6/3/81
L. Raney	Library	10/18/81	12/15/81
J. Zajicek	Communications	6/14/82	12/22/82
H. Gilbert	Economics	6/24/82	9/1/82
S. Berg	Administration	12/12/82	12/17/82
J. Zajicek	Communications	2/21/83	6/3/83

Most of the personnel assigned to this project have not had prior experience in Africa. They did receive orientation in the U.S. prior to their departure for post, and orientation was carried to the more specific conditions in Botswana upon arrival in country. The record that the technical assistance team has accrued shows that they do have the ability, the willingness and desire to adapt their technical knowledge and prior experiences to this new situation. This has been a critical factor in their success as members of the overall BAC team. They have demonstrated their ability to work with, and learn from their Batswana colleagues, and to adapt their materials to the local scene. This is not to say that there is not room for improvement, but this ability to learn and adapt has grown steadily throughout the life of the project.

Overall, the quality of the technical assistance provided by the contractor has been excellent, and deserves commendation. A number of issues are presented that relate directly or indirectly to this general topic.

1. The present technical assistance staff members are programmed to leave in the middle of the first term (April 1984). The evaluation team feels strongly that all present members of the contract team should be requested to extend their tours until the end of the first teaching term, June 1984, and complete all the grading of papers and recording of grades for that term.

2. It appears that there will be a period when additional technical assistance will be needed before BAC teaching staff return from long-term training overseas. The evaluation team feels there is a need for continuation of technical assistance in the areas of range management, crop production, extension and veterinary science. We recommend that the OPEX vehicle be used to provide two further years for the veterinarian position, two further years in the extension training position and one additional year in the range management/crop production position - a total of five years of OPEX assistance. Additional requests for technical expertise in areas as soil conservation, library science or farm mechanization may be considered.

   The OPEX mechanism has been chosen because it allows more direct supervision of the individuals by the Principal. the team feels that BAC has, in effect,"graduated" as an institution, and no longer needs the intensive support provided under the present SDSU contract. The team believes that solid institution-to-institution linkages have been formed between BAC and SDSU, and that these will continue after the end of the formal contract.

VI. Training

At the time of this evaluation the project had provided 410 person months of training to BAC teaching staff, directed toward degree or post-graduate degree attainment (Table 6). A further 14 person months of short-term training had been provided under the project (Table 7). In addition, other projects or agencies had provided 115 months of degree training and 178 person months of diploma training, and a total of 14 person months of short-term job-specific training for BAC teaching staff.

The project sent 12 individuals out for degree or M.Sc. training, and three were sent for pre-vet training. Three others were sent for degrees under USAID's Southern African Manpower Development Project (SAMDP). Under other funding, 14 persons were sent for diploma training (Table 8) all of whom have returned, although seven of this total were assigned elsewhere in MOA, not to BAC. Of those sent under project auspices for degrees or post-graduate training, ten B.Sc. have returned, three M.Sc. and none of the proposed DVM holders have returned. Of those remaining in the U.S., one is engaged in veterinary training leading to the DVM, and a further six are involved in B.Sc. and M.Sc. programs. Under the present funding arrangement it is planned to send a further three individuals for M.Sc. training in early 1984.

A good number (69%) of these total trainees selected for overseas training under the project have gone to the contractor's home institution. In the last two years there has been a definite attempt to diversify the choice of training institutions as reflected in Table 6. At present, 31 percent of the trainees at B.Sc. level or above have attended institutions other than SDSU. The team believes that the principle of diversification of training sites should be continued for any additional trainees supported by project funds.

As a general comment, one can say that most of the training at undergraduate level has been as relevant as possible. No institution in the U.S. has a specialized undergraduate program directed toward Botswana. Further, most undergraduate degrees in the U.S. land-grant system are degrees in general agriculture. The majority of course work taken at this level is common or core to degree requirements, with only a small portion (20 - 25 credit hours out of a total of 130 - 140) being really discipline-specific. A great deal of responsibility rests with the individual student to adapt the principles learned in the core courses to his specific field of endeavor. It would appear that the Batswana returning from further education in the fields of range management, animal science, agriculture economics, crop agronomy and soils, etc. have been able to make this adaptation to the local scene.

TABLE 6
BAC STAFF DEGREE TRAINING

Name	Institution	Degree	Major	Departed	Anticipated Completion	Completion
K. Mosetlhanyane	New Mexico State U.	BSc.	Animal Science	5/78	9/81	
D. Ramahobo	Prairie View A&M	BSc.	Animal Science	5/78	5/80	6/80
K. Mogotsi	Texas Tech	BSc.	Agronomy - Hortic.	12/78	5/82	1/83
			Extended to M.Sc.	1/81		
Joseph Omphile	SDSU	BSc.	Range Management	8/79	12/81	5/82
Peter Rabanna	SDSU	BSc.	Animal Science	8/79	5/82	5/82
M. Rabarokgwe	SDSU &	BSc.	Animal Science	5/82		
	Tuskegee	DVM	Veterinary		5/85	
Florah Tladi	SDSU	BSc.	Ag. Communication	12/79	12/82	8/83
Ricks Chabo	SDSU	DVM	Veterinary	12/79	5/86	12/81
Mike Sekambo	SDSU	DVM	Veterinary	12/79	5/86	12/81
Mick Mahabile	SDSU	BSc.	Agricultural			
			Economics - Math	12/79	12/82	12/82
Dan Seabo	SDSU	BSc.	Animal Science	7/80	5/83	5/82
Pat Sinombe	SDSU	MSc.	Agricultural	8/80	5/82	12/82
			Economics			12/82
P. Motsepe	SDSU	MSc.	Agricultural Science	1/81	12/82	8/82
B. Busang	SDSU	MSc.	Plant Science	8/81	5/83	
R. Matilo	U. of Ariz.	BSc.	Agricultural Ext.	1/82	5/85	
John Sesenko	SDSU	BSc.	Science	8/82	5/84	
S. Machacha	Kansas St.	BSc.	Soils	8/82	5/85	
G. Legwaila	Kansas St.	BSc.	Crops	8/82	5/85	

TABLE 7

SHORT-TERM TRAINING

Participant	Institution	Length of Time	Topic	Departure	Return
Makgwa	Nat'l Agric. College [1]/ Netherlands	10 mos.	Mech. Ag.	8/79	6/80
E. Kemsley	South Dakota State U.	6 wks.	Registr.	8/80	10/80
E. Kemsley	Kenya Nat'l Acad. for Advan. of Arts & Sci., Nairobi, Kenya	1 wk.	Agric. En.	1/80	2/3/80
Mosenyane	Wolverhampton (U.K.)[2]/	4 mos.	Teach. Skls	9/81	12/81
T. Mlobeli	South Dakota State U.	11 mos.	Extension	1/83	11/83
J. Tooto	Rutgers University	1.5 mos.	Horticult.	7/83	8/83

[1]/ Funded by the Government of the Netherlands.

[2]/ Funded by the Government of the United Kingdom.

TABLE 8

DIPLOMA BAC STAFF RECEIVING DIPLOMA TRAINING

Name	Major	Departed	Completion
J. Sesenko	Agriculture	May 78	May 80
R. Matilo	Agriculture	May 78	May 80
A. Abotseng*	Animal Health	May 78	May 80
T. Bathokebolfe*	Animal Health	May 78	May 80
M. Madimabe	Animal Health	May 79	May 81
G. Legwaila	Agriculture	May 79	May 81
L. Tlogelang	Animal Health	May 79	May 81
S. Sefo*	Agriculture	May 79	May 81
M. Nsinamwa	Animal Health	May 79	May 81
N. Sebina	Agriculture	May 80	May 82
A. Kebitsang*	Animal Health	May 80	May 82
E. Ndadi*	Animal Health	May 80	May 82
J. Mokgethe*	Animal Health	May 80	May 82
A. Moatshe**	Horticulture	August 80	May 83

*Did not return to BAC.

**Only person not funded by the Government of Botswana, but by Germany, and only candidate that attented Edgerton, Kenya rather than Swaziland.

Much the same comment applies to the post-graduate level of training. While some U.S. institutions have very specialized post-graduate programs that are specifically designed to fit African conditions, these programs are few in number. All three Batswana who had thesis requirements as part of their Masters' programs were fortunate enough to be able to select Botswana research problems as topics for their degrees.

Given the sort of constraints just mentioned, the appropriateness of the training provided under the project has been very good. In terms of adequacy, with a fluid manpower situation that exists in Botswana at the moment (and will likely not change dramatically in the next 5 - 10 years) training can never be adequate. There will be continuing attrition from the BAC staff to more prestigious and lucrative jobs in other parts of government, the parastatals, the private sector and even to the international cadre of development workers in agriculture. As the educational system ratchets itself upward, there will be a continuing need for more persons at BAC to be trained to higher levels, partly being purely domestic in terms of higher levels of training and expertise, but also partly the push from neighboring countries and a desire to be on a par with sister institutions in those countries where the same ratcheting process may have gotten an earlier start than in Botswana. Given these factors, albeit somewhat external to the project, we judge the training provided as being quite adequate for the moment. The contractor has consistently done a good job of selection and recruitment, has exerted the necessary determination to see the admission process through, and has made generally appropriate course selection for those sent abroad under the project.

It appears that there are some unearmarked funds in the project which could be used for training. Long-term training in the fields of basic sciences, soils, range management and extension would be beneficial to the long-term viability of the BAC, making the professional staff more than one deep in the departments listed above. In addition, if BAC can create a professional position in the library and make the necessary arrangements with the National Library Service and Personnel for an exceptional post to serve the technical needs at the BAC library, it is recommended that a professional agriculturalist be sent for M.Sc. library science training. Upon return that individual would become head librarian for the BAC library. The preconditions laid out above would have to apply in order for this recommendation to be acceptable. The team recommends that 10 - 12 additional person years of training be provided to BAC to strengthen the current staff complement, if funds are available and training can be completed prior to the January 1, 1986 project completion date. The exact allocation of training time and subject area should be determined on a basis mutually agreeable to USAID and the GOB.

VII. Improvement of College Administration

The project design identified a number of areas in which administrative policies and procedures required strengthening. A long-term technician trained in educational administration has been provided during the entire project implementation period to upgrade BAC's administrative capability. Considerable progress has been made since the March 1981 evaluation. For example, financial practices were strengthened by the provision of two months of technical assistance to the Business Office. Admissions procedures have undergone substantial reform, as noted in the earlier evaluation. The team has noted those items that appear to require continued attention during the remaining life of the project and beyond.

A. Teaching Loads

Teaching loads vary widely between full-time members of the teaching staff at BAC. Some teaching staff have only responsibilities for 12 periods of instruction, while others have as many as 24 periods. Although we recognize that this is partially attributable to the number of staff away in training, the issue requires administrative action in the near future, not only to avoid teaching staff discontent, but also to rationalize the staffing pattern and justify the requisite number of posts to Department of Personnel. The period of development of the curriculum and staff transition is nearing completion and a more standard pattern should be established. Where suitable junior staff are available to assist in the practicals we recommend an allocation of 20 teaching (contact) hours per professional post. Where this type of assisting staff is not available, the allocation should be dropped to 18. In cases where other duties of administration or research are required of staff members, appropriate adjustments can be made in allocating teaching time.

B. Long-term Staffing Plans

Related to the near-term question of teaching loads, long-term staffing plans should be developed and updated annually. This has been nearly impossible during the life of the project, as teaching staff were coming and going, and normal staff movements were being disrupted. This period of unusual staff disruption is now nearing the end of its most hectic period, but staff attrition and replacement will continue to be a chronic problem until the high-level manpower ranks are full - sometime in the next century. A vigorous program of staff planning and development will contribute greatly to the smooth administration of BAC.

C. Admissions

The admissions procedures for BAC have improved tremendously over the past three years. There is still room for improvement, and the team would recommend careful consideration of the matters of timeliness, appropriateness of the entrance (qualifying) examination, and the reiteration of merit as the basic determinant of suitability. Continued attention should be paid to the recruitment of female trainees. Table 8 shows the history of male and female enrollments during the life of the project in three of the four programs that AID has assisted. The Social Work and Community Development Certificate Program is shown for comparative purposes.

TABLE 9
ENROLLMENT OF MEN AND WOMEN STUDENTS 1979-1983

Agriculture Certificate

	Year Accepted	No.	%	Year Graduated	No.	%
Men	1978	22	73	1979	20	80
Women		8	27		5	20
Men	1979	32	100	1980	23	100
Women		0	0		0	0
Men	1980	41	79	1981	38	80
Women		11	21		9	20
Men	1981	40	78	1982	32	82
Women		11	22		7	18
Men	1982	55	71	1983	40	77
Women		22	29	Presently En.[1]/	12	23
Men	1983	46	63	1984	28	62
Women		31	37	Presently En.	17	38

Animal Health Certificate

Men	1978	35	100	1979	26	100
Women		0	0		0	0
Men	1979	36	100	1980	31	100
Women		0	0		0	0
Men	1980	55	100	1981	54	100
Women		0	0		0	0

	Year Accepted	No.	%	Year Graduated	No.	%
Men	1981	59	97	1982	49	98
Women		2	3		1	2
Men	1982	67	93	1983	48	90
Women		5	7	Presently En.	5	10
Men	1983	72	95	1984	56	93
Women		4	5	Presently En.	4	7
Social Work and Community Development Certificate						
Men	1978	10	40	1979	8	44
Women		15	60		10	56
Men	1979	15	63	1980	14	66
Women		9	37		7	34
Men	1980	22	66	1981	12	55
Women		11	34		10	45
Men	1981	18	53	1982	16	52
Women		16	47		15	48
Men	1982	17	50	1983	16	62
Women		17	50	Presently En.	10	38
Men	1983	16	52	1984	11	50
Women		15	48	Presently En.	11	50
Agriculture Diploma						
Men	1981	19	100	1982	18	100
Women		0	0		0	0
Men	1982	16	88	1983	13	93
Women		2	22	Presently En.	1	7
Men	1983	13	62	1984	11	61
Women		8	38	Presently En.	7	39

	Year Accepted	No.	%	Year Graduated	No.	%
Animal Health Diploma						
Men	1981	19	100	1982	16	100
Women		0	0		0	0
Men	1982	16	100	1983	13	100
Women		0	0	Presently En.	0	0
Men	1983	20	91	1984	16	88
Women		2	9	Presently En.	2	12

1/ Presently En.=Presently Enrolled

The trend toward enrollment of more women appears generally favorable, and we would encourage the BAC administration to continue to accept on the basis of merit, rather than an arbitrary criteria such as dormitory accommodation. All intake should be closely matched to user services' needs as well (See page Section IX.F.).

D. Staff Evaluations

Staff evaluations will become increasingly important to the smooth administration of BAC. The pro-forma use of the annual confidential performance report adds little, if anything, to the personnel files of BAC. It is not an effective communication tool to use in the development of teaching staff. To assure a positive contribution from staff evaluation, the administrative team of BAC should develop an in-house evaluation report. One of the inputs to this report might be evaluations of courses by students, using a uniform questionnaire developed by a student/staff committee. This report should be discussed by the Principal in a one-on-one meeting with individual teaching staff members.

At the outset, each staff member should be asked to develop a plan of work for the coming year, in cooperation with, and with the approval of the administrative team. At the end of the year accomplishments can be measured against this plan of work and it begins to become an effective leadership and evaluation tool. The adoption of such a system will require consultation, kgotla-style, with faculty, and annual performance interviews. This should be coupled with evaluation of performance against last year's plan and laying out the plan for the coming year. Altogether, such a scheme could be a very useful management tool at BAC.

E. Communication

There are two aspects to communication. The first is within the college staff and the second is among college staff and the various other parts of the Ministry of Agriculture.

1. Internal Communications

The March 1981 evaluation report devoted a substantial amount of space to internal problems of communication within BAC. This was seen as partially a cultural matter, with technical assistance staff following conventional American procedures in the face of different expectations on the part of the Batswana staff. Certain changes of personnel and physical location have ameliorated some of the problems but two remain.

There is still a difference in perception as to whether adequate advance warning has been given prior to the arrival of short-term technical assistance, and whether it has reached the appropriate staff member with whom the technician is to work. It has been speculated that the problem may lie in the lag time between the request and the actual arrival of the TA.

We suggest the following procedures be adopted:

1) A staff member must submit a written request for TA simultaneously to the Principal and the Chief of Party.

2) A committee consisting of the Principal, Vice Principal, the appropriate course director and the requesting staff member should review the qualifications of the proposed TA and submit a decision in writing to the Chief of Party.

3) The Chief of Party should respond in writing if a positive response is received from the committee, stating the ETA, purpose and duration of stay of the technician. This document should be posted in the Senior Commons Room to be available to all.

Many administrative decisions appear to be made in a very top-down manner, contrary to the consultative tradition of Batswana society. The team urges that committees and channels established at BAC for purposes of airing grievances or making choices be fully utilized. We believe that the top-down approach sets a poor example for future field workers whose job will require an interactive approach in which they listen to farmers rather than dictating to them. Using established procedures will also avoid charges of favoritism or bias which continue to exist, though they probably predated the project and plague any institution to some degree.

2. Communications with MOA Departments and Divisions

Linkages with other parts of MOA still need to be improved. There has been real progress on these issues since the last evaluation, but much more needs to be done. MOA, having responsibility for teaching, research and extension in the field of agriculture should consider the concept of planning/program committees for each of these three areas, with representation from the other two areas on each committee. This would improve the flow of information laterally and vertically, and would provide badly needed information for the planning and decision-making in each of the three areas. Without good communication and linkages it is unrealistic to think that training, research or extension units will perform to their full potential.

One of the options to increase the linkages between training and research that has received some attention during our visit has been the possibility of BAC teaching staff conducting research in addition to their teaching duties. This has merit, but should be carefully implemented if such a decision is made. Most newly trained BAC staff do not have specialized training in research design, data collection procedures, and/or technical report writing. It would be poor management to force this issue with those staff members who do not have the proper background. On the other hand, there may be teachers on the staff who would welcome such an opportunity and most certainly those persons should be encouraged to initiate cooperative projects with research personnel or their own individual research projects on released time from teaching. BAC should devise a project proposal and approval system, in cooperation with Department of Agricultural Research.

Conversely, other departments or divisions within the Ministry should, as a matter of policy, be required to contribute a certain amount of instruction time on a regular basis to the BAC. This is particularly true for areas in which the contribution would prove cost-effective. For example, a course offering in genetics or microbiology may be needed only one term every other year. It would be more efficient to have a specialist from another MOA department teach this course than for BAC to invest one of its establishment posts in an overtrained individual who is required to spend much of his or her time teaching outside his/her specialty area. Skills grow dull and frustrations mount in the latter arrangement. Having other department staff teach at the college would also foster much-needed informal networks among MOA staff.

Finally, as a matter of policy, relevant BAC staff should attend all seminars and field days given by DAR, DAFS, DPS or DAH. Staff should be allowed time away from regular teaching duties to attend these activities and stay abreast of results and programs in other sections of MOA (or beyond as for agricultural education and extension personnel, for example).

F. Training Materials Development

The development of specialized teaching materials for the Certificate and Diploma courses should continue to receive attention. The principles of agricultural and livestock production are widely known and recorded throughout the world. Books and technical publications are available in the markets. However, very few are location or level-specific. The evaluation team feels that there are possibilities for BAC to develop and print, for student use and retention, some teaching materials in the various subject matter areas that relate directly to the level of difficulty in the BAC courses - but particularly so in the Certificate courses. The development of such materials, adapted to Botswana conditions, could possibly be the first "research" assignment, with assistance from senior staff in data collection and technical writing aspects. Regardless of how this is done, the development of site-specific training materials is an important area and deserves some continuing attention from MOA/BAC officers and administrators.

G. Student Employment

The last administration issue is one of internal efficiency in institutional operation. At present there is little student participation in the mundane operational details of BAC. Over 10% of the BAC budget is for industrial class workers to provide supporting services at the college. Over P32,000 goes to the students as interim allowances during the 9 months of the year when they are at school. Student labor could be used to perform many of the jobs around the school where industrial class workers are now being employed: cleaning the compound, cleaning the classrooms/labs/toilets, doing the routine feeding and maintenance of the farm animals, routine maintenance of buildings and equipment/machinery and other small carpentry jobs, destumping new

land for practicals, building fences around plots, and so on. Many of these so-called mundane tasks do develop manual skills and could contribute to job-readiness of the BAC graduate. The evaluation team feels that this is an issue which should receive close scrutiny from MOA/BAC officers/administrators.

Students obviously need time to study, reflect and internalize the information of a technical/theoretical nature that they are given every day. On the other hand, a contribution in kind of 720 hands for an hour in the morning and an hour in the afternoon could be a tremendous contribution to the college, and could represent an acknowledgement to the GOB of the educational opportunity that BAC affords its student body. If we assume that an average of about seven hours is consumed in practical/theoretical instruction on an average weekday, this still leaves a balance of 15 hours for eating, sleeping, studying and relaxing on the weekdays and 22 hours on the weekends. We believe that in a situation where budgetary support is a constraint that students could make a sizable contribution in kind, and develop some manual skills in the process.

VIII. Project Impact on Field Service Delivery

A. Substantive Aspects of BAC Curriculum Development

1. Overview

Activities designed to modify and improve the curricula for both Certificate and Diploma levels have continued since the last evaluation. Curriculum improvement initiatives were to have been realized through the following: 1) review of the allocation of time between various subject matter areas during the six terms for each of the four programs, 2) revision and adoption of proposed curricular changes, 3) continued incorporation of materials specifically related to livestock and other agricultural production practices in Botswana, 4) adaptation of selected materials from the U.S. and other relevant countries, and 5) upgrading (where appropriate) the coverage of communication skills, family welfare, rural sociology, educational psychology and extension methods into the curricula offerings for the Certificate and Diploma programs. Based upon information gained from review of project files and reports and from discussion with BAC faculty and staff, it is concluded that curriculum development objectives had generally been achieved. New curricula for both the Agriculture Certificate and Diploma courses, respectively were adopted on May 25, 1982. The Diploma in Animal Health was also approved in May of 1982. The Certificate in Animal Health has undergone revision but there was no specific date given for official approval.

Curriculum documents and course outlines indicated that appropriate attention had been given to setting forth the desired teaching outcomes and student exposure to subject matter. On the whole, behavioral objectives had been developed. However, a uniform pattern could be followed by each course and each program, and additional refinement of these objectives could result from the updating of VA, AD and higher level job descriptions.

2. Short-term Consultant Reports

Analysis of consultant reports reflected substantial development of materials from U.S. and other countries (principles) with specific adaptation to the Botswana setting. In addition to subject-matter-related consultant reports that were on hand at the time of the March 1981 project evaluation, five other such reports on related materials had been completed. Specifically, those sets of material covered: 1) Animal Nutrition, 2) Pig Production and Industry, 3) Conservation, 4) Biology, and 5) Genetics.

While the consultants' reports had been completed and the contents were reflected in course outlines, no attempt had been made to fully develop the information into a universally useful form. It is felt that the materials should be distilled into booklet format for use by students and others as reference matter rather than being tucked away in files for selected faculty reference.

3. Behavioral Science and Communications

Curricular offerings that relate to courses in sociology, communication and extension had been integrated into the four programs. The following table reflects the number of terms during which such offerings are provided, by program:

TABLE 10

Program	SUBJECT AREA AND NUMBER OF TERMS Sociology	Communication
Extension		
Agric. Certificate 4	2	3
Agric. Diploma 2	1	0
Animal Health Certificate 2	1	3
Animal Health Diploma 2	0	0

The team believes that diplomates in Animal Health were not yet receiving adequate exposure to sociology and communication.

There were no evidence or materials to substantiate the inclusion of educational psychology content in courses or as a course of study in either of the programs. The need for educational psychology content was pointed out during the last review. While it is not felt that a full-blown course in educational psychology would be required, it is expected that the BAC students should be given exposure to basic principles of the psychology of learning. Basic topics that might be covered are: 1) Instincts and Conditioning; 2) Human Learning and Memory; 3) Language and Thought; 4) Motivation; 5) Sensation and Perception; 6) Impression Formation; 7) Attitudes; 8) Group Dynamics; and 9) Environmental Psychology. If the BAC graduates are to be effective, they should be able to understand and affect the learning process and environment of their clientele. Basic principles and techniques of learning as well as techniques of effective teaching should be conveyed at BAC along with the technical subject matter. These principles could possibly be incorporated into the current courses in sociology and communication.

4. Communication Skills Development

It was noted during the review of materials and discussions that considerable emphasis had been placed on communications skills development. The course materials contained coverage of: 1) the whys and principles of basic communication processes, 2) communication in the teaching situation, 3) establishing communication with rural people in the group setting, 4) qualities of good and poor communicators and communication, 5) channels of

communications, 6) methods of communication, 7) farm and home visitation methods, 8) effective approaches to establishing contact with the farmer and village groups, 9) office calls, and 10) written communication in the forms of personal letters, reports and announcements.

In addition to communication training in the classroom, those students who engaged in extension practicals between terms were exposed to testing their skills in the village setting. They were required to make presentations at village meetings, gather information and develop reports on their experiences upon return to the college.

5. Orientation to the Bureaucracy of MOA

Review of curriculum materials and of lecture files revealed considerable input into the curriculum on the scope and operation of the Ministry of Agriculture. Development of subject matter in this area was jointly done by the SDSU faculty person and Batswana staff. The information gathered indicates that the scope of orientation included: 1) historical perspective and description of the Ministry of Agriculture, 2) recent changes in the organizational structure of MOA, 3) scope and function of central headquarters, 4) scope and function of field organization within MOA, 5) responsibilities of the various administrative and field level personnel including Agricultural Demonstrators, 6) reporting and control channels within the Ministry, and 7) correspondence and reporting requirements.

In addition to the above, considerable emphasis has been devoted to developing documentation on the historical development of extension in Botswana, specifically for use at BAC. This document covered the philosophy and evolutionary structure of extension as well as good typological description of categories of farmers and farmer groups as they have come to be understood over time.

Materials focused on group development give the students a considerable glimpse into how the Ministry will expect the ADs, VAs and others to activate farmer involvement in the development process. The course outline and lecture materials reflect such topics as good extension philosophy, steps in organizing groups, helping groups focus on their constitutions and programs, and practical aspects of government programs, program planning and development.

Practical orientation to the MOA appeared to have received less emphasis. There was little indication as to whether students were provided organized visits within the MOA to receive face-to-face orientation. Likewise, there was little evidence to suggest that students were provided with a direct and frank description of problems to be expected in the field such as transportation, housing and scarcity of support services. Coverage of these items might well have been done in such a way as not to be too discouraging, but at the same time give early alert to some expected difficulties in working in a resource-scarce setting.

Discussions with the BAC graduates leads one to conclude that there is much room for improving the overall orientation process. Many

expressed the opinion that the orientation to the functional operation of the bureaucratic process of the Ministry was too theoretical.

B. Impact of the BAC Project on Performance of Extension and Veterinary Services

1. Overview

This segment of the evaluation effort focuses on how the BAC Expansion Project has impacted upon the ability of graduates of both the Certificate and Diploma courses to perform on the job. Visits were made to several locations: 1) Barolong/Good Hope, 2) BMC/Lobatse, 3) MOA/Gaborone, 4) BAC/Sebele, 5) District offices in Mahalapye, and 6) District offices in Serowe (the latter two for both DAFS and DAH).

Discussions were held with Veterinary Assistants, Agricultural Demonstrators, field supervisors of both the VAs and ADs and other significant persons and organizations who either had observed or were knowledgeable of the performance of the BAC graduates. The discussion format centered upon several key indicators of performance. They are: 1) technical knowledge as would have been developed in the formal classroom and laboratory settings; 2) practical-hands on abilities and approaches to job requirements as would have been impacted by the practical experience gained at BAC; 3) group development initiatives and abilities as would have been influenced by both theoretical training and the extension field practicals, 4) communication and demonstration abilities that would have been derived from the extension education portion of the curriculum as well as the totality of the training, 5) reporting and administratively-related activities that would have resulted from the overall orientation to the bureaucracy of the Ministry of Agriculture. Beyond the above indicators, the discussion also centered upon constraints or factors present in the working environment of the BAC graduates which may have undermined their capacities to perform on the job. The constraints that surfaced most often as problematic for both the Veterinary Assistants and Agricultural Demonstrators were: 1) transportation, 2) housing and work space, 3) age and experience, 4) weather and, 5) resource-poor conditions of many of the farmer clientele. Indicators and constraints are only briefly addressed in light of impressions gained during the course of the evaluation process.

2. Formal Classroom Training/Technical Application

It is very telling to note the strong and consistently positive assessment of the quality and scope of formal classroom training by all strata of personnel with whom the team met. The central MOA administrative staff, field supervisors, other users of BAC graduates, as well as the former students all felt that the quality of the technical training had improved over the life of the project. Recent graduates of BAC were questioned with respect to whether they had encountered situations in the field which they were not prepared to handle. Almost all indicated that they had not experienced shortcomings on the technical side. Rather, they

exhibited a high degree of confidence in their abilities to perform. It was of particular interest to note the Veterinary Assistants' comments almost always implied that the job demands failed to utilize the full measure of capabilities developed at the BAC.

Overall, the team concludes that the modification of technical training has exhibited positive impact on performance. However, the extent of impact cannot easily be assessed during such a short observation period, and with many of the project outputs only recently completed or still in the process.

3. Practical Skills Development

The approach to practical skills development at BAC appears to have been affected by some key factors. The first factor was the mix of classroom and practical experience, given the time allotted for training programs. Second was the availability of a farm located in close enough proximity and having sufficient diversity of experience with different farm enterprise to accommodate requirements for practical skills development. Third was the capacity and time for placement of students into practicals in village settings, on government ranches and in regional and district extension and veterinary offices during interim periods. Fourth would have been the quality of laboratory experiences affected by availability of equipment, space and supplies.

The overall mix between teaching and practicals appears to be properly balanced. However, because of the lack of a clear and concise set of training targets and job descriptions it is difficult to generalize about the mix with the desired level of confidence.

Another dimension of the practicals experience was achieved by placing students out in the village setting during interim periods. It is concluded that such placement was good not only because of a need to provide students with exposure representative of the real world in which they would be employed, but also because it allowed BAC to circumvent limitations of the Estate Management Unit concept. On the animal health side, students were enabled to encounter and diagnose disease and health problems that were not prevalent at the school farm. Extension classes were able to observe group development activities in several village locations. Production operations for both crop and livestock were observed which were more representative of the situations in Botswana as determined by soil, rainfall, climate and social variations.

In the final analysis, the consistent reactions of graduates, BAC staff supervisors of VAs and ADs and other knowledgeable persons seems to be that the quality of practicals falls short. At the same time, it is recognized that the present farm arrangement at BAC is problematic and that there are some logistical and management difficulties with the village setting practical experiences. There was not an abundance of workable alternatives issued forth by those who recognized the existence of the problem. With these points in mind, the arrangements and logistics of village level practicals, as well as the provision of a BAC farm under the Principal's control should be further studied for improvement.

4. Group Development Activities

Group development activities and group demonstration received considerable attention in the extension course at BAC. The concept of group development as an approach to solving problems of Botswana's farmers is not new. The program concept was initiated in Botswana in 1975 and today there are some 1,100 groups of an agricultural nature, organized within Botswana's farm community. According to a recent study by the Agriculture Information Unit, MOA, the following was the distributional breakout of some selected agricultural groups:

Region	Number of Groups
Central Region	250
Gaborone Region	140
Maun Region	30
Southern Region	40
Francistown Region	17

Given the existence of such a large number of agricultural groups among Botswana's 70,000 traditional farmers, the propensity of BAC graduates to prefer working with existing groups or forming new functional ones, BAC's extension training program emphasis on working through groups and the abundance of literature on groups, one assumes that there is a high probability that graduates from BAC will expend considerable field time on extension through the group method. However, the extent to which impact is realized depends on several things, among which are: 1) the training received at BAC, 2) the ability and personality traits of the ADs and VAs who work with groups, 3) the support from the field service supervisors, 4) the level of financial and program support provided by the Government of Botswana for group initiatives, 5) resource constraints of farmers, and 6) many aspects of village political and social life.

With the frequency framework in mind, the team consistently probed the VAs, ADs and their field supervisors regarding the extent of the use of group methods by recent graduates, the relative degree of success, the nature of group activities engaged in and extension training received at BAC relative to group approaches to extension.

Review of the course outlines and lecture materials revealed a considerable level of attention to the theory of group dynamics from the points of view of organization, activities and communication. The majority of the graduates (ADs and VAs) recalled certain aspects of group development instruction and practicals provided by the faculty of BAC. In doing so they related the usefulness of the training as well as the method as an effective means of reaching farmers.

BAC graduates (predominantly ADs) related their initial difficulty in mobilizing groups. However, via the guidance and support of older supervisors, the reliance on techniques gained during training and practicals, they were subsequently able to overcome the insecurity of age and inexperience. The strategy of winning the support of village leaders or the respected farmers was implied as a stronger element in overcoming the handicap of youthful inexperience. Many of the graduates indicated a tendency to gravitate toward farmers who were progressive or who had resources with which to work.

Almost all field workers stated that their work in group formation was project-oriented. Groups were formed to achieve a certain limited objective, such as construction of a drift fence or water point. Groups were rarely formulated for general cooperation purposes, or, more importantly, around income-generating activities. Further, almost all of the projects that groups undertook derived from specific government programs, usually involving accessing loan or grant funds for capital development. Very little follow-on to keep groups functioning for other purposes (i.e., income generation, receipt of extension information) was evidenced, with the exception of 4-B programs. Government may wish to consider devising ways to better utilize the organizational capacity evidenced by such groups, and the training of extension workers to recognize and meet other kinds of needs through group means.

5. General Conclusions - Project Impact on Field Service Delivery

It is a bit early to unequivocally determine the extent of impact that will be felt from BAC graduates on extending quality services. Based on impressions gained during the brief observations one can conclude that:

1. The ADs and VAs are on the ground in increased numbers;

2. they express a strong degree of confidence in their own technical competence;

3. they recognize the need for continued in-service training;

4. with each passing season they utilize and reevaluate training and techniques received at BAC;

5. many have made a genuine commitment of their time to the job, subordinating personal concerns.

Granted that these impressions are correct and assuming that research and government services will increase extendable knowledge, techniques and services, the expected impact of the extension program has been positive and should increase over time.

C. Constraints to Effective Performance of BAC Graduates

From the holistic point of reference one cannot contest that several obvious and positive outcomes have been realized during the course of the BAC Expansion Project. First, and most impressive, is the construction of a very modern and appropriately designed facility containing classrooms, laboratories, offices, conference rooms, dining facilities and dormitories. Second, SDSU has carefully selected a team of long-term consultants that are both competent and sensitive to the cultural environment in which they render their services. Third, there have been considerable developments on the curriculum side including adjusting the balance between theory and practical and integrating materials, literature and resources relevant to the setting in Botswana. Fourth, the extension initiative stands out not only as one wherein there has been extensive work on both the curriculum and practical side, but also has demonstrated a keener sense of adjusting to the needs of the Botswana students and to the system within which they will serve as Field Services or DAH employees. Fifth, there are larger numbers of Veterinary Assistants and Agricultural Demonstrators now in the service of the MOA than when the project was first initiated. Sixth and finally, there is a collective and general feeling that the "new" BAC graduate is technically more confident than those who graduated prior to the expansion effort.

The team believes that as far as training is concerned the stage is set for building an effective and viable field service cadre for MOA initiatives. But, it is important to move beyond the above to determine if there are other conditions which must be met to ensure full impact from the BAC Expansion Project. In other words, lack of certain sufficient conditions may be labeled appropriately as constraints. Several constraints or problems emerged during the course of this evaluation. They are summarized next.

1 Transportation

Due to the dispersal of Botswana farmsteads or dwelling units, it is understandable that lack of transportation emerged as a concern by the majority of field staff with whom the team visited. The extension workers are expected (we were told) to commute distances of over thirty kilometers and more via foot, bicycle, or donkey and in some cases motorbikes, to service numbers of farmers reported to range from 400 to 1,200 per AD. In the Kalahari region, it is reported that travel conditions are more strenuous and journeys between village units takes much longer. A very small number of ADs (16) are posted to this region, making each extension area quite large in size. Conditions and modes of travel are not a new issue so the team made no new discoveries. What was observed as somewhat anomalous is the apparently sizable expenditure on new vehicles and travel allowances for senior Ministry staff, while travel needs of field workers appear to get less attention. This belies the frequently-heard assertion that the AD and VA cadres are the most valuable assets for reaching Botswana's rural population.

2. Housing

There has been an impressive overall growth in housing accommodation in the country of Botswana in recent years. Investment in roads and other structures are apparent and remarkable. However, at the level of the Agricultural Demonstrator and Veterinary Assistant there are constant situations where there are no assigned houses or where the rondavels provided are extremely inadequate. Some of the workers described having to share their assigned living quarters with seed, supplies and office equipment. Lack of office space and proper storage of records and files etc. along with crowded living quarters affects the spirit and quality of job performance.

3. Extendables

Discussions with field staff and central administration of field services, coupled with review of the literature and conversation with research persons, lead one to wonder if there is actually enough knowledge and information on processes and techniques to extend. Put another way, the question is whether the growth of field services (extension) has inappropriately outstripped growth in the research and development information base. The brief review did not permit time to fully investigate extendables; thus impressions gained are based upon the fact that not many answers were received from the field services staff regarding new or innovative practices and techniques available to extend to farmers or herders.

4. The Incentive System

A sense of upward mobility coupled with an institutional support environment are felt to be key ingredients for employee morale and subsequent productivity. It was noted during the course of interviews with Field Services administrators that the incentive system provided for Field Service employees is faulty at best. There was not much evidence of a developed and fluid system of promotion and pay increases. Many of the ADs are reported to have served in the same position for as many as 15 years. At the same time, the team was told of many disappointments with travel and housing accommodations.

5. The Age Factor

The graduates now emerging from the Certificate and Diploma programs at BAC are young, and some tend to have less prior farm experience than in the past. At the same time there seems to be a predispostion among farmers (according to impressions gained during field visits) to be more skeptical of information and advice extended by youthful and inexperienced ADs and VAs. The youth factor was also said to provide some difficulty in supervision for a young District Agricultural Officer, although he was highly trained and motivated and did have some prior farm experience before entering the Diploma program in Swaziland.

While reaction to age might not be a lasting factor, it is felt that the initial lag time experienced by youthful VAa and ADs will have a downward impact on their production curve in extending services and information to farmers. This difficulty could possibly be diminished by recognizing the problem at the outset. Second, field supervisors, recognizing the problem may need to intercede with appropriate reinforcement strategies.

D. Linkages Between BAC and Other Services

At the village level graduates of BAC should know about and work through Village Extension Teams and local councils so as to coordinate planning and services rendered in the areas of animal health, arable agriculture production, community development, family welfare education, cooperative societies and other education and credit-related schemes. In order for such field level coordination and linkup to occur there must be an awareness gained through education and there must be top-down linkages between the various GOB and MOA departments held responsible for rendering the services.

IX. General Issues

A number of issues that may affect the impact and sustainability of the BAC Project, but that do not fit neatly in any of the foregoing sections are highlighted here. Several concern anticipated changes in Botswana's overall agricultural education program. These were not finalized at the time of the evaluation, but are worth noting because of the potentially high impact on Project 633-0074.

It now appears that decisions have been taken which will move the Social Work and Community Development Diploma program from BAC to the University. It also appears that the Agricultural Education Diploma will be placed at BAC. There will be no measurable decrease in administrative responsibility for the Principal of BAC, but in many ways it will integrate agricultural diploma programs into a favorable atmosphere. There will be an increased need for teaching staff in the areas of methods and materials for teaching agriculture in secondary schools, pedagogy, educational psychology, and possibly audio-visual materials. However, some internal efficiencies should result, as existing staff can be utilized in providing common instruction in the first year of basic sciences and general agriculture.

There are some teaching/learning courses which could usefully be added to the common courses for the Animal Health and Agriculture students and should broaden their preparation for extension and adult learning activities in the field. Immediate action needs to be taken with MOE officials to finalize and obtain approval for the Agricultural Education Diploma curriculum, and arrangements should be made for the secondment of specialized agricultural education teaching staff from MOE or the creation of new posts at BAC so recruitment can begin. Either way, these new members of staff should be under the administrative control of the Principal, BAC. In order to avoid jurisdictional and certification problems, approval of the curriculum should remain the province of MOE.

A similar procedure for curriculum development should be established with MOE as has been earlier suggested for the animal health and agriculture syllabi with MOA.

A. Follow-up Study of Graduates

MOA and the BAC should conduct a comprehensive follow-up study on BAC graduates in the near future. First, this would provide solid evidence as to where graduates actually go upon completion. There are apparently no firm data on utilization at the moment. Secondly, if properly organized, this exercise would provide some useful supplement to the job descriptions and field utilization of trained manpower. This could easily be presented to the various donor agencies for financial and manpower assistance.

B. MOA Manpower Development Advisor

Training seems to have no one in an advocate position at a senior level in the MOA. This affects the communication and planning process very negatively. The team would like to suggest that MOA consider creating a post for a very senior person, at Department Head level, to provide this linkage with research and field services at MOA Head Office level. The person appointed to this post could represent and advocate for matters of crucial interest to BAC, in-service training, and short and long-term overseas training at the highest levels in the MOA, and act as a ministerial clearinghouse for all matters relating to training/education in agriculture.

C. In-Service Training

It is not clear who has direct responsibility for in-service training in agriculture. Perhaps the appointment of a senior-level person concerned with manpower development in MOA will help resolve this issue. It is clear that field staff are not receiving sufficient in-service training to assist them in their daily duties. If this is truly an MOA responsibility, then the facilities of BAC and the BAC staff should be utilized to the maximum extent possible. They have much to offer, and the field officers need any and all assistance that they can be provided.

D. Career Opportunities for Field Officers

One issue which has arisen repeatedly in the course of this evaluation has been the career opportunities for serving officers in the field services, and for those occupied in the agricultural training institutions as teachers. The incremental ranges for those entering government service as Veterinary Assistants and Agricultural Demonstators do not encourage long-term service and continuity - factors which perhaps are the very essence of a successful extension service. On the teaching side, with the lack of a salary scale or career ladder specifically designed for agricultural teachers at the higher levels, there is little incentive or motivation given for entering teaching as a profession other than the availability of further training opportunities. This lack of a career opportunity leads to high attrition and less than

the most efficient use of some rather highly trained manpower. The career ladders, particularly for these cadres of agricultural workers, need some attention in MOA.

E. MOA Manpower Assessment

The most recent agricultural manpower assessment was done nearly five years ago, employment opportunities have changed, attrition rates are different, and training programs have multiplied and diversified. It is now time to update the agricultural manpower data. This would generally be helpful throughout MOA in the planning and decision making processes.

F. Establishment of a Faculty of Agriculture in Botswana

The Faculty of Agriculture issue is a stumbling block for further development and smooth administration at BAC. It appears that many things are "on hold" until basic decisions are made as to the nature and location of the Faculty of Agriculture effort. The evaluation team feels strongly that GOB should consider carefully the effect on BAC training before it decides on final administrative and physical location of a degree program. If the Faculty of Agriculture is superimposed upon BAC, the Certificate program will suffer grieviously, the Diploma program will suffer somewhat, and there is no guarantee the degree program itself will be of high quality. We have been given to understand that the degree program might be able to utilize the existing facilities of BAC, but one must realize that the current facilities are already being rather fully utilized by the present student body of 360+. This includes the hostels, the teaching classrooms and the existing labs. Earlier comments about the farm may also have relevance here. We believe that MOA has a good technical training institute which can be maintained and improved over time with consistent GOB funding and leadership.

ATTACHMENT B

LIST OF PERSONS CONTACTED

D. Baker	Agricultural Economist (Mahalapye), ATIP/MOA
C. Baury	Field Support Office, USAID/B
F. Bettles	Agricultural Officer/Women's Extension, MOA
J. Blydorp	Instructor, Agriculture, ONV/BAC
R. Chabo	Instructor, Animal Health, BAC
H. Darien	Veterinary Officer, MOA
D. Everrett	Chief of Party, Education Administration Specialist, SDSU/BAC
L. Hanson	Extension Specialist SDSU/BAC
C. E. Hisayi	Course Director, Community Development and Social Work, BAC
J. A. Hobbs	Research-Extension Liaison, ATIP/MOA
E. J. Kemsley	Vice Principal, BAC
F. Kettereng	Agricultural Demonstrator, MOA
M. Lebani	Chief Animal Production Officer, MOA
M. Lekaukau	Deputy Permanent Secretary, MOA
M. Mannathoko	Director, Department of Animal Health, MOA
Mr. Mesolotate	Chief Crop Production Officer, MOA
D. Miller	Veterinarian, Course Director, SDSU/BAC
M. Mokone	Chief Agricultural Economist, DPS/MOA
M. Moseinanye	D.V.M., Department of Animal Health, MOA
R. Ngwenge	District Agricultural Officer, MOA
D. Norman	Chief of Party, Agricultural Economist, ATIP/MOA
T. Rose	Acting Director, APRU, Department of Agricultural Research, MOA

Contacts (continued)

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T. Taukabong	Deputy Director, Agric. Field Services, MOA
L. Taylor	Program Officer, USAID/B
R. Thaden	Instructor, Agronomy, SDSU/BAC
K. S. Tibi	Principal, BAC
B. Tlale	Director, Agricultural Field Services, MOA
Mr. Pillara	District Agricultural Officer (Mahalapye), MOA
Mr. Pheeha	District Agricultural Supervisor (Mahalapye), MOA
Mr. Sefo	Land Use Officer (Mahalapye), MOA
E. Nkateng	Veterinary Assistant (Mahalapye), MOA
B. Peyo	Veterinary Assistant (Mahalapye), MOA
R. Adam	Veterinary Assistant (Mahalapye), MOA
R. Ravainyaneny	Veterinary Assistant (Mahalapye), MOA
M. Adam	Veterinary Assistant (Mahalapye), MOA
E. Kebakuile	Senior Livestock Officer, (Mahalapye), MOA
O. Mokobi	District Agricultural Supervisor (Serowe), MOA
Mr. Mmaputsi	District Agricultural Officer (Serowe), MOA
P. Kajibwani	Veterinary Officer (Serowe), MOA
M. Ngakaagae	Senior Livestock Officer (Serowe), MOA
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I. Sosome	Veterinary Assistant (Serowe), MOA

Contacts (continued)

E. Butler	Deputy Mission Director, USAID/B
C. Baury	Field Support Office, USAID/B
A. Mackie	Agricultural Development Officer, USAID/B
D. Finlay	Permanent Secretary, MOA
K. Keletso	Agricultural Demonstrator (Mahalapye), MOA
J. Mmereki	Agricultural Demonstrator (Mahalapye), MOA
B. Tabengwa	Agricultural Demonstrator (Mahalapye), MOA
K. Theophilus	Agricultural Demonstrator (Mahalapye), MOA
C. Manthe	Entomologist, Dept. of Agric. Research, MOA
M. Keatimilwe	Agricultural Demonstrator (Mahalapye), MOA
K. Motamma	Agricultural Demonstrator (Mahalapye), MOA
A. Mugatust	Agricultural Demonstrator (Mahalapye), MOA
M. Gower	Agricultural Demonstrator (Mahalapye), MOA
L. Gora	Agricultural Demonstrator (Mahalapye), MOA
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R. Keufela	Veterinary Assistant (Serowe), MOA
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M. Moagi	Veterinary Assistant (Lobatse), MOA
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N. Gotsheyu	Veterinary Assistant (Lobatse), MOA
T. Kguthi	Veterinary Assistant (Lobatse), MOA
H. Rammidi	Veterinary Assistant (Lobatse), MOAR
O. Ngwenga	District Agricultural Officer (Goodhope), MOA
O. Ramidi	District Agricultural Officer (Goodhope), MOA
O. Ramasia	Agricultural Demonstrator (Goodhope), MOA
S. Siele	Agricultural Demonstrator (Goodhope), MOA

P. Mashiakgomo	Agricultural Demonstrator (Goodhope), MOA
V. Molopo	Farmer (Barolong)
N. Motshegare	Farmer (Barolong)

ATTACHMENT C

List of Documents Reviewed

1. AGRIFACTS; A Series of Extension Periodicals by the Agriculture Information Unit of MOA.

2. AGRINEWS: The Monthly News Bulletin of the Ministry of Agriculture.

3. Annual Plan of the Department of Agricultural Field Services. Ministry of Agriculture - Botswana, 1982-83..

4. Baralong Agriculture Reconsidered: Agriculture and Planning in the Southern District Communal First Development Area. Degg Ntseane et al. 1983.

5. Botswana Agriculture Census. MOA, division of Planning Statistics, 1982..

6. The Botswana Agricultural College Expansion Project, Project Paper (633-0074).

7. Botswana Planned Program Summary Document, USAID, 1983.

8. The Bulletin of Agriculural Research in Botswana. MOA, Department of Agricultural Research. June 1983.

9. Characteristics of Certified Sorghum, Maize, Millet, Cowpea and Sunflower varieties. Department of Agricultural Research. MOA, September 1981.

10. Country pROFILE OF bOTSWANA. GOB Central Statistics Office, 1982.

11. Extension Services In Botswana Five Years after Kingshotte. Louise Fortman, University of Wisconsin Land Tenure Center, 1983.

12. Extension Services in Botswana: Observations in the Field. D. M. Mokakike, February 1982.

13. Farm Business Management in Botswana. Dan Rasmussen, January 1982.

14. Five Year Training Plan: 1982 - 1985. MOA, Plainning and Statistics Division. December 1980.

15. Group Development: An Evaluation Report on Group Development Activities in Botswana. MOA, Agricultural Information Department.

16. Handbook of Basic Ecology for Range Management in Botswana. David I. Field, March 1978.

17. Integrated Farming Pilot Project (IFPP) Pelotshetlha, Botswana, 1979.

18. Local Institutions and Resources Management in the Communal Areas of Kwaneng District. Chris Brown, August 1982.

19. The 1982 ALDEP Program: Baseline Data and Evaluation. MOA, Planning and Statistics. April, 1983.

20. A Note on the Evolution and Nature of the Botswana Arable Lands Development Programme (ALDEP). R. A. Purcell, August 1982..

21. The Pelotshetlha Integrated Pilot Project: An Evaluation Study. MOA, Agricultural Information Department, March 1981.

22. Project Completion Report on the Botswana Range and Livestock Management Project. John R. Shields, July 1982.

23. The Project Evaluation Report on the Botswana Agricultural Expansion Project. Joan Atherton, C. Nelson and S. Baker, June 1981.

24. The Relationship Between Crop and Livestock Production in Botswana: A Selective Review of the Literature..

25. Reports of Short-Term Consultants
Extension Curriculum Report, L. Hanson
Dairy Cattle Production, M. Owens
Animal Nutrition, R. Wohlstem
Pig Production and Industry, R. Wohlstem
Beef Cattle Production, I. Minyard
Conservation, M. L. Horton
Soils, P. Carson
Plant Diseases, W. Gardner
Genetics, D. Reeves
Mathematics/Basic, R. Broschat
Fruit Trees, J. Waples.

26. Toward Improving Extension Services in Botswana. Rural Extension Coordinating Committee, December 1982.

27. Vegetation Map of South East Botswana. Division of Land Utilization, MOA. Jonathan Timberlake, December 1980.

28. Women's Access to Agricultural Extension Services In Botswana. F. M. Bettles, MOA Field Services Department.

29. Women's Involvement in Agriculture in Botswana. GOB Printer, Gaborone. C. A. Bond, November 1974

ATTACHMENT D

LIST OF 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
BWAST	Botswana Workforce and Skills Training Project
DAFS	Department of Agricultural Field Service, MOA
DAH	Department of Animal Health
DAO	District Agricultural Officer
DAR	Department of Agricultural Research
D.V.M.	Doctor of Veterinary Medicine
GOB	Government of Botswana
LO	Livestock Officer
MOA	Ministry of Agriculture
MOE	Ministry of Education
Motswana	One person of Botswana citizenship
OPEX	Operational Expert
PIO/C	Project Implementation Order/Commodities
PP	Project Paper
PSA	Procurement Services Agent
RAO	Regional Agricultural Officer
SAMDP	Southern Africa Manpower Development Project
SDSU	South Dakota State University
USAID	United States Agency for International Development
VA	Veterinary Assistant

ATTACHMENT E

Scopes of Work
II. Agricultural Extension Specialist

A. Review relevant background documentation

B. Assess the substance of the BAC curricula for both agricultural extension at both Certificate and Diploma levels to determine:

1. incorporation of materials specifically relevant to Botswana agricultural and livestock production practices;

2. appropriate adaptation of U.S., other developed and developing country techniques and substantive materials; and

3. a variety of communications skills and techniques appropriate to Botswana are being conveyed in the training; and

4. trainees are being adequately prepared to function within the relevant ministry's bureaucratic system.

C. Undertake field visits to extension service and veterinary assistance posts to observe use of BAC training. Contractor should interview relevant personnel including but not limited to:

1. ADs and VAs who graduated from BAC (both pre and post-AID project).

2. AD and VA field supervisors to assess field performance of recent graduates

3. Field staff of other government services, expatriate voluntary or project field workers who have field-level contact with ADs and VAs

4. Other individuals who are knowledgeable of the extension and veterinary services at the field level; and

5. a select number of Botswana farmers, using census, tax or other data to construct a roughly representative sample.

The focus of the field visits should be to assess the impact of the project on the performance of extension and veterinary services. Other constraints to effective performance should be noted and reported in the Contractor's final report as well.

D. Linkages between BAC and other government, parastatal and private sector services should be evaluated to assure that relevant information from other entities is being regularly incorporated into the curriculum and that the mechanism exists for a continuation of this incorporation after the project has ended.

E. Final report will be submitted before departure from Botswana. Contractor will participate in final debriefing of MOA, Mission and project technical assistance personnel, as appropriate.