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EVALUATION REPORT
AGRICULTURAL OFFICERS TRAINING PROJECT
(688-207)

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ORIGINAL

MALI AGRICULTURAL OFFICERS' TRAINING PROGRAM

EVALUATION REPORT

EXECUTIVE SUMMARY

The basic assumptions of the 1977 Project Paper for Project 688-0207 (Hereinafter referred to as the "CAA Project") remain valid. To date the Project has accomplished its goals with more than average success. In the most important areas its work has been timely. The major achievements of the Project thus far have been :

-- The growth of a sense of purpose and professionalism in the CAA system (including the beginnings of same in the three CSs). This new attitude pervades all parties to the CAA system ; faculty, staff and students. Its importance should not be underestimated.

-- The solid beginnings of a genuine shift in pedagogy away from the theoretical, rote memorization style towards an integration of theory and practice with growing emphasis on hands-on training.

-- The completion of curriculum revisions in half the courses - bringing the course curricula into line with both the realities of the Malian agricultural context and the aims of the new competency based pedagogy.

Achievements in other areas have been many (logistical support, administrative reforms, equipment maintenance and so on) but the three noted above are in themselves significant achievements. The CAA Project staff (both the SECID people and the DETA-FP people) is unusually strong and well-knit. The absence of conflict in the working relationships in this project (including the Project's relationship with USAID/Mali) is striking enough to be noteworthy. The achievements to date are largely due to these staffing factors and in particular to the excellent collaborative style of the relationship between Dr A.J. Abshire and Mr B. Guindo and the enthusiasm and

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energetic work of the front line Ag Ed specialists (E. Bower and F. Michaud) and the prodigious work of Dr M.H. Son.

It is clear to the evaluation team that the project should be extended to 1987. We state this unequivocally. To not do so would be to virtually risk wasting all the time, energy and money that has been invested thus far.

Not only is there much remaining to be done in concrete terms, but the overall sense of movement that has really just begun to take hold in the last year will need at least several more years of nurturing before the CAA system can maintain that momentum on its own.

The concrete areas in which project work remains to be completed are :

-- Completion of the curriculum revisions ; to this end we recommend that Dr Son be given a strong Malian trainee to train in the media production side of the revision process, as well as some assistance by one of the three SECID teacher trainers.

-- Evaluation of the curriculum revisions.

-- Continuation of the teacher training program at the scale of effort made to date - namely the presence of Ag Ed specialist/teacher trainers at all three CAAs. There should not be a reduction in personnel here. And careful attention should be paid to bringing in new personnel (as needed) which are of the same high quality as those working for SECID to date.

-- Continued effort on the administrative side of things.

-- Continued effort in maintenance of equipment and vehicles. The project should continue to have a full time mechanic for the life of the project and if possible engage the services of an assistant mechanic/trainer (possibly a PCV).

The basic direction of the project thus far should not be fundamentally changed. However we do make the following recommendations which amount in some cases to a change in emphasis or in other instances the addition of certain new emphases.

-- More emphasis needs to be given to the Travaux Pratiques and Vulgarization parts of the curriculum. Whenever possible actual contact with farmers should be integrated into the course work.

-- Further refinements of curriculum should be considered to weed out even more theoretical and materials which may not be relevant or necessary.

-- To the extent possible individual student farm plots should be created.

-- Material support for Travaux Pratiques aspects of the curriculum must be assured. TP cannot work without this.

-- Teachers should be more regularly involved in the curriculum revision process.

-- The CS system should be expanded to accomodate and train all of the third year people.

-- Student evaluation as a part of the CAPA should be made at the completion of the second year of training covering training received during the first and second year. Final evaluation at the end of the third year should cover only training received during the third year.

-- An attempt should be made by the CAA Project to influence the process of student selection.

-- Greater effort should be made to sensitize and "educate" the Ministry of Agriculture and the Ministry of Rural Development about the CAA Project.

-- Students' doubts about their future as extension agents and their concerns about their entry into the "Fonction Publique" should be directly addressed in a series of orientation sessions for incoming students.

-- Consideration should be given to funding the purchase of mobyettes to enable teachers at the CSs to regularly supervise stagiaires in the villages.

-- CAA Project staff is overcrowded in its present office space. A 2 to 3 room addition to present space is recommended.

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Preface

The evaluation team arrived in Mali on June, 1984. After initial meetings with AID and CAA Project personnel we began our field site visits on June 7th with a visit to Samanko where we attended the weekly faculty meeting. On June 8th we visited Baguineda CS and Samanko CAA. On June 9th Samanko again and a Machinisme School located nearby.

June 12th through 16th saw us in Kayes and Kita. Finally between the 18th and the 21st we visited the remaining center at M'Pessoba and the CS at Dioro. In total a solid two weeks was spent in the field. We feel this field centered approach to the evaluation was particularly well thought out and valuable.

A list of persons interviewed at length and a general summary of the categories of other persons contacted is attached as Appendix C. Our method was multifaceted : We interviewed people in as many different roles in and around this project as we could, in as many different settings as was possible. Thus we spoke to students, teachers, farmers, operation personnel, veteran monitors, encadreurs, relatively new monitors, project administrators and center directors. We talked to and/or observed these people in the following kinds of settings : Offices, while working in the field, formally gathered in classrooms or meeting rooms, informally buttonholed in dorm or field, farmers at work, and monitors at work. Finally we attended, due to a piece of lucky timing, a very lively extension meeting of roughly 50 famers who were all associated with a rice production casier near Dioro.

We wish to thank USAID personnel for continued cooperation with our effort, in particular Rebecca Niec whose planning of the evaluation was excellent. We also thank the SECID team for its energetic preparation of materials before our arrival and its complete willingness to accompany us and answer our questions at great length. Finally the cooperation of the GRM personnel at the project level was extremely valuable to us, particularly the participation of Djibril Sangaré and Denthié Dembélé in our field trips was essential to what we hope will be seen as a successful evaluation.

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I. Contextual Constraints surrounding the CAA Project

Looking at the CAA Project within the broad context of both Malian agricultural development and Malian human resource development we conclude that most of the principal constraints which were noted in the Bingen report of 1976 and the Tuskegee reports of 1979-80 are still very much present. Likewise the overall training needs noted in those reports are still the same, if not greater.

The need for approximately 300 well-trained agricultural "moniteurs" per year, stated to us by key Malian personnel associated with the project, would seem to be real and legitimate, if all things were equal - that is if absorptive capacity of the agricultural production sector, CAA system capacity, and most important, financial resources were all to match. They do not of course. Particularly missing is the financial wherewithal to pay the salaries of the present number of graduates of the system, much less a larger number. The extent to which this is a temporary situation (the IMF's imposition of a ban on hiring yet more state fonctionnaires is viewed by some people as something that may be waived in critical sectors like Agricultural Extension) remains to be seen.

In any case the will to produce such numbers of moniteurs within the CAA system seems now to be present (due in part to the SECID effort). The capacity to produce moniteurs in such numbers has clearly not yet been reached by the CAA system, though it is at present turning out about 175 graduates per year and plans are underway for World Bank funded construction of additional capacity at M'Pessoba. The quality of persons produced by the CAA system seems definitely to be improving. This is of course a central aim of the CAA Project and a major focus of our evaluation. Moniteurs are increasingly being trained as genuine practitioners of extension with a growing emphasis on hand-on training. These areas just mentioned (will, capacity, and quality) are of course the areas over which the project has more or less direct control.

But increasingly, as the project makes progress towards higher quality training and more and more appropriate training, two major outside constraints, over which the project has little or no control, may begin to have an increasingly thwarting effect on the CAA system.

The first of these constraints is the nature of the system into which the bulk of the graduating moniteurs are sent - the ODRs (Opérations de Développement Ruraux). With two major exceptions (CMDT, which is semiprivate and de facto French run, and the Office du Niger) these major parastatal agricultural production organisms in Mali are relatively inefficient. Their relationship with farmers is such that the Malian farmer is akin to a tenant or sharecropper. Thus the moniteur, working for one of the Operations is in fact not an Agricultural Extension Agent in the American sense, but more an agent of the "company", a monitor (in the literal sense) of the company's interests. This does not mean however that the moniteur cannot practice extension. Indeed the need to learn extension methodology and to master the technical aspects of agricultural production is as great in this system as it is in our own. But it may well mean that with the growth of a cadre of well-trained moniteurs (and hopefully eventually extremely well-motivated moniteurs) and no accompanying basic changes in land tenure and the agricultural production system, this increased potential for more effective extension will be blocked. The opportunities for corruption will grow. The conflict of interest inherent in a system where the agent is working for the company first and the farmer second will begin to be more apparent.

Some of this is already reflected in discussions we had with students now in training. While a few are genuinely interested in agriculture and in "helping the farmer" the majority seem to see becoming a moniteur as an alternative route to the coveted security of a state job - another way to become a fonctionnaire. Students see things this way in part because that is how most jobs in Mali are seen. ~~But it is also~~ because in fact the Operations are state bureaucracies and up until recently at least being taken in by one of them meant a lifetime civil

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service tenure. No matter how well trained moniteurs become, if the overall system into which they will be thrust is not one whose primary aim is to raise up the Malian farmer and is not one which is geared to the creation of a growing modernizing agricultural base, then the energies of new moniteurs, the motivations which they bring to the system initially, will eventually be confined and thwarted.

We are saying no more than what is now being said by many others. Mali must move towards private enterprise development. The state cannot any longer supply jobs for every educated person. We also acknowledge that Mali seems to now be in transition to such goals. What we emphasize is that the CAA Project must be constantly integrated into the overall USAID effort in these directions, and its personnel sensitized to these goals.

The second major contextual constraint over which the CAA Project has little control (though it may have more here than over the first) is the student selection process. This process of course determines the quality of the basic raw material that goes into the system. As it stands now there is little coordination between the Ministry of Education, which writes the entry exam, and the Ministry of Agriculture (much less the CAA Project itself, which is a still smaller unit in the system). Students are selected entirely on the basis of their grade on the Concours d'Entrée, an exam based on traditional French academic criteria ; language, math and the like. The pool of potential students for entry into the CAAs is approximately ten times the number of openings (last year the ratio was 175 to 1500). In theory at least, the potential does now exist to get a more variegated and appropriate cadre of students than is now achieved through the present method of just taking the highest 175 on the list. Presumably in the remaining 1325 candidates there are some who might make significantly better moniteurs, if only we knew how to find out who they might be. We know that the present system tends to reinforce the tendency of students to view the CAA as a "last resort" educationally. Their motivation to enter is thus primarily to make a final stab at

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becoming a fonctionnaire. This situation does not mean however that good moniteurs cannot be trained. We believe the issue is one of taking a firmer hold on the selection criteria and trying to define them so as to get good student material in spite of this primary motivation. Someone can conceivably have a dream of becoming an engineer or an airline pilot and still have the potential to become a dedicated and effective agricultural extension agent. Likewise someone who thinks at first only of gaining a government job can also make a good moniteur.

More than half the present cadre of students in the system are of non-farm backgrounds. This may be a liability or it may not be. Some research needs to be conducted to make for better guessing about which criteria ought to be used on selection. At the least it is important for the CAA Project to recognize that the process of student selection is one which it may be able to influence. The key to having that influence will be coming up with a well thought-out set of criteria which show some reliability in predicting whether or not a candidate will make a good extension agent.

II. The Curriculum Process

Broadly defined curriculum represents anything that affects the educational process - ranging from philosophy to the nature of learning to specific objectives. However, as applied to the two year CAA program, curriculum is defined as the subject content emphasis areas and the coordination between the educational activities which produces a holistic curriculum. Taken within the context of such a definition, the purpose of this section is to :

1. Determine the structure of the existing curriculum.
2. Analyse how the curriculum is being revised.
3. Make recommendations based on other agricultural training centers in Africa and the experiences of individuals who have been involved in African agricultural training program.

Looking first at the existing curriculum structure, one finds: A) a basic technical core curriculum consisting of various subjects in crop production and protection, animal science, vegetable production, and economics ; B) an emphasis area in extension ; and: C) a strong practical work program which is intended to support the technical agricultural curriculum. In fact, approximately 40 % of all the scheduled activities is spent in supervised work activities, 32.8 % is spent in actual classroom settings emphasizing technical agricultural subjects, 2.2 % of the time is spent in extension, and the remaining time is spent in individual work/study programs and in recreational activities (see appendix for actual hourly breakdown). Twenty-four individual subjects are taught ranging from topography to soils to fertilizers, etc. (see appendix for a complete listing). The purpose of these courses is not to train a "mini-agronomist" but rather to provide a basic, yet general, understanding of various agricultural principles.

Does this curriculum structure meet the needs of the students who will be working as moniteurs throughout Mali ? A synthesis of the literature on intermediate agricultural training in Africa suggests that the curriculum should include technical content related to the needs of small farmers and the use of an interdisciplinary approach emphasizing skills in technical knowledge, cultural sensitivity, and communication skills. How has the CAA curriculum met these objectives ? What process was used in revising the curriculum ?

These questions lead to the second point under the purpose of this section - an analysis of how the curriculum is being revised. It should be recognized that any kind of curriculum revision requires a significant amount of expertise and effort. This is especially true in the case of the CAA's where most of the existing curriculum was deemed to be inappropriate. There was little coordination between courses, little educational value in the practicals, and the use of subject matter content that was highly theoretical and often only based on the notes instructors had taken when they were students. It was into such a situation that the SECID team was thrust. However, under the



leadership of Dr Son the curriculum revision process was started. To date eleven of the twenty-four courses have been revised and implemented into the CAA system. Again, this revision effort represents a significant amount of time, resources, and expertise. The SECID team should be applauded for these efforts.

A closer analysis of the process used by Dr Son illustrates the magnitude of the curriculum revision process and how the basic tenets of agricultural education have been followed. The process that was used represents six steps. The first step is to perform a task analysis of the moniteurs job. What are the responsibilities of the moniteur ? This task analysis is made more difficult by the variation in the moniteurs work from area to area. The second step is to identify weaknesses within the existing CAA curriculum. As earlier implied, a substantial need exists for curriculum revision.

How can such curriculum weaknesses be overcome ? The third step is to adequately research various information sources that can provide relevant information. This is being done by utilizing past reports/surveys conducted by the Tuskegee Institute of farmers, students, moniteurs, and teachers. Also, teachers within the CAA system are closely consulted, reports from third year students and moniteurs are also carefully studied.

The fourth step is to combine all of this information into a useable format which includes behavioral objectives, basic subject content, and suggested student activities. Next, all of this information must be physically reproduced. Given the fact that no printing facilities exist in Bamako to perform this activity, the SECID team has taken the responsibility of procuring the needed printing material. The SECID team has completed the needed printing and assembly of the revised curriculum courses.

The last step is to evaluate the revised curriculum material. Are the curriculum changes effective ? Has it improved the work of moniteurs ? The actual evaluation of the new

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curriculum is being planned in the next phase of the project ; in addition to the completion of the remaining courses.

An evaluation of these materials clearly reveals that these steps have been followed in the curriculum revision process. The completed material is at the CAA's and is being used by the teachers. Important in the actual implementation of the curriculum has been the follow-up and the monitoring of how the curriculum is being used by the SECID Agricultural Educators. There is a very real danger that the teachers will not use the revised material - feeling more comfortable with the old way of teaching. The curriculum revision has certainly been and continues to be a total CAA and SECID team effort. They should be recognized for a job well done.

However, as the team clearly recognizes, the job of curriculum revision and implementation is not complete. The following recommendations are intended to provide "food for thought" in future curriculum work.

1. The evaluation of the curriculum should closely examine how the material really relates to the needs of small farmers within the Malian context. Are the courses still too theoretical ? Are the students competent in the necessary skill areas ? How can further improvements be made ? Agriculture in mali is dynamic - the curriculum must also change to meet changing agricultural conditions.

One way to increase the effectiveness of this evaluation is to encourage and provide means whereby the SECID personnel, CAA instructors, and Ministry officials can spend time in the field observing the work of both moniteurs and farmers.

2. The competency of the students to practically perform related agricultural activities is an important part of the overall curriculum. To better measure this competency it is recommended that students be provided individual plots of land for both field crops and for garden crops. The students will be given management responsibility for their plot and evaluated on how well they care for these plots. Competitions may be

established between individual students or groups of students with prizes accordingly awarded to the best plots. The production from the vegetable plots can then be used by the CAA cafeteria.

3. The use of the school farm for strictly production reasons needs to be closely evaluated. There is very little to be gained from an educational point of view to have students repeatedly perform the same agricultural activity over some 90 hectares of land. The practical work, rather, must always be focused on an educational objectives. If done correctly, supervised, educational, practical training prepares the students for the realities of working with farmers - particularly those students who come from a non-farm background. However, the students should not be used simply as labor for school farm production purposes.

4. The school farms should incorporate both modern and traditional agricultural practices. Students should be skilled in both types of agriculture and be able to compare the differences in production, costs, and feasibility for small farmer adaptation.

5. Subject matter should logically follow the agricultural season. For example, teachers should not be discussing pineapple production when sorghum planting is taking place in the field. The importance of the SECID agricultural educators to monitor the sequencing of the subject material is evident.

6. Classes should be held in no more than one hour time blocks. Consideration should be given to having some practical work during the late afternoon hours.

7. The extension component of the CAA program needs to be strengthened. Although the students will become moniteurs the chance of them even seeing a farmer during the first two years is remote. Only 2.2 % of the actual time is spent each year on extension activities. "Learning by doing" applies to the techniques and methodologies of extension as well as to the

agricultural production courses. Waiting until the third year for this kind of practice is not meeting the needs of the students. Students should try out their extension methods and concepts in a typical village/farm setting during the CAA program. Students should be placed in small groups, be closely supervised, and work on problems relating to the curriculum that are identified by the village people and by the training staff. Any number of activities could be incorporated into the extension component - i.e. farmer-field days, applying demonstration techniques to the farmers' fields, use of role playing, small group visits to nearby farmers, and incorporating extension into each of the technical courses. In effect students need to be asking themselves, how does this technical course impact on what I will be doing as a moniteur ?

8. The activities suggested in the curriculum should be implemented. These activities have been carefully thought out in relation to how it applies to the subject content - i.e. field trips to area agricultural projects, guest speakers, etc.

9. Students should be provided student resource manuals to take with them upon completion of the CAA program. Such resource manuals should provide a basic outline of the material covered and serve as a field resource guide for the students.

10. It does little good to teach a practical course in animal traction if the necessary field implements are not at the center. Nor does it do any good to have a vegetable garden destroyed by goats because of the lack of fencing material. For the curriculum to be successfully implemented, certain resources are essential. The CAA schools have been supported and must continue to be supported with required teaching resources. The monitoring of these needs and the implementation of an inventory system should be continued.

11. It is too early to determine the effectiveness of the program for women. However, it appears that the women students are certainly able and willing to learn about agriculture. Considering the amount of agricultural work done by Malian

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women, the inclusion of women in the CAA program appears to be appropriate. Further, there is not sufficient evidence to warrant suspending a woman student because she is pregnant.

The common response to the question of how effective women can work as monitrices is that "ça dépend". It depends on the individual, on the assignment, and on the kind of support the monitrice can receive from the agency she is working for as a monitrice. The issue of women in the CAA system is relatively new. It is, therefore recommended that no changes should be made in the curriculum for women until a more clearly defined role can be established of exactly what monitrices are actually doing in the field.

12. Twenty-four individual courses are offered within the CAA system. With so many individual courses a very real danger exists that students will not easily understand how a course in animal feeding is very closely connected to a course in animal health. To avoid this danger it is recommended that certain courses be eliminated from the curriculum and that some courses be phased into and with other courses. For example, the two economy courses could be eliminated and the information merged into the extension courses. As curriculum revision with the animal science courses begins, it is very possible to so merge some of these courses by eliminating the existing highly theoretical information.

The curriculum revision process is a very important component of improving the CAA system. Certainly a proportionate amount of resources, time, and expertise has correctly been allocated to this area of work. The effort needs to be continued. Again, the SECID team deserves a great deal of credit for accomplishing the revision of eleven courses. The remaining courses also are in need of revision along with a need to follow-up and evaluate revised courses.

III. Staff Development

Staff development(training of trainers) is the second

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major broad goal of the CAA Project. The evidence we gathered in the course of our visits and talks shows that great progress has been made in teacher training. Teachers themselves as well as center directors and adjoints (who are the administrative personnel directly in charge of teachers) all quickly and spontaneously acknowledge that the SECID team has had a real and positive effect on all aspects of teaching. Foremost among these is the universal adoption of lesson planning on a regular basis. Where before teachers read from their notes (dictée fashion) or simply copied them on the blackboard, they now draw up a lesson plan based on behavioral objectives and generally try to stick to the plan. Whereas before plows and the like were discussed in the abstract, now teachers lift a real plow on to the desk and make a "live" presentation. Whereas before, the discussion of insects for example, was done through notes, now students are required to find and bring insects into the class and the discussion is tied to observations about the insect in each student's hand. Whereas before some teachers went off to town for a few days unannounced, or classes started late, now teachers are present, classes begin exactly on time and more importantly, a sense of professionalism has begun to reign.

The CAA instructors do have specific technical agriculture subjects to teach. It was the observation of the evaluation team that, in general, the staff would benefit from the continuation of training in their respective skill areas. For example, two week long technical workshops would provide greater teacher confidence and skill in their subject matter area.

Our attendance at the Samanko weekly staff meeting suggested some underlying reasons why the team's work has been successful and also why it still has a long way to go ; why its work must continue in order for the project to succeed in the long term.

We did not have the opportunity to meet Albert Roberge, but it is clear that in the person of E. Bowen and P. Michaud the team has fielded two dedicated and energetic teacher trainers/ staff developers/pedagogical advisors. In the final analysis it

is the character and quality of the front line field personnel who can make or break this aspect of the project. Both Bowen and Michaud made it clear to the teachers early on that teaching is a profession ; it is so taken by Bowen and Michaud themselves. Their own enthusiasm about it, their own clear belief that it is a calling of value have had a real effect on the CAA's staff.

In addition something has occurred in the CAA Project which is akin to what sociologists refer to as the Hawthorne Effect, (Wherein the subjects of research begin to change their behavior as the result of being studied). First the teachers and the staff at the CAAs begin to feel they are important because the project has in fact come into being and focusses on them. Second they begin to take their work seriously because people like Bowen and Michaud (and the entire project staff in fact) take themselves and the work of the CAAs and CSSs seriously. Thus the CAA system, apparently long neglected and seriously lacking in professionalism and esprit, suffering from a real sense of despondency (according to Mr Guindo, who remembers how things were before the project) now become the focus of a major and serious effort. Not only are money and material forthcoming, but genuine attention to the development of the personnel. The resulting sense of professionalism (and the associated benefits of the Hawthorne type of effect) should not be underestimated as a key to the success of this project.

The project should be extended at least in its present staff level for the projected period (to 3/87) and plans should now be made for a further extension of perhaps two more years at a reduced level of 2 to 3 expatriate personnel. Secondly, the quality of the personnel attached to the project to date must be maintained. E. Bowen should be replaced at Samé by someone as good as E. Bowen was. The M'Pessoba CAA, which everyone in the project acknowledges as weaker than the other centers in its staff development, needs to be that much more strengthened. A strong individual should be brought in when Mr Roberge's contract expires.

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So much for reasons why the staff development aspect of the project has been generally successful thus far. The other side of the coin - the reasons why the project must continue in this area - was also clear at the Samanko staff meeting and in subsequent interviews with teachers. For the most part they are undereducated, poorly trained in teaching, and fundamentally insecure as teachers. While this makes them ripe for exactly the kind of confidence building and substantive help which the project has been successful in providing, it also makes them highly susceptible to feeling threatened by certain kinds of new teaching techniques, new emphases and methods, and basically guarantees that the process of staff development will be a long one. One year of regular workshops, individual counseling sessions and participant training (and a year is really all the project has had to get this staff development work rolling since the first year was spent gaining acceptance) is simply not enough. This is a much longer process and we have some doubts that even a two year full extension will be enough.

The practice of rotating teachers every three years (in theory at least) so that they will each be at each of the centers is probably a good one as it guarantees some cross fertilization of ideas and will help tie the system together. Given that the civil service procedures make it difficult to get rid of those who are the least good the present group needs to be worked on continuously. All the methods and procedures presently being undertaken, weekly sessions with the SECID pedagogical advisors, demonstration teaching sessions, "stages", workshops, instruction in audio visuals should all be continued. But in addition, teachers should be brought more regularly and centrally into the curriculum revision process. They should be regularly and often asked for feedback on course revisions rather than once a year or only at the beginning of the revision process. More effort could be made to publicize the schools - as a way to further enhance the teachers feeling of identity with the CAA system and as professionals. This is only some compensation for the lack of material incentive for

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teachers however, and of course whatever can be done in this area will have a further motivational pay off. Particularly improvements in teachers' transportation. Mobylettes have been one urgently and often requested item.

Some specific issues in staff development :

1. While there has been a clear break from the traditional French theoretical/classroom-based teaching system, there is still much more progress to be made here, especially with the faculty at M'Pessoba. Here faculty were observed to be present in the fields with students only in small numbers and not interacting with students. The model observed at Samanko where now all teachers of all subjects participate in the TP side of things is to be imitated elsewhere and strongly reinforced.

2. The extreme importance of strong leadership in the centers for providing the fertile ground for staff development was brought home by the many comments heard about the fine abilities of the late center director at Samanko and by signs of some staff disharmony at other centers. The CAA Project administrators recognize the importance of leadership as a key to the success of this project so we are merely reinforcing that point. Evidence of weak leadership at the CS at Kita, the need to find a strong replacement for the director at Samanko, the need to resolve conflicts between the adjoint and director at M'Pessoba were all apparent to the evaluation team. These problems need to be focussed on with some urgency.

3. The present "emploi du temps" at the CSs tends to see too many faculty members idle during the 1½ to 3 month period when the stagiaires are in the village. There was evidence that visits to supervise stagiaires were irregular and yet clearly staff had plenty of time on their hands. The project should consider making efforts to do some staff workshops, short term training of individuals on a rotational basis, (e.g. rotations of individual faculty members for short stints at SECID headquarters to help in curriculum revision) and generally promote more field activity with stagiaires during this period.

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As has been noted before, to the extent transportation is a significant constraint to the field activity of faculty during the three months village stay period more funds should be allocated to solve this.

Institutional Development

The project as a whole has several major advantages that projects of this kind very often lack : First, the counterpart staff is exceptionally strong and well motivated in key roles, particularly that of director and chief of section of programs and teaching methods. There is also consistency in the staffing duration. Second, the SECID staff is unusually harmonious in its internal interactions and competent and complementary across the board. Third, the GRM stands behind the project, not necessarily actively but clearly in a positive stance. These things contribute to the projects success and insure real value to the project extension. A major need, however, for the second stage of the project is for it now to make an effort at achieving higher visibility within the agricultural ministry. As Mr Guindo pointed out cognitively, the ministry needs to better understand what this project is about in order to give it greater support and recognize that it is inherently different from other agriculture projects ; its primary aim not being ag production but human resource production. Efforts should therefore be made to bring ag people in as regular visitors to the project or to hold an orientation seminar for key participants. This would play a significant role in the contextual constraints mentioned in I.

One overall concern at this point in the life of a successful project is whether or not the project has created dependencies which will backfire when the project extension is over in 1987. One area of particular concern here is the role of the curriculum revision person. Dr Son, whose prodigious work is truly commendable, has been overburdened. There must be an effort made to train a Malian counterpart as a curriculum specialist and a second person must be trained as a support person in media and production. We were concerned that Dr Son

need to be everything from drawing boards and illustrations to
submit the books for publication. The books should be
in these aspects of production and for providing a counterpart
to work with Dr Son. The identification and training of a local
curriculum counterpart should not be delayed. The division
needs to be able to maintain a Malian curriculum specialist
after the SECID team pulls out. Ideally, this person would
receive long-term curriculum development training in the States
and be able to work with Dr Son for a year after he/she returns
from the participant training.

We concur strongly with SECID staff that the staffing
pattern for the next two years should be the same as at present
to wit :

COP

3 AG ED Specialist (or 2 AG ED Specialist and one
combination AG ED/Curriculum Revision Specialist to
assist Son).

Curriculum Specialist

Mechanic

We also recommend replacing the administrative assistant whose
tour of duty recently terminated, and possibly the recruitment
of a PCV mechanic to assist the SECID mechanic.

IV. The Third Year Program

During the third year, students are currently being
sent to either the Centres de Spécialisation (CS's) at Dioro,
Baguineda, and Kita, or they are dispersed to various
operations and parastatal organizations located throughout
Mali. Currently 50 students have been placed in the CS system
and 117 students have been placed in either the operations or
parastatals. The basic purpose of the third year-program is to
provide training in both extension and in a specific crop such

as cotton, rice, or vegetables. The extension component is accomplished through a three months "live-in" with selected farmers. The crop specialty is accomplished through a six month program that includes both classroom work and field work.

However, it has been the experience of the evaluation team that wide disparities exist between the different third year training sites resulting in a very questionable third year training program. For example, the CS staff is to supervise the first three months of the program relying on non-existent transport. The result is that the farmers and the students interact with very little, if any, supervision. The lack of a systematic, coordinated, and supervised extension component during these three months makes a farce of the supposed extension training during the third year. The remaining six months at the CS's may provide some expertise in a specific crop. Yet, there is no evidence that this specialized training is taken into consideration in the placement of the students.

The training situation at the operations and parastatals provide basic on-the-job training with no pretense to serving any educational objectives. What the student learns is a very directed technical input package that affords little flexibility in the way of extension methods or in problem solving techniques. Again, there is no evidence that these students are correspondingly placed in a project whereby the skills they learned during their third year can be utilized.

Clearly, the need exists for a more consistent, closely supervised third year program. Several alternatives exist. The third year could be completely discarded - simply putting students out on the job at the end of the second year. It may be appropriate to place all third year students with only operations and parastatals and use the CS's for in-service training programs. However, the most logical approach would appear to be one of strengthening the existing CS's programs and have all of the students spend a third year at one of the CS's. Such an option would provide the needed supervision and coordinated training.

Basically the CS's at Dioro and Kita are being under-

utilized from both a staff perspective and a faculty perspective. Plans exist to move the Baguineda site to Samanko and the World Bank plans to construct a new CS at M'Pessoba. The sites at Dioro and Samanko and M'Pessoba could accommodate 40 students each. The site at Kita could accommodate another 25 to 30 students. It must also be recognized that the facilities at Dioro need to be upgraded to include necessary transportation, water capacity, faculty housing, and classroom facilities.

All of the students should spend their third year at one of the CS's once the necessary construction and upgrading are completed at the four CS centers located at Dioro, Samanko, Kita, and M'Pessoba. However, until that time comes some students will need to spend their third year at one of the various operations or parastatals. The following recommendations may be taken into consideration to minimize the inconsistency of the third year program.

1. Limit the number of students who are currently being selected for the CAA program. Increase the number of third year students at Dioro to 40. Continue to place 10 students at Baguineda and 25 students at Kita. The remaining third year students will need to be dispersed to the various operations and parastatals.
2. Provide the necessary resources/improvements to Dioro. Adequate water, staff housing, and transport are pre-requisite to the successful implementation of a third year program.
3. More effectively use third year staff at the three existing CS's. Currently the staff work only six months of the year with students unless they have transport to visit students during the first three months.
4. Carefully select the operations or parastatals where third year students will be sent. Attempt to co-ordinate a systematic educational program that could be implemented by moniteurs or encadreurs who are already in the field.

5. All students should take the exam at the end of the second year. The third year program would then be viewed as a probationary period whereby the students would be evaluated based on attitude, competency in technical areas, and ability to adapt to farm/rural conditions. Avoid the transport of students back to their original CAA's to take a final exam.

6. Emphasis on a special crop may be continued but it is important to provide students with some experience in other agricultural activities. Until placement is coordinated with student experience with a specific crop, the students should continue to receive experience in various agricultural activities that could be adapted to any crop.

The third year program offers the potential for the students to apply their knowledge to specific situations. That potential, however, will not be realized until the CS program can accommodate all of the students in a systematic, supervised, and coordinated training program.

V. Students

The evaluation team had occasion to meet with and talk to about 50 students of the 400 or so which are presently in the six centers. For the most part students seem to be relatively positive about both their present experience and their prospects. There are healthy signs - especially a sense of competition among the centers as to which is the best (though M'Pessoba students do not seem to feel their center is the best) ; a feeling that the metier of agricultural monitors is a genuinely valuable one (second year students naturally feel this more, attesting to the success of the course work aimed at sensitizing students) and confidence that their curriculum will prepare them for this metier. At no time in public or private discussions did any student suggest that teachers were incompetent or lacking in technical knowledge (though other complaints about teachers were made).

It is clear that among students the Hawthorne type of effect is working. It was obvious that even evaluation visit added to the students' feeling that they were involved in something of consequence.

At the same time it seems clear that students' overall perspective on their work and their future metier is too narrow. They are with very few exceptions, very much stuck in the "Fonction Publique" mode and set of expectation. Their very first complaint when you get them alone is about the fact that there is no longer a guaranteed government job at the end of a hard three years work. It does not occur to them another way of exercising their metier may even be conceivably possible. This is of course a function of force-of-habit in the country as a whole. But part of the role of the staff and teachers at each center should be to orient students to the metier in its larger national development context ; in effect to help them be optimistic not only about what they are doing but about the agricultural sector as well. We realize there are limits to what can be done here in the absence of substantive evidence of progress. But still a major initial orientation at the beginning of each year in which the students' often hidden fears about their future are addressed may help the general ambiance in the centers.

When asked what they would see themselves as 5 or 7 years from now, too many answered that they see themselves moved up to a higher bureaucratic grade and out of direct extension work. This too suggests more effort needs to be made in course work in the rural economy area, in vulgarization and perhaps generally a greater emphasis on farming as the core of future private enterprise and future economic growth in Mali. If students can see the sector they're in as the leading edge of growth in the country this will help raise their level of commitment and lengthen their perspective.

There is in Mali as in many developing nations a great potential for student impatience with the slow pace of progress to rise to the surface in destructive ways if not tempered. Allowing for a natural adolescent tendency to exaggerate, to be

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melodramatic, to impress a willing listener, there was nonetheless a real element of pessimism and impatience about such things like the use of the daba and even animal traction (which in the Malian context is quite state-of-the-art) which many students express as backward and old fashioned. Their attitudes are of course due to the acute awareness of the difference between farming here in Mali and what they sense it to be in the west (large tractors, use of computers etc.). Its the old "how are you going to keep'em down on the farm" problem. But this too can and should be addressed directly either in an orientation session or in course work itself. Students can and will respond to being reminded that they are in Mali, likely to stay in Mali, and would be best off trying to work with what exists in Mali and what is appropriate to Mali now.

Minor complaints from students run the gamut but the most often heard ones were about the food and the beds. Both of these we understand are of concern to all parties involved in the project and it appears efforts are being made to improve conditions. Some attention should be given to recreational facilities for students.

With respect to curriculum changes and overall shifts in pedagogical emphases from theory to practice, students as well as teachers need to be brought along in this process. It is not enough just to change the teachers' habits. Students after 9 or more years have also acquired some learning habits which are counterproductive. They need to have it explicitly explained to them what the project is trying to change and why.

In addition, to further create a better match between what students know and what teachers teach, some sort of pretesting should be tried in the first year to determine where students are with respect to agricultural specifics - precisely the areas which the concours d'entrée did not test. It is quite possible that such a pretesting in the first few weeks of the first year would provide a research data base for designing the proper selection criteria for admission to the CAA system.

In a discussion with a Malian official it was suggested that an effort should perhaps be made to convince decision makers that the CAA work is of such value to the country's agricultural future that a waiver on the Fonction Publique issue should be granted for future students of the CAAs - thus the guarantee of a government job for CAA graduates would be reinstated. Certainly this would alleviate the anxiety that students presently have. But it is too early to say whether or not this would be a good move. We would recommend that this be reconsidered seriously a year or so from now.

Finally a word should be said about students' perceptions of the third year program. By and large they do not see the CSs as desirable places to go. This is because they perceive the CS as more work than being assigned to an operations as a stagiaires, and because they know they can make a little money if assigned as stagiaires in the operations which they cannot if they are in a CS. This has the effect of making the CS into a kind of booby prize rather than the reward for good work that it should be. The answer to this problem lies in what we have suggested in Section IV - make the third year in a CS compulsory for everyone.

VI. Administration

Attempting to administer six different training sites, some fifty-odd staff, and approximately 400 students all within the context of a developing country's infrastructure is a task which requires skill, patience, and creativity. Yet, even with these constraints, the administrative links within the CAA system appear to be operating amazingly well. Much credit can be given to the principal administrative people involved in the evaluation of this project. These individuals are Monsieur Guindo of the GRM, Dr A.J. Abshire of the SECID team, and Rebecca Niec of AID. These people have blended together their specific roles, responsibilities, and personalities into a practical and a workable administrative system. Each has recognized and worked within the constraints of the other's organization.

The communication between these three has been stressed and appears to be operating very well. One example of this co-operation and communication is evidenced in the procedure by which resources are identified as need items and procured. The initial list is made up by the CAA and CS staff, discussed with the SECID representatives at each school and passed on to Bamako. At this point Dr Abshire and Monsieur Guindo prepare a priority list and go about the process of procuring the needed items within allowable limits. Rebecca Niec enters into the picture whenever dictated by AID regulations to lend her analysis and support of needed items.

A word should also be mentioned about the complexity of the logistics involved simply in moving resources from Bamako to the six training sites. Special credit goes to E. Bowen in supervising the moving of resources from Bamako to Samé. There are few people who would have been able to accomplish this task as well as E. Bowen.

It has been the observation of the evaluation team that support to the field team, has been adequate, that communication channels have been established and are operating, inputs have been timely and appropriate, and that the basic administrative functions of this project are working very well.

There are however a series of significant improvements which can and should be considered :

Recommendations :

1. Maintenance of vehicles and machinery - The project's mechanic, Tom Keegan, has done an excellent job but he has been spread too thin, rotating between sites for 2 to 3 months at a time and then not returning to the first site for 6 or more months by which time much of what he had been able to accomplish has to be begun anew. It is now clear that the original estimate of need in this area was overly optimistic. Training and support in mechanics and equipment maintenance is a long term process and will certainly require the services of a full-time project mechanic and possibly an assistant mechanic/trainer (perhaps a PCV) for the duration of the project extension.

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2. Media Center - As mentioned before, more logistical and training support is needed on the media production side of curriculum revision. A strong effort should be made to identify a solid Malian counterpart for training in this area. Additionally more space will be needed at the project offices for both storage and production work.

3. Physical Plant - The present project staff buildings are now used to capacity. The need for additional space which is now arising should be addressed as soon as possible. A single rectangular extension to the present structure, comprising 2 to 3 standard office spaces would fit on the existing site.

4. An Administrative Assistant - The need for part-time or even full-time administrative help for Dr Abshire will be greatest during the time it takes to find new staff for the project extension. During the next year some of his time may well have to be devoted to agricultural education and staff development work at various sites and project momentum would be at risk if things did not run well administratively at headquarters.

5. Food and Nutrition at the CAAs and CSs - While we recognize that major changes are not likely to be made in this perennially complained about area, we feel that nonetheless some improvements can be made. To the extent that the attitudes and old habits of the various cooks is part of the problem and effort could perhaps be made to change those habits through a workshop or some other sort of training.

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APPENDIX A

General Information Required By Africa Bureau, AID/W Ref ; 82 State 81077.

1. As stated in the original Project Paper, a major constraint to increased agricultural production in Mali has been the shortage of trained extension personnel. If the agricultural production and the quality of life for small farmers is to be improved, effective extension and research systems must be staffed by capable personnel.
2. The specific constraint of increasing the number of effectively trained extension personnel can be alleviated through the adoption of an improved extension training program. Such a program brings into play a relevant curriculum, improved teaching methods, and practical training which results in a more competent agricultural extension officer.
3. A more effective training program is, thus, in itself an appropriate technology. It replaces an inappropriate curriculum, outdated teaching methods, and a practical system of training that emphasized student activity in purely a production sense rather than in an educational context.
4. Several audiences are involved in adapting the new technology. The teachers must first be trained in the new methodology and convinced of its practicality. The students also comprise an audience which must adopt the new technology. If these audiences are successful in adopting the new technology, the small farmers as the ultimate target group will also benefit.
5. It has been the observation of the evaluation team that both the students and the teachers have exhibited a willingness to accept the new technology. Interest, flexibility, and learning by doing have characterized their attitude in accepting the new technology.

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6. The adoption rate of the new technology is represented in a survey of the teachers and the students during the evaluation team's visit to each of the six training sites. Without exception the students and teachers have been involved in using the new technology and in realizing the benefits found therein. This statement is supported by discussions with teachers and students, reports made by the SECID agricultural educators, and personal observation of the classes.

7. Training the trainers (i.e. staff training) is a necessary first step in setting into motion forces that will further improve the new technology. Once the staff realize the benefits of the new training, they will continue to find new uses and new means of delivering the technology to the students. In turn, the students will apply the same process of improving the methods of assisting small farmers by the use of the problem solving techniques learned in the new technology or training program.

8. The private sector within the Malian context does not play a role in this particular constraint. Agricultural training programs are strictly within the domain of the Malian government. It will only be when private institutions can develop their own training programs that private sector involvement can become involved in overcoming the constraint.

9. The delivery system of providing the new technology rests in the implementation of the project through personnel of the SECID team. Members of the team are located at each of the centers and are responsible for the implementation of the new training program.

10. The training techniques used by the project include learning by doing principles, problem solving techniques, demonstrations, use of audio-visual methods, use of small group interaction, workshops, participant training, and the use of consultants to set up seminars in specific training techniques.

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APPENDIX B

Breakdown of 1984 Enrollment in the CAA and CS Programs

Enrollment within the CAA Program

	First Year		Second Year	
	Garçons	Femmes	Garçons	Femmes
M'Pessoba	35	0	36	0
Samanko	40	20	39	23
Samé	55	27	65	25

Third Year CS Enrollment

	Garçons	Femmes
Dioro	15	5
Baguineda	0	10
Kita	15	5

Third Year Enrollment in the Operations and Parastatals

Office du Niger - Ségou	14
Samanko Machinisme	10
CMDT	15
DNFAR	8
Economie Rurale	12
National Food Direction	58

APPENDIX C

Yearly Calendar

<u>Classes</u>	<u>Première Année</u>		<u>Deuxième Année</u>	
	<u>hrs/week</u>	<u>hrs/yr</u>	<u>hrs/wk</u>	<u>hrs/yr</u>
Production Vegetables	6	216	6	216
Zootechnic	3	108	3	108
Economie Générale	1	36	1	36
Vulgarisation Agricole	1	36	1	36
Enseignement Générale	5	180	5	180
Travaux pratiques	18	648	18	648
Etudes et Travaux Individuels	5	180	5	180
Etude	5	180	5	180
Sport	1	36	1	36
	45	1620	45	1620

APPENDIX D

List of Courses Offered at the CAA's

1. Vulgarisation - 1ère Année
2. Vulgarisation - 2ème Année
3. Economie Générale - 1ère Année
4. Economie Rurale - 1ère Année
5. Anatomie et Physiologie
6. Connaissance du Bétail
7. Elevage et Reproduction
8. Alimentation du Bétail
9. Hygiène Animale
10. Produits d'Origine Animale
11. Etudes de Sol
12. Travail et Aménagement des Sols
13. Fertilisation des Sols
14. Botanique - 1ère partie Morphologie, Anatomie, Reproduction.
15. Botanique - 2ème partie Physiologie et Ecologie
16. Multiplication et Amélioration des Végétaux
17. Protection des Végétaux - 1ère partie Insectes et Animaux Nuisibles.
18. Protection des Végétaux - 2ème partie Maladie, Mauvaises Herbes, Protection des Récoltes et Stocks.
19. Cultures Vivrières
20. Cultures Industrielles
21. Cultures Maraîchères
22. Cultures Fruitières
23. Conditionnement et Industries Agricoles
24. Topographie

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List of Revised CAA Courses

1. Cours Elémentaire de Topographie
2. Fertilisation des Sols
3. Botanique Tome II - Physiologie et Ecologie
4. Etude des Sols
5. Botanique Tome I - Morphologie et Reproduction
6. Travail et Aménagement des Sols
7. Vulgarisation Agricole - 1ère partie
8. Vulgarisation - 2ème partie
9. La Culture des Maraichères
10. Economie Générale et Rurale
11. Protection des Végétaux

APPENDIX E

List of People Contacted in the Completion of the Evaluation

US-AID Personnel

- R. Niec
- G. Cashion
- D. Wilson
- M. Aw
- M. Fofana
- S.K. Reddy
- R. Simmons

SECID Personnel :

- A.J. Abshire
- N.H. Son
- T. Keegan
- P. Michaud
- E. Bowen

DETA-FP Division Personnel :

- M. Guindo
- M. Saingaré
- M. Dembélé
- M. Kanté

Directors of the Various Training Centers :

- M. Babert, Centre d'Apprentissage Agricole (CAA) M'Pessoba
- M. Cissé, Centre d'Apprentissage Agricole (CAA) Samé
- M. Sanogo, Centre d'Apprentissage Agricole (CAA) Samanko
- M. Cissé, Centre Spécialisation Cultures Vivrières et
Arachidières (CSPVA) Kita
- M. A. Koné, Centre Spécialisation Rizicole
- M. Mariko, Centre de Spécialisation Maraîchère

World Bank Personnel :

- Mama Tapo

Operation Personnel :

- Operation at Kayes personnel
- Operation at Dioro personnel
- Operation at Samanko personnel
- Operation at M'Pessoba personnel

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APPENDIX F

CAA EVALUATION
SCHEDULE

RJNiec, ADO
Revised 6/1/84
Revised 6/7/84

Mon June 4		Team Arrival.
Tue	5	Negotiate contracts/meet AID project personnel, Director and Ambassador/visit Personnel and Health Unit/Meet GRM (DETA-FP) CAA Project Director, staff and SECID team.
Wed	6	Review project documents at SECID/finalize and sign contracts/visit Controller and Ag Development Officer/dinner with Project Manager and schedule and work plan finalize.
Thurs	7	Review project documents at SECID/interviews with SECID and DETA-FP headquarter staffs/go to Samanko CAA staff meeting.
Fri	8	Leave for Baguineda CS (7:30am)/visit Samanko CAA in afternoon/visit <u>Operations</u> and interview <u>moniteurs</u> .*
Sat	9	Visit Samanko (8:30 am)/visit <u>Operations</u> and interview <u>moniteurs</u> .*
Sun	10	Rest/Dinner at Dr Son.
Mon	11	Interview AID Project Personnel, SECID team, DETA-FP headquarters staff/review project literature.
Tue	12	Leave Bamako by train for Kayes/overnight in Kayes.
Wed	13	Visit Samé CAA */overnight in Kayes
Thurs	14	Visit <u>Operations</u> (OVSTM) interview <u>moniteurs</u> in and around Kayes.*
Fri	15	Leave Kayes by train for Kita CS/overnight Kita.*
Sat	16	Visit Kita/take train back to Bamako, if possible.
Sun	17	Option take train back to Bamako (5 AM)/rest.
Mon	18	Interview DETA-FP headquarters staff and SECID team/afternoon leave for Ségou/overnight in Ségou.
Tue	19	Visit Dioro CS */overnight Koutiala.

* To extent possible interviews will be conducted with moniteurs in Operations in the areas of the schools, in conjunction with school visits.

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Wed	20	Visit M'Pessoba CAA/CMDT and other <u>Opérations</u> and interview <u>moniteurs</u> */overnight Koutiala.
Thurs	21	Wednesday's activities continued/return to Bamako.
Fri-Sat	22-23	Collect and verify data/interview with World Bank Education Project personnel/interview <u>Operation</u> personnel in Bamako/interview DETA-FP <u>headquarters</u> staff and SECID team.
Sun	24	Rest.
Mon-Tue-Wed	25-26-27	Continue interviews/writing of preliminary evaluation report, translation of draft report, typing of translation and distribution.
Fri-Sat	28-29	Presentation of findings to AID and GRM with English and French drafts.
Sun	30	Rest.
Mon	2	Ramadan (Malian Holiday).
Tue	3	Debriefing for Ambassador/feedback to team on draft report.
Wed	4	Finalize report in English and prepare French draft for final typing.
Thurs	5	Present finalized English report to AID Actg Project Manager/team Departure.

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APPENDIX G

CAA Samé Evaluation Report

Construction Evaluation

Project No. 688-0207

June 12th to 15th, 1984

The CAA is located 20 km from Kayes, chief town of Mali's first Economic Region.

The school buildings include:

- 2 administration buildings
- 1 classroom building
- 1 dining room and kitchen building
- 3 boys dormitories with toilets
- 1 girls dormitory with toilets
- 4 administrators houses
- 3 teachers and assistants houses
- 1 water pump and treatment station
- 1 generator building
- 1 metal water tower
- 1 septic tank

Construction of the center started in October 1979 and was completed in June 1981 by SATOM at the cost of \$4,364,641 or 1,745,856,406 MF. (\$1=400MF).

Subsequent to the opening of the center in June 1982 additional work was carried out by SONOCO for \$68,275 (47,454,495MF).

Supervision and quality control were carried out by Genie Rural and DIWI for \$204,875 (81,950,000 MF).

Construction and Supervision Cost Summary

	<u>US Dollars</u>	<u>Mali Francs</u> (\$1 = 400MF)
SATOM	4,364,641	1,745,856,406
Genie Rural	99,875	39,950,000
DIWI	105,000	42,000,000
SONOCO	<u>68,275</u>	<u>47,454,495</u>
<u>Total:</u>	\$4,637,791	MF1,875,260,901

After two years of operation, the buildings and materials of the Samé CAA have sustained some damages:

- The Lyster generator at the water pump station has not worked for about a year, due to an alternator breakdown.
- The water treatment plant at the well has been out of use for three months. The bobbin of a compressor has burnt out and the automatic contact system does not work.

- The exhaust pipe of the generator installed by SONOCC is oriented toward the interior of the school, so that all the noise spreads throughout the courtyard.
- There are big cracks on many walls; shower and ceiling supports are deformed.
- Furniture in the instructors' kitchens is in poor shape or in some cases destroyed.
- The electric system is very modern, but there is a general problem related to the central circuit breaker and fuses.
- The type of circuit breaker, fuses and switches are not available in the local market. The type of bulb used is screw-in and not the socket type available in the local market.
- Waste water is drained into the septic tanks from which it is drained into the Senegal River after treatment. The quality of used water is questionable and villages downstream always complain of diarrhea and headaches which, they believe, is caused by CAA waste waters.
- The school has no sports infrastructure: - no soccer field, basketball or volley ball courts.

Recommendations

Subsequent to the field visit and interviews with the CAA Director, Mr. Boucary Cissé; his assistant Mr. Saturnin Ky; OTER agents Guindo, Dembélé, Traoré; and instructors Bolly and Samaké, the major recommendations are:

- Access road should be improved to make it passable throughout the years, particularly during the rainy season which is the active period for the center. This improvement may cost about \$200,000 which represents less than 5% of the total construction cost.
- Owner's manuals are needed for the generator and accessories, the second generator needs repair as there is only one 45 KVA generator now for the whole center.
- Specialists should be sent for the maintenance of the equipment.
- A budget should be provided to buy equipment and spare parts: shutters, compressors, alternators, neon tubes, circuit breakers, ceiling supports, etc.
- The big 91 KVA generator should be sold to buy a smaller one which would be less expensive to operate and which would supplement the currently used generator.
- Existing septic tank should be treated to avoid the contamination of river waters. For more security standard septic tanks should be made for each group of buildings which amounts to about 5 and none should drain water into the river.

- A good sports infrastructure should be provided for the school comprised of 176 students of which 46 are girls, plus 19 administrative and instruction personnel.

Sports activities are integral parts of the school curricula. The aim of education is to develop "a sound mind in a healthy body".