PD-AAC-186-B1 224p

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE (X APPROPRIATE BOX)
[X] ORIGINAL [ ] CHANGE [ ] ADD [ ] DELETE

PP

DOCUMENT CODE 3

2. COUNTRY/REGIONAL ENTITY/GRANTEE
GOVERNMENT OF MALI

3. DOCUMENT REVISION NUMBER

4. PROJECT NUMBER
688-207

5. BUREAU
A. SYMBOL: AFR
B. CODE: 1

6. ESTIMATED FY OF PROJECT COMPLETION
FY 80

7. PROJECT TITLE - SHORT (STAY WITHIN BRACKETS)
[Improvement of Ag. Officers Training]

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
A. INITIAL MO. 7 YR. 7 B. FINAL FY 77

9. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH)

620	635	660			

10. ESTIMATED TOTAL COST ($000 OR EQUIVALENT, $1 = ____)

A. PROGRAM FINANCING	FIRST YEAR B. FX	C. L/C	D. TOTAL	ALL YEARS E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	(3,701.5)	( )	(3,701.5)	(4,938.9)	( )	(4,938.9)
(LOAN)	( )	( )	( )	( )	( )	( )
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST GOVERNMENT		559.0	559.0			1,409.4
OTHER DONOR(S)	Est. unavail					
TOTALS	3,701.5	559.0	4,260.5	4,938.9		6,344.3

11. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION (ALPHA CODE)	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE	FY 77 D. GRANT	E. LOAN	FY 78 F. GRANT	G. LOAN	FY 79 H. GRANT	I. LOAN	ALL YEARS J. GRANT	K. LOAN
FN	113	012	3,701.5		1,237.4				4,938.9	
TOTALS			3,701.5		1,237.4				4,938.9	
L. ESTIMATED EXPENDITURES			3,701.5		1,237.4					

12. PROJECT PURPOSE(S) (STAY WITHIN BRACKETS) [X] CHECK IF DIFFERENT FROM PID/PRP

[To increase the capacity of the GOM to provide up to 160 well-trained, polyvalent junior-level agricultural technicians by February 1980.]

13. WERE CHANGES MADE IN THE PID/PRP FACESHEET DATA NOT INCLUDED ABOVE? IF YES, ATTACH CHANGED PID AND/OR PRP FACESHEET.

[ ] YES [X] NO

15. ORIGINATING OFFICE CLEARANCE

SIGNATURE: Ronald D. Levin

TITLE: CDO/Bamako

DATE SIGNED: MO. 08 DAY 02 YR. 76

16. DATE RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MO. DAY YR.

AID 1330-4 (5-75)

Part I. SUMMARY AND RECOMMENDATIONS

A. 1. Grantee: The Government of Mali
2. Amount, Grant $4,938,900 three years

B. Project Purpose

The Purpose of this project is to increase the capacity of the GOM to provide up to 160 well-trained, polyvalent junior-level agricultural technicians by February, 1980.

C. Description of the Project

I. Project Activities

1. Construction and Renovation

Two Agricultural Apprenticeship Centers (Centres d'Apprentissage Agricole, CAA) are to be built/renovated; one at Samé, the other at M'Pessoba. Each center will be expanded to house 160 students (80 per class) and will consist of fully equipped classrooms, dormitories, dining facilities, staff housing, administrative offices and specialized facilities. (The IBRD also plans to renovate and expand one CAA at Samanko and build a new center in Mali's Fifth Region. Each IBRD-financed center will house 120 students, or 60/class.

2. Participant Training.

a) Short-term (2-3 months) training in pedagogy, curriculum development and agricultural education administration and management is provided for the agricultural education instructors and middle-level administrative staff in the CAA program. (99m/m)

b) A maximum of two 1-year scholarships are planned for senior-level CAA administrative personnel to study agricultural education administration and management at the Master's level in a U.S. or third country institution.

3. Technical Assistance

a) Under personal services contracts with a U.S. university or a qualified private firm, AID will furnish the following personnel:

(1) One Agricultural Education and Administration specialist as project team leader and management consultant to the Division of Agricultural Education and Professional Training (DAEPT), which administers the CAA program. (36m/m)

(2) One Agricultural Education specialist who will coordinate curriculum improvement in the CAAs and improve the follow-up of trainees during their third year of specialized training. (30 m/m)

(3) Three agricultural extension and education instructors who will be based at the three functioning CAAs (Same, M'Pessoba and Samanko) and will serve as senior faculty with both teaching and supervisory responsibility. (90 m/m)

(4) Short-term consulting expertise in agricultural education curriculum development, village-level agricultural technology, project evaluation, rural development, women's training, and including administrative/management seminars to be conducted in Mali by a qualified management consulting firm.

b) In addition, the project seeks to employ a PCV mechanic to establish a vehicle and equipment maintenance program in all the CAAs.

4. Equipment and Vehicles.

a) Both expanded and renovated CAAs at Samé and M'Pessoba will be fully equipped with the required furnishings and appropriate teaching materials for the classrooms, agricultural work, and wood-and metal-working classes.

b) Small school buses, light and medium-weight pick-ups and station wagons are provided to insure the necessary logistical support for the CAA program and the project personnel.

II. Implementation

1. The National Direction of Rural Engineering (Genie Rural) within the Ministry of Rural Development is responsible for preparing construction specificationsand procuring all construction and furnishings contracts through competitive bids. In cooperation with a REDSO/WA engineer, Genie Rural will supervise all construction.

2. The short-and long-term training program to be held in Mali and/or a West African country (or the U.S. for the long-term training) will be organized, and participants selected, by the DAEPT in collaboration with the project team leader.

3. Technical assistance personnel are to be selected on personal services contracts with a U.S. University or a qualified private firm capable of identifying and supplying candidates with proven ability to work in West Africa.

The project team leader in collaboration with the DAEPT will schedule and organize the short-term consulting services and administrative/management seminars, as well as the delivery of the necessary educational equipment.

Peace Corps is requested to recruit and train a qualified PCV mechanic, who under the supervision of the DAEPT, will work closely with the mechanics and equipment and maintenance personnel in each CAA.

III. Relationship of project inputs, outputs and project purpose.

The GOM will have the capacity to graduate 160 junior-level agricultural technicians (moniteurs) per year when the CAAs at Samé and M'Pessoba are expanded and renovated by February. 1980. (With the new and expanded CAAs financed by the IBRD, the GOM capacity will increase to 280 per year.)

Participant and on-the-job training under the direction of technical assistance personnel will create more competent agricultural instructors and administrators; the provision of needed instructional equipment for agriculture and wood-and metal-working will permit instructors to dispense better courses; and the furnishing of required vehicles, which will be adequately maintained with the assistance of a PCV mechanic, will create the means for trainee field trips, more effective third-year follow-up, the delivery of supplies, and more effective communications between the Division headquarters and the centers.

Thus, both quantitative and qualitative project inputs will create the capacity for the GOM tograduate 160 well-qualified and competent junior-level agricultural technicians per year.

IV. End-of-Project Status.

By February, 1980 the facilities at two expanded CAAs, one at Samé and one at M'Pessoba will be built or renovated as necessary. Each will have a capacity to house 160 students and graduate 80 junior-level agricultural technicians per year. At the same time, appropriate management and administrative systems will be in place; better trained teachers and middle-level staff will have created a CAA curriculum which demonstrates relevance and environmental appropriateness; an on-going process will be established to adapt CAA courses to the changing realities of Malian agriculture; the pedagogical techniques will have been learned and applied in order to transmit knowledge in modern agricultural techniques and rural development and extension to students; and, a vehicle and equipment maintenance program will be established.

D. Summary Findings

1. Technical Feasibility (Part 3.A.)

The provision of an adequatesupply of well-trained, polyvalent junior-level agricultural technicaians (moniteurs) is a key to the successful implementation of rural development projects in the Republic of Mali. These extension agents are directly responsible for implementing rural development programs and they are intended to be in direct contact with the Malian farmers.

The only alternative source of extension agents in Mali is through direct contract-hire encadreurs who receive short-term and crop-specific training provided by the rural development Operations. While these extension agents represent a savings in the personnel costs for the Operations, their limited technical training and professional competence cannot adequately respond to the Malian farmer's total farming needs.

In contrast, professionally trained moniteurs usually have a career commitment to agricultural work and could be more responsive to the Malian farmer's needs. This project seeks to increase the number of well-trained CAA graduates and therefore appears to be the most appropriate way to help the GOM provide an adequate supply of qualified, polyvalent, junior-level agricultural technicians.

The new structures and renovations at the Samé and M'Pessoba sites are simple, functional and well-planned. The overall effect of the construction can only be a vast improvement over the present rundown and often ramshackle school installations. There will be little or no adverse environmental impact from the construction of these facilties or the functioning of the expanded centers. Adequate pre-project planning has taken place, and the preliminary drawings, specifications and cost estimates for construction and equipment meet the requirements of the Foreign Assistance Act, Section 611 and related sections.

On the basis of discussions with the CAA program staff, all the proposed furnishings for the completed facilities have been found suitable for the needs of the CAAs. (Annex B.3)

2. Financial Feasibility (Part 3.B)

The total project cost is estimated $6,344,300. Of this total, the U.S. contribution is $4,938,900. Approximately 75% of this will be needed in the first project year in order to finance construction and other start-up activities. The GOM contribution to the project is $1,404,400, or 22% of the total project cost for 3 years. As construction costs decline, the GOM contribution which consists largely of staff salaries and operating costs, increases to 27% in the 2nd project year and 62% of the project costs in the 3rd project year.

The need for a qualified team leader and appropriate participant training through short-term management courses and seminars cannot be too strongly emphasized.

4. Economic Analysis (Part 3.D)

The income effects of CAA-training for junior-level agricultural technicians and the economic effects of the project on CAA program personnel are positive. The economic impact of employing an increased number of CAA graduates on the GOM national budget is minimal.

It should be clearly recognized however, that CAA-level professional training in Mali is expensive and will become even more so as a result of this project. The cost of this training is inherent in the Malian system of education which is based on using training institutions to supply qualified professions level manpower.

Given the already high CAA training costs/student, the improvements in the quality of CAA training to be realized during this project, more than offset the increased costs per student at the end of the project period.

3. Social Analysis (Part 3.C)

The simple and functional construction and the modest improvements in student living and classroom conditions planned in this project will not turn the CAAs into ultra-modern training centers which could be the base for creating an unbridgeable cultural gap between moniteurs and the Malian farmer. On the contrary, improved living and training conditions might have a significant positive impact on a sense of professionalism and prestige among moniteurs.

5. Conclusion.

Clearly, this project is not going to change the Malian approach to extension overnight. The benefits of education and training are slow, incremental and indirect. Nevertheless, we feel that the CAA curriculum improvement and teacher training, which will help show student moniteurs how to be more responsible to the varying realities of Malian agriculture and to the individual farmer's needs, will be a significant step toward improving the transmission of modern and relevant agricultural technology to Malian farmers.

E. Project Issues

1. Student availability.

As the number of Malian primary school students increases each year, both the number and educational level of students taking the CAA admission examination has risen. The average educational level of CAA candidates is now 8th and 9th grade and since 1968 there have been over 10 times the candidates for the available places in the CAAs. Thus, the supply of qualified CAA students is reasonably assured for an expanded program. (Annex K, Part IV, B)

2. Faculty Availability.

As the CAA program expands, the DAEPT plans to recruit additional teaching staff from a group of 114 Techniciens Superieurs who followed a special teachers training program at the Rural Polytechnical Institute to prepare them to staff a recently terminated special rural education program for school leavers. Nine of these teachers now work in the CAAs and 10 others will shortly be reassigned to the CAAs for a period of in-service training. This leaves a pool of 95 Techniciens Superieurs who can serve as CAA teachers if the need arises.

The DAEPT recognizes that most of the CAA teachers are young, undertrained and inexperienced, and seeks to recruit more personnel who have had some extension experience. The particiapant training provided in this project should also significantly improve the quality of instruction in the CAAs.

The most serious constraint on the ability of the CAA network to attract and retain qualified instructors arises from the unequal salary conditions of CAA staff as compared to those available to similar personnel in the Ministry of National Education and rural development Operations. The question of salary allowances and bonuses for all civil servants is now under serious study by the National Administrative Reform Commission. Until the Commission's recommendations are accepted by the GOM, the Ministry of Finance has refused the demands by the Ministry of Rural Development to provide teaching bonuses to the CAA staff.

This issue does not promise to be resolved quickly and in the meantime, the CAA staff salary situation seriously threatens the successful achievement of the project purpose. There is some indication that the IBRD may be willing to provide the necessary bonuses in exchange for USAID financing of all the project technical assistance personnel as proposed in this project. If an agreement cannot be reached between USAID and the IBRD on this matter, the equalization of teachers salaries will be included as a covenant in the Project Agreement. (Annex K Part IV,B; Part IV,D.)

3. Manpower Demands for Moniteurs.

The most conservative manpower estimates and projections indicate a demand for well-over 200 moniteurs per year for about the next ten years. (Annex K, Part II)

4. Employment of Moniteurs.

The economic impact on the Government of employing over 2 times the present number of CAA graduates appears low. The financially autonomous Operations, which are demanding more moniteurs, will employ most of the CAA graduates, and consequently, the future GOM National Budgetary impact of an increased supply of CAA graduates should be minimal.

5. CAA budget.

In the first project year, the GOM budget for the CAAs will increase by 2.7 times. By the end of the project and largely as a function of AID-financed project inputs, the GOM budget for the CAAs will again double. The GOM places a high priority on the expansion of the CAAs and has provided assurances that it will meet the required additional costs for an expanded CAA network. In this regard, the past ability of the GOM to meet its counterpart obligations to the previous ILO-financed CAA project during a period of severe economic hardship and drought is encouraging.

The financial management of the CAA network is weak, and the GOM has requested technical assistance and participant training to improve and reorganize the financial administration of the CAA program.

6. Women in Professional Agricultural Training.

The CAAs do not offer a training program for women and women are not employed in the Ministry of Rural Development at the same level and with the same responsibilities as moniteurs. (Most women are employed principally as secretaries and typists.)

The construction plans in this project provide 20 places for women trainees at each of the two centers. The director of Training and Rural Animation, who administers the DAEPT, admits that the "time has come" for professional training for women in agriculture. He prefers to integrate the training of men and women at the CAAs during the first two years of the CAA program. During this project it might be useful to bring in a qualified French-speaking home economist/rural development specialist on a short-term consulting basis to organize a special 3rd year program for women as well as study the employment possibilities for women in the Ministry of Rural Development. (Annex K, Part IV,B.)

7. CAA Training, Curriculum and Space Utilization.

The professional training period for moniteurs lasts 3 years. Two years are spent at a CAA. The third year is spent either at a specialized training center for rice, horticulture or forestry, or in one of the rural development Operations, the Office du Niger, an agronomic research center or a farmer training center. Trainee recruitment and government service following training is not specific to the region in which the center is located and the 3rd year of specialized training is designed to provide the appropriate practical training experience. Thus, there is no need for a "regionalization" of the CAA curriculum. There is a need, however, to make CAA training less bookish and more adaptable to the realities of Malian agriculture.

The curriculum and utilization of teaching facilities needs to be revised. The agricultural courses are devoted largely to traditional agronomic principles which have little practical application. Very little time is devoted to the important areas of farm management, marketing, credit and agricultural extension and rural development methods. Functional literacy is not included in the curriculum despite its recognized importance by the GOM. The practical work schedule needs to be reorganized and less time should be devoted to private study periods.

When the construction plans are finalized and as the curriculum is revised with the assistance of the agricultural education specialist and teachers, it is expected that the classroom courses and practical work will effectively utilize the expanded and renovated facilities. (Annex K, Part IV,B.)

8. Role of CAAs in Agricultural Extension and the Effectiveness of the Malian Strategy of Agricultural Extension.

Since 1972, the Malian strategy for agricultural development has sought to establish managerially and financially autonomous Operations in order to increase and improve agricultural production within specified agro-geographical areas. In contrast to the former organization of the agricultural services, which paralleled the colonial administrative structure of government, the Operations have improved the delivery of agricultural inputs to farmers and do represent a more efficient use of resources to promote agricultural development. (Annex K, Parts IV,C.)

If the Operations are to play a pivotal role in rural development in Mali, they must be adequately staffed with capable and qualified personnel. Current estimates indicate that the demands for senior- and middle-level agricultural cadres will be more than satisfied for several years. (Annex K. Part II,IV,A.) The supply of junior-level personnel on the other hand, is more problammatic. Currently the CAAs supply only about 90 moniteurs/year in contrast to a demand of over 200/year.

For intensive primary level professional agricultural training, the CAA program is Mali's most effective training system. The CAAs are the only institutions which would be capable of supplying well-trained, polyvalent, junior-level technicians who are directly responsible for implementing rural development projects in Mali.

9. Grant vs. Loan Financing

The economic justifications for grant financing of this project are as follows:

a) In addition to the increased budgetary resources requested of the GOM to support the expanded CAA program envisaged in this project, financing and repaying a loan for this project would create serious financial difficulties for the GOM. It is highly unlikely that the GOM could support <u>both</u> an expanded CAA program and repay a loan for expanding and improving the output of junior-level agricultural technicians.

b) Just as the qualitative effects of an improved CAA program are indirect and incremental, the actual economic benefits which would accrue from an expanded program and ultimately increased agricultural production, are indirect and long-term.

c) Loan repayments would further jeopardize Mali's continued precarious economic situation and draw needed funding away from ambitious efforts to increase and improve agricultural and livestock production.

Part 2. <u>PROJECT BACKGROUND AND DETAILED DESCRIPTION</u>.

A. Background.

The Five Year Plan of the Government of Mali estimates that the successful implementation of agricultural projects from 1974 to 1978 requires approximately 340 agricultural moniteurs per year. More recent estimates based on current

hiring practices, immediate post-Plan demand, lagged needs for current agricultural projects to be financed and the extension of some current projects, suggests a total demand for 1,623 Moniteurs d'Agriculture or 203 per year from 1976/77 to 1984/85.[1] (Annex Part II.) In both cases, the current output of a maximum of 90 graduates per year from the Centres d'Apprentissage Agricole falls considerably short of expected demand. Moniteurs are junior-level technicians directly responsible for the implementation of agricultural development projects. They occupy a critical position in rural development in Mali and their insufficient numbers raise serious problems for Mali's efforts to improve agricultural production.

The improvement of training and the expansion of the M'Pessoba and Samé Centres d'Apprentissage Agricole (CAAs) described in this project will help meet the demand for moniteurs by increasing the CAA capacity to supply approximately 160 well-trained graduates per year.

Moniteurs d'Agriculture are currently trained in three Centres d'Apprentissage Agricole and three Specialized Agricultural Training Centers at Baguineda and Dioro,and Tabakoro. (See Annex B Map 1) Each CAA is associated with a State Farm and is responsible to the Division of Technical Agricultural Education and Professional Training (DAEPT) in the National Direction of Training and Rural Animation (DNFAR) within the Ministry of Rural Development. (Annex K, Part IV)

From 1965 to 1975 the CAA system benefitted from two ILO-financed projects. The first Special Fund/ILO project, MLI 3, organized the CAA program and created the Specialized Center at Baguineda. Project MLI 3 also assisted the Specialized Rice Center at Dioro, trained agricultural instructors and initiated a women's program for the farmer training centers in Mali.

Project MLI 72/006 continued the MLI 3 activities by improving and consolidating CAA curriculum development and the training of CAA agricultural instructors. The project also created the Specialized Centers at Tabakoro and Sotuba, the Veterinary Nurses School (EIV) and continued the women's program in the farmer training centers.

In order to carry-out MLI 72/006, the ILO supplied four foreign technical assistants to develop and sustain the necessary staff backstopping for the CAA program. The director of the ILO project served as the Assistant Director of the DAEPT. The other three technical assistants were responsible for developing and revising the teaching materials, schedules and methods at the CAAs as well as providing in-service training to their homologues and future replacements.

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[1] In several ways this is a conservative estimate. Upwardly revised estimates of personnel needs for currently unfinanced projects, the creation of new agricultural sector projects and the expanded use of moniteurs in agriculturally-related services could increase the demand for 100-200 additional moniteurs/year. The inservice turnover/promotion rate at this level, and the number of moniteurs leaving the service is insignificant.

During the course of the UNDP/ILO projects, all the Malian staff and teaching personnel affiliated with the CAA program received either specialized teachers training in Mali or followed short-term UNDP/ILO-financed training programs in Europe.

The DNFAR was created at the suggestion and with the support of the UNDP/ILO as a means to centralize and coordinate the administration of the CAA network, and the farmer training programs. This reorganization also facilitated and improved the impact of the ILO-financed project.

The location of the CAAs within the principal ecological zones of the country permits the cultivation of different crops and the practice of animal husbandry at each center. If the centers at Samé and M'Pessoba are to serve as effective professional agricultural training institutions however, they are in dire need of renovation, the instructors and administrative staff need additional training, the curriculum needs to be revised, and adequate teaching materials and equipment need to be supplied.

This project was initially identified as a critical need in the Mali DAP, FY 1975, Section Three (March 1975, pages 54-57). In order to expand the capacity and improve the training at the CAAs, the GOM has requested U.S. assistance. The GOM delegation which visited AID/W in June 1975 presented the basic request (See State 137019) and subsequently provided the necessary documentation for submission of the initial PID. This PID, "Expansion of Agricultural Extension Training", presented in the FY 1976 ABS, was amended to include the Rural Polytechnical Institute (IPR) on 9/27/75 and was retitled the "Improvement of Agricultural Officers Training". When the GOM obtained external financing for the IPR, this component was dropped from the PRP. This document, dated 11/28/75 retained the title of the revised PID and proposed the improvement of four CAAs.

After further consultations with the Government and in light of sky-rocketing construction costs, as well as the critical need to improve the quality of CAA training and administration, it was decided to concentrate USAID efforts on the renovation and improvement of training at the Samé and M'Pessoba centers.

The IBRD plans to finance the improvement of the center at Samanko, the construction of the fourth CAA in the Mopti region and the construction of Specialized Center for Groundnuts. (Annex L.)

The proposed USAID project will expand the capacity of the Samé and M'Pessoba centers to 320 students or 160 students/center with 80 students/class. The IBRD-financed CAAs will be designed to handle 240 students or 60 students/class.

As of June, 1976 preliminary construction studies and cost estimates for the IBRD-financed centers had not been completed. AID/Bamako has worked closely with the IBRD to coordinate donor financed inputs for the CAA system, and the GOM is aware that USAID and the IBRD intend to collaborate fully in the development and execution of project financing.

B. Detailed Description

This project consists of four basic components:
1. Construction.

In order to increase the number of CAA graduates the facililities two Agricultural Apprenticeship Centers, one at Samé and one M'Pessoba, will be built or renovated as necessary between 1977 and 1980. Table 1 summarizes the new construction and renovation planned at each site. Each center will house 160 students, 80 per class, and will consist of fully equipped classroom, dormitories, dining facilities, staff housing, administrative offices and specialized facilities. The IBRD proposes to finance two additional centers each with a capacity of 120 students, or 60 per class.

The National Direction of Rural Engineering (Génie Rural) will prepare the designs and specifications for the required new buildings and renovation which will have little or no unfavorable environmental impact other than minimal increased land use. (Part 3,A.; Part 4,A) The final construction studies should begin upon approval of the PP in order to facilitate an early construction start date after the Project Agreement is signed. Génie Rural will also be responsible for procurring the contract services of a construction and engineering firm to undertake the required construction. This responsibility includes the preparation of a synopsis for bid, the prequalification of bidders and the execution of a satisfactory contract(s), all of which comply with the laws and practices of the Government of Mali. In cooperation with a REDSO engineer, Génie Rural will supervise the construction to insure that all building materials and work meet contract specifications. (The construction of the IBRD-financed centers will be supervised by Génie Rural in cooperation with a resident IBRD architect/construction engineer.)

This project originally was planned to take place over a five-year period with a phased construction of two agricultural centers. It has been reduced to a three-year time-frame with closely staggered construction start dates for the following reasons:

1. Inflationary cost escalation indicates lower costs to the U.S. Government if both centers are built as quickly as possible.
2. The inclusion of considerable technical assistance, designed to introduce significant qualitative improvements to the centers must be coordinated and implemented in a timely manner.
3. The AID construction timetable should be coordinated with that of the other principal donor, the IBRD.
4. There is a need to encourage and evaluate the extent to which the GOM is willing and able to bear its share of operating expenses. A three year time-frame will enable USAID to make this evaluation within a reasonable time.

Economic analyses of the GOM capability to finance these training centers when donor intervention terminates are moot. The key question, and one that can only be answered in terms of good faith, is whether the GOM places a high enough priority upon the development of agricultural extension services, to devote its scarce financial resources to the long-term maintenance of agricultural training institutions. Thus far, the record has been good and we have every reason to believe that the GOM, either directly, or indirectly through State Farm subsidies, will continue to support and maintain the CAA network.

TABLE 1

SUMMARY OF NEW CONSTRUCTION
AND
RENOVATION

CAA

NEW CONSTRUCTION

	staff houses	class-rooms	dormi-tories	office/ library/ first aid medical	teach-ing work-shops	dining room kit. rec.	ware-houses	garage park	stable	well & water dist.	electric gen. const.
Samé	7	6	5	1	1	1	1	1	1	1	1 gen. on hand
M'Pessoba	7	2	5	1	1	1	2				
				RENOVATION							
Samé	3				1						
M'Pessoba	6	2	2		1	1	2	1	2	1 dig another well?	1 gen. on hand

Three additional components seek to improve the quality of training received by the CAA trainees.

2. Participant Training for CAA Teachers

a) Over a three-year period 99 man-months of short-term (2-3 month) scholarships will be provided to upgrade the teaching and administrative capabilities of CAA teachers and middle-class headquarters staff. In collaboration with the project team leader (See 2. below) the Division of Technical Agricultural Education and Professional Training (DAEPT) will select groups of CAA teachers and staff to participate in teacher refresher courses and other professional improvement programs in agricultural education and administration to be held in Mali or elsewhere in West Africa. The short-term teacher training will take place during the CAA vacation period between February and May.

b) The project team leader in collaboration with the DAEPT will schedule and organize administrative/management seminars (approximately 4 1/2 m/m) to be conducted in Mali by a qualified management consulting firm. These seminars could be designed to be 6 weeks in length with 3 weeks for preparation and presentation, and 3 weeks for follow-up and evaluation. In order to achieve the maximum benefit, these seminars will be addressed to the administrative staff of the CAA with invitations open to personnel from the Rural Polytechnical Institute, the rural development Operations, and the Ministry of Rural Development.

c) In order to improve the managerial capabilities of the DAEPT, two one-year scholarships will be provided for 2 members of the DAEPT senior staff to study agricultural education administraton and programming at the Masters Level in a U.S. or third-country institution. The participants will be selected by the National Direction for Training and Rural Animation (DNFAR) in collaboration with the DAEPT and the project team leader.

3. Technical Assistance

AID will furnish the following personnel and services in order to manage the project, undertake studies and provide in-service management and teacher improvement training:

a) One chief Agricultural Education/Administration expert to act as a team leader and management consultant and advisor to the director of the DAEPT. (36 m/m)

b) One Agricultural Education Specialist to advise the DAEPT on the development and use of improved teaching materials, coordinate the in-service training as well as organize the third year of specialized training for junior technician trainees who do not attend a specialized third year training center. (30 m/m)

c) Three Agricultural Extension and Education Instructors who will be based at the CAAs and who will serve as senior faculty with both teaching and supervisory responsibilities. (90 m/m)

d) Short-term consulting expertise in the areas of curriculm development, management training, women's training, village-level agricultural technology and project evaluation as well as for an economic analysis of the State Farm at Samé and M'Pessoba. (13 1/2 m/m)

In order to provide this technical assistance it is recommended that AID/DR contract either with a U.S. university or a firm capable of identifying and supplying candidates with proven ability to work in French West Africa.

4. Equipment and Vehicular Support and Maintenance.

All the CAA facilities will be furnished with appropriate furnishings, office and instructional supplies. When necessary, furnishings and equipment will also be provided for the Division office facilities. The ordering and distribution of the instructional materials will be the responsibility of the DAEPT in collaboration with the project team leader and the CAA staff.

AID will furnish vehicles, spare parts and equipment, adequate to insure the efficient delivery of supplies, transportation of students for practical exercise and administrative travel. It is hoped that Peace Corps will recruit a PCV mechanic/instructor who will be a counterpart to, and train the Malian mechanics at the CAAs in the repair and maintenance of CAA vehicles. He would also design and implement a central parts requisition and distribution system for the CAAs.

The PCV will be provided with a vehicle in order to make regular visits to all the CAAs. Where road transportation is difficult for trips to Samé, he will be reimbursed for the costs of railroad travel. The PCV could be based in Bamako, but also have part-time lodging in Koutiala that would facilitate his work at the centers at M'Pessoba and in the Fifth Region. The work of the PCV mechanic will be coordinated by the DAEPT, with the advice of the project team leader.

The most critical assumption underlying this project, and upon which little reasearch anywhere has been gathered, is the extent to which improved extension services positively affect farmer productivity. We assume that such a relationship exists and therefore, we infer that the broad program goal of improving the process by which information is passed on to farmers will eventually result in increased crop production.

The project purpose is to increase the capacity of the GOM to provide up to 160 well-trained polyvalent junior-level agricultural technicians by February, 1980. This purpose makes essentially two statements: one, that we seek to almost double the number of junior agricultural technicians graduating each year; and two, that we seek to improve the quality of CAA training. The linkage between the project purpose and the project goal, which seeks to improve the transmission of information to rural farmers, is based upon two suppostions: one, is that the number of students being presently trained, and the quality of the training is insufficient; and the other is that we are capable of developing training programs that are appropriate, relevant and communicable to the target population. Based upon recently completed manpower analyses (See Annex Part II) it is clear that the numbers of moniteurs being graduated from the existing CAAs are inadequate for the realization of Mali's agricultural sector goals. Furthermore, the recent crop failures due to drought conditions and the existing problems of marketing and distribution of cereals and rice, demonstrate a need for a more diversified agricultural outlook that can deal more easily with emergency conditions and lend itself to more profitable marketing of crops. The training of CAA teachers to transmit

their knowledge has long been neglected. Most of the current CAA teaching staff are both undertrained and inexperienced. Rarely, if at all, do CAA teachers have any field experience in agriculture. As a result, their teaching tends to reinforce the already bookish orientation of the CAA training and perpetuate an elitist concept of peasant agriculture and the role of agricultural extension. (Annex K, Part V.)

We believe that with a sufficient input of technical assistance, combined with participant training, effective, relevant, communicable training can be achieved.

The linkages between project output and project purpose can be grouped into two categories: physical and qualitative. The linkage between the addition of physical facilities and increased student capacity is self-evident, but nonetheless predicates itself upon several supportable assumptions.

1. That sufficient numbers of qualified students can be found.

Admission to the CAA is by a national examination open to young men between the ages of 17 and 20 who have completed 6 years of primary schooling. As the number of primary school students increases each year in Mali, both the number and educational level of students taking the CAA admission examination has risen. Since 1968 there have been well over 10 times the candidates for the available places.

The average educational level of CAA students is now 8th and 9th grade and the increasing number and education of CAA candidates clearly indicates that the supply of more qualified CAA students will be assured for an expanded program in future years.

In order to improve the quality of CAA recruits, the DAEPT hopes to limit recruitment within the next few years to those who already hold the DEF (Diplome d'Etudes Fondamentales, or 9th grade school leaver examination.) This requirement would create some dramatic changes in the relationship between professional education and civel service ranking for agricultural cadres in Mali. The DAEPT seeks to achieve this goal through a full-scale revision of the system of professional agricultural training and civil service standing in Mali. (Annex K, Part IV, Attachment 1).

2. That the GOM can provide sufficient numbers of qualified instructors.

As the CAA program expands, the DAEPT plans to recruit additional teaching staff from a group of 114 Techniciens Superieurs who followed a special teachers training program at the Rural Polytechnical Institute to prepare them to staff a recently terminated special agricultural education program for school leavers. Nine of these teachers now work in the CAAs and 10 others will shortly be reassigned to the CAAs for a period of inservice training to prepare them for the expanded CAA program. This leaves a pool of 95 Techniciens Superieurs who can serve as CAA teachers when the need arises.

3. That the GOM is able and willing to finance increased operating costs of the CAAs.

The GOM currently finances the CAAs and there is every reason to believe that they will continue to do so. As the CAAs continue to graduate more moniteurs, most of whom will be employed by the Operations, it will be increasingly to the GOM's advantage in terms of tax receipts and export revenues to support agricultural training institutions. It is also likely that the State Farm will at least partially subsidize the operating costs of the CAAs.

4. That the AID contracting timeframe takes place as scheduled.

AID/Bamako will depend upon engineering expertise from the Malian National Direction of Rural Engineering (Génie Rural) and REDSO/WA for review of contractor submissions and for construction supervision.

5. That AID is able to recruit qualified French-speaking agricultural technical assistance personel with relevant experience, four of whom are willing and able to live in rural areas under adverse conditions.

The link between the physical project output and the quantitative aspect of the project purpose is clear. By 1980, the increased physical plant financed by AID and by the IBRD will provide the capacity to graduate a maximum of 280 students per year.

Outputs which affect the quality of CAA management and instruction will lead to the achievement of the qualitative aspect of the project purpose, namely the provision of well-trained polyvalent CAA graduates. Curriculum improvements and new teaching materials written and implemented by the CAA teaching staff, in close collaboration with the agricultural education teachers, will make the CAA course work less bookish and closer to the realities of Malian farming. Trained teachers who will have benefitted from short-term training scholarships and from on-the-job training will be able to use better pedagogical techniques to transmit technical information to more students, more effectively. Improved program management and administration, to be brought about through management semeinars and the long-term scholarships, will promote a more effective and better coordinated use of program resources, Better 3rd year training to be coordinated by the CAA teaching staff, with the close collaboration of the agricultural education specialist, and facilitated by well-maintained vehicles, will improve the links between CAA course work and the everyday work of moniteurs.

Thus, the quantitative and qualitative project outputs should achieve the project purpose of increasing the CAA capacity to provide well-trained polyvalent junior-level agricultural technicians by February, 1980.

The linkagesbetween inputs and outputs are clear and are expanded upon in both the technical and financial analyses. One cannot emphasize too strongly the importance of qualified technical assistance personnel for the transferral of information and expertise to take place.

By February 1980, therefore, the end-of-project status will consist of CAA facilities capable of graduating 160 well-trained junior-level agricultural technicians per year, an effective management, vehicular support and maintenance system; and improvements in the quality of instruction which demonstrate relevance and environmental appropriateness, and which indicate that knowledge in agricultural technology and extension ahs been effectively transmitted to students.

Part 3. Project Analyses

A. Technical Analysis, including Environmental Assessment.

1. Project Appropriateness.

The provision of an adequate supply of well-trained, polyvalent junior-level technicians is a key to the successful implementation of rural development projects in the Republic of Mali. These technicians, who receive 3 years of professional agricultural training at Agricultural Apprenticeship Centers are responsible for implementing rural development programs and are intended to be in direct contact with the Malian farmers.

Contract-hire extension agents, or encadreurs, are the only alternative type of extension manpower currently used to implement agricultural production programs. These agents are hired directly by the Operations. They usually receive 15-30 days of limited in-service training which covers basic administrative duties and agricultural techniques specific to the crop(s) handled by the Operation. Some Operations, especially those staffed with large number of foreign technical assistance personnel, prefer this level of manpower and this type of professional training. Presumably, contract-hire agents who have not received advanced training remain "closer" to the farmers and are less disatisfied when posted in the villages. The encadreur position also represents a significant source of employment for those who have been unable to complete their primary education. Since most encadreurs are usually the sons of farmers, this employment opportunity can also represent an additional cash flow into the agricultural sector.

Nevertheless, the employment of non-CAA trained encadreurs is more beneficial to the Operations than it is to the Malian government, the agents themselves, or the Malian farmers. Encadreurs earn approximately one-third less than moniteurs and therefore employing encadreurs reduces the Operations' personnel costs and provides a degree of flexibility to the Operations' personnel policies which would otherwise be unavailable with moniteurs. In contrast, the income tax receipts available to the Government are reduced when encadreurs are employed; agents are not protected by civil service statutes and their professional career is totally dependent upon the personnel policies of the Operations; and, most important, the Malian farmer suffers from having to work with an agricultural agent whose limited technical training and professional competence cannot help serve the farmer's total farming needs.

"For intensive rural training at low levels, the CAA program is Mali's most effective." (Mali DAP, FY 1975, Section 3, p. B-61.) As a result of their professional training, moniteurs tend to have a long-term commitment to professional agricultural work; and given their technical capabilities, they are usually entrusted with more responsiblity and independence in their work. Since moniteurs too, are often the sons of farm families, their income also flows back into the agricultural sector.

Therefore, this project which seeks to increase the number of well-trained CAA graduates appears to be the most appropriate way to help the GOM to provide an adequate supply of polyvalent junior-level technicians responsible for implementing ruraldevelopment projects. (The supply of adequate numbers of senior- and middle-level supervisory personnel is well-assured. See Annex K, Part II, Part IVA)

2. Summary Technical Description of the Project, (See Cost Estimates, Table 2-6; for Itemized Cost Estimates, See Annex B, 3)

During this project two Agricultural Apprenticeship Centers, one at Samé and one at M'Pessoba, will be built and renovated at a cost of $2,918,800. Each center will be expanded to house 160 students and will consist of classrooms, dormitories, dining facilities, staff housing, administrative offices, and specialized facilities.

Appropriate instructional and office equipment and furnishings for all facilities will be provided. It is estimated that all the equipment and furnishings will cost $824,400.

In order to improve the quality of training available in the CAAs, this project also provides for:

a) 99m/m of short- and long-term participant training for teacher and administrative improvement, ($77,800).
b) 18 m/m short-term consulting expertise for curriculm development, management training village-level technology and project evaluation. ($90,000)
c) 156 m/m of technical assistance personnel including an agricultural education and management expert as team leader, one agricultural education specialist and 3 agricultural extension instructors. ($801,500)
d) Four student buses, 6 light pick-up trucks, 2 medium-weight pick-up trucks, 1 long-wheel base Landrover-type vehicle and 4 station wagons will be provided as transport for the technical assistance personnel, as well as to insure effective communication between the administrative offices in Bamako and the centers, and the efficient delivery of supplies and transport of students for practical exercises. ($226,400).

3. Technical Soundness. (Annex C)

The new structures and renovation at the Samé and M'Pessoba CAAs are simple, functional and well-planned. In some cases they will replace existing ramshackle rundown buildings which will be demolished. The over-all aesthetic effect can only be a vast improvemtent over the present school installations.

Both sites are well-located to serve their intended areas. The topography is favorable for drainage and for the experimental planted areas required. The soils are typical of the soils in the areas where the student extension agents will work.

Transportation is available by railroad and air from Bamako to Kayes and then 15 km. by road to Samé, and by paved road (300 km.) to M'Pessoba from Bamako.

Adequate underground water is available at both sites. The soils are suitable for sewage disposal septic tanks. There is no existing electric service at either center.

4. Environmental Assessment.

Since very little clearing is required, soil erosion due to site preparation will be minimal. There will be no sedimentation or contamination of water courses due to earth moving and operation of maintenance equipment.

The construction will have no untoward effect on wildlife and little or no vegetation will be destroyed.

There will be some degradation to the sites due to increasing the population at each center from about 100 to about 250.

There will be no significant adverse effect on the air quality, since the only fumes or contaminants will be generated by the small 30 KVA generators, These generating plants will be removed from the school area to minimize noise nuisance,

There is no historical or archeological significance to the sites nor will there by any displacement of people.

All wells are separated from septic tanks to avoid contamination,

5, Summary conclusion.

The construction design and the type and quantity of all the equipment and furnishings for the CAAs is sound, functional, and represents the most appropriate designs and materials for the needs of the CAAs, The construction designs have been approved by, and the equipment needs have been discussed with the director of the DAEPT, and the CAA teaching staff. Operation and maintenance of the pumps and electric generators is well within the capabilities of the CAA maintenance staff.

Adequate pre-project planning as taken place and the preliminary drawings specifications and cost estimates for construction and equipment meet the requirements of the Foreign Assistance Act, Section 611 and related sections,

TABLE 2

CONSTRUCTION AND EQUIPMENT COST ESTIMATES
(Samé)
GOM CONTRIBUTION

	Amount ($1000)	
I. Project Formulation and Contract Supervision		
A. Direct Costs[1]		
1. Engineering Design, Construction Supervision, Equipment and Furniture Procurement	64.4	
		64.4
U.S. CONTRIBUTION		
II. Project Implementation		
A. Construction Costs[2]		
1. New Construction	805.0	
2. Rehabilitation	38.4	
3. Demolition	11.0	
		854.4
B. Contingency and escalation		
1. Escalation 52% for three years-15%/year	444.3	
2. Contingency 10%	130.0	
		574.3
TOTAL CONSTRUCTION (as of January 1976)		1,428.7
C. Furnishings		
1. Equipment and Furniture	246.5	
2. Escalation (52%)	128.2	
3. Contingency (10%)	37.5	
TOTAL EQUIPMENT AND FURNISHINGS		412.2
TOTAL U.S. CONTRIBUTION		
1. Construction	1428.7	
2. Furnishings	412.2	
		1840.9
TOTAL GOM CONTRIBUTION		
1. Project Formulation and Contract Supervision Equipment Procurement	64.4	64.4
TOTAL CONSTRUCTION AND EQUIPMENT COST ESTIMATES		1905.3

1/ This figure represents 3 1/2% of the total construction, equipment and furniture costs, including a 52% allowance for escalation over three years-15% per year and a 10% contingency factor for construction, equipment and furniture. This figure includes all estimated indirect costs.

2/ These costs include such factors as site isolation, mobilization of equipment and personnel, transportation of equipment and materials, necessary housing and labor availability.

TABLE 3

CONSTRUCTION AND EQUIPMENT COST ESTIMATES
(M'Pessoba)
GOM CONTRIBUTION

		Amount ($1000)
I. Project Formulation and Contract Supervision		
A. Direct Costs 1/		
1. Engineering Design, Construction Supervision, Equipment and Furniture Procurement	66.6	
		66.6

U.S. CONTRIBUTION

II. Project Implementation		
A. Construction Costs 2/		
1. New Construction	660.8	
2. Rehabilitation	230.4	
3. Demolition	----	
		891.2
B. Contingency and Escalation		
1. Escalation, 52% for three years-15%/year	463.4	
2. Contingency, 10%	135.5	
		598.9
TOTAL CONSTRUCTION (as of January 1976)		1490.1
C. Furnishings		
1. Equipment	246.5	
2. Escalation 52%	128.2	
3. Contingency 10%	37.5	
TOTAL EQUIPMENT AND FURNISHINGS		412.2
TOTAL U.S. CONTRIBUTION		
1. Construction	1490.1	
2. Furnishings	412.2	
		1902.3
TOTAL GOM CONTRIBUTION		
1. Project Formulation, Contract Supervision Equipment Procurement	66.6	
		66.6
TOTAL CONSTRUCTION AND EQUIPMENT COST ESTIMATES		1968.9

1/ (See construction cost estimates for Samé)
2/

TABLE 4

COST ESTIMATES FOR
TECHNICAL ASSISTANCE

I. Direct Costs	Amount ($1,000)
A. Salaries 1/	
1. Team Leader-Agricultural Education Administration Specialist (36 m/m $70,000/yr)	210.0
2. Agricultural Education Specialist (30 m/m $70,000/yr)	175.0
3. Agricultural Education Specialist (3) (90 m/m $55,000/yr)	412.5
4. Short Term Contractual Consulting Assistance (18 m/m $5,000/m)	90.0
	887.5
II. Other Costs	
A. Vehicle Rental 2/	
1. Short-term vehicle rentals for technical assistance personnel ($22.00/day for 6 months)	4.0
TOTAL ESTIMATES FOR TECHNICAL ASSISTANCE	891.5

1/ These figures include all direct costs such as international travel, international transportation of personal effects, housing, passports, visas, etc., as well as indirect costs such as fees and profits of services contractors.

2/ This cost is included since the Team Leader and other technical assistants may arrive before the probable arrival date of the project vehicles.

TABLE 5

OTHER COSTS ESTIMATES
(PROJECT VEHICLES AND PARTICIPANT TRAINING)
U.S. CONTRIBUTION

I. Vehicles	Amount ($1000)
A. Direct Costs	
1. Samé CAA	41.7
2. M'Pessoba	38.2
3. Division	3.4
4. Technical Assistance Personnel	38.1
	121.4
B. Indirect Costs 1/	
1. Maintenance Equipment. Gasoline Oil & Lubricants for Technical Assistive Personnel Vehicles	105.0
TOTAL VEHICLE COSTS	226.4
II. Participant Training	
A. Long-term training (2) (12 m/m x 2 $10,000/yr)	20.0
B. Short-term training (33) (99 m/m-$7000/yr)	57.8
TOTAL PARTICIPANT TRAINING	77.8
TOTAL OTHER COSTS	304.2

1/ Indirect Costs for the CAA Division and Centers Vehicles for spare parts and equipment will be funded from the project allocation for equipment.

TABLE 6

TOTAL U.S. CONTRIBUTION

1. Construction	2,918.8
2. Equipment and Furnishings	824.4
3. Technical Assistance	891.5
4. Vehicles	226.4
5. Participant Training	167.8
TOTAL	4,938.9

GOM CONTRIBUTION FOR CONSTRUCTION AND EQUIPMENT

1. Project Formulation, Contract Supervision, Equipment Procurement	131.0

TABLE 7

COSTING OF PROJECT OUTPUTS/INPUTS ($1000)

PROJECT PAPER

Project # Title: Improvement of Agricultural Officer's Training.

Project Inputs	Project Outputs #1	#2	#3	#4	
AID Appropriated					
1. Construction 2 CAAs (Samé, M'Pessoba)	2,918.8				2,918.8
2. Equipt. 2 CAAs (Samé, M'Pessoba)		824.4			824.4
3. Technical Assistance and Participant Training			969.3		969.3
4. Project Vehicles				226.4	226.4
Other U.S.					
Host Country					
1. Contract Supervisor 2 CAAs (Samé, M'Pessoba)	131.0				131.0
2. Land value (Samé, M'Pessoba)	140.8				140.8
3. Operating Costs		641.0			641.0
4. Staff Salaries			492.6		492.6
Other Donors					
IBRD CAA Project (ests. unavailable)					
TOTAL	3,190.6	1,465.4	1,461.9	226.4	6,344.3

TABLE 8

SUMMARY COST ESTIMATE AND FINANCIAL PLAN (U.S. $1000).

PROJECT PAPER

Source	AID FX	LC	FX	HOST COUNTRY LC	FX	OTHER(S) LC	TOTAL
1. Construction Samé CAA	854.4						854.4
2. Construction M'Pessoba CAA	891.2						891.2
3. Contract Supervision Samé CAA				64.4			64.4
4. Contract Supervision M'Pessoba CAA				66.6			66.6
5. Eqpt. Samé CAA	246.5						246.5
6. Eqpt. M'Pessoba CAA	246.5						246.5
7. Technical Assistance	891.5						891.5
8. Project Vehicles	226.4						226.4
9. Participant Training	77.8						77.8
10. Land Value Samé				120.0			120.0
11. Land Value M'Pessoba				20.8			20.8
12. Staff Salaries (CAAs)				492.6			492.6
13. Operating Costs (CAAs)				641.0			641.0
14. IBRD CAA Project					Ests. not available.		-
Inflation 1 + 2	907.6						907.6
5 + 6	256.4						256.4
Contingency 1 + 2	256.4						256.4
5 + 6	75.0						75.0
TOTAL	4,938.9			1,405.4			6,344.3

TABLE 9
FINANCIAL PLAN, BY PROJECT YEAR.

YEAR	1		2		3		TOTAL
G.O.M. CONTRIBUTION							
A. Design, Construction Supervision							
Equipment Procurement							
1. Samé	64.4		-		-		
2. M'Pessoba	66.6		-		-		
		131.0		-		-	131.0
B. Staff Salaries							
1. Samé	54.9		54.9		54.9		
2. M'Pessoba	54.9		54.9		54.9		
3. DAEPT	54.4		54.4		54.4		
		164.2		164.2		164.2	492.6
C. Operating Costs							
1. Student Support							
a. Samé	20.1		20.1		46.0		
b. M'Pessoba	20.1		20.1		46.0		
		40.2		40.2		92.0	172.4
2. Equipment & Maintenance							
a. Samé	18.5		37.1		55.6		
b. M'Pessoba	18.5		37.1		55.6		
c. DAEPT	20.2		30.3		42.5		
		57.2		104.5		153.7	315.4
3. Farm Operating Costs							
a. Samé	12.8		25.5		38.3		
b. M'Pessoba	12.8		25.5		38.3		
		25.6		51.0		76.6	153.2
D. Land Value							
a. Samé 750 ha. @ $160/ha.		120.0					
b. M'Pessoba 130 ha. @ $160/ha.		20.8					
				140.8			
TOTAL G.O.M. CONTRIBUTION FOR LIFE OF PROJECT (3 YEARS)		559.0		359.9		486.5	1,405.4
U.S. CONTRIBUTION							
A. Construction Costs							
1. Samé		1,428.7					

TABLE 9 (cont'd)

2. M'Pessoba	1,490.1	2,918.8	-	-	-	2918.8
B. Equipment Costs						
1. Samé	137.4		274.8	-		
2. M'Pessoba	137.4	274.8	274.8	549.6		824.4
C. Vehicles						
1. Samé	41.7		-	-		
2. M'Pessoba	38.2		-	-		
3. DAEPT	3.4		-	-		
4. Technical Assist. Personnel	73.1	156.4	35.0	35.0	35.0	226.4
D. Technical Assistance						
1. Specialists & Instructors	309.0		305.0	187.5		
2. Short-term consultants	-	309.0	45.0	45.0	232.5	891.5
E. Participant Training						
1. Long-term training	-		10.0	10.0		
2. Short-term training	19.2	19.2	19.3	19.3	29.3	77.8
TOTAL U.S. PROJECT CONTRIBUTION		3678.2		963.9	296.8	4.935.3
TOTAL U.S. AND G.O.M. PROJECT CONTRIBUTION		4237.2		1.323.8	783.3	6.340.7

B. Financial Analysis and Plan (Tables 7-9)

1. Analysis of the Financial Effect on Project Participants.

The favorable financial effect of CAA-training for Malian extension agents is clear. Moniteur-trainees invest 3 years of their time in government-supported training. During this period, the only direct costs to the trainees arise from personal needs expenditures. At the end of CAA-training moniteurs begin to earn up to 3 1/2 times more than contract-hire encadreurs.

CAA- trained extension agents are eligible for all the rights and responsibilities of government career employees as defined in the General Civil Service Statutes of Mali. In contrast to the encadreurs who do not receive any career protection and who are employed at the discretion of their employer, a moniteur's professional career is assured. Moniteurs receive social security benefits, family allocations, and a series of discretionary salary bonuses and allowances which can add a significant amount to take-home salaries. (Annex K, Part VI) CAA training also provides moniteurs with a more solid theoretical base to prepare for professional advancement examinations.

2. Financial Viability and Plan.

The total project cost for 3 years is estimated at $6,344,300. This total accounts for all contingencyand inflation factors for all project items. Of this total, the U.S. contribution is $4,938,900. Approximately 75% of the U.S. contribution, or $3,701,500 will be needed in the first project year in order to finance construction and other start-up costs such as vehicle and equipment purchases. In the last two years of the project, $1,237,400 will be used to cover remaining equipment purchases, vehicle maintenance for technical assistance personnel, and the costs of participant training and short-term consultants.

The GOM contribution to the project is $1,405,400, or 22% of the total 3 year project cost. During the first project year, design, construction supervision and procurement costs represent 30% of the GOM costs, excluding the estimated land value at Samé and M'Pessoba. As construction costs decline, the GOM contribution, whichconsists largely of staff salaries and operating costs, increases to 27% of the project costs in the 2nd year, and 62% of the project costs in the 3rd project year.

In the first year of the project, the GOM budget for the CAAs will increase by 2.7 times. At the end of the project, and largely as a function of estimated equipment and vehicle replacement costs, the GOM budget for the CAAs will increase again by 2 times. Over a 13-year period, including the 3 project years, (about the longest period of time to consider for an education project in Mali), GOM budgetary resources will contribute 65% of the total costs of the CAAs.

The GOM places a high priority on the expansion of the CAAs , and is willing to bear the additional operating and maincenance costs that the expansion of the CAAs will involve. In this regard, the experience with the GOM contribution to the ILO 72/006 project is encouraging. During a period of severe economic hardship from 1972 to 1975, the Government met its counterpart obligations to the ILO project.

The most significant costs which appear in the recurrent budget analysis are those which arise from provisions to replace equipment, etc., through the establishment of sinking funds. These replacement costs greatly increase the CAA budget, but we think they represent a principle which the GOM should strive to implement in the CAA program.

The ability of the GOM to finance the CAA program as estimated for the 10 years following the termination of AID-financing is a moot point. The record thus far is good. The GOM strongly supports the CAA system and has provided assurances that it will seek to meet the required additional costs of an expanded CAA network.

The DAEPT and the CAAs have a very weak system of financial management. Without some major changes and reorganization, it is doubtful whether the DAEPT would be able to discharge its responsibiltities for project implementation and management once the project is completed. The GOM is acutely aware of this problem and has requested that the project team leader with the appropriate consultants and participant training, to provide on-the-job training in financial management to the appropriate DAEPT and CAA staff as well as reorganize the financial administration of the CAA program.

C. Social Analysis

1. Impact of Expanded and Improved Facilities.

The physical plants at Samé and M'Pessoba vary from bad to worse. The Samé CAA occupies a series of buildings and staff houses built in 1910 for a French sisal plantation. The teachers live in modified USAID-financed chicken coops. Roofs on the older buildings have serious leaks and are in danger of imminent collapse. The classrooms and dormitory buildings are unsatisfactory and temporary mudbrick (banco) shelters are in constant need of repair during the school year.

The M'Pessoba CAA was originally built in 1924-25 as a state farm and training center for agricultural workers. The classrooms, workshop and lodging facilities are small and rundown, and there is a serious need for improved faculty housing.

The simple and functional construction planned in this project will have a significant impact simply by permitting these two CAAs to function properly.

The electric and water installations and the improved buildings which are to be built will not turn these CAAs into ultra-modern training centers. The improvements are modest at best, and given the distance of the CAAs from towns of any size, trainees have few opportunities to cultivate a preference for the city lights during their training period. These so-called modern facilities will not contribute to the creation of an unbridgeable cultural gap between the moniteurs and the Malian farmer. On the contrary, improved living and training conditions might have a significant positive impact on a sense of prestige and professionalism among moniteurs.

Expanding the capacity of two CAAs will open the possibility for CAA training to over two times the number of individuals currently participating in the CAA program. While the centers will not be able to accomodate all the candidates, expanded facilities will significantly increase the opportunity for more and qualified individuals to receive primary level professional agricultural training.

2. CAA Training (Annex K, Part IV, B.)

The current study program for the first and second year CAA students was designed and implemented with the assistance of two UNDP/ILO projects over a period of 10 years. The courses are thorough, comprehensive, well-organized and the dates of agricultural work described in the books have been changed to make the lessons real for Mali. Since the CAA students do not necessarily come from or serve in the region of their CAA, it is unnecessary to regionalize the curriculum at each center. Nevertheless, the classroom and practical field-work in the CAAs is basically unadaptive to the varying realities of Malian agriculture. The education materials do not show how particular agricultural principles are currently applied by Malian farmers, nor are the students told how they might find out (or should find out) how these principles are applied. As several agricultural people in the field have noted, the CAA training is too bookish. The training does not sufficiently prepare moniteurs for what they are going to find in the farmer's fields, nor does it prepare them to work directly with farmers. Similarly, students are more often shown procedures and techniques rather than given the opportunity to practice them. No professional courses, based on the day-to-day work of moniteurs in the field are offered and too much time is devoted to general education courses which are often too theoretical to have practical agricultural application. Very little or no time is devoted to the study of farm management, marketing, credit and agricultural extension and rural development methods. Functional literacy is not included in the curriculum, despite its recognized importance by the GOM.

The training of those who go to the Operations instead of the Specialized Centers, is highly unstructured, and trainees are left on their own to make their own way and learn what they can. CAA staff lack the necessary logistical and financial support to follow-up third-year trainees.

Even if the CAA courses were more adaptive, the centers lack basic educational and teaching materials. Well-worn blackboards are often the only available teaching materials in most centers. Teachers lack any documentation for preparing lessons and there is no functioning library for trainees and faculty. Most centers lack the transportation facilities necessary to take trainees on educational field trips.

Similarly, the classroom courses at the specialized 3rd year centers are weak. The centers do not have libraries. The students do not have books, and the faculties lack needed documentation. Only the CSR-Dioro is well-supplied with agricultural equipment. Classroom equipment in both centers is either nonexistent or unworkable.

When the two IBRD-financed centers are built, there will be even a greater need for adequate and relevant teaching materials and supplies for the 3rd-year centers.

The educational equipment and the small buses to be supplied by the project should make a significant contribution toward improving the level and quality of training at the centers. The equipment will assist the teachers to give better classroom demonstrations and the vehicles will permit students and teachers to benefit from educational field trips, as well as engage in more effective third-year follow-up. Short-term refresher courses for teachers organized in Mali or elsewhere in West Africa should lead to significant improvements in the quality of teaching. Retrained teachers in cooperation with the agricultural education technical assistants, and with the periodic assistance of short-term consultants, should be able to develop a CAA curriculum more adapted and adaptable to the changing realities of Malian farming.

3. Women's Training (Annex K, Part IV, B)

The CAAs do not offer a training program for women and women are not employed within the Ministry of Rural Development at the same level and with the same responsibilities as moniteurs. The Government has a proposal to create a CAA-level training program for monitrices d'agriculture under study. This proposal argues for a separate CAA for monitrices, but the DNFAR prefers mixed centers, The construction in this project provides 20 places for women at each of the two centers.

A training program for women has not been established, but the DNFAR seeks to integrate the women's training as much as possible into the established two-year CAA course schedule and reserve the third year for a specialized training component. As part of the 18 m/m of consulting services programmed for this project, a French-speaking home economics/rural development specialist could be contracted to work closely with a Malian woman in the DAEPT, the National School for Technical Training for Women (ENETF) and with the National Center for Community Development (CNDC) in order to establish the women's third-year training program.

Teachers for the women's component could be supplied from ENETF and CNDC graduates as well as from the few women teachers who are still in the remaining COPS (Centres d'Orientation Practique, a recently terminated rural education program for school leavers.)

4. Extension (Annex K, PartV.)

Most Malian farmers clearly recognize the advantages of working with moniteurs as the way to help increase agricultural production. Most Malian officials in the Operations too, prefer to employ moniteurs instead of contract-hire encadreurs who usually do not have a long-term commitment to agricultural extension.

The absence of clear lines between their personal and professional roles places moniteurs in close contact with most of the farmers in their districts Villages usually provide housing for the agents, and often as the only French-literate in the village, the moniteur may be the spokesman for personal or village business. Farmers often come to the extension agents' houses to seek agriculturally-related advice and information, as well as to discuss what they have learned on the radio conerning national and international events. Furthermore, since most moniteurs have personal fields,but do not have either the animals or equipment to work these fields, moniteurs establish a variety of personal economic relationships with farmers.

Language and related ethnic group differances do not appear to have a negative impact on the farmer-extension agent relationship. Language differences seem to create only short-term minor inconveniences. In some cases, moniteurs prefer to be "foreigners" since this allows them to do their work without having to respond every day to the responsibilities and requirements of a salaried worker to his extended family.

The biggest stumbling block to effective communication between the Malian farmer and the moniteurs arises from the elitist concept of agricultural extension learned at the CAAs and the moniteurs youthfulness and inexperience in a society which bases authority, knowledge and skill largely on age.

According to a CAA teaching outline prepared by the ILO MLI 72/006 project, agricultural extension is a form of technical education which teaches farmers to understand and apply new ideas and techniques in order to improve their agricultural production. Extension is conceived as the means to present the results of agronomic research to farmers in order to get them to understand, accept, and apply crop-specific innovations. Conspicuously absent from this concept is the notion that extension begins by being responsive to the farmers' situation. This philosophy of agricultural extension is not unique to Mali. It is a common feature of the theory and practice of extension throughout French West Africa. It makes the farmer the object, not the agent of agricultural development, and it cannot sustain significant long-term increases in agricultural production, much less serve as a base for rural development.

The youthfulness of moniteurs, combined with a lack of practical field experience and a surfeit fo theoretical training, often gives rise to a complex and reciprocal form of misunderstanding and distrust between the farmer and agricultural agent. In order to compensate for his age, the young agent tends to express an extremely derogatory view of the farmer's capabilities and to assume a paternalistic, alitist comportment with the farmers, which is supported by the concept of agricultural extension currently learned at the CAAs. Faced with a "foreign" (nonvillage) young man in his mid-20s, dressed in the latest fashions, who is asking him to accept a practice which may jeopardize an already high risk situation, the farmer is naturally very cautious about accepting the agent's advice. The farmer's caution in turn is interpreted as obstinacy which only reinforces the agent's (false, but self-protective) feeling of superiority and leads to an even more authoritarian approach toward farmers. After 3-4 years of experience however, most moniteurs begin to reflect a much higher sensitivity to the farmer's constraints and an awareness that the farmers may have something to teach as well as to learn.

Admittedly, this project is not going to change the Malian approach to agricultural extension overnight. The benefits of education and training are slow and incremental. Nevertheless, we feel that the CAA curriculum improvement and teacher training which will help show student-moniteurs how to be more responsive to the varying realities of Malian agriculture and to the individual farmer's needs, will be a significant step toward improving the transmission of modern and relevant agricultural technology to Malian farmers.

D. Economic Analysis

As pointed out in Part 3. B. above, the income effects of CAA-training junior-level agricultural technicians are very positive. With the benefit of CAA-training an agricultural extension agent can earn up to $1,915 per year instead of $500 per year as a contract-hire encadreur.

Althought indirect, the economic effects of the project on the CAA teachers and administrative personnel should also be positive. As a result of participating in the short-term training programs and seminars planned during this project, staff personnel should be better qualified for professional advancement examinations which in turn can mean higher salaries.

The economic impact on the Government of employing over 2 times the number of CAA graduates appears low. The Government's full-employment policy for the graduates from all professional training institutions plus the unquestionable need for CAA-level people in agriculture and agriculturally-related projects assures the employment for the increased number of graduates from the expanded facilities planned in this project as well as those from the IBRD-financed centers.

Preliminary estimates indicate that the increased number of moniteurs who will graduate from the expanded facilities planned in this project will have a minimal future impact on the National Budget of the Government. Based on an estimated CAA output from 1976 to 1985 (for four CAAs), correcting for replacement and turnover rates, and calculating total personnel costs on the basis of the 1976 average annual salary for a moniteur (450,000MF), the additional CAA graduates will increase the total budgetary demand by approximately 2 1/2 times from 358 million MF in 1976 to 964 million MF in 1985. (See Table 10) Since the financially autonomous Operations will employ most of the moniteurs, the future national budgetary impact of an increased supply of CAA-trained graduates should be minimal. Furthermore, while precise figures are currently unavailable, the Government stands to gain from the increased income tax receipts from employing additonal moniteurs and from the future increases in agricultural production.

The positive economic effect of qualified moniteurs on Malian farmers, the ultimate project beneficiaries, is one of the assumptions of this project. Our meager analytical tools as well as the impoverished state of agricultural statistics in Mali make it difficult to isolate the economic benefit to farmers which results from working with well-trained and qualified agricultural extension agents. At best, we can say that when all other things are equal, i.e., when agricultural product and input prices are favorable, and when an efficient agricultural marketing system is in place , an effective extension agent can facilitate and improve the farmer's work by making the appropriate inputs available at the right time. Moreover, a well-trained polyvalent extension agent can also make an important contribution to improving village life by assisting with functional literacy classes and aiding community development workers. Thus, we cannot help but proceed on the premise that well-trained moniteurs will eventually promote improvements in agricultural production and in the quality of life of the Malian farmer.

TABLE 10

Year	Moniteurs in Post[1]	Expected CAA Output	Professional Advancement Encadreurs to Moniteurs	Subtotal Moniteurs	Professional Advancement Moniteurs for CTA[4]	Total Moniteurs	Total Cost (450,000/Moniteur/Year)
1976	678	98	50	826	30	796	358
1977	796	90	50	936	30	906	408
1978	906	90	50	1046	30	1016	457
1979	1016	90	50	1156	30	1126	507
1980	1126	90	50	1266	30	1236	556
1981	1236	90	50	1376	30	1346	606
1982	1346	238	25[2]	1609	45[3]	1564	704
1983	1564	238	-[2]	1802	45[3]	1757	791
1984	1757	238	-[2]	1995	45[3]	1950	878
1985	1950	238		2188	45[3]	2143	964

1. Includes an estimated 55 moniteurs in zones "Hors Operation".
2. Reflects a projected phasing out of professional advancement for encadreurs as additional moniteurs become available.
3. Projected increased promotion rate as the number of moniteurs increases.
4. CTA : Conducteur des Travaux Agricoles, this is a civil service grade above the moniteur level, open by professional advancement examination only.

Cost-Effectiveness of Improved Training.

It should be clearly understood that CAA-level training in Mali is expensive and will be more so as a result of this project. (Unfortunately we do not have other types of educational costs with which to compare the cost of CAA training.) The high cost of professional agricultural training is inherent in the Malian education system which is based on using professional training institutions to supply professional manpower. Instead of transferring part of the training costs to the work place, the costs in a system of professional training are not only higher because of the need for specialized teachers, equipment and institutions, but they accrue solely to the professional training institution.

There is no acceptable alternative in Mali to provide qualified moniteurs. A system of higher education which would provide an entry into the agricultural profession at the moniteur level does not exist and would not necessarily be less costly. On-the-job training, like that for encadreurs, ultimately short changes the Malian farmer. Consequently, if we seek to improve the transmission of relevant agricultural technology and methods to Malian farmers, and thereby hope to increase and improve agricultural production, we must accept the fact that CAA-level training is costly.

We feel, however, that the improvements in the quality of CAA training realized during the period of AID financing, more than offset the increased costs per CAA student at the end of the project period. On the basis of current estimates, it now costs approximately $1.127.00 per student per year for two years to provide poorly trained extension agents from two CAAs.[1] By the end of AID-financing, the cost of training 320 students in 2 CAAs is estimated to be $1.500.00 per student per year. For the improvement in training, which will hopefully better the ability of moniteurs to transmit relevant agricultural methods to the Malian farmer, we feel that this increase of approximately $400/year in the training cost per student is minimal.

[1] Estimates of costs per trainee are very difficult to estimate and range from about $450 per trainee to $1500 per trainee per year. This situation results from difficulties in getting precise information on salary costs, actual operating costs for the CAA program and the exact number of trainees being supported at any one time in the CAA system.

Part 4. IMPLEMENTATION ARRANGEMENTS

A. Analysis of the Recipient's and AID's Administrative Arrangements.

1. Recipient

a) Genie Rural:

Based on AID's recent experience with the construction of the Central Veterinary Laboratory in Bamako, the technical feasibility of the construction called for in this project is reasonably clear. The CVL was satisfactorily constructed by a Malian contractor in 1973 and called for considerably more expertise than required for the lodgings, classrooms, dormitories, dining rooms, kitchens and workshops called for in this project.

The National Direction of Rural Engineering (Genie Rural) within the Ministry of Rural Development is responsible for planning, designing, preparing specifications and supervising construction. During the preparation of the PRP two office buildings built under the supervision of Genie Rural were inspected; one was completed and one was under construction. Excellent use was made of locally fabricated steel trusses and other materials.

The responsibilities of Genie Rural involve site inspections to determine the location of proposed structures, a detailed inventory to make maximum use of existing facilities, the planning and design of buildings, and the preparation of specifications. In cooperation with a regional AID engineer, Genie Rural has already completed much of this preliminary work.

Genie Rural is also responsible for the procurement of contract services of an engineering/construction firm(s) including: the preparation of synopsis for bid, bidder prequalification, issuance of bid invitations, the selection of bidder(s) and the execution of a satisfactory contract, all of which comply with the laws and practices of the Government of Mali.

The supervision of construction including the inspection of building materials, site preparations and construction supervision, to insure that material and construction meet specifications, is also the Genie Rural's responsibility.

Genie Rural has a staff of three young French engineers and eight Malian assistants in charge of building design and construction. They are supported by secretaries and a drafting room. This group does all the projects from inception to construction supervision through periodic site visits. With some $12 million of projects underway, 10 in the planning stage and 20 in the construction stage, Genie Rural has a full plate of pending projects. The timely preparation of project plans for Samé and M'Pessoba centers, however, suggests that Genie Rural is able to study, design and supervise the required construction within a reasonable time-frame. The use of similar structural drawings for both centers will help Genie Rural respect the construction implementation schedule.

In order to facilitate the work of Genie Rural as well as provide a system for monitoring construction, the project provides for a REDSO/WA engineer who will visit the sites on a regular basis in order to monitor all aspects of construction. This engineer will also collaborate closely with the resident World Bank architect/engineer, who will supervise the World Bank financed construction to assure that construction meets specifications and proceeds on schedule.

b) Construction Capability Procurement:

There are several local Malian firms qualified to undertake one or more of the construction contracts. Since neither the contractors nor the GOM are capable of procuring U.S. construction materials and equipment through AID procedures, however, locally procured construction materials must be authorized. Local procurement of materials must be permitted even though the source and origin of the steel plate and shapes, steel reinforcing, pipings, fittings, hardware, electric equipment and pumps is largely French. This may amount to as much as 15% to 20% of the contract. Costs will be less than if U.S. construction material were required.

c) Division of Technical Agricultural Education and Professional Training:

Within the Ministry of Rural Development, and accountable to the National Direction of Training and Rural Animation (DNFAR), the Division of Technical Agricultural Education and Professional Training (DAEPT) is responsible for administering the CAA program (Annex, Part IV, B.). The DAEPT is staffed by a competent and extremely able director, an assistant director and three technical staff members who have had several years of experience with agricultural education in Mali. (In addition to providing limited technical support for the CAA teaching staff at this time, the Division also maintains a very effective formal communication link with the CAAs through an annual review meeting of all CAA program personnel). During the project period, the DAEPT hopes to add eight staff members to administer the following posts (sections): Educational Methods and Programs, School Farm, Agriculture. Training, Livestock, Library and Documentation, Farm Handicarafts and Water Resources and Forestry.

During the ILO projects these sections were variously staffed by foreign technical assistants with Malian counterparts. Unfortunately, with the departure of the ILO team, most of the Malian Division staff for the CAA program left for more remuneratvie government positions. Consequently, the absence of trained and experienced Malian technical and administrative staff in the DAEPT raises a critical issue for managing the expanded CAA program. Clearly as the CAA program expands, the managerial capacity to organize and utilize resources must also expand. The DAEPT also does not have the logistical capabilities to support an expanded and improved CAA program. The Division does not have the needed vehicles to insure effective communications with the centers, and Division office space in Bamako is at a premium.

The Government is aware of its managerial weakness at this level. At the request of the GOM, USAID will provide an agricultural education administration and management specialist as project team leader and an agricultural education specialist to work with the administrative personnel.

These technical assistants will be responsible for improving the managerial and organizational capabilities of the Division and for providing orientation and training to the DAEPT staff in evaluation concepts and methods. USAID will also provide logistical support in the form of vehicles to enable Division personnel to visit the CAAs.

The DAEPT staff currently occupies 3-4 offices in the Institute of Rural Economy. Wit the help of the Ministry of Rural Development, which places a high priority on this project and on the CAAs, it is hoped that adequate office space for an expanded staff and for the two specialists can be located either at the Institute of Rural Economy or in the offices of the DNFAR. The three agricultural education and extension teachers will be housed at the CAAs.

d) CAAs.

The administration, orgainization and operation of the CAAs are governed by statutes and regulations which date from the colonial period. The Ministry of Rural Development recognizes and strongly supports the DAEPT and the CAAs as the official professional training system for moniteurs, but the CAAs do not have current statutory recognition by the Government of Mali. For over two years, the Division of Agricultural Education and Professional Training has unsuccessfully sought to gain approval for a projet de statut which would officially establish the CAAs as the institutions responsible for professional agricultural training in Mali and thereby assure the career status of CAA personnel. This projet includes such matters as the rights and responsibilities of CAA personnel, CAA relations to the State Farms, the establishment of a CAA management council and the regulations governing student life. As soon as the DAEPT reorganizes (due to the departure of the ILO team) a projet de statut will be revised, sent to the Cabinet of the Ministry of Rural Development and submitted for approval to the Council of Ministers, hopefully by the end of the year. (See Part 4.D.)

The directors of the CAAs have had several years of experience in agricultural education, and given their difficult working conditions, have managed centers reasonably well. Nevertheless, the management and operation of the centers could be better organized. This project provides for short-term training scholarships (2-3 months) and annual management seminars to help improve the management of the CAAs. These project inputs will help insure that the management practices learned from the technical assistance personnel will be self-sustaining upon completion of the project.

Most of the CAA teaching staff, on the other hand, are both undertrained and inexperienced. The DAEPT recognizes the inadequacies of its inexperienced young teachers and hopes to replace them with personnel who have had some extension experience. In order to recruit more experienced teachers, however, the DAEPT must be able to offer salary and working conditions at last comparible to those offered by the Operations.

The CAA teaching and administrative staff do not receive salary benefits comparable either to similarly placed teaching personnel within the Ministry of Education or to colleagues working within the Operations. The unequal salary terms and conditions for CAA staff have existed for several years and they continue to pose a serious problem for the effectiveness of CAA training. The Ministry of Finance has refused the repeated demands by the Ministry of Rural Development (MDR) to provide teaching bonuses to the CAA staff, and is now asking the MDR to await until the recommendations of the National Administrative Reform Commission concerning allowances and bonuses for MDR personnel are made public. Unless the salary conditions for CAA teachers are made equal to those of other teachers or agricultural personnel, the DAEPT will not be able to recruit and keep more experienced, competent and committed teaching staff, and the quality of CAA training will continue to be second-rate. (Part 4.D)

By the end of the project it is planned that the results of the economic analysis of the State Farms will show how some of the teaching bonuses and allowances might be provided from the production receipts of the Farms.

All the CAA teachers need additional teacher training and refresher courses to improve the quality of their teaching. At the request of the GOM, the project will make short-term teacher training and improvement scholarships available. The agricultural education teachers provided by the project and stationed at the centers will also be primarily responsible for on-the-job pedagogical training of the CAA teachers as well as assisting with a curriculum planning and development program.

THe project will also provide training in farm equipment and vehicle maintenance for the CAA mechanics primarily by means of a mobile PCV mechanic who will be responsible for establishing an equipment maintenance program with the CAA staff. Each center will also be requested to earmark a fixed percentage of its operating budget for equipment maintenance and replacement parts.

2. A.I.D.

A. AID staff commitment

As noted earlier, it is planned that REDSO/WA will supply an engineer to monitor the construction supervision on a regular basis. This engineer will visit the sites periodically and will work closely with the supervisory personnel from Genie Rural as well as colloborate with the resident IBRD architect/engineer.

AID will also carry-out a mid-project evaluation. (Attached)

Project management responsibilities can be assumed by the existing CDO/Bamako staff.

B. Waivers

The following waivers are aniticipated in the course of project implementation:

1) To use Malian construction firms and/or a French construction firm in Mali.

Justification: The unsophisticated nature of the construction called for in this project would be vastly in excess of the advanced and capital-intensive techniques used by American construction firms. There are several local Malian firms who are qualified to undertake one or more of the construction contracts, and the construction called for is simple enough to be handled by local construction firms.

2) A procurement source whaiver from AID Geographic Code 000 (U.S.) to Geographic Code 935 is required for construction materials, equipment, furnishings, and motor vehicles.

Justification:

Mali, like other Sahelian states, faces a situation in which imports emanate almost entirely from France and other EEC countries. This trade pattern, which has developed over many years of close association between Mali and Europe, has resulted in Malians being trained in the use and maintenance of European-made goods and in the establishment of European distribution and service facilities in Mali. American manufacturers, distribution and service firms are only recently beginning to take a tentative and still insignificant look at the Malian market. As a result, construction materials, furnishings, equipment and special parts for U.S. equipment are not available in Mali, and Malians are not trained in the basics of maintenance. In the past, audits and inspections of AID projects in the Sahelian area have been sharply critical of the difficulties of host governments in replacing U.S. materials and in maintaining U.S. motor vehicles after project phaseout.

We believe that the materials, furnishings and equipment and motor vehicles which are essential to the successful implementation of the project are, in effect, not available from eligible sources. Neither the Malian contractors nor the GOM are capable of procuring U.S. construction materials and equipment through AID procedures. The concept of availability from eligible sources means effective availability. For construction materials, equipment, furnishings, and motor vehicles to be truly available from an eligible source, they must not only be of a type that the host country can use effectively over a normal useful life in light of the availability of spare parts and the ability to carry-out adequate service and maintenance.

We also believe that there are compelling political considerations that support this waiver. It is necessary for the United States to provide furnishings and equipment that can be replaced easily and motor vehicles that can be maintained effectively, and for which spare parts are available, in Mali. Otherwise, the political benefits to be obtained from providing the proposed assistance will be frustrated, and the image of effectiveness of the United States will be impaired, if the equipment, furnishings and motor vehicles financed by the United States are of a sort that cannot be used effectively by Mali over a normal useful life.

Costs will be less than if U.S. construction materials, furnishings, and equipment were used, and the Government of Mali (GOM) does not have the foreign exchange necessary to procure the motor vehicles, equipment and furnishings which are essential to the success of the project. Other donors are not interested in providing funding because of heavy involvement in commercial crops or in other sectors or other geographic areas in Mali.

For these reasons it is necessary, in order to carry out the purposes of the FAA, to waive the requirements of Secton 636(i) of the FAA that construction materials, equipment, furnishings and motor vehicles procurred for the project be manufactured in the UNited States. In addition, it is necessary to authorize procurement of the required construction materials, equipment, furnishings, and motor vehicles from Geographic Code 935 countries because the exclusion of procurement from these sources would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

C. Disbursement

All project funds will be disbursed according to normal financial disbursement procedures as determined by the AID Controller.

B. Implementation Plan.

I. Prior Actions.

In order to assure a relatively smooth flow to the implementation of this project, the following actions should be taken before the Project Agreement is signed:

a) Responsible Party: AID/W

1. All waivers for offshore procurement as described in Part 4.D.2 above, need to be obtained. Because of the relatively short-time period between the proposed signing of the Project Agreement and the arrival of the project team leader, AID/W should initiate the recruitment of contract personnel through a U.S. university or a qualified consulting firm. French language training, if required, should be started for contract personnel.

2. Possible third-country institutions and programs in West Africa should be identified for short-term training in agricultural education, management and administration, teacher improvement and mechanics. Because of the wider availability of information resources on this kind of training in Washington, we feel it would be easier for AID/W rather than CDO/Bamako to undertake this action.

b) Responsible Party: CDO/Bamako

1. Once the appropriate authorizations and waivers have been received, and in order to have project vehicles in place by the time the full complement of technical assistance personnel is in place, CDO/Bamako should initiate the procurement of project vehicles and obtain the vehicle delivery schedule.

2. As soon as the PP is approved, and before the proposed IBRD project for the CAAs is finalized, CDO/Bamako should reach an understanding on CAA project collaboration.

c) Responsible Party: GOM

1. After the PP is approved and in order to insure the timely implementation of the construction schedule, Genie Rural should initiate the preparation of all construction specifications.

II. Project Implementation.

As described in Part 4.A.1, Genie Rural will be responsible, in cooperation with the REDSO/WA engineer for supervising all construction contracts let by competitive bid, and for assuring that all student facilities (especially the dormitories, dining rooms and classrooms) are equipped and ready for occupancy by 8/30/79, and that all construction is finished by 2/30/80. It is preferable to have the student facilities finished and ready by 6/1/79, in order to accomodate the planned increase in students at the beginning of the school year. A short delay of two months in finishing these priority facilities however, is not expected to be unnecessarily inconvenient.

Once the Project Agreement is signed by CDO/Bamako and the GOM, and before the arrival of the project team leader, CDO/Bamako will be responsible for ordering the project vehicles and for signing the required personnel services contracts in order to bring the technical assistance personnel on board in a timely manner. To assure the appropriateness of letting the utilities construction and furniture contracts CDO/Bamako and the project team leader will complete project financial reviews before the utilities construction and furniture contracts are signed. These reviews will also provide the appropriate monitoring of the implementation of planned construction.

Project monitoring and evaluation will also be undertaken through 1) a project mid-point evaluation by a REDSO/WA engineer. This will supplement his quarterly site inspections and, 2) a special AID evaluation of the project. (See II,1 below) In addition, AID will be responsible for organizing an ex post facto project evaluation at least 6 months following the project completion. This evaluation could be undertaken using Agency resources or through a short-term personal services contract.

When the project team leader arrives he will be responsible for arranging his housing and temporary transportation, as well as initiating the necessary logistical arrangements to prepare for the arrival of the agricultural education specialist and the agricultural education teachers. In close collaboration with the DAEPT and CAA staffs, the team leader will begin his program of on-the-job management and evaluation training as well as initiate the necessary administrative requirements to prepare for the participant training program, plan the short-term consultants schedule, and order the required educational equipment and materials for the CAAs.

Once the agricultural education specialist, teachers and PCV are settled-in, they will begin to work closely with the DAEPT and CAA staffs in order to begin the curriculum improvement and vehicle maintenance program and pursue on-the-job teacher training.

At the end of the project, all the technical assistance personnel in full cooperation with the CAA program staff will undertake and end-of-project evaluation.

The milestones against which project success and planned implementation can be measured include such C.P.I.s as the construction start dates, the arrival dates of technical assistance personnel, the equipment order schedule as well as the schedules for short- and long-term training and short-term consultants.

No major problems in negotiating and reaching details in the implementation plan are known to exist at this time.

The required AID waivers needed before the Project Agreement is signed are identified in Part 4.A.2.3.

Logistic support in the form of vehicles for the CAA program and the technical assistance personnel are provided by the project. All logistical support for construction will be furnished by the contractor(s) and the costs thereof have been included in the estimates of project construction costs. The GOM will be requested to provide the necessary office space and facilities for project personnel as well as the expanded DAEPT staff.

C. Evaluation Arrangements.

I. In order to evaluate the efficiency, effectiveness and significance of the contribution of project inputs to the accomplishment of project objectives, the following routine evaluations are planned:

1. At the end of each project year, the DAEPT, in collaboration with the project team leader, will be responsible for preparing an annual report in French and English of program activities and accomplishments, problems encountered, proposed solutions and plans for the following year. Much of this report will be based on the results of the annual CAA program staff reviews. These reviews have been held annually (except in 1976) for the last 5 years. They are extremely profitable working sessions during which all the CAA staff have the opportunity to discuss problems and offer solutions to improve the CAA program.

This evaluation should not only assist project budget and management decisions, but also provide the data necessary to demonstrate progress toward the project purpose and the status of the project inputs and outputs necessary to achieve the purpose.

2. In collaboration with the technical assistance personnel, the DAEPT will prepare a method for a follow-up evaluation of CAA graduates. This evaluation will include discussions with Operations administrative personnel as well as on-the-job interviews of CAA graduates which seek to evaluate the relationship between the moniteur's job requirements and the training received. This evaluation should be geared toward the collection of data necessary to make a judgment on the achievement of the project goal, i.e., improving the transmission of modern and relevant agricultural methods and techniques to the Malian farmer.

3. Two financial reviews will be undertaken by CDO/Bamako and the project team leader specifically to assist in project budget decisions.

4. At mid-point in the project, the REDSO/WA engineer will prepare a progress report on the achievement of the planned construction.

5. The project team leader, in collaboration with all the technical assistance personnel and the CAA program staff,will be responsible for an end-of-the-project evaluation which should indicate the success of the project inputs in achieving the project purpose.

II. Special Evaluations

1. Shortly following the REDSO/WA mid-point report, a more in-depth evaluation of the project should be undertaken. This evaluation should address the issue of AID financing beyond the project period. The evaluation team could be composed of AID/DR or REDSO/WA Human Resource and Development personnel and/or a contract evaluation team composed of individuals with rural development and agricultural training experience in French West Africa.

2. At least 6 months following the completion of the project, an ex psot facto evaluation will be undertaken. This evaluation team could be composed similarly to the team for the mid-project in-depth evaluation.

D. Covenants in the Project Agreement

The GOM will covenant that the additional budgetary resources to assure the full GOM contribution to the project will be forthcoming and that the GOM will earmark a fixed percentage of the CAA budget for building and vehicle maintenance, and that adequate office space for project personnel will be provided.

Page 33.

The GOM will also covenant to enact an appropriate legal framework granting full statutory recognition for the CAAs. And to provide for the introduction of allowances for teaching staff to equalize their terms conditions of service with those of the Ministry of National Education and the Operations. (Although a final decision has not been reached, the IBRD may provide the appropriate allowances and bonuses to the CAA program staff for the duration of the project.)

Annexes.

A. AID/W PRP Approval Message.
B. Project Technical Details
   1. Map
   2. PRP Facesheet
   3. Equipment and Furnishings List
   4. Draft Job Descriptions for Technical Assistance Personnel
C. REDSO/WA Engineer's Report and Preliminary Construction Plans
D. Logical Framework Matrix
E. Project Performance Tracking Network Chart
F. Statutory Checklist
G. Mission Director's Certification
H. Borrower/Grantee's Application for assistance
I. Draft of Project Description to be used in the Project Agreement
J. Draft Authorizing document
K. A report of a Study on Agricultural Manpower, Training and Extension in the Republic of Mali, by R. James Bingen (USAID/Bamako, June, 1976)
L. Summary of IBRD Preliminary Proposal for CAA Project.

TURAL TRAINING TO PROJECTED FUTURE BUDGET ITEMS WHEN CAAS FULLY OPERATIONAL AND ANALYSIS OF GOM ABILITY TO GENERATE ADDITIONAL REQUIRED FUNDS TO ABSORB INCREASED EXPENDITURE, AS WELL AS REALISM OF RELATIVE INCREASES.

C. WOMEN IN AGRICULTURE. (SEE PD 60 ,INTEGRATION OF WOMEN INTO NATIONAL ECONOMIES" DATED SEPT. 16, 1974.

(1) IN TRAINING PROGRAMS EXISTING AND PROPOSED.

(2) AS INSTRUCTORS AT CAAS.

(3) IN FIELD/EXTENSION POSITIONS

(4)?YI: DEPENDING ON SWISS CONTRIBUTION, AFRICA BUREAU IS WILLING TO CONSIDER TA FUNDING FOR TRAINING UNDER THIS PRO ECT ESPECIALLY AS RELATES TO INCREASED WOMENS PARTICIPATION IN ALL LEVELS OF AG EXTENSION. TA COULD INCLUDE CURRICULUM DEVELOPMENT, TRAINING OF INSTRUCTORS ETC. DOLS. 200,000 TO 300,000 SEEN FOR THIS ITEM.
END FYI.

D. CURRICULUM - ECPR SAW NEED FOR SOME "REGIONALIZING, OF TRAINING AT DIFFERENT CENTERS. THIS WOULD ENTAIL ANALYSIS OF CURRICULUM VIS-A-VIS GEOGRAPHICAL/TOPOGRAPHICAL/RAIN FALL ZONE AREA AND ORIENTING SOME TRAINING TOWARD SPECIFIC AREA IN WHICH CENTER WAS LOCATED.

E. SPACE UTILIZATION - USING ILO RECOMMENDATIONS AND CURRENT CLASSROOM UTILIZATION, FULLY ANALYZE PROJECTED FACILITIES AND USAGE.

F. TECHNICAL AND ECONOMIC PLANS AND ANALYSIS REQUIRED TO SATISFY SECTION 611 (A). (ENGINEERING ASSISTANCE WILL BE REQUIRED).

G. ENVIRONMENT ASSESSMENT PURSUANT AID REQUIREMENTS.

H. PROJECT PHASING TO MEET CAPITAL GRANT PROJECT GUIDELINES. PRP IMPLIES PROJECT DISBURSEMENTS MAY EXCEED

THREE YEARS DURATION. THIS PROHIBITED BY FAA. B.D.

I. POSSIBILITY OF USING FAR.

J. EVALUATION OF ROLE OF CAA IN AG EXTENSION AND MERIT OF PARTICULAR METHODS OF AG EXTENSION SYSTEM IN MALI AT PRESENT.

K. ESTABLISHMENT OF GOM CONTRIBUTION

DE ARTMENT OF STA. E

TELEGRAM

TURAL TRAINING TO PROJECTED FUTURE BUDGET ITEMS WHEN CAAS FULLY OPERATIONAL AND ANALYSIS OF GOM ABILITY TO GENERATE ADDITIONAL REQUIRED FUNDS TO ABSORB INCREASED EXPENDITURE, AS WELL AS REALISM OF RELATIVE INCREASES.

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J. EVALUATION OF ROLE OF CAA IN AG EXTENSION AND MERIT OF PARTICULAR METHODS OF AG EXTENSION SYSTEM IN MALI AT PRESENT.

K. ESTABLISHMENT OF GOM CONTRIBUTION

DEPARTMENT OF STATE

TELEGRAM

K. ESTABLISHMENT OF GOM CONTRIBUTION TO THE PROJECT, E.G. CDO SHOULD BROACH AGAIN WITH GOM DESIRABILITY OF PAYING FOR LOCALLY-MANUFACTURED FURNISHINGS.

L. ECONOMIC ANALYSIS ON GRANT VS. LOAN FINANCING.

3. CDO SHOULD KEEP IN MIND THAT SECTION 105 OF APPROPRIATIONS ACT REQUIRES REVIEW AND APPROVAL OF ALL FIRMS SELECTED (INCLUDING LOCAL), AND CONTRACTS TO BE EXECUTED, FOR CONSTRUCTION, PROCUREMENT AND ENGINEERING SERVICES. AID WILL ALSO REVIEW PLANS AND SPECIFICATIONS FOR FACILITIES. PLEASE NOTE ALSO THAT ALONG WITH LOCAL COMPANIES U.S. ENGINEERING FIRMS MUST BE GIVEN AT LEAST EQUAL OPPORTUNITY TO PROPOSE CONSULTANT SERVICES.

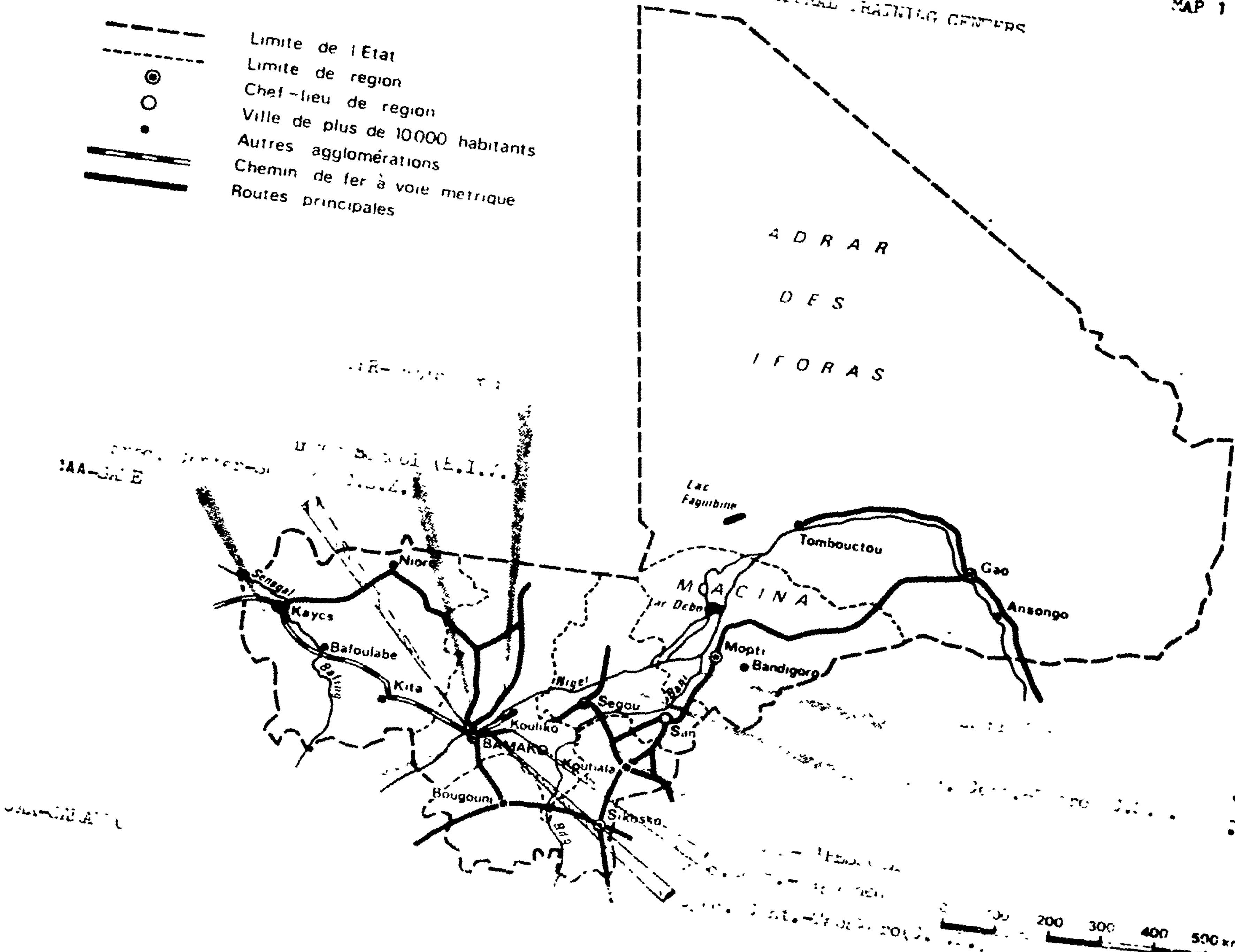
4. PROCUREMENT SOURCE ORIGIN FOR GRANT FINANCING OF GOODS AND SERVICES RESTRICTED TO U.S. AND MALI. PP SHOULD DISCUSS ANTICIPATED SOURCE AND ORIGIN OF GOODS AND SERVICES FOR PROJECT, INDICATE WHETHER ANY WAIVERS REQUIRED AND, IF SO, PROVIDE JUSTIFICATION.

5. PRP DOES NOT DISCUSS EFFECTIVENESS OF MALIAN AG EXTENSION STRATEGY AND SERVICE. THERE IS NO INDICATION AS TO WHETHER IT IS RELEVANT TO NEEDS OF AG SECTOR PROJECTS. THIS QUESTION/ISSUE SHOULD BE ANALYZED IN CONTEXT OF DESIRABILITY OF AID SUPPORT OF CAA STRUCTURE AND TRAINING IN LIGHT OF WAY TECHNOLOGICAL DISSEMINATION NOW ORGANIZED BY GOM. KISSINGER

FORM FS-412
REV 6/73

LOCATION OF PROFESSIONAL AGRICULTURAL TRAINING CENTERS

MAP 1



Annex B.1.

Annex B. 2.

Appendix 6A, ...
Page 3 (...)

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT REVIEW PAPER FACESHEET
TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE ("X" appropriate box): [X] Original [ ] Change [ ] Add [ ] Delete

PRP — DOCUMENT CODE 2

2. COUNTRY/ENTITY: [illegible]

3. DOCUMENT REVISION NUMBER

4. PROJECT NUMBER

5. BUREAU: a. Symbol [illegible] b. Code 1

6. PROPOSED PP SUBMISSION DATE: mo. yr. [illegible]

7. PROJECT TITLE - SHORT (stay within brackets)

[[illegible] OF AGRICULTURAL OFFICERS]
[illegible]

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 7[illegible] b. FINAL FY [illegible]

9. ESTIMATED TOTAL COST ($000 or equivalent, $1 = [illegible])

a. FUNDING SOURCE	FIRST YEAR FY [illegible]			ALL YEARS		
	b. FX	c. L/C	d. Total	e. FX	f. L/C	g. Total
AID APPROPRIATED TOTAL		[illegible]	[illegible]		[illegible]	[illegible]
(Grant)	( )	([illegible])	([illegible])	( )	([illegible])	([illegible])
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1)						
Other U.S. 2)						
HOST GOVERNMENT			+			+
OTHER DONOR(S)						
TOTALS		[illegible]	[illegible]		[illegible]	[illegible]

10. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

a. Appropriation (Alpha Code)	b. Primary Purpose Code	c. Primary Tech. Code	FY [illegible] d. Grant	e. Loan	FY [illegible] f. Grant	g. Loan	FY [illegible] h. Grant	i. Loan	ALL YEARS j. Grant	k. Loan
[illegible]	[illegible]	[illegible]	[illegible]		1,202		[illegible]		[illegible]	
		TOTALS	[illegible]		1,20[illegible]		[illegible]		3,[illegible]	

11. PROJECT PURPOSE(S) (stay within brackets) [ ] Check if different from PID

[To finance the construction and improvement of four Agricultural Apprenticeship Centers which will expand the GON training of grass-roots agricultural personnel.]

+ Subject to further refinement

12. WERE CHANGES MADE IN PID FACESHEET DATA, BLOCKS 12, 13, 14, or 15? IF YES, ATTACH CHANGED PID FACESHEET.

[-] Yes [ ] No

13. PLANNING RESOURCE REQUIREMENTS (staff/funds) for PP
[illegible] (3 weeks)
[illegible] PROJECT DESIGN OFFICER (3 weeks)

14. ORIGINATING OFFICE CLEARANCE

Signature

Title: CDO/Bamako

Date Signed: mo. day yr. [illegible] 7[illegible]

15. Date Received in AID/W, or For AID/W Documents, Date of Distribution: mo. day yr.

Annex B,3.

The following equipment and vehicle price lists were compiled from information furnished by suppliers in Bamako. All costs (at $1: 470MF) are current to July 1976 and include a 10% inflation factor.

The quantities for all listed equipment are for one CAA of 160 students.

EQUIPMENT

	Quantity	Unit Price	Total Price MF	$
CLASSROOMS				
Desks (1 for 2 students)	80	35,000	2,800,000	
Blackboards	12	15,000	180,000	
Typing Desks	6	100,210	601,260	
Chairs	12	9,020	108,240	
			3,689,500	7,850.00
OFFICE				
Desk	1	220,525	220,525	
Typing Desks	4	100,210	400,840	
Armchairs	4	62,320	249,280	
Metal Locker/Cupboards	3	110,000	330,000	
Metal Chairs	4	9,020	36,080	
			1,236,725	2,631.00
INSTRUCTOR'S ROOM				
Metal tables (w/chairs)	9	60,665	545,985	
Metal cupboards/lockers	5	110,000	550,000	
Metal chairs	16	9,020	144,320	
			1,240,305	2,639.00
STUDENTS RECREATION ROOM				
Metal tables	20	60,665	1,213,300	
Metal chairs	70	9,020	631,400	
Book locker/cupboards	2	235,000	470,000	
			2,314,700	4,925.00
DORMITORIES				
Single beds (Metal)(90cm)	180	53,340	9,601,200	
Mattresses (Foam)(90cm)	180	13,260	2,386,800	
Mosquito nets (90cm)	180	4,000	720,000	
Blankets	180	6,000	1,080,000	
Sheets	360	6,500	2,340,000	
			16,128,000	34,315.00

Annex 3. 3 (2)

EQUIPMENT

	Quantity	Unit Price	Total Price MF	$
DINING ROOM				
Metal Tables (140 x 75)	30	41,212	1,236,360	
Chairs (metal)	200	9,020	1,804,000	
Glasses (plastic)	200	135	27,000	
Forks	200	130	26,000	
Spoons	200	130	26,000	
Knives	200	340	68,000	
Deep dishes (plastic)	200	400	80,000	
Shallow dishes	200	400	80,000	
Bowls (plastic)	200	360	72,000	
Saucers (plastic)	200	360	72,000	
Cupboards	4	150,000	600,000	
			4,091,360	8,705.00
KITCHEN				
Wood stoves	3	33,000	99,000	
Cooking pots				
10 litres	6	5,750	34,500	
20 litres	6	12,250	73,500	
Basins (cuvettes) 40	15	3,000	45,000	
Casseroles (5 litres)	8	5,750	46,000	
Kitchen knives	8	3,000	24,000	
Serrated knives	8	3,750	30,000	
Coffee pots (Institutional)	10	12,000	120,000	
Trimmers, skimmers, ladales and forks	18	2,000	36,000	
Cupboards	6	102,000	612,000	
			1,045,000	2,224.00

VEHICLES

	Vehicle	Number	Unit price	Total price MF	$
CAA M'Pessoba					
	Cargo Bus (16 places)	2	4,822,400	9,644,800	
	Light Pick-up	1	2,789,600	2,789,600	
	Medium Pick-up	1	5,527,830	5,527,830	
				17,962,230	38,218.00
CAA Samé	Cargo Bus (16 places)	2	4,822,400	9,644,800	
	Landrover (Type 109)	1	4,418,717	4,418,717	
	Medium Pick-up	1	5,527,830	5,527,830	
				19,591,347	41,684.00
Division	Station-wagon (Taxi-Brousse)	2	3,361,600	6,723,200	14,315.00
Technical Assistance Personnel					
Chief of Team and Agricultural Education Specialist	Station-wagon (Taxi-Brousse)	2	3,361,600	6,723,200	
Agricultural Education Teachers and PCV Mechanic	Light Pick-ups	4	2,789,600	11,158,400	
				17,881,600	38,046.00

Annex B.4.

Draft Job Descriptions for Technical Assistance Personnel.

1. Agricultural Education Administration Specialist (36 m/m)

The Agricultural Education Administration Specialist is the project team leader and chief consultant to the Division of Agricultural Education and Professional Training. His duties include:

-coordination and supervision of all technical assistance activities including the work of the Agricultural Education Specialist, the Agricultural Education and Extension teachers attached tothe CAAs and PCV mechanic/instructor;

-advising the Director of the DAEPT on improved financial and administrative management systems for the CAA network;

-scheduling and coordinating all short-term consultancy activities and the participant training program, with the acvice and cooperation of the Director of the DAEPT;

-assuming the order and delivery of all required instructional materials and equipment for the CAAs;

-coordination and implementation of all project reviews and evaluations.

2. Agricultural Education Specialist (30 m/m)

The Agricultural Education Specialist is a senior staff member of the DAEPT and advisor to the heads of all the administrative sections of the DAEPT. He is primarily responsible for coordinating curriculum development and an effective third-year follow-up program. To carry-out the development of an appropriate and relevant curriculum, he is required to visit the CAAs on a regular basis with DAEPT staff members in order to work closely with all the CAA teaching staff, including the expatriate agricultural education teachers, and monitor staff teaching. To implement a workable third year follow-up program he is required to consult with the staffs of the rural development operations and other agencies using third-year trainees in order to establish an effective system as well as supervise the resultant third year activities.

3. Agricultural Education Teacher (3 x 30 m/m)

The Agricultural Education Teacher is posted to a CAA and serves as a senior faculty member with both teaching and supervisory responsibilities. His duties include the establishment of on-the-job training for CAA instructors, teaching and advising on the development, and coordinating the implementation of an improved curriculum.

4. PCV Mechanic/Instructor

The PCV mechanic/instructor is responsible for the establishment of a vehicle and equipment maintenance program, including a parts requisition and distribution system for all the CAAs. He visits the three functioning CAAs on a regular basis and works closely with the resident mechanics to improve their performance and implement a realistic program of regular vehicle and equipment maintenance.

Annex B.4. (2)

All technical assistance personnel must be fluent in French. Bambara language training before and/or after arrival in Mali would be highly desirable.

All expatriate personnel must make every effort to act only in an advisory capacity so that the responsibility for program activities initiates from the appropriate Malian staff.

REDSO/WA Engineer's Draft Report and Preliminary Construction Plans

Annex C.

D R A F T July 7, 1976

MALI CAA AG. TRNG. PROJECT

Engineering Input

I. Description of Site

A. Same - The site is gently rolling located near the village of Same 20 kilometers from Kayes, along the banks of the Senegal River. The existing buildings are those of a former jute factory built twenty to fifty years ago, some of which were adapted to the purpose of this training installation about ten years ago, and all but three monitor houses and a warehouse are to be demolished. All present construction is in deplorable condition from age and lack of maintenance and has no value except minimal salvage of steel roof structures.

The soil is sandy clay. It has a shear strength of 1.5Kg/CM^2 and an allowable working strength of 0.8 Kg/CM^2. It is suitable for use with septic tank and leaching pit disposal of liquid wastes.

The strong prevailing wind, which comes with very heavy rain, calls for orientation of the buildings in a Northeasterly direction so that the ends face the winds.

There is sparse cover of trees, except in the areas where most of the new construction is projected. These consist largely of plowed fields

amounting to something under 12 acres.

B. M'Pesoba

This site is practically flat with a slight slope to the Southeast. There is a central Allee leading to other government agricultural installations, bordered with majestic mango trees. The site is about 600 meters on the Allee, with development of existing training facility extending about 200 meters on each side of the Allee. Most of thepresent construction is usable, with suitable reconstruction. Two housing buildings of mud construction and the manure shed are not usable and will be demolished.

The soil is sandy clay with underlying laterite gravel. It has a shear strength of 2 Kg/cm^2 and allowable working strength of 1.3 Kg/cm^2. It is suitable for use with septic tank and leaching pit disposal of liquid wastes.

This site also has prevailing winds with rain from the Northeast.

There are occasional trees in the area of new construction but few if any will need to be cut.

2. Proposed Construction

A. The following construction is contemplated at Same:

a) New Construction

5 - Dormitories for 36 pupils ea. 215M^2 ea.
1 - Dining Hall and Kitchen - 359M^2
6 - Classroom Buildings 30 students - 149M^2 ea.
1 - Office, Library and Infirmary - 156M^2
7 - Monitor houses - 72M^2 each
2 - Warehouses for agr. equip, agricultural products and shops - 310M^2 each

1 - Stable - covered area 250 M^2, with fenced corral.

1 - Car shelter - 120 M^2

Utilities - water well 20 M with pump, 20 M^3 storage water tower and distribution piping.

Electric supply 2 generator sets of 30 KVA each with distribution system to all buildings.

Rehabilitation of existing buildings

3 - Monitor houses - Total area 715 M^2

1 - Warehouse for demonstration shop - 317 M^2

The new construction, dormitories, classrooms and dining hall will be located on high ground in what is now an open plowed field. The monitor houses will be located just below the dormitory group in the general area of the three existing monitor houses. Each building will have its own septic tank and soak away pit. The water tank will be located centrally to these buildings.

The warehouses and stables will be located down hill near the river away from the housing. The office is located just below the monitor housing.

All new buildings will be oriented with their ends pointing Northeast, the direction of the prevailing wind.

All new housing, classrooms and office buildings will have concrete block bearing walls on concrete footings, groundfloor slab on compacted granular material, steel purlins with corrugated metal roofing, plywood ceilings,

metal windows and exterior doors, flush wood interior doors, cement plaster inside and outside, whitewashed. Metal and wood surfaces are painted. Electric wiring and fluorescent lighting, bathrooms, toilets and kitchens in housing and dining hall. Classrooms and dining hall have simple steel roof trusses on concrete columns.

Warehouses and stable have steel columns on concrete footings and trusses with steel purlins and corrugated steel roofing, plastered block walls on concrete footings and concrete floors. Corral area is enclosed with wire on steel posts.

The three existing monitor houses are approximately twenty years old and are in very poor state of repair due to old age and lack of maintenance. They consist of a central section with concrete roof surrounded with lean-to corrugated steel roofed porch on all sides. Walls are block plastered, ceilings plywood. Foundations concrete. They vary in size from 25 M x 11 M to 16 M x 10 M. The houses known as Aamou and Soumaila require demolition of a dilapidated storeroom with concrete slab. The floor of the porch and terrace will have a cement finish to repair the surface. The roof slab over the central portion will receive

a 5cm cement finish. All exterior metal doors and windows will be repaired. All interior doors will be replaced with flushwood doors and new hardware. A new terrace is required on the third house. Outside and inside walls of all houses will be whitewashed and all wood and metal surfaces oil painted. New bathroom and kitchen plumbing fixtures will be installed as well as electric systems.

The existing warehouse will serve as demonstration shop. An old press will be removed. The floor will be repaired by pouring a new 10cm slab with integral finish. Existing mud block walls will be demolished (they are unsafe) and new 20cm block walls on concrete foundations built for east and north elevations. They will be plastered both sides. Portions of the steel roof structure are to be repaired. Two large steel doors and three windows with louvers are to be installed. Walls are to be whitewashed outside and inside and all exposed steel and all doors and windows oil painted.

C. The following construction is contemplated at M'Pesoba:

a) New construction.

5 - Dormitories of 36 students each - 215M^2

1 - Dining Hall and Kitchen - 359M^2

2- Classrooms - 30 Students each - 241M^2

1 - Office-library - 156M^2

7 - Monitor houses each - 72M^2

1 - Warehouse, supplies - 350M^2

1 - Shop - 108M^2

1 - Manure shed - 214M^2

Water supply-M'Pessoba has two wells. An older well supplies 44,000 litres/day. A newer well, which was dug to provide water for irrigated gardening has not been tested. Genie Rural believes that both wells will adequately supply the center with water for personal needs.

There is an existing 54 m^3 raised water tank connected with a distribution system serving the existing buildings.

Central Power Supply and electric distribution system will be required.

b) Rehabilitation of existing buildings:

2 - Dormitories converted to classrooms - total 573M^2

1 - Former Dining hall and kitchens converted to storehouses 344M^2

2 - Classrooms - total 473M^2

1 - Office - Stores 179M^2

1 - Shop 322M^2

2 - Cowsheds - 846M^2

6 - Monitor Houses 855M^2

1 - Garage, storage 305M^2

1 - Former garage 169M^2

1 - Generator house 36M^2

2 - Cowsheds 846M^2

2 - Steel water tanks on raised steelplatform

c) Demolishing of mud houses and manure shed.

The new dormitories and dining hall will be located on the north side of the Main Allee, four in a group opposite the classroom quadrangle and one for women opposite the Bureau, which replaces present Deputy Director's mud house near the Director's house. Five new monitor houses are grouped to the north opposite the orchard and two to the south next to the classroom quadrangle. The manure shed replaces the existing unusable shed to the north. The new forage shed is next to the present animal food storage shed. The old shop will occupy the entire building part of which is now used as storage.

All but one of the new buildings will be oriented with their ends facing Northeast, the direction of the prevailing heavy wind and rain.

New construction will have same specifications as for Same.

The Director's house (402M^2) requires floor repairs, replacement of exterior doors and windows with metal, plus

screens. All wood and metal cleaned and painted. Walls and ceilings whitewashed. Bathroom and kitchen plumbing equipment to be replaced, and piping renewed. Wiring to be renewed.

The Agricultural Instructor's House ($100M^2$) is to have wall cracks repaired, hung ceiling repaired, new screens, and all wood and metal painted and interior and exterior walls and ceilings whitewashed. Plumbing fixtures and plumbing to be replaced. Electric installation replaced.

The house of Master of General Education ($400M^2$) is identical with that of the Agricultural Instructor.

The house of the Master of Research ($354M^2$) will have new doors and windows, new electric installation, repainting and water connection.

The Research Agent's house ($66M^2$) will have complete repainting and new electric installation.

The house for the Research Assistant ($225M^2$) will be completely repainted, new ceiling, and joints in roofing repaired. Bathroom and kitchen fixtures and shower are to be replaced and a new tile counter and sink provided for kitchen. The electric installation is to be renewed.

The present Dining Hall-Kitchen-Stock Room is to be transformed to food storage and office material storage. Metal doors and windows to be repaired and vents arranged

to improve ventalation. All wood and metal to be painted two coats and walls and ceilings whitewashed.

Present Dormitories 1st and 2nd Class ($573M^2$) are to be changed into classrooms. Interior partitions will be demolished and new block partitions built to form classrooms and arts and crafts rooms. About 40% of metal doors and windows require replacement. Complete painting of wood and metal and whitewashing of walls and ceilings are required, as well as revision of electric installation.

The present Classrooms, first and second classes, ($473M^2$) require complete repainting. In the first Classroom building six interior wood flush doors are to be replaced as well and a new plywood ceiling installed. Metal doors and windows must be repaired, and the electric installation renovated.

Office-Storage ($179M^2$) requires a new 10cm cement slab. The part constructed in mud block is to be demolished and replaced with concrete block, plastered. One metal door to be replaced. One W.C., Turkish type, to be replaced. Electric installation to be renewed. Complete painting, wood metal, and whitewashed walls are required.

The Shop-Storage building ($322M^2$) will have a new 10cm concrete floor. About 60% of the walls are in mud block construction in poor condition. These will be demolished

and replaced by 20cm concrete block. All walls will be cement plastered and wnitewashed. Six doors will be replaced. All metal and wood will be oil painted and walls whitewashed. New electric installation is required.

Garage-Storage Building ($305M^2$) will have a 10cm concrete floor. The existing mud block portion is to be demolished and replaced with 20 cm block. Walls to be plastered both sides and whitewashed. Five doors to replace garage door are required.

Research-Storage Building requires only a 10cm concrete floor.

Former Garage (169^{M2}) requires a 10cm concrete floor, cement finish on walls and whitewashed. Roof construction must be renewed and new electrical installation provided.

Two Cow Sheds ($846M^2$) require demolishing of portions of walls built in mud block and replacement by concrete block 20cm thick. The wood mangers are to be replaced with concrete mangers and drinking troughs provided. The door to milking room in cow shed No. 2 is to be replaced.

The Forage Shed is in good condition.

3) Construction Estimates

A. Samé

Item	No.	Total Qty. M^2	$/M^2 Unit Cost	Total U.S. $ (1000)	Remarks
1. New Construction					
Dormitories	5	1075	224	240.0	
Dining hall, 160 pupils	1	359	140	50.0	
Classrooms	6	894	158	140.0	
Office, Library Infirmary	1	156	151	23.4	
Houses, Monitor	7	534	280	149.0	
Warehouse - ag'l mat'l & supplies	2	620	107	66.0	
Stable - incl. corral fence	1	250	101	25.5	
Carport	1	120	94	11.1	
Well, water supply, stge and distribution -20M^2 tank 20,000 li/day			L.S.	32.0	
Electric system 2 Units 30 KVA ea.			L.S.	68.0	
2. Rehabilitation					
Monitor Houses	3	715	45	32.0	
Warehouse	1	317	20	6.4	
3. Demolish existing structures incl. salvage			L.S.	11.0	
TOTAL CONSTRUCTION AS OF JAN. 1976				854.4	
52% allowance for escalation over 3 years at 15% per year				444.3	
Contingency 10%				130.0	
TOTAL CONSTRUCTION ----------				$1,429	

Item	No.	Total Qty. M^2	$\$M^2$ Unit Cost	Total U.S.$ (1000)	Remarks
4. Equipment & Furniture		L.S.		246.5	
Escalation 52%				128.2	
Contingency 10%				37.5	
Total Equipment & Furnishings				412.2	
5. [x]Engineering Design and Supervision of Construction and Procurement of Equipment and Furniture 3 1/2%				64.4	

[x]by Genie Rural - GOM contribution

B) M'Pessoba	No.	Total Qty. M^2	$/M^2 Unit Cost	Total U.S.$ (1000)
1. New Construction				
Dormitories 36 beds	5	1070	224	240.0
Monitor houses	7	534	280	149.0
Dining hall 160 pupils	1	359	140	50.0
Classrooms - 30 students	2	482	158	46.8
Office-Library	1	156	150	23.4
Warehouse supplies	1	350	106	37.2
Shop	1	108	103	11.1
Manure shed	1	214	85	18.2
Well, 2-pumps, extend present distribution system			L.S.	17.0
Electric system 2 - 30 KVA units & distribution			L.S.	68.1
		Sub-Total		660.8

Item	No.	Total Qty. M^2	M^2 Unit Cost	Total U.S.$ (1000)	Remarks
Sub-Total Forward ----------					
2. Rehabilitation					
Director's house	1	402.0	48.	17.0	
Instructor's house	1	99.9	43.	4.3	
Master of Gen. Ed.		99.9	43.	4.3	
Master of Research no. 1	1	86.4	64.	5.5	
Master of Research no. 2	1	66.0	65.	4.3	
Livestock Agent	1	101.0	53.	5.3	
Dormitories converted to classrooms	2	573.0	37.	21.1	
Former dining room converted to store house	1	344.0	15.5	5.3	
Classroom 1st year	1	213.0	43.2	9.2	
Classroom 2nd year	1	260.0	28.8	7.5	
Office - Stores	1	179.0	160.0	28.8	
Shop - Stores	1	322.0	106.0	34.0	
Cowshed No. 1	1	508.0	28.5	14.5	
Cowshed No. 2	1	338.0	35.0	11.7	
Garage - Stores	1	305.0	98.0	30.0	
Garage	1			19.1	
Research Warehouse	1			8.5	
Total Construction as of January '76				891.2	
52% Allowance for escalation over 3-years at 15% per year				463.4	
Contingency 10%				135.5	
Total Construction				1,490.1	
3. Equipment & Furniture					
Lump Sum				246.5	
Escalation 52%				128.2	
Contingency 10%				37.5	
Total Equipment and Furniture				412.2	
4. [x]Engineering Design and Supervision of Construction and Procurement of Equipment and Furniture					
3 1/2% of 66.6					

[x]by Genie Rural - GOM Contribution

C) General

The estimates are based on prices as of January 1976 experienced for new buildings by Genie Rural in most cases, built recently from the drawings and specifications which will be used for the above projects. They have been adjusted for a three year project life at 15% per year for escalation in the case of Same and M'Pesoba, with a 10% contingency. The exchange rate used is 470 Malian Francs = $1.00.

4. Design and Supervision of Construction

The design, contract and supervision agency of the GOM, Genie Rural, will do the design, contracting and supervision of construction. They have a staff of five young French engineers with three local assistants. These are supported by secretaries and a drafting room. This group does all the projects from inception to supervision of construction by periodic site visits. They have some $12M of projects underway, 10 in planning stage and 20 in construction stage. It is not possible for them to assign more than one engineer to this project at one time,

Only the fact that much use of standard drawings will be

made will make it possible to keep to this schedule.

5. Technical Feasibility of Sites

Both sites are well located to serve their intended areas. The topography is favorable for drainage and for the experimental planted areas required. The soils are typical of the soils in the areas to be farmed by the student extension workers. Adequate underground water is available; transportation is available by railroad and air from Bamako to Kaye and thence 15 Km. by road to Same, and by road (300 Km, 220 of which is paved) to M'Pesoba although there is a fairly large town, Sikasso, at 80 Km from M'Pesoba. The soils are suitable for sewage disposal septic tanks. There is no existing electric service.

6. Labor and materials are available, but Same will be more difficult than M'Pesoba in that it is further removed from Bamako. The adjacent towns are small but can furnish some hand labor. Sikasso (80 Km from M'Pesoba) is a district center for Genie Rural and a good source of common labor and some material.

7. Water Wells are located at a distance from the

sewage disposal to avoid contamination.

8. Maintenance provisions must be written into the Grant Agreement. As always it is a commodity in scare supply. For this reason and for reasons of economy only the simplest form of hard construction has been selected.

9. The preliminary drawings, specifications and cost estimates meet the requirements of Section 611 of the Foreign Assistance Act.

10. Construction Capability Procurement There are several local Malian firms who are qualified to undertake one or more of the construction contracts. However, locally procured construction materials must be authorized since neither the contractors nor the GOM are capable of procuring U.S. construction materials and equipment through AID procedures. Local procurement of construction materials must be permitted even though the source and origin of the steel plate and shapes, steel reinforcing, piping, fittings, hardware, electric equipment and pumps is largely French. This may amount to as much as 15% to 20% of the contract. Costs will be less than if U.S. construction materials were required.

11. Environmental Assessment

a) Soil erosion due to site clearing will be minimal since very little clearing is required and no

trees will be felled.

b) There will be no sedimentation or contamination of water courses due to earth moving and operation of maintenance equipment.

c) Little or no vegetation will be destroyed.

d) There will be no adverse effect on the air quality, since no fumes or contaminants will be generated by the construction and functioning of the buildings.

e) There is no destruction of wooded areas and consequently no effect on wildlife.

f) There will be the usual degradation due to increasing the population from about 50 at each site to 220. This will cause some additional vehicular traffic, but minimal since all work at the site.

g) There is no historical or archeological significance to the site nor will there be any displacement of people.

h) There will no doubt be some favorable sociological effects on the local population; source of new jobs and business, both during construction and operation. The trainers and trainees are farming people like those in the surrounding neighborhood and should fit in well.

i) Wells are separated from septic tanks to avoid contamination. Generating plants will be removed from school area to minimize noise nuisance.

j) The new structures are simple and functional, well laid out and will in some cases replace existing ramshackle, run-down buildings which will be demolished. The over-all aesthetic effect can only be a vast improvement over the present school installations.

k) Over-all the environmental impact will be very favorable with little or no unfavorable impact other than increase of land use. A small amount of tilled land will be lost to building (10 acres) but the school will teach improved methods which will multiply production all over the whole surrounding area.

MINISTERE DU DEVELOPPEMENT
RURAL
DIRECTION NATIONALE
DU GENIE RURAL

REPUBLIQUE DU MALI
Un Peuple - Un But - Une Foi

AVANT PROJET DU
C.A.A. DE M'PESSOBA

DEMANDE DE FINANCEMENT U.S.A.I.D.

REPONSE AU TELEGRAMME DU 02 / 7 / 76

1°)- Le puits dont il est question en II.4 est l'ancien puits à partir duquel l'adduction est actuellement réalisée. Ce puits a un diamètre de 1,50 m et une profondeur de 7 m. Aucuns resultats de pompage ne sont connus sur ce puits.

Le puits recemment foré sera reservé à un périmètre d'irrigation maraichère. (Profondeur 100 m) ø 250 de 0 à 11 m, ø 190 mm de 14 à 101,69 m, Débit moyen 5,60 m3/h niveau statique, dynamique 18,60 m rabattement 14,60, le reseau d'adduction en place actuellement est constitué d'un puits, d'une pompe, d'une conduite de refoulement ~~xxx~~ (1 460 m) d'un chateau d'eau (54 m3) et du réseau de distribution en tube plastique (P.V.C.) - Le réseau est celui dessiné sur le plan de masse exepte les brachements vers nouveau bâtiments.

2°)- Les besoins en eau ont été évalués en prenant 80 litres par habitants et 40 litres par tête de bétail. La population actuelle est de 100 habitants et passera à 240 habitants. Actuellment 130 têtes de bétail les prévisions ne depasse pas 200 - L'eau nécessaire à l'iirigation du périmètre maraichère ne trasitera pas par le chateau d'eau.

3°)- Les dortoirs sont différents des dortoirs existants plan ci-joint 5 dortoirs de 215 m2.

4°)- Bureaux fouilles descendues en rigoles larges 0,60 m à 0,50 m de profondeur en dessous du terrain naturel.

- Sol : Chape d'épaisseur de 8 cm d'épaisseur dosée à 300 kg/m3
- Béton armé : Les élements en béton armé seront: linteaux, les poteaux et les chainages. Dosage 350 kg/m3
- Maçonnerie : Toutes les maçonneries seront en agglos de 0,20 m avec enduit intérieur (200 kg/m3) et estérieur (300 kg/m3.
- Ménuiseries métalliques : 3 portes 1,60 x 2,20
  8 Fénêtres 1,70 x 1 30
- Ménuiseries bois : 8 portes isoplane 0,80 x 2,20. Faux plafond
- Couverture : des IPN 120 reçoivent des pannes en IPN 80 sur lesquelles repose une tôle ondulée.
- Sanitaire : 1 W.C. à l'anglaise, 1 lavabos, 1 fosse septique.
- Installation électrique.

6°)- Effectivement une erreur importante a été commise sur le coût du projet. Les habitations moniteurs sont désignés sous le nom de logement sur le plan de masse. Chaque logement est évalué à 10 000 000 FM.

D'autre part la refection du magasin de la recherche ne figure pas dans le devis estimatif.-

.../...-

RECTIFICATIF AU DEVIS ESTIMATIF

INVESTISSEMENT IMMOBILIERS	344 460 000	
7 Logements	70 000 000	
Refection magasin recherche	4 000 000	
	418 460 000	
Etude et surveillance 3,5 %	14 646 100	
INVESTISSEMENT MOBILIERS	30 000 000	
	463 106 100	FM
Actualisation 1,18 x 1,18 x 1,15	367 433 566	
	830 539 666	FM
Plus Imprévus arrondi à	835 000 000	FM

7°) L'ancien refectoire est transformé en magasin de stockage de aliments pour une partie et pour l'autre partie en stockage de matériel scolaire de bureau.

Les deux anciens dortoirs sont transformés en salle de classe.

8°) L'électrification consiste en une centrale de deux groupe de 30 KVA, un bâtiment de 14,8 m2 la distribution aux usagers.

9°) Les indices utilisés ne sont pas des taux d'inflation mais des indices de révision fonction de l'avancement des travaux.

V

MINISTERE DU DEVELOPPEMENT RURAL

DIRECTION NATIONALE DU GENIE RURAL

REPUBLIQUE DU MALI
Un Peuple - Un But - Une Foi

PROJET DE CONSTRUCTION D'UN CENTRE D'APPRENTISSAGE AGRICOLE A SAME

Bamako, le 3 Juin 1976

I - OBJET DU PROJET :

Ce projet vise l'agrandissement du centre de Moniteurs agricoles de Samé. La capacité d'accueil passera de 70 à 160 élèves dont une vingtaine de jeunes filles. Les bâtiments existants sont vetustés et fort endommagés et de ce fait la totalité de l'infrastructure est à renouveler à l'exeption de trois logements et d'un hangar.

ils datent de quand ?

II - SITUATION DE SAMÉ :

Le centre sera construit près du village de Samé à 20 km de Kayes sur les terrains de l'ancienne Sisalerie en bordure du Sénégal.

Le sol est constitué d'argile limoneuse de caractéristiques assez médiocres. La resistance à la rupture est de 1,5 bar et l'on admet 0,6 bar de contrainte admissible.

III - CONSISTANCE DU PROJET :

1) Travaux de réfection trois logements dont celui du directeur seront à retaper. Un hangar aussi pourra être reparer et servira d'atelier de démonstration.

2) Construction neuves : 5 dortoirs de 36 élèves
6 classes
1 refectoire foyer-cuisine
1 bureau bibliothèque-Infirmerie
1 hangar de stockage-ateliers
1 abri pour véhicules automobiles
7 logements pour moniteurs
1 étable.

3) Destruction des bâtiments existants

4) Adduction d'eau et alimentation en électricité

L'eau du Sénégal étant impropre à la consommation il est nécessaire de prevoir l'alimentation en eau à partir d'un puits fore alimentant à l'aide d'une pompe électrique un chateau d'eau de 20 m3.

Une centrale électrique de deux groupes électrogènes de 50 KVA chacun alimentera les postes suivants :

- la pompe du chateau d'eau
- les bâtiments du C.A.A.
- les habitations des moniteurs.

IV - PLAN MASSE :

Nous sommes limités dans l'exécution du plan masse par la direction Nord Est donnés aux pignons (celle du vent dominant) à l'exception de certains bâtiments bénéficiants d'un effet de masque.

.../...-

Les bâtiments du C.A.A. seront repartis en plusieurs pôles d'activité : - les habitations (deux lotissements)
- les classes, refectoire et bureau
- les dortoirs
- les Ateliers, Hangars et étable.

Les groupes électrogènes seront éloignés le plus possible des habitations et des bâtiments - ainsi que les fosses septiques qui seront placées en fonction des vents dominants et le plus loin possible du puits.

V - DESCRIPTIF GENERAL

A - Constructions neuves

1 - Réfectoire : le réfectoire de dimensions extérieures 33,20 x 10,20 comprend : - la cuisine
- le réfectoire
- le foyer

Fouilles : descendues en rigoles larges 0,60 m à 0,60 m au dessous du terrain naturel.

Fondations : les semelles filantes ont dimensionnées à 0,60 x 0,30 x 0,20 dosées à 300 kg/m3 reposant sur un béton de propreté de 0,05 m dosé à 150 kg/m3.

Les longrines 0,40 x 0,40 m seront dosées à 300 kg/m2.

Remblai : il sera procédé à un remblai de 0,10 m après exécution des fondations.

Sol : sur toute la surface de la construction on coulera une chappe de 8 cm d'épaisseur dosée à 300 kg/m3.

Béton armé : les éléments en B.A. seront les linteaux les poteaux, les poutres et les chainages ils seront dosé à 350 kg/m3.

Les poutres destinées à pallier les portes sont en 0,30 x 0,30 à la chainage bas 0,10 x 0,10 et le chainage haut 0,20 x 0,20 m.

Maçonneries : toutes les maçonneries sont en agglos de 0,20 m. La paillace sera en maçonnerie de 0,15 avec revêtement en faïence.

Enduits : enduit intérieur 200 kg/m3
" extérieur 300 kg/m3

un badigeonnage est prévu intérieur et extérieur.

.../...-

Charpente couverture : en couverture est en tôles ondulées de 6 kg reposant sur des pannes en UPN 80.fixées sur une ferme type.

La couverture sera fixée à l'aide de crochet, en acier galvanisé avec rondelle. Il est prévu un auvent de 1,50 m en façade.

Menuiseries métalliques :

- ensemble porte grillagée 1,4 x 2,2 m
- porte semi-persiennée : 0,80 x 2,20 m
- fenêtre persiennée : 1,20 x 1,20 m.

Menuiserie en bois : le faux plafond sera en contre plaqué traité à l'huile de lin.

Electricité : ces points d'éclairage seront des tubes fluorescent de 1,20 m. Une prise encastrée est prévue dans le foyer et dans la cuisine. Tout le système électrique sera encastré.

2 - Dortoirs : même descriptif que le refectoire. Les dimensions du dortoirs sont 25,6 x 8,40 m. Il pourra recevoir 36 pensionnaires.

Equipement sanitaire : 8 douches et deux bacs lavabos de 14 robinets chacun. Quatre W.C. extérieur et deux lavoirs. Une fosse septique de

3 - Salles de classe : de 30 x 10 m descriptif identique à celui du réfectoire.

4 - Bureaux : même descriptif que refectoire. Dimensions 24 m x 6,50 Un lavabos et 1 W.C. seront installés côté infirmerie.

5 - Hangar de stockage : ce hangar de 620 m2, 6 m de haut pourrait être scindé en deux bâtiments de 31 m x 10 m. Il habritera le matériel agricole, les produits agricoles, les produits de traitement, un atelier menuiserie et un atelier mécanique.

Les fouilles : seront en semelles filantes de 0,60 m de large et descendu a 0,60 m en dessous du terrain naturel.

Fondations : semelles de 0,6 x 0,6 x 0,2 et longrines 0,4 x 0,2 dosées à 350 kg/m, reposant sur un béton de propreté de 0,05 et dosé à 150 kg/m3.

Le sol : chape de 0,1 en dosé à 300 kg/m3

Charpente : les poteaux seront des UIN ~~xxxx~~ 140 encastrés en fondation recevant une ferme recouverte de tolea ondulées sur pannes UPN 80. Les portées entre portiques seront de cinq mètres.

Maçonnerie : elles seront en agglos de 0,2 pour tout le bâtiment. En partie haute une maçonnerie de claustras assure un bon éclairage.

.../...-

6 - Abri pour véhicules automobiles : le hangar Auto d'une superficie de 120 m2 [illegible] type construit que le hangar sauf seule les murs pignons sont en maçonnerie.

7 - Etable : 250 m2 couverts même type que le hangar.

Sol : seule l'allée centrale est bétonnée

Maçonnerie : seule les murs pignons sont en maçonnerie

Installations annexes : deux mangeoires en béton armé installées sur une longueur de 15 mètres.

Huit abreuvoirs de section brut 0,5 x 0,6 et de longueur deux mètres sont prévues dans les parcs. Ceux-ci sont cloturés au total 150 ml. Les poteaux de la cloture sont des IPN 120 avec en fondation un massif de béton de 0,50 x 0,50 x 0,40 - Les traverses sont en partie haute un tube 40x 40 et en partie basse des fers lisses Ø 16.

8 - Habitations moniteurs : même type de bâtiment que le réfectoire. Pas de ferme les pannes sont encastrées dans la maçonnerie.

B - Travaux de reprise :

- 1 Le hangar : 25,15 x 12,60 ce hangar servira d'atelier de demonstration.

Le Sol : Une vieille presse est à dégager en chalumeau. Le dallage et la chape sont à reprendre toute la surface du bâtiment sera recouverte par une forme de béton non armé de 0,10 m d'épaisseur y compris la chape dosée à 300 kg/m3.

maçonnerie : Démolir un muret en banco de 2,90 m de haut sur 10,25 de longueur d'épaisseur 0,20 m. Les façades est et sud seront démolies et reconstruites- Prévoir un enduit de 2 cm d'épaisseur intérieur et exterieur.

Charpente : a reprendre sur 30 m2 (T.O.G.)

menuiserie métallique deux portes 1,60 x 2,20 à installer trois fenetres 1,50 x 1,20. Toutes ces menuiseries seront persiennées

peinture : Le batiment recevra un badigeon intérieur et extérieur à la chaux aluminée (Trois couches) Une peinture à l'huile sera appliquée sur toutes les menuiseries métalliques.

2 Logements : trois logements sont à reprendre

2-1 Logement Baron et logement Boumaila : de dimensions respectives 22,40 x 10,70 et 15,75 x 10,50

sol : le sol des verandah recevra une chape de 2 cm d'épaisseur dosé à 300 kg/m3.ainsi que la terrasse existante.

Maçonnerie : Démolition d'un magasin avec dalle béton

Couverture : réparation de la dalle par coulage d'une chape de 5 cm de béton dosé à 350 kg/m3.

.../...-

Menuiseries métalliques : toutes portes seront normalisées en persiennées métallique de 1,40 x 2,20 m. Les fenêtres en persiennées de 1,00 x 1,20.

Menuiserie vitrée : Il est prévu des portes vitrées pour toutes les portes extérieures du salon et des chambres. Il y aura également des fenêtres vitrées dans les chambres.

Menuiserie bois : toutes les portes intérieures seront de type Isoplane de 0,80 x 2,20.

Peinture : tous les murs recevront un badigeon intérieur et extérieur à la chaux alumée 3 couches. Les menuiseries métalliques recevront une couche d'impression à l'huile de lin.

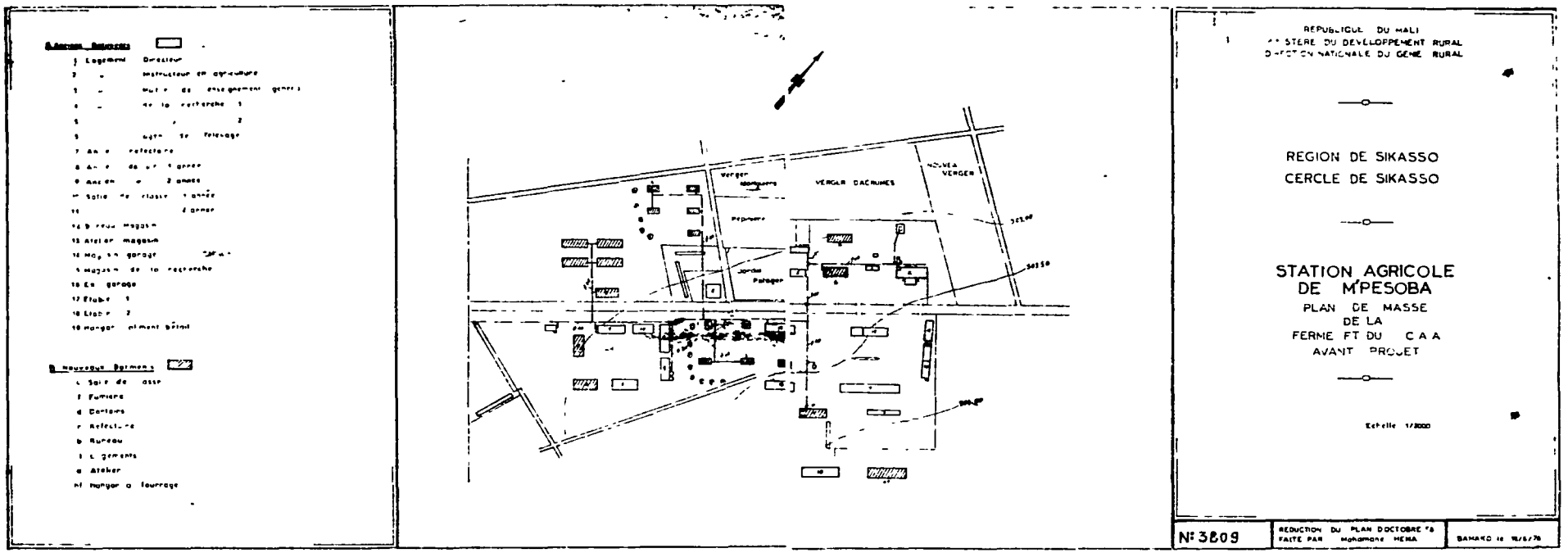
Terrasse : Une terrasse sera amenagée de dimension suivante : 9,20 3,70 à une hauteur de 1,00 m.

PROJET DE CONSTRUCTION D'UN
C.A.A. A SAME
DEVIS ESTIMATIF

Désignation	Nbre.	Surface	Prix total
I - INVESTISSEMENTS IMMOBILIERS			
Adduction d'eau (cuve 20 m3 + distribution)			15 000 000
Electrification 2 groupes de 50 KVA			32 000 000
Dortoirs 36 lits	5	215 m2	112 500 000
Réfectoire 160 élèves	1	359 m2	23 600 000
Classes 30 élèves	6	149 m2	66 000 000
Bureau, bibliotheque, infirmerie	1	156 m2	11 000 000
Logement moniteur à reparer	3	715 m2	15 000 000
Hangar a réparer	1	317 m2	3 000 000
Logements moniteurs	7	72 m2	70 000 000
Destruction des bâtiments existants			5 000 000
Hangar (stokage matériel agricole, produit agricole, ateliers)	1	620 m2	31 000 000
Etable (surface couverte)	1	250 m2	12 000 000
Abri automobiles	1	120 m2	5 250 000
TOTAL =			401 350 000
Etude et supervision 3,5 %			14 047 250
TOTAL =			415 397 250
II - INVESTISSEMENTS MOBILIERS			30 000 000
TOTAL =			445 397 250
Actualisation sur 3 ans 1,18x1,15x1,12			231 535 306
TOTAL =			676 932 556
y compris imprévus arrondi à :			680 000 000

Tous les prix ont été établis au mois de Janvier 1976

= $ 1.580.000



REPUBLIQUE DU MALI
MINISTERE DU DEVELOPPEMENT RURAL
DIRECTION NATIONALE DU GENIE RURAL

REGION DE SIKASSO
CERCLE DE SIKASSO

STATION AGRICOLE DE M'PESOBA

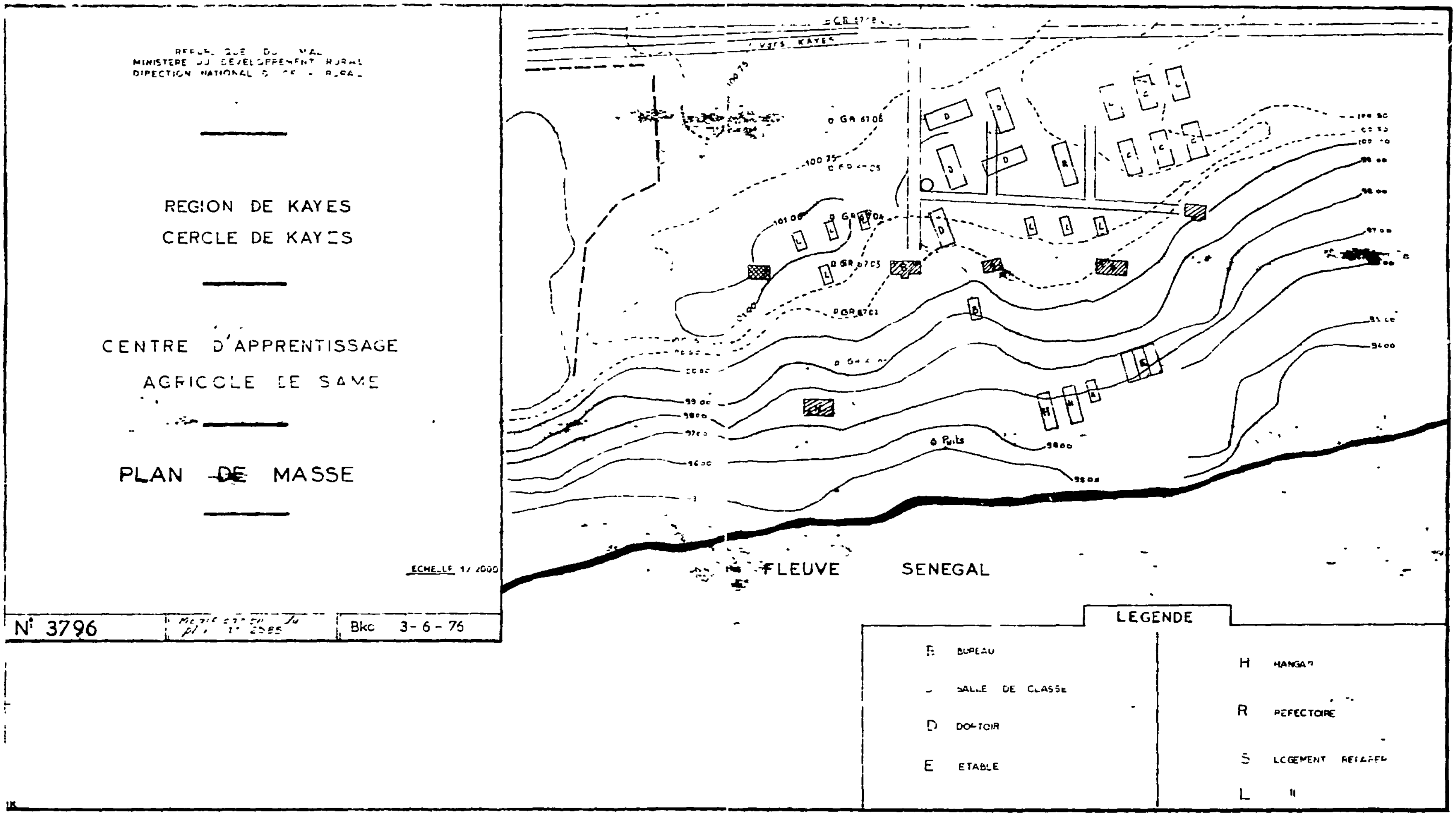
PLAN DE MASSE DE LA FERME FT DU C A A AVANT PROJET

Echelle 1/2000

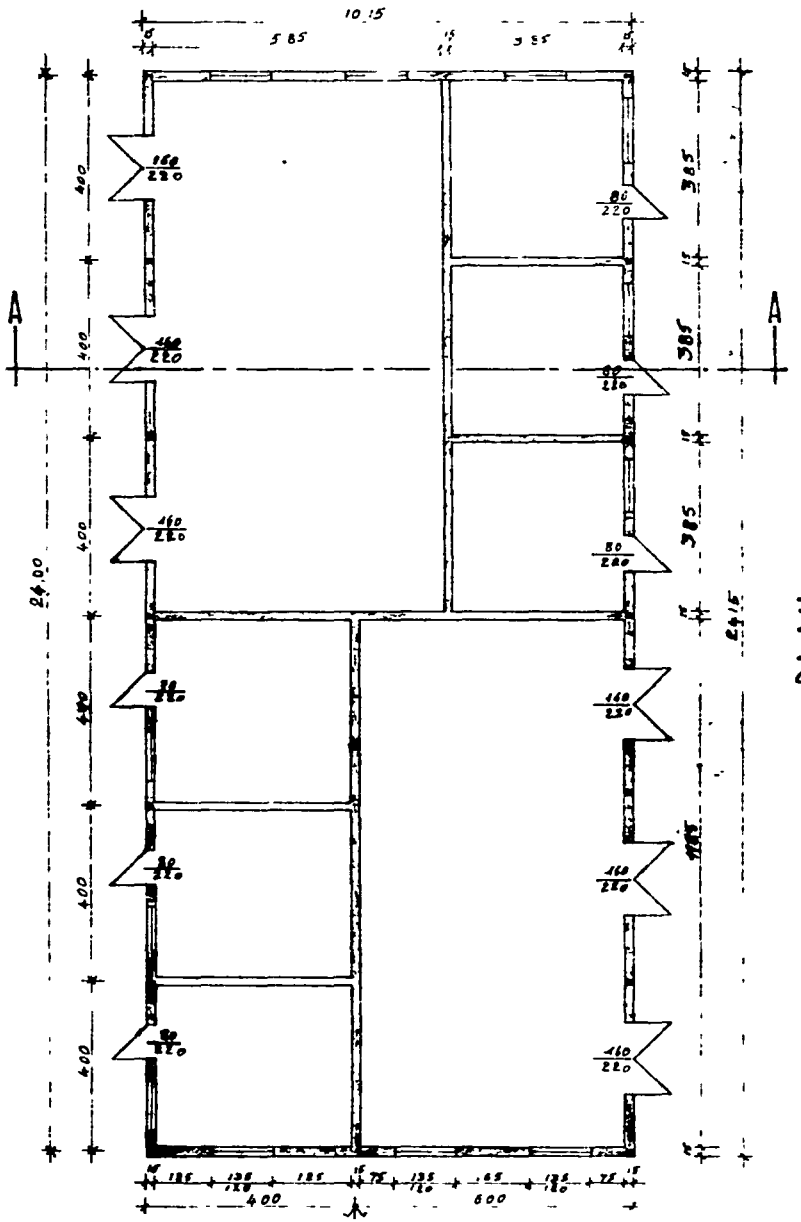
N° 3809

REDUCTION DU PLAN D'OCTOBRE '78 FAITE PAR Mohamane HEMA

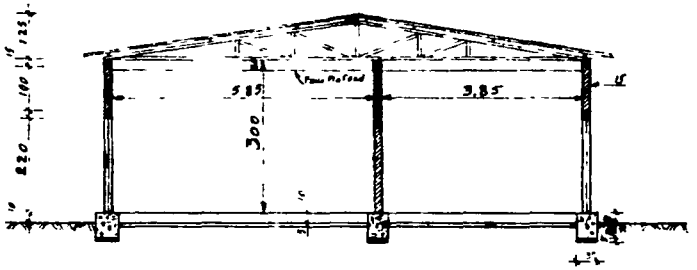
BAMAKO le 18/5/79



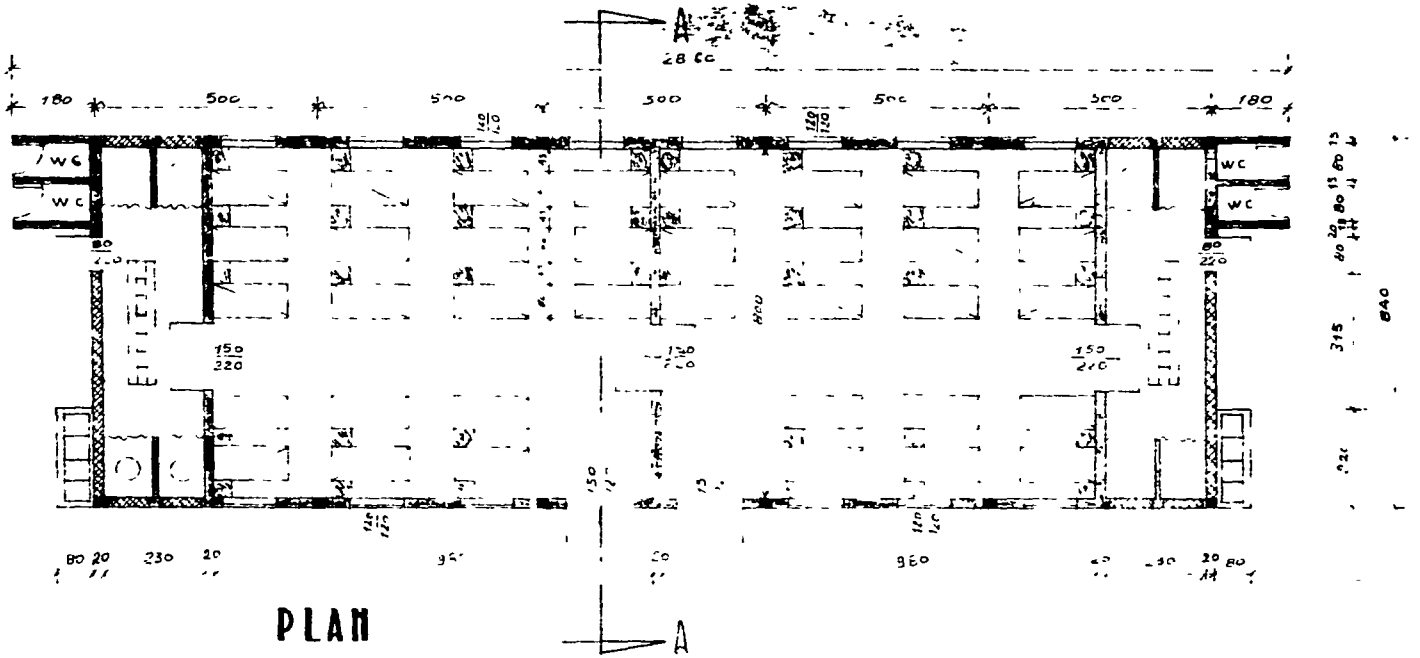
REGION DE KAYES
CERCLE DE KAYES
CENTRE D'APPRENTISSAGE
AGRICOLE DE SAME
PLAN DE MASSE
ECHELLE 1/2000
N° 3796
Bkc 3-6-76
Vers KAYES
Puits
FLEUVE SENEGAL
LEGENDE
B BUREAU
SALLE DE CLASSE
D DORTOIR
E ETABLE
H HANGAR
R REFECTOIRE
S LOGEMENT
L



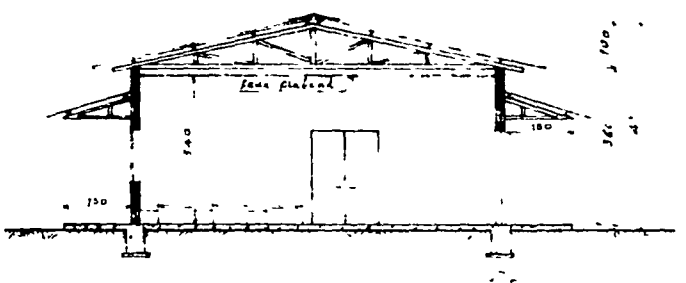
COUPE A-A



BATIMENT CLASSES



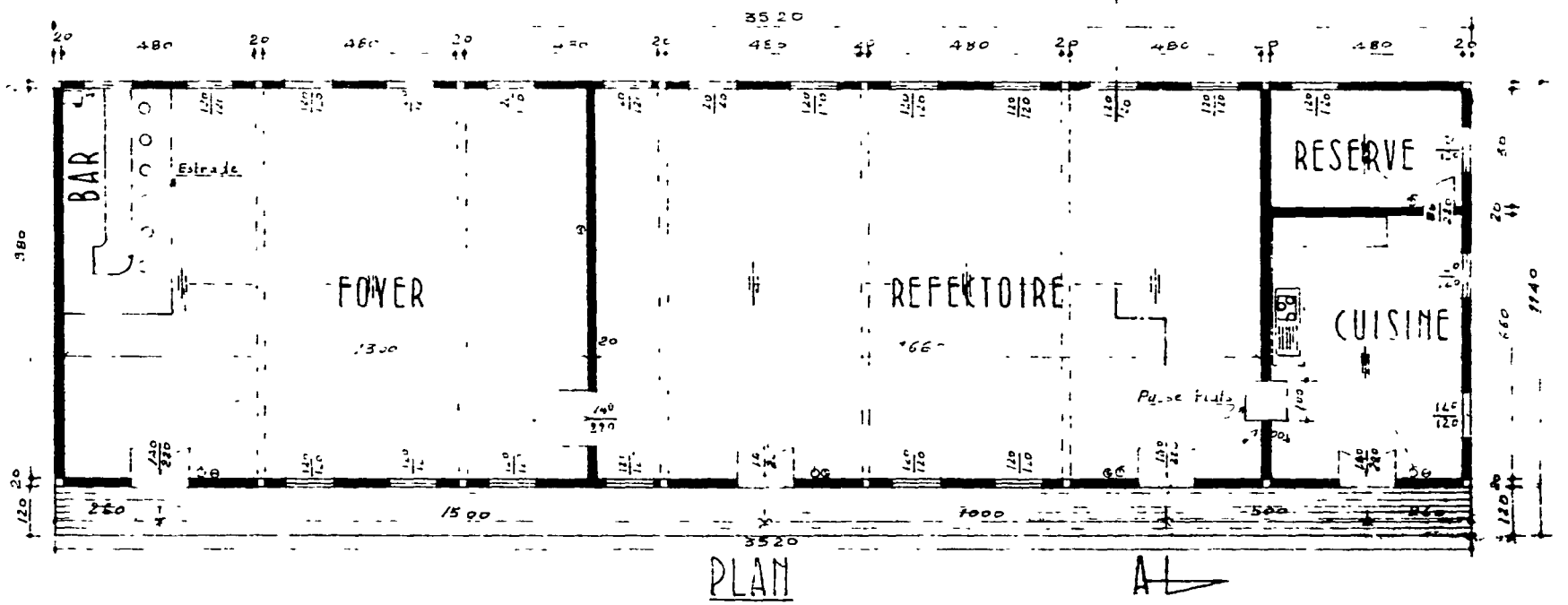
PLAN



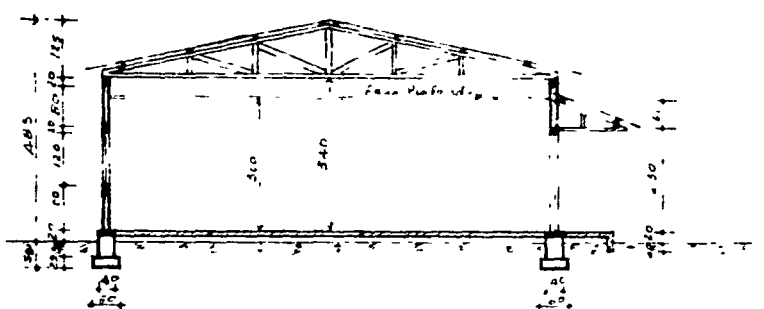
COUPE A A

PLAN TYPE C.A.A.
—DORTOIR—

ECHELLE 1/100 — — BATIMENT



PLAN

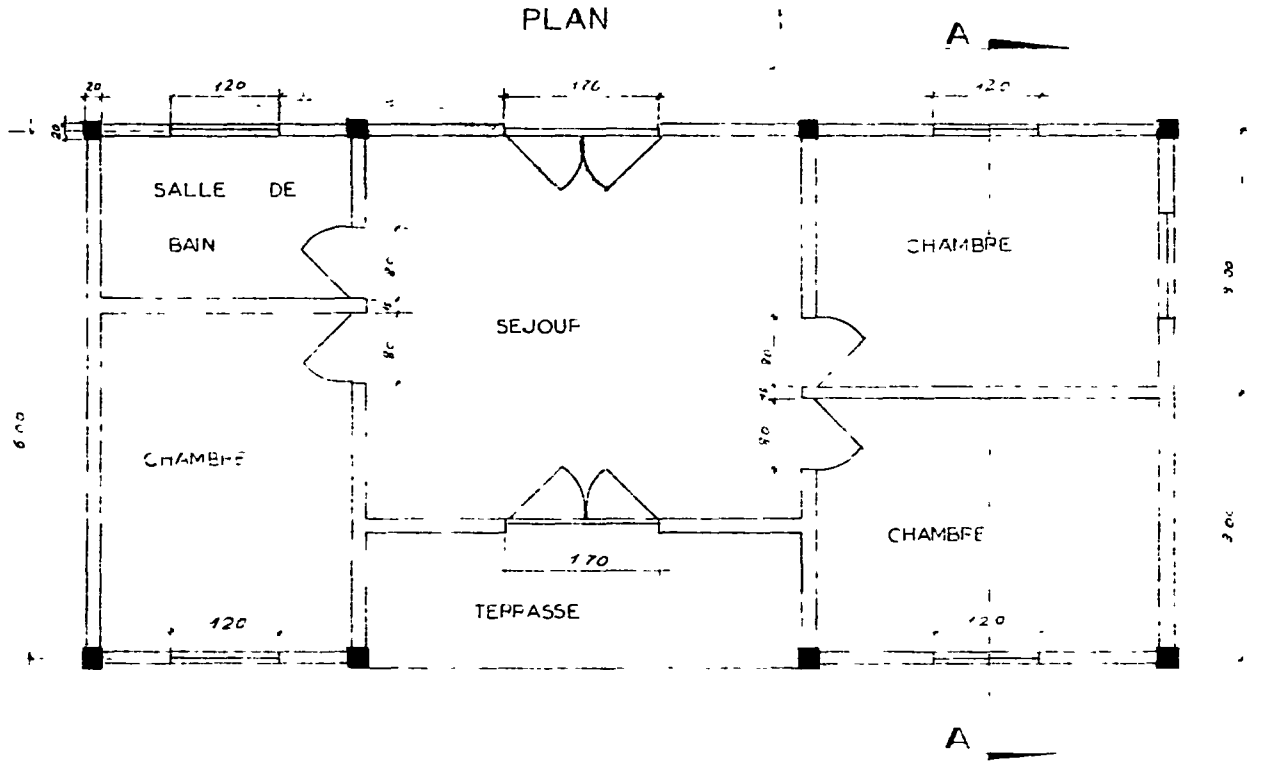


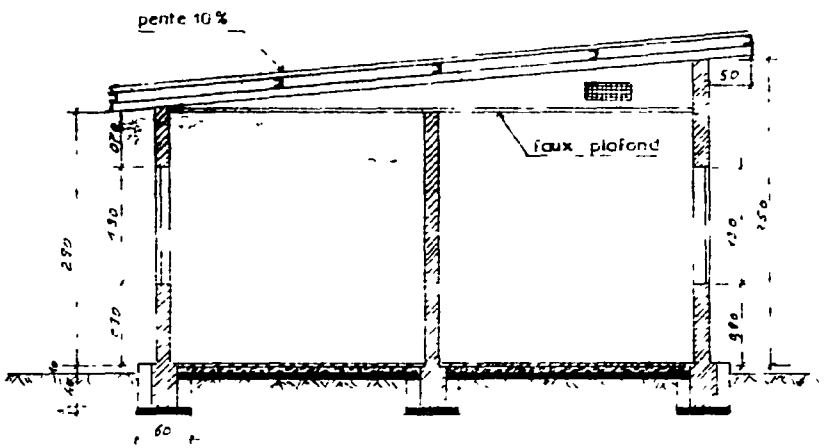
COUPE AA

FOYER ____ REFECTOIRE ____ CUISINE

Bamako 26-5-76. 127 K

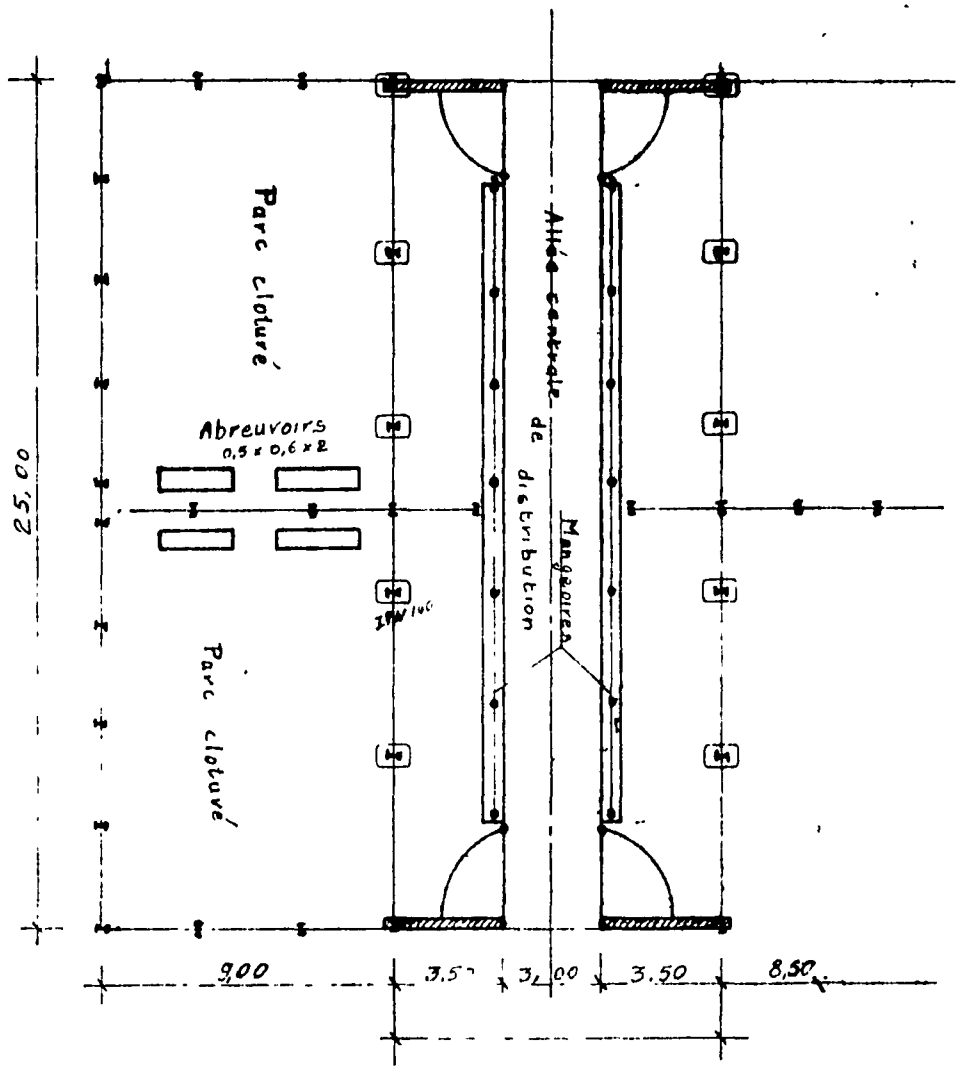
PLAN

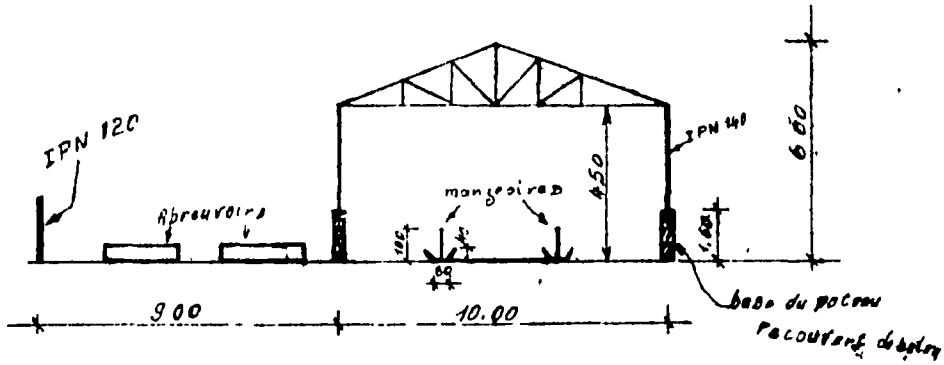




HABITATIONS MONITEURS

ETABLE STABULATION LIBRE





Annex D.

Logical Framework Matrix

AID 1020-28 (1-72)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project
From FY _____ to FY _____
Total U S Funding $4,938,900
Date Prepared July 27, 1976

Project Title & Number Improvement of Agricultural Officers Training

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: To improve the transmission of modern and relevant agricultural methods and technology to the Malian rural population.	Measures of Goal Achievement Increased number of Malian farmers who have access to qualified extension service agents and expertise.	Statistics from the Ministry of Rural Development and the Operations.	Assumptions for achieving goal targets 1. That a key constraint to increasing ag. production is inadequate agricultural ext. agents. 2. That there is a direct and positive correlation between improved agricultural ext. and increased crop productivity. 3. That there are adequate numbers of senior-and middle-level ag. personnel to supervise extension agents.
Project Purpose: To increase the capacity of the GOM to provide up to 160 well-trained polyvalent junior-level agricultural technicians by February 1980.	Conditions that will indicate purpose has been achieved: End of project status 1. The capacity to train 160 qualified junior-level ag technicians (moniteurs) in 2 renovated CAAs at Samé &M'Pessoba exists. 2. An ongoing curriculum improvement program and effective vehicle and building maintenance est. by Feb 1980. Improved management & teaching techniques are practiced by better trained CAA teachers & more capable Program administrators.	Statistics from the Division of Ag. Education and Professional Training EOP and ex post facto evaluations.	Assumptions for achieving purpose: 1. That the GOM can continue to finance ongoing training programs when donor participation terminates. 2. That the training offered is appropriate & adequate to the environment. 3. That the number of moniteurs presently being trained & the quality of the training being offered is insufficient.
Outputs: 1. Increased physical plan capacity of 2 CAAs. 2. Participant training in agricultural education, extension & management. 3. Curriculum improvement. 4. Development of a transportation system.	Magnitude of Outputs 1.2 CAAs, one at Samé, one at M'Pessoba, each capable of housing 160 students with appropriate classrooms, workshops [illegible] specialized facilities & equip. 2. Provision for short-term scholarships for training, teaching & administrative personnel in pedagogy & ed. admin in a Malian or W. Af institution (99m/m) 3. (See facesheet continued)	Project evaluations	Assumptions for achieving outputs: 1. That the AID contracting time frame takes place as scheduled. 2. That AID is able to recruit qualified technical assistance. 3. That sufficiant numbers of qualified students can be found. 4. That the GOM can provide sufficient numbers of qualified instructors. 5. That the GOM can finance increased operating costs. 6. (See facesheet continued)
Inputs: 1. Design, construction, supervision, equip. procurement (GOM) 2. Const.: Samé &M'Pessoba CAAs (USAID) 3. Furnishings & Equip. (USAID) 4. Participant Training (USAID) 5. Technical Assistance (USAID) 6. Vehicles (USAID)	Implementation Target (Type and Quantity) 1. $131.0 2. $2,918.8 3. $824.4 4. $77.8 5. $891.5 6. $226.4	1. Construction inspection 2. Furnishings, vehicles & equip. in place 3. Participant training program est, & returned trainees on the job. 4. Personal services contracts and techn. assistance personnel on board.	Assumptions for providing inputs: 1. That cost estimates including inflation and contingency factors are reasonable and accurate. 2. That the covenents concerning the statutory status of the CAAs and the equalization of staff salaries are respected.

OBJECTIVELY VERIGIABLE INDICATORS

Magnitude of Outputs (continued):

3. Provision for 2 year scholarships for administrative personnel to a U.S. institution for ag. education administration training at the Master's Level.

4. Furnishing of adequate vehicular support and maintenance for delivery of supplies, transportation of students during practical exercises and for administrative purposes.

5. Provision of full time technical assistance:
a) 1 ag. admin. specialist as team leader(36 m/m);
b) 1 ag. ed specialist for curriculum materials development (30 m/m); c) 3 ag. ed teachers to teach and supervise curriculum developments at each CAA (90 m/m)

6. Provision of short-term expertise for project evaluation, curriculum development, planning, management, training, etc., (18 m/m)

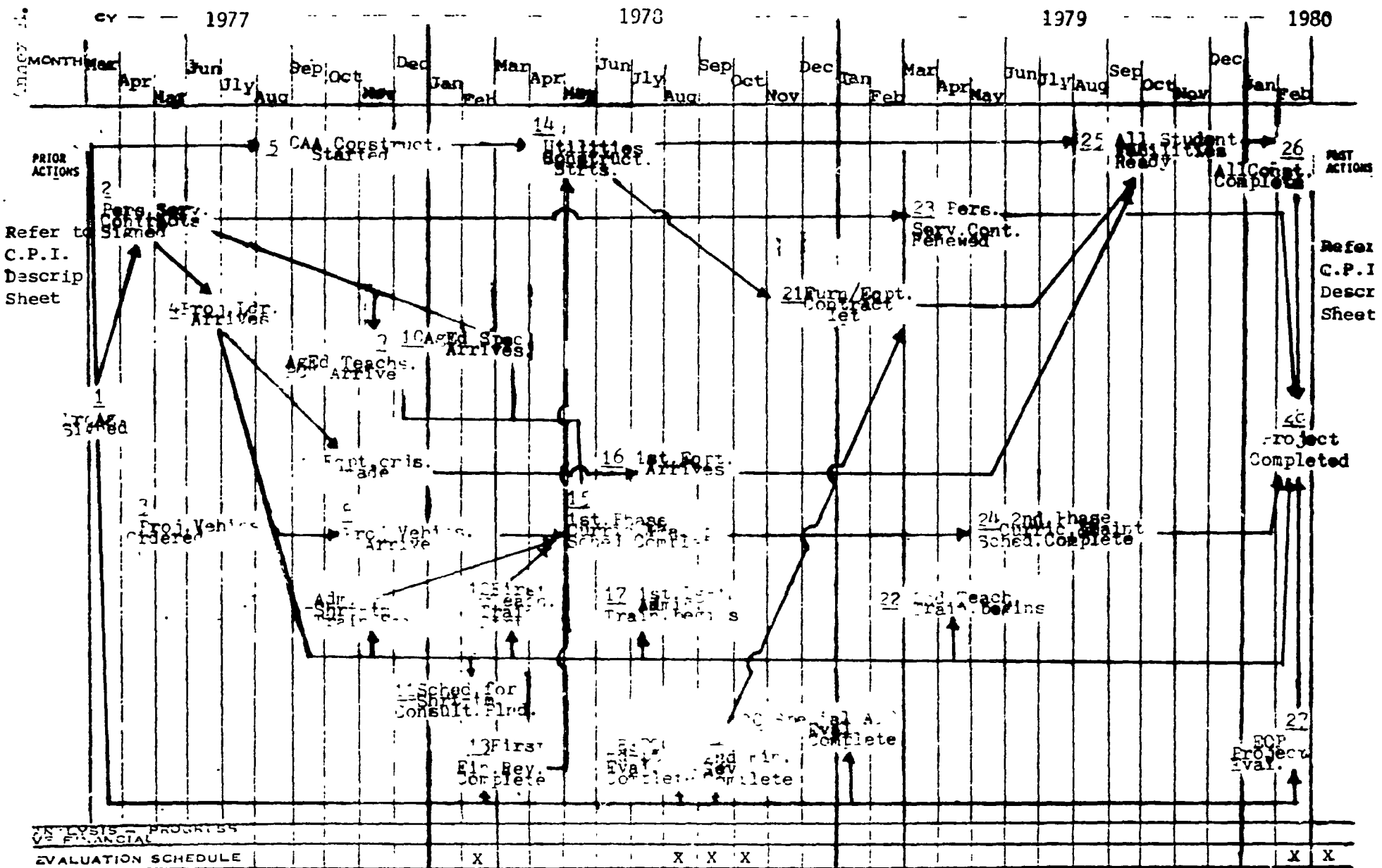
IMPORTANT ASSUMPTIONS

Assumptions for achieving outputs (cont):

6. That the GOM can provide adequate housing of the ag. ed. instructors at the 3 CAAs, and adequate office facilities for technical assistants based in Bamako.

7. That effective participant training can be organized.

COUNTRY	PROJECT NO.	PROJECT TITLE	DATE	ORIGINAL / REVISION #	APPROVED
MALI		IMPROVEMENT OF AGRICULTURAL OFFICERS TRAINING	July 26,76	X	



CRITICAL PERFORMANCE INDICATOR (CPI) NETWORK

COUNTRY	PROJECT NO.	PROJECT TITLE	DATE		APPROVED
Mali		Improvement of Agricultural Officers Training	8/26/76	X ORIGINAL / REVISION #	

PROJECT PURPOSE (FROM PP FACESHEET)

To increase the capacity of the CAA to provide up to 160 well-trained polyvalent junior-level agricultural technicians (moniteurs) by February 1980.

I. Prior Actions.

CPI DESCRIPTION

A. Waivers and authorizations for offshore procurement received at post (AID/W)

B. Recruitment of personal services contract personnel and language training (French), if required, initiated. (AID/W)

C. Possible third country institutions and programs in West Africa identified for short-term (2-3 months) training in agricultural education, administration and management, teacher improvement and mechanics. (AID/W)

D. Procurement of project vehicles initiated and delivery schedule obtained (AID/Bamako)

E. IER - SATC understanding concluded on CAA project collaboration. (AID/Bamako, IER)

F. GOM Budget for the CAA program approved (GOM)

G. Conditions precedent concerning CAA statutory recognition and CAA staff salary equalization met by GOM (GOM)

H. Genie Rural initiates preparation of construction specifications (GR)

II. C.P.I.s

1. 3/1/77 Project Agreement signed. Includes appropriate PIOs (GOM, AID/Bamako)

2. 3/30 Personal Services contracts signed. (AID/Bamko)

3. 4/15 Project Vehicles ordered. (AID/Bamako)

4. 5/30 Project Team Leader arrives and begins work.

5. 8/30 Construction started at Samé and Kessoba sites. (Contractor(s))

6. 9/30 Order schedule for appropriate and required educational, agricultural, wood and metalworking equipment and materials established and immediate equipment needs ordered. (Project Team Leader, MAEFT, local supplier)

7. 9/30 Administrative staff short-term training in ag. education, administration and management and curriculum development begins. (Third country institution)

8. 10/30 Project Vehicles arrive and are distributed. (Project Team Leader, MAEFT)

9. 11/30 Three agricultural education teachers and PCV mechanic arrive and begin work. Planned: 9/30 (...)

10. 12/30 Agricultural education specialist arrives and begins work. Planned: 9/30

11. 12/30 Project schedule for short-term consultants and for management seminars planned. (Project Team Leader, CAEF)

12. 2/30/78 First group of CAA teachers leaves for short-term training

13. 3/30 First financial review completed. (Project Team Leader, AID/Mali)

14. 4/30 Facilities construction started. (Contractor)

15. 5/30 First phase of curriculum improvement and vehicle maintenance schedule completed. (AID Ed. teachers, PCV, MAEFT CAA staff.)

CRITICAL PERFORMANCE INDICATOR (CPI) DESCRIPTION

AID 1020-36 (6-76)

COUNTRY	PROJECT NO.	PROJECT TITLE	DATE		APPROVED
MALI		Improvement of Agricultural Officers Training	7/26/76	[X] ORIGINAL [ ] REVISION #	

16. 6/30 First order of the priority educational equipment and material arrives. Planned: 5/30

17. 6/30 First long-term administrative training begins. (U.S. institution) Planned: Director of the DAEFT.

18. 8/30 REDSO/WA mid-point evaluation of construction completed. (REDSO/WA).

19. 9/30 Second financial review completed (Project Manager, Leader, AID / Bamako.)

20 10/30 Speical AID project evaluation completed (AID /)

21 11/30 Contract let for furniture and equipment for Samé and M'Pessoba CAAs. (GO)

22. 2/30/79 Second group of CAA teachers leaves for short-term training.

23. 3/30 Personal Services contracts renewed.(AID)

24 5/30 Second phase of curriculum improvement and vehicle maintenance schedule X completed.

25 /30 All student facilities ready: Planned: /30, esp. for dormitories, dining rooms and classrooms. (Contractors)

26. 2/30/80 All construction completed.

27. 2/30 End-of-Project Evaluation completed. Technical Assistance personnel. CAA program personnel.

28. 2/30 Project completed

III Post Actions.

A. 5/30/80 Ex post facto evaluation of the improved CAA program completed. (AID)

IV. End-of Project Status.

1. The capacity to train 160 qualified moniteurs in 2 CAAs at Same and M'Pessoba exists.

2. Better trained CAA agricultural teachers and more capable CAA program administators.

3. The practice of improved management and teaching techniques.

4. An on-going curriculum improvement program and an effective vehicle and building maintenance program.

CRITICAL PERFORMANCE INDICATOR (CPI) DESCRIPTION

AID 1020-36 (6-76)

Annex K

Report of a Study on Agricultural Manpower, Training and Extension in the Republic of Mali

by

R. James Binger

June, 1976

Contract No: 688-000-4
Project No: 688-T-110-20
Project Title: Mali Agricultural Manpower Analysis.

TABLE OF CONTENTS

Preface

This study was authorized under Contract No. 688-000-4 with CDO/Bamako. The purpose was to provide in-depth evaluation of the organization and programming of extension services in Mali and the projected manpower needs for agricultural development projects currently underway in the GOM Five-Year Plan (1974-1978). Additional material on the training of moniteurs d'agriculture was added in order to provide background material for a proposed USAID project to improve the moniteurs training program.

The research for this study was undertaken between February and April 1976 and the revised manpower statistics are current to that time. I would like to thank sincerely the local level government administrators (chefs d'arrondissements) and the Operation's staff who gave freely of their time, their thoughts and their uniquely warm hospitality---the rice and sauce and chicken and lamb served by extension personnel in Mali deserves 4 stars in the Michelin Guide. These local level agents are the heart of this report and the crux of rural development in Mali. I have tried to present their work as I see it in the hopes of improving their efforts.

Many thanks too, to CDO/Bamako for the logistical support to make this study possible, and to Ms. Cynthia Guthrie, AID Intern (Abidjan) who calmly compiled endless tables and calculated endless manpower figures. And last, but not least, my warmest appreciation to Ms. Hattie Harms for her courage to attack my scribblings in order to prepare rough drafts of this report.

MINISTERE DU DEVELOPPEMENT
RURAL
DIRECTION NATIONALE
DU GENIE RURAL

REPUBLIQUE DU MALI
Un Peuple - Un But - Une Foi

AVANT PROJET

DU CAA DE M'PESSOBA

DEMANDE DE FINANCEMENT USAID

Bamako, Juin 1976.-

AVANT PROJET D'AGRANDISSEMENT DU CAA DE M'PESSOBA

I. OBJET DU PROJET :

Le projet vise l'agrandissement du CAA de M'Pessoba qui verra son effectif passer de 70 à 160 élèves . La plupart des bâtiments sont en bon état et seront à restaurer.

II. EQUIPEMENT ACTUEL :

A lors actuel le CAA ne comprend que 70 élèves. Les bâtiments existants réutilisables sont lessuivants :

- 2 Salles de classes	473 m2
- 2 Dortoirs	573 m2
- 1 Refectoire.....	343 m2
- 1 Atelier magasin.....	350 m2
- 1 Hangar à Fourage.....	368 m2
- 2 Etables	846 m2
- 6 Logements.....	855 m2
- 1 Magasin, Garage.....	505 m2
- 1 Ex garage.....	169 m2
- Abri groupe électrogène	36 m2
- 1 Chateau d'eau	54 m2

Il existe deux autres logements en banco et un hangar à fumier non réutilisable

III. CONSISTANCE DU PROJET

1°) Travaux de refection de tous les bâtiments de la liste précédente. (Pour détail voir Descriptif Géneral).

2°) Constructions nouvelles :

- 5 dortoirs de 36 élèves 1 refectoire
- 2 salles de classe
- 1 bureau biblotheque
- 7 Logements
- 1 hangar de stockage
- 1 atélier
- 1 hangar à fumier

3°) Destruction du logement

4°) Adduction d'eau : un réseau est actuellement en place et fonctionne. Des essais de pompage seraient nécessaires afin de s'assurer d'un débit suffisant du puits et de la qualité d'eau. On pourrait alors decider du surcreusement du puits ou bien du forage d'un nouveau puits. Le reseau actuel pourra supporter l'extention du centre. Seuls les brachements des nouveaux bâtiments seront à prévoir ainsi l'achat d'une pompe electrique et l'entretien du chateau d'eau.

NOTA : Le devis estimatif incluera le forage d'un nouveau puits.

5°) Electrification : Une centrale de deux groupes électrogènes de 30 KWA chacun alimentera les postes suivants :

- la pompe du chateau d'eau
- les bâtiments du C.A.A.
- les habitations des moniteurs
- la pompe du périmètre d'irriguation.

IV PLAN DE MASSE :

La répartition des différents pôles d'activité du plan de masse actuel est satisfaisante. Pour chaque pôle il y a possibilité d'extension. Certains bâtiments seront reconvertis tel les deux dortoirs qui seront transformés en salle de classe afin de regrouper toutes les classes en un seul point. Le refectoire cuisine sera construite à côté de l'ancien à présent transformé en partie au magasin de stockage des aliments et pour une autre partie en magasin de stockage de matériel scolaire. Les nouvelles classes seront construites face à l'ancien réfectoire.

Quatre dortoirs seront construits de l'autre côté de l'allée principale et le cinquième dérriere le nouveau bureau construit lui même à l' emplacement de la maison de l'adjoint à côté de celle du directeur. Ce dortoir sera reservé aux filles.

Les nouveaux logements seront localisés de part et d'autre de l'allée principale à la hauteur des logements actuels.

Le nouveau hangar à fumier sera construit à l'emplacement de l'ancien afin d'imposer la destruction de celui-ci pour ne pas conserver des ruines.

Le nouveau hangar de stockage sera construit près du hangar à fourage existant. L'atélier magasin servira d'atélier sur toute sa surface.

V. NATURE DU SOL :

De 0 à 7 m le sol passe de l'argile sableuse au gravillon lateritique feldspathiques. La contrainte de rupture est d'environ deux bars et la contraite admissible sera prise à 1,3 bar.

.../...-

VI DESCRIPTI GENERAL

A CONSTRUCTIONS NEUVES

1 Réfectoire : Le réfectoire de dimensions extérieures 35,20 x 10,20 comprend :

- la cuisine
- le refectoire
- le foyer

FOUILLES : descendues en rigoles larges de 0,60 m à 0,60 m au dessous du terrain naturel.

FONDATIONS : les semelles filantes ont dimensionnées à 0,60 x 0,60 x 0,20 dosées à 300 kg/m3 réposant sur un béton de proprété de 0,05 m dosé 150 kg/m3. Les engrines 0,40 x 0,40 m seront dosées 300 kg/m2

REMBLAI :

Il sera procédé à un remblai de 0,10 m après exécution des fondations.

SOL : Sur toute la surface de la construction on coulera une chape de 8 cm d'épaisseur dosée à 300 kg/m3

BETON ARME :

Les élements en B.A. seront les linteaux les poteaux, les poutres et les chainages ils seront dosée à 350 kg/m3.

Les poutres destinées à pallier les portes sont en 0,30 x0,20. Le chainage bas 0,10 x 0,10 et le chainage haut 0,20 x 0,20 m.

MENUISERIES :

Toutes les maçonneries sont en agglos de 0,20 m. La paillace sera en maçonnerie de 0,15 avec revêtement en faïence.

ENDUITS :

Enduit intérieur 200 kg/m3
-"- extérieur 300 kg/m3

Un badigeonnage est prévu intérieur et extérieur.

CHARPENTE COUVERTURE

La couverture est en tôles ondulées de 8 kg reposant sur des pannes en UPN 80 fixées sur une ferme type

La couverture sera fixée à l'aide de crochet, en acier galvanisé avec rondelle. Il est prévu un auvent de 1,50 m en façade.

MENUISERIES METALLIQUES :

- ensemble porte grillagée 1,4 x 2,2 m
- porte semi-persiennée : 0,80x 2,20 m
- fenêtre persiennée : 1,20 x 1,20 m

MENUISERIE EN BOIS

Le faux plafond sera en contre-plaqué traité à l'huile de lin.

.../...-

ELECTRICITE :

Un points d'éclairage seront des tubes fluorescents de 1,20 m. Une prise encastrée est prevue dans le foyer et dans la cuisine. Tout en système électrique sera encastré.

2 DORTOIRS :

Même descriptif que le refectoire. Les dimensions du dortoirs sont 25,6 x 8,40 m. Il pourra recevoir 36 pensionnaires.

EQUIPEMENT SANITAIRE :

8 douches et deux bac lavabos de 14 robinet chacun. Quatre W.C. extérieur et deux lavoirs. Une fosse septique de

2 SALLE DE CLASSE :

De 30 x 10 m descruptif identique à celui du réfectoire.

4 BUREAUX :

Même descriptif que le refectoire. Les dimensions du dortoirs sont 25,6 x 8,40. Il pourra recevoir 36 pensionnes.

EQUIPEMENT SANITAIRE : 8 douches et deux bac lavabos de I4 robinets chacun-Quatre W.C. extérieur et deux lavoirs-une fosse septique de

5 Ateliers de démonstation I08 m2, 4 m de haut sous ferme et 5,20 m au fait.

Les fouilles en semelles filantes de 0,60 m de large et descondu a 0,60 m en dessous du terrain nature)

Fondations :semelles de 0,5 x 0,5 x 0,5 et longrines 0,30 x 0,4 dosée à 350 kg/m reposant sur un béton de proprété de 0,05 m et dosé à I50 kg/m3

Le sol : chape de 0,I0 m dosée à 300 kg/m3

Charpente métallique : Les poteaux seront des IPN I40 encastrés en fondation espacés de 4,45 m recevant une ferme recouverte de toles ondulées sur pannes UPN 80 -

Maçonnerie : elles seront en agglos de 0,20 m pour tout le batiment. Les murs recevront un enduit extérieur et intérieur.

Menuiserie métallique deux portes coulissantes 2,50 x 2,2 et une porte semi persiennée de I,20 x 2,20

Installation Electrique :

6 HABITATION MONITEUR :

12,00 x 6,00

Pour les fouilles, fondation, maçonnerie enduit et B.A. descriptif indentique à celui du refectoire.

S O L : Chape en ciment 0,10 cm

Carrelage grès cérame dans la salle de bain

MENUISERIES MÉTALLIQUES : 2 portes semi persiennées de 1,50 m à 2,20 m à 2 vantaux.

4 fenêtre persiennées de 1,30 x 1,20 à deux volets avec cadres moustiquaires.

MENUISERIES EN BOIS

4 portes isoplanes

COUVERTURE :

Les UPN 80 seront encastrés dans la maçonnerie et recevront une tole ondulée.

EQUIPEMENT SANITAIRE :

1 douche

1 lavabos

1 W.C. à l'anglaise

EQUIPEMENT ELECTRIQUE

CUISINE :

Celle-ci sera extérieure 4,50 m x 2,50 m avec evier faïencé et paillasse carrelée.-

7 HANGAR DE STOCKAGE : 35 x 10

Même descriptif que A 5. Les fermes seront espacées de 5 m portée 10 m

8 HANGAR A FUMIER : 22,5 x 10

Même descriptif que A 5. Une fosse béton armé largeur 2 m, longueur 4,00 m profondeur 1,40, épaisseur 0,20. En pieds les IPN 340 seront enrobés de béton sur une hauteur de 1,30 m. Le bâtiment n'est pas fermé.

B TRAVAUX DE REPRISE

1 LOGEMENT DIRECTEUR : 31,65 x 12,7 / le sol des vérandahs et de la terrasse est à reprendre sur 268 m2 .

Les ménuiseries bois seront décapées et repeintres . A l'extérieure les ménuiseries en bois seront remplcer par des ménuiseries métalliques. Toutes les moustiquaires sont à changer.

La peinture est à refaire pour le bâtiment(900 m2). Tout l'équipement sanitaire est à remplacer (une baignoire, 2 W.C. à l'anglaise, une douche 2 lavabos) et la plo berie à refaire.

Révision circuit électrique - Cuisine à retaper.

2 LOGEMENT INSTRUCTEUR EN AGRICULTURE : 10,8 x 9,25 plusieurs fissures dansles murs sont à réparées le faux plafond est à remplacer à 60 %. Les grillages moustiquaires sont à changer . La peinture sera refaite sur tout le bâtiment (500 m2).

Les ménuiseries métalliques seront repeintes. La douche le W.C. à l'anglaise et 1 lavabo à remplacer. La plomberie est à refaire ainsi qu'une révision du circuit électrique.

3 LOGEMENT MAITRE DE L'ENSEIGNEMENT GENERAL : 10,8 x 9,25 descritif identique au précédent

4 LOGEMENT MAITRE DE LA RECHERCHE1: refaire les peintures (354 m2) Entretien des menuiseries métalliques. Installation électrique à faire.

Branchement sur le réseau d'adduction.

5 LOGEMENT AGENT DE LA RECHERCHE 2 : 13,2 x 5,00

Les peintures sont à refaire. Toute les menuiseries seront repeintes. L'intallation électrique est à reviser.

6 LOGEMENT ASSISTANT D'ELEVAGE :

Les peintures sont à refaire (225 m2). Le faux plafond est à changer.Les joints en toitures sont à refaire. La plomberie doit être refaite. Le lavabos et la cuvette W.C. seront remplacer un bac à douche émaillé sera posé dans la cuisine pose d'un nouvel évier et paillace carrelée.

Révision de l'installation électrique.
Les ménuiseries métalliques seront repeintes.

7 REFECTOIRE CUISINE MAGASINS : 40,20 x 8,55

Il sera transformé en magasin de stockage de produits alimentaires et de matériel de bureau.

Les peitures sont a refaire. Les menuiseries métalliques à peindre et à reparer. Il faudra améliorer la ventilation du bâtiment.

8 DORTOIR PREMIERE ANNEE : 30,40 x 10,30.

Cet ancien dortoir sera transformé en salle de classe. Les cloisons intérieures sont à démolir. Un nouveau cloisonnement définira . salle de classe et salles de travaux pratiques.

Les menuiseries métalliques sont retaper à 40 % - La peinture est à refaire (1100 m2)- Révision de l'installation électrique.

9 DORTOIR DEUXIEME ANNÉE : 25,20 x 10,30 idem dortoir 1ere année.

10 SALLE DE CLASSE PREMIÈRE ANNÉE : 20,50 x 10,40

Les peintures sont à refaire, les ménuiseries métalliques à réparer. Six portes sont à remplacer. Un faux plafond sera posé. L'installation électrique est à reviser.

11 SALLE DE CLASSE 2è ANNEE : 25,25 x 10,30

La peinture à refaire sur la totalité du bâtiment. Les ménuiseries métallique à reparer. Installation électrique à reviser.

12 BUREAU MAGASIN GRENIER : 38,15 x 7,45

Une chape béton de 0, 10 m et de 179 m2 sera coulée. La partie maçonnée en banco sera détruite et remplacée par des agglos un enduit + peinture de tout le bâtiment. Une porte est à remplacer. Révision de l'installation électrique. 1 chasse d'eau est à remplacer.

13 ATELIER MAGASIN : 40,45 x 8,65

Le sol sera constitué d'une chape de 0,10 m d'épaisseur. Les maçonneries en banco (60 %) seront démolies et remplacesspar des agglos de 0,20 m. Six portes seront remplacées. Enduit et peinture sur tout le bâtiment. Installation électrique à poser.

14 MAGASIN GARAGE :

Le sol sera constitué d'une chape de 0,10 m d'épaisseur. La maçonnerie banco est à démolir et à remplacer par des agglos de 0,20 m. Enduit et badigeon à la chaux .

5 portes a remplacer la porte du garage (l=5 m)

15 MAGASIN DE LA RECHERCHE :

Le magasin est en bon état. Seule une chape de 0,10 m est à couler.

16 EX GARAGE : 35,25 x 4,80 -

Une chape en béton est à couler. Un enduit à poser + badigeon à la chaux. La charpente est à remplacer. Installation électrique.

17 ETABLE 1 : 60,50 x 8,40 -

Les maçonneries en banco sont à démolir et à remplacer par des agglos de 0,20 m . Les mangeoires seront démolies et remplacées par des mangeoires B.A. Des abreuvoirs seront installés.

18 ETABLE 2 : 40,28 x 8,40 -

Idem étable 1. La porte de la laiterie sera remplacée.

19 HANGAR A FOURAGE : en bon état.

DEVIS ESTIMATIF DU C.A.A. M'PESSOBA

Désignation	Nbre	Surface	Prix Total
I.- INVESTISSEMENT IMMOBILIERS			
1 - Adduction d'eau : branchement des nouveaux bâtiments sur le réseau + Forage nouveau puits + pompes			8 000 000
2 - Electrification : 2 groupes 30 2 VA			32 000 000
3 - Nouveaux bâtiments			
Dortoirs 36 lits	5	215m2	112 500 000
Refectoire 160 élèves	1	359m2	23 600 000
Classes 30 élèves	2	241m2	22 000 000
Bureau bibliothèque	1	156m2	11 000 000
Hangar de stockage	1	350m2	17 500 000
Atelier	1	108m2	5 200 000
Hangar à fumier	1	214m2	8 560 000
4 - Travaux de Téfection			
Logement directeur	1	402m2	8 000 000
Logement instructeur	1	99,9m2	2 000 000
Logement maitre	1	99,9m2	2 000 000
Logement recherche 1	1	86,4m3	2 600 000
Logement recherche 2	1	66 m3	2 000 000
Logement agent de l'élèvage	1	101 m2	2 500 000
Ancien réfectoire	1	344 m2	2 500 000
Ancien dortoir 1ère année	1	313 m2	5 100 000
Ancien dortoir 2è année	1	260 m2	4 800 000
Salle de classe 1è année	1	213 m2	4 300 000
Salle de classe 2è année	1	260 m2	3 500 000
Bureau magasin	1	179 m2	13 500 000
Atelier magasin	1	322 m2	16 000 000
Magasin garage	1	305 m2	14 000 000
Ex Garage	1	169 m2	9 000 000
Etrable 1	1	508 m2	6 800 000
Etable 2	1	338 m2	5 500 000
		Total	644 460 000
Etude et supervision 3,5%			12 056 100
			356 516 100
II INVESTISSEMENTS MOBILIERS			30 000 000
		Total	386 516 100
Actualisation sur 4 ans 1,18 x 1,18 x 1,15 x 1,12 = 1,79			306 666 203
		Tota Général	693 182 303
y compris imprévus arrondi à			700 000 000

I. THE ORGANIZATION OF AGRICULTURAL PRODUCTION SERVICES

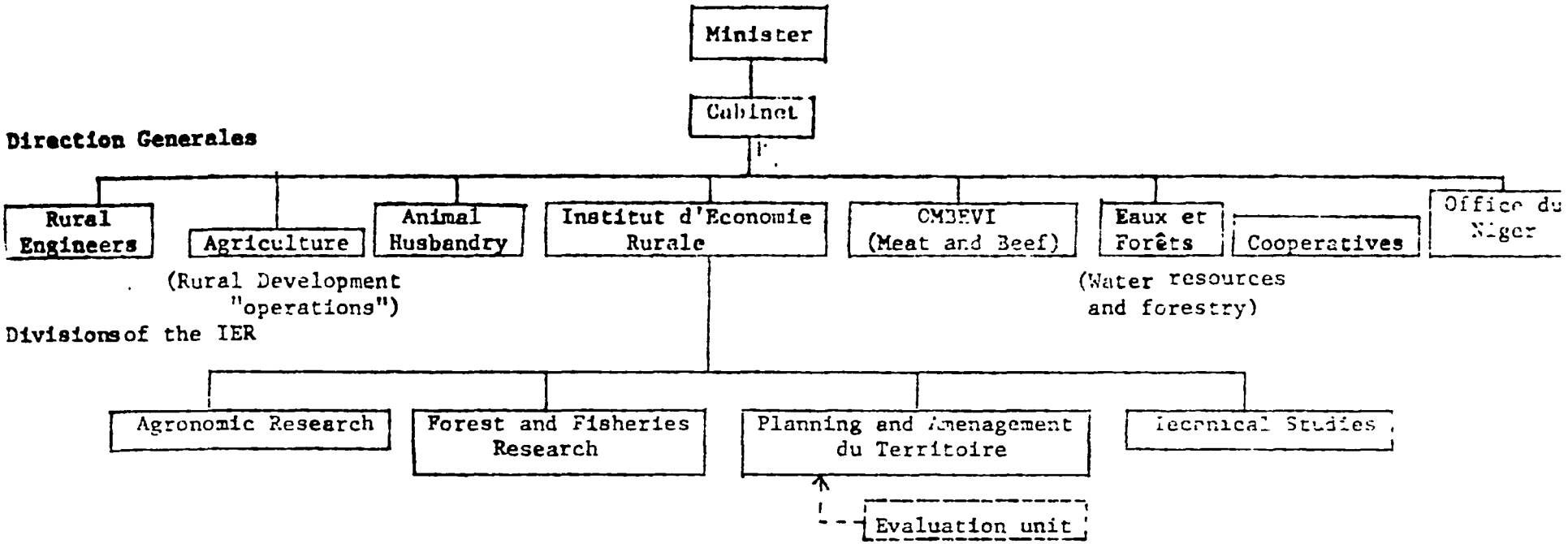
A. Brief Overview

Since 1972, the Malian strategy for agricultural development has sought to establish specialized "Operations" in order to improve and increase effectively the production of specific crops within specific geographical areas. Most of the Operations provide extension services for both cash and food crops and undertake a variety of rural development activities which range from building feeder roads to functional literacy programs. Each Operation is a managerially and financially autonomous administrative unit responsible to the National Agricultural Service. (See Table 1a).

There are 11 Operations (8 of which function with a fairly large staff), one semi-public company, the CMDT., and one state enterprise, the Office du Niger, which are responsible for organizing and improving agricultural production throughout most of the country. (See Tables 1b, 1c). In addition, the State Farms, especially at Baguineda, play an important role in the agricultural sector. The farms are directly affiliated with and occupy the same land as the Centres d'Apprentissage Agricole at Same (Kayes), Samanko (Bamako), M'Pessoba (Sikasso) and Specialized Training Center at Baguineda (Bamako). Except for Baguineda, which seeks to increase vegetable production by direct administration and through extension with outlying farmers, the State Farms serve primarily as seed multiplication centers, as pilot farms for the experimental application of improved agricultural production techniques, and as applied teaching areas for the Centre d'Apprentissage Agricole or Agricultural Apprenticeship Centers. A few areas of the country, generally the poorer and less densely populated regions, are "Hors Operations", or outside the zones of the Operations.

Table 1a

New Structure of
The Ministry of Rural Development



Expatriates as of February, 1976:

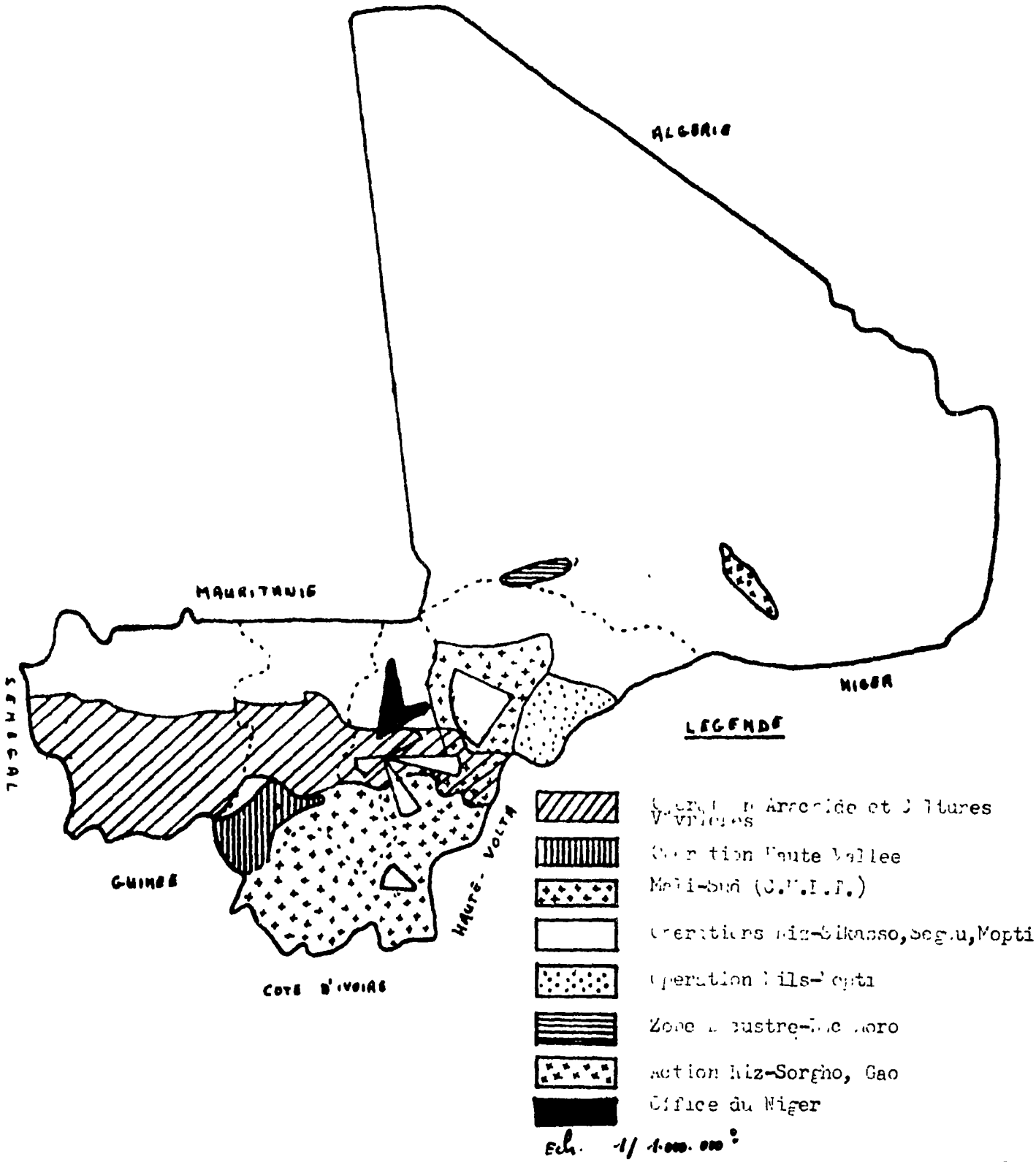
1 in Water Resources and Forests
5 in Rural Engineering
10 (?) UNDP team (large) in OMBEVI
9 in the IER: distributed as follows:
- 7 in the Technical Studies Division (2 volunteers)
- 1 in the Agronomic Research Division
- 1 in the Evaluation Unit (This excludes expatriates in the operations).

Table 1b

OPERATION	CROPS	SOURCE OF FINANCING
Mali Sud (CMDT)	Cotton, Dah, Rice, Corn, Millet, and Sorghum	Actual: IBRD, FAC, RFA, FA Probable: ADB, ABEDIA, FAC
Operation Arachide et Cultures Vivrieres (OACV)	Peanuts, corn, millet and sorghum	Actual: IBRD, FAC Probable: Surveys financed by FAC, RFA.
Haute Vallee (HV)	Rice, millet, sorghum, corn, cotton, peanuts, vegetables	Probable: USAID; Negotiations w/[illegible]
Haute Vallee	Tobacco	Actual: FED
Operation Baguineda	Millet, Sorghum, Corn, Rice, Tomatoes, Green peppers, Onions, various vegetables, fruit.	Actual: FAC, CCCE
Office du Niger	Rice, sugar cane, cotton (long strands), irrigated animal forage drops.	Actual: Sugar and Rice processing financed by the People's Republic of China.
Operation Riz-Segou (ORS)	Rice	Actual: FED
Operation Riz-Mopti (ORM)	Rice	Actual: IBRD
Operation Mils-Mopti (OMM)	Millet, Sorghum, vegetables	Actual: USAID, RFA
Action Riz-Sorgho (ARS)	Rice, Sorghum	Actual: USAID
Action Terekole-Senegal	Millet, Sorghum, corn, rice, vegetables	Probable: FAC, RFA, UNDP
Operation Kaarta	Millet, sorghum, corn, peanuts	Probable: PNUD, Authorized: Canada
Operation Lac Horo	Millet, sorghum, corn, rice, watermelon, sweet potato, niebe, wheat, rice (submersed), rice (irrigated), animal forage	Actual: Studies financed by FAC.
Perimetre Experimental de Diro or Action Ble Dire	Wheat	Actual: FAC Probable: USAID

SITUATION DES OPERATIONS DE DEVELOPPEMENT RURAL

FIN 1974



In the absense of more precise data, fragmentary budget and personnel data give some idea of the distribution of agricultural production responsibilities between the Operations and the Regions. As shown below in Table 2, the Regions continued in 1975 to support agricultural production activities at about the same level as 1974.

Table 2

	Percent of Rural Development Expenditures in the Regional Budgets	
Year	1974	1975
Region		
Kayes	11	12
Bamako	8	7
Sikasso	8	8
Segou	12	12
Mopti	14	15
Gao	15	15
ALL REGIONS	11	11

Source: Ministry of Rural Development, Projets de Budgets Nationals, Exercises 1974, 1975

Staff statistics clearly show the dominance of the Operations in the employment of personnel and (by implication) their role in agricultural production activities.

Table 3

Distribution of Agricultural Personnel, 1973/74

Operation	Staff Category: ER	Monitors	CTA	ITA	ISA	TOTAL
OACV	309	78	37	13	1	438
CMDT	501	109	30	12	8	660
HV	57	30	16	5	6	114
ORS	98	35	16	8	3	160
ORM	61	25	13	6	5	110
OMM	50	21	11	2	4	88
Subtotal	1,076	298	123	46	27	1,570
Hors Operation Region:						
Kayes	56	21	10	1	-	91
Bamako	3	1	2	1	-	7
Segou	103	22	16	1	-	142
Mopti	27	27	7	2	-	63
Gao	4	24	4	3	-	35
Subtotal	193	95	39	11	-	338
TOTAL	1,269	393	162	57	27	1,908

Source: Ministry of Rural Development

In the next 5-10 years, several new Operations will probably be established in order to provide attractive investment opportunities for increasingly available foreign publich capital, to bring new areas under cultivation, to reduce the large zones held by the CMDT and OACV as well as establish more efficient administrative units for managing the development of rice production.

B. Rationale and Issues

Before the creation of the Operations, agricultural production services were organized parallel to the inherited colonial administrative structure of the country. At the sub-national level, a Regional Directorate for Rural Development (Direction Regionale du Development Rural, DRDR) supervised agricultural activities throughout the territory of each of the six administrative regions. The DRDR's in turn were divided in Rural Development Secteurs (Secteur de Development Rural, SDR) which corresponded to the Cercle administrative unit. SDR's were composed of Rural Expansion Zones (Zones d'Expansion Rural, ZER) paralleling the arrondissements. ZERs in turn were made up of a variety of Secteur de Base, each grouping 5-10 villages, under the responsibility of a [illegible]iteur d'agriculture or encadreur rural. This structure continues to be maintained in the areas outside the Operations.

This administrative framework rationally organized agricultural production activities, but it also subordinated the management of regional agricultural production to the rigid application of governmental administrative and budgetary regulations which destroyed the potential effectiveness of the sub-national and agricultural services. According to the Minister of Rural Development, this structure was largely responsible for the stagnation and decline of cereals production during the early 1960's. In contrast, the autonomy of the CFDT presumably accounted for its increased cotton production during the same period. Subsequently, the Malian government created semi-autonomous "Programmes" to organize peanut and millet production in geographically and agriculturally defined areas.

Foreign financing allowed these programmes to exercise some budgetary flexibility, but they were still closely linked with the governmental administrative structure. Consequently, the Programmes were also more responsive to administrative rules and regulations than to the local, sub-regional demands and requirements of agricultural development.

Following these two experiences, the Government of Mali adopted the Operations formula. Article 2 of Ordonnance No. 22, CMLN of March 24, 1972 establishes the Rural Development Operations as follows: "the Operations are public organizations (de caractere technique) which are provided with financial and administrative autonomy in order to coordinate and utilize rationally all the necessary means to execute rural development programs."

The principal objective of each Rural Development Operation is to increase agricultural production and productivity by efficiently providing agricultural services to the rural population. In order to achieve this objective the Operations are intended to be administratively flexible enough to adapt their mode of extension to the increasing capabilities of farmers to handle and supply their own agricultural production and marketing. Except for some experimental and highly tentative initiatives by the CMDT however, no effort is currently being made to promote self-direction among farmers.

In summary, the Operations seek to fulfill the following requirements:

1. To improve the adaptability of the agricultural services in order to promote agricultural production.
2. To improve the efficient administration of the human, material and financial resources employed in order to promote a system of integrated rural development.

3. To impart a sense of professional responsibility to the agricultural extension personnel and a sense of confidence on the part of the Malian farmers in government agricultural development efforts.

4. To create administrative units which represent attractive investment opportunities for foreign public financing while remaining compatible with the principles of Malian sovereignty.

The managerial and financial autonomy of the Operations, which is the principle reason for their successes to date and their promise for the future, is also the principle source of the organizational and administrative issues raised by the Operations. Managerially, most of the Operations need considerable assistance. As the Minister of Rural Development has recently noted, all the Operations need to implement a permanent program to improve their management and administrative capabilities at all levels. Secondly, the substantial amounts of foreign financing which permit the Operations to offer very attractive professional opportunities for agricultural sector personnel, has created a braindrain from the national administrative structure of the Ministry of Rural Development. One result is that the National Directorate of Agriculture has become increasingly unable to coordinate and supervise effectively the activities of the Operations. Third, since the areas of the Operations overlap administrative boundaries, [redacted] the relationships between the Operations and local governmental units are often vague and subsequently strained. Similarly, the autonomy of the Operations, and their ability to create effective livestock, social affairs and functional literacy services, is also the cause of difficult relations with the traditional

ministerial structures, both nationally and regionally. Fourth, the Operations are now riding high on foreign public capital and they have not yet shown their capabilities to mobilize sufficient capital to become independent of foreign aid.

Most of these problems reflect the growing pains of a new structural framework for delivering agricultural services and managing agricultural production. In contrast to the former organization of the agricultural service, the Operations do improve the delivery of agricultural goods, and represent a more efficient use of resources to promote agricultural development. With some exceptions, agricultural agents within the Operations have a better sense of professionalism than those few working "hors Operations", and farmers can benefit by "participating" in an Operation. Furthermore, the Operations are and will probably continue to be highly attractive investment opportunities for foreign public financing.

II. AGRICULTURAL SECTOR MANPOWER DEMAND AND SUPPLY

If the Operations are to play the pivotal role in rural development in Mali, they must be adequately staffed with capable and qualified personnel. The Five-Year Plan estimated that the successful implementation of the proposed agricultural projects from 1974 to 1978 would require at least 39 additional senior staff per year, 73 additional middle-level agricultural technicians per year and approximately 340 additional junior-level agricultural technicians per year. (See Tables 4a-4d). At the same time it was estimated that the steady increase in enrollments in both the Ingenieur and Technician cycles at the Institut Polytechnic Rurale at Katibougou, (See Part IV) the expected return of senior and middle-level agricultural personnel from foreign training programs (see next page), and the continued

Table 4a.

ESTIMATED AGRICULTURAL SECTOR MANPOWER NEEDS FOR
SENIOR-, MIDDLE-, AND JUNIOR-LEVEL PERSONNEL, 1974 - 78

Table A

Professional Level	Training	Total Needs	Average Annual Need
Senior Engineers			
- agriculture	I.P.R.	194	39
- livestock	I.P.R.	170	34
- veterinary surgeons	Foreign	27	5
- water & forests	I.P.R.	77	15
TOTAL	I.P.R.	468	88
Middle Level Technicians			
- agriculture	I.P.R.	363	73
- livestock	I.P.R.	208	42
- water & forests	I.P.R.	114	23
- Rural Engineers	I.P.R. - E.C.I.C.A	)	12
TOTAL	I.P.R.	746	170
Junior Level Technicians			
- agriculture	C.A.A.	1683	337
- water & forests	C.A.A.	285	57
SUBTOTAL	C.A.A.	1968	394
- livestock	E.A.E.	304	61
TOTAL		2299	455

Source: C.N.P.E.R.

Table 4b.

ESTIMATED NEEDS FOR SENIOR ENGINEERS
IN THE RURAL SECTOR BY SERVICE 1974 - 78
(Ingenieurs des Sciences Appliquees)

National Services r Activities	Agriculture	Livestock	Water & Forests	TOTAL
Agriculture				
--Projects	88	--	2	90
--Non-projects	17	--	-	17
SUBTOTAL	105	--	2	107
Livestock				
--Projects	19	92	1	112
--Non-projects	-	21	-	21
SUBTOTAL	59	113	1	133
Water & Forests				
--Projects	--	--	28	28
--Non-projects	--	--	19	19
SUBTOTAL	--	--	47	47
Rural Engineering				
--Non-projects	-		-	-
--Ag. Equipment	1	-	-	1
SUBTOTAL	1	--	-	1
COOPERATION	4	1	1	6
Research				
--agronomic	29	-	-	29
--zootechnical	11	13	-	24
--Water & Forests	--	--	16	16
SUBTOTAL	40	13	16	69
Bureaus of Studies				
--I.E.R.	8	--	-	8
--Planning	--	--	-	-
--Ag. Engineering	-	--	-	-
--OMEEVI	--	13	-	13
SUBTOTAL	8	13	-	21
Training				
--I.P.R.	15	30	10	55
--I.P.R.Farm	1	-	-	1
--C.A.A.	1	-	-	1
SUBTOTAL	17	30	10	57
TOTAL	184	170	77	441

(1) Central and regional administrative levels plus estimated re[illegible]h needs

Table 4c.

ESTIMATED NEEDS FOR MIDDLE-LEVEL TECHNICIENS
IN THE RURAL SECTOR BY SERVICE
(Ingenieurs des Travaux Agricoles or Techniciens Superieurs)

National Services or Activities	Agricultural	Livestock	Water & Forests	Ag. Engineer	TOTAL
Agriculture					
--Project	250	8	20		
--Non-Projects (1)	1	-	-		
SUBTOTAL	257	8	20		
Livestock					
--Project		163	2		
--Non-project	..	..	-		
SUBTOTAL	4	165	2		
Water & Forests					
--Project	..	-	-		
--Non-project	..	-	-		
SUBTOTAL	-	..	-		
Ag. Engineering					
--Non-projects	-	..	11		
--Ag equipment	..	-	3		
SUBTOTAL	-	-	14		
COOPERATION	12	3	-		
Research					
--Agronomic	23		-	-	2.
--Zootechnical	19	8	-	-	2[illegible]
--Water & Forests	-	-	5	-	[illegible]
SUBTOTAL	42	8	5	-	55
Bureau of Studies					
--I.E.R.	20	-	-	-	2(
--Ag. Engineering	-	..	-	22	2[illegible]
--OMEEVI	-	10	-	22	5[illegible]
SUBTOTAL	20	10	-	22	5[illegible]
Training					
--I.P.R.	7	14	2	2	2[illegible]
--IPR Farm	2	-	-	-	[illegible]
--C.A.A.	19	-	-	-	1[illegible]
SUBTOTAL	28	14	2	2	4(
TOTAL	363	208	114	60	74[illegible]

(2) Central & regional administrative levels plus estimated replacement nec s

Table 4d.

ESTIMATED NEEDS OF THE RURAL SECTOR
FOR JUNIOR-LEVEL TECHNICIANS

National Services or Activities	Moniteurs d'Agriculture	Preposes Water & Forestry	TOTAL
Agriculture			
- Project	[illegible]	-	1611
- Non-project: (1)	-	-	-
SUBTOTAL	1611	-	1611
Livestock			
- projects	[illegible]	248	268
- Non-project		25	25
SUBTOTAL	[illegible]	273	293
Water & [illegible]			
- Projects		-	189
- Non-project	[illegible]	-	86
SUBTOTAL	[illegible]	-	275
Ag. Engineering			
- Non-Projects		-	14
- Ag. Equipment		-	4
SUBTOTAL	[illegible]	-	18
COOPERATION	[illegible]	[illegible]	-
Bureau of Studies			
- I.E.T.	[illegible]	[illegible]	-
- Ag. Engineering	-	[illegible]	-
- ONEEVI	[illegible]	16	16
SUBTOTAL	[illegible]	16	16
Training			
- I.P.R.	[illegible]	-	-
- I.P.A. [illegible]	5	-	5
- C.A.A.	[illegible]	-	3
SUBTOTAL		-	8
TOTAL	1683	304	2 2

(1) Central / Regional Administrative levels plus [illegible]mated replacement needs.

use of foreign technical assistants would adequately supply all foreseeable demands for senior and middle-level staff for the Five-Year-Plan and beyond.

Returning Senior Level
Agricultural Personnel

Year of Expected Return from Overseas Study	1974	1975	1976	1977	1978	1979	1980	Undetermined	Tot.
Number:	25	17	15	20	13	8	1	69	168

Source: Service du Plan

The supply of moniteurs d'agriculture on the other hand, is more problematic. The Plan estimated a need for 1,683 moniteurs and 285 forestry agents, or 394 CAA graduates/year for the plan period. The CAAs however, can supply only a maximum of 90 graduates/year, or 300 short of the estimated projected demand. As a stop-gap measure, the Division of Agricultural Education and Professional Training, DAEPT. (Division de l'Education Agricole et la Formation Professionnelle) has squeezed approximately 70 students/center into facilities barely capable of handling 60.

In order to meet the demand for CAA graduates, the Plan proposed to improve and expand the existing centers, as well as create a 4th center with a capacity of 75 students/class or approximately 300 graduates per year. In addition the Plan encouraged the promotion of encadreurs to moniteurs by professional advancement examination as a means to meet the shortfall of 94 agents/year. The inability of the CAAs to supply the projected demands for trained junior level technicians in the agricultural sector has always provided the major justification used by the Government for the CAA expansion plan. The mid-point in the Five-Year Plan offers a unique opportunity to review these expected manpower demands and possible solutions to the demands for CAA graduates.

Four hypotheses for the needs of CAA graduates are discussed. The most significant departure between these manpower hypotheses, and the Five-Year-Plan projections lies in the effort here to disaggregate the demand for moniteurs and encadreurs. (All personnel figures are best-estimate hypotheses based on information supplied by the Ministry of Rural Development and the Operations.)

Hypothesis Number 1:

In 1973/74, the year in which personnel statistics for preparing the Five-Year-Plan were used, 1,662 moniteurs and encadreurs were employed throughout the country

Employment Levels for Moniteurs and Encadreurs, within and outside Operations, 1973/74

	In Operations	Outside Operations	Total
Number of Moniteurs	298	95	393
Number of Encadreurs	1076	193	1269
TOTAL:	1,374	288	1,662

Source: Ministry of Rural Development

Twenty four percent of the total junior level technicians were moniteurs. Using this ratio to estimate the needs for moniteurs only from the total projected needs for all junior level technicians in the MDR (except livestock staff), or 24% of 1,968, the total Five-Year-Plan demand for moniteurs only equals 472 or 94/year from 1974-1978. If this same percentage is used to estimate the future needs for moniteurs from the total projected needs for junior level agricultural only technicians, (i.e., excluding Forestry Service agents, or 24% of 1,683), the total Five-Year-Plan demand for moniteurs equals 405 or 81/year from 1974-1978. In both cases, 3 im-

proved CAAs, with 35 students/class, plus a continued in-service professional advancement program for encadreurs (to compensate for a 15% CAA dropout rate and in-service advancement) would adequately supply the future demand for CAPAs.

This hypothesis generates an unrealistically low demand for moniteurs. It is based on the aggregated needs of all employer services, and it does not consider the evolving hiring practices and moniteur:encadreur ratios established as five-year Plan agricultural projects getunderway.

Hypothesis Number 2.

At mid-point in the Five Year-Plan, it is estimated that 1,953 encadreurs and moniteurs (including forestry agents) were employed within the MDR.

Employment Levels for Moniteurs and Encadreurs Within and Outside Operations, 1976

	In Operations	Outside Operations	Total
Number of Moniteurs	326	301	627
Number of Encadreurs	1326	200*	1326
Total:	1,652	501	1,953

*Estimate based on budget data for personnel in Ministry of R.D.

Source: Table 5.

During 1976, 29% of the junior-level technicians, excluding livestock personnel, were moniteurs. This ratio of 1 moniteur to 2.4 encadreurs, (or 29% of 2,068) creates a demand for a total 590 CAA graduates or 118/year for five years.

Table 5 (1)

Revised Manpower Needs for Moniteurs d'Agriculture and Encadreurs Ruraux

	(1) Current 1976		76/77	77/78	78/79	(2) Total New Hiring End of Plan		(1&2) Estimated Plan Staff Level	(3) Make-up Add. Moniteurs	(4) Post Plan Period +5 Years	(5) (3&4) Total: Make-up + Post-plan	(6) (2&5) Grand Total Demand	(6) (1&6) TOTAL STAFF
CMDT													
M	39	(646)	2	2	2	6	(94)	45	-	235	235	241	280
E	607		31	30	27	88		695					307
OACV													
M	64	(306)	3	3	3	9		73	25	75	100	109	173
E	242		27	28	28	83		325					195
OHV													
M	22		3	3	3	9		31		77	77	86	108
E	54											189	243
Baguindés													
M	22		2	2	2	6		28		13	13	19	41
E	20		5	5	5	15		35				27	47
OFFICE													
M	45		15	15	15	45		90		75	75	120	210
E	105			16	16	32		137					87
OR-S													
M	45		8	8	8	24		69	21	100	121	145	190
E	106		15			17		138	42	200	242	259	265
OR-M													
M	22		5	5	6	16		38		68	68	84	106
E	32		20	24	14	68		150		272	272	340	422
OR-N													
M	35		5	5	5	15		50		35	35	50	85
E	86		15	15	15	45		131					
TERROIR													
M	6									76	76	76	78
E	18												

Table 5 (2)

T	(1) Current 1976	76/77	77/78	78/79	TOTAL NEW HIRING END OF PLAN	EST. PLAN STAFF LEVEL	MAKE-UP	POST-PLAN PERIOD +5 YEARS	TOTAL MAKE-UP POST-PLAN	GRAND TOTAL DMD	TOTA[L] STAF[F]
IL ..ARTA											
M	4	2	2	2	6	10		50	50	56	60
E											
..AC HORO											
M	12	-	-	-	-	12	-	83	83	83	95
E											
..TION ..R DIRS											
M	3	3			3	6	-	-	-	3	6
E											
..SSOU- ..illy											
M		PROJECT DOSSIER UNDERPREPARATION									
E											
..roject Soc. ..TION		PROJECT SUSPENDED									
..IZ-SORGHO											
M	7	10	10	10	30	37		35	65	65	72
E	7	20	20	20	60	66					4[illegible]
..ER	39			3	3	42					42
..URAL ENGINEERING	2	6	6	6	18	20				18	20
LIVESTOCK	4	6	7	7	20	24				20	2[illegible]
FORESTRY	190	18	18	18	54	234	69	287	356	410	600
..Ag Farms	16					16		22	22	22	38
..ubs	50	2	2	2	6	56		10	10	16	66
MONITEURS	627				270		115	1241	1386	1623	2291
ENCADREURS	1326				408		42	472	514	815	179[illegible]

In this case, 2 improved centers with 35 students/class plus an expanded and intensified professional in-service training program for encadreurs would supply the projected demand.

Hypothesis 2 also generates a low demand for CAPAs. Even though it is based on more realistic current hiring practices, and accepts the complete five year projections for CAA graduates without accounting for staff already hired, it applies these needs for all employers and does not consider the individual moniteur:encadreur ratios, and sources and status of external financing, which significantly affect total demands.

Hypothesis Number 3

Current CAA enrollments, revised for a 15% dropout rate, limit the number of graduates to approximately 90/year each year from 1976/77 to the end of the Five-Year-Plan. Radically short-term changes in the Caa program which would provide increased numbers of adequately trained CAA graduates by 1978/79 are highly unlikely. Thus, hiring practices, established by the Operations and other employers in response to the past availability of CAPAs, will probably continue to demand approximately 90 moniteurs/year until the end of the Plan.

Assuming that these short-term demands are met, these hiring practices will create an immediate end-of-Plan demand for 135 CAA graduates in order to complete Five-Year Plan projects and restore desireable moniteur:encadreur ratios which had been distorted by the unavailability of CAA graduates during the Plan. As some projects receive financing, and others expand their production activities, and calculating for in-service replacement and turnover, there will be an estimated demand for approximately 1,241 moniteurs in the first five years following the end of the current Plan.

Including the "make-up" demand of 115, the implementation of currently designed projects between 1979/80-1984 will require approximately 1,623 moniteurs or 277 CAA graduates/year for five years.

Improving the conditions in the current 3 centers would not supply the required number of CAPAs. The minimum expansion program would have to increase th capacity of the 3 centers and perhaps construct a smaller fourth center.

This hypothesis creates a more realistic estimate of manpower demands for CAA graduates than the other hypotheses. It places manpower demands within a fairly compressed time-frame however, and does not provide a longer time perspective which is necessary in order to justify an expansion of agricultural training facilities.

*Note: These replacement and turnover calculations for the post-Plan period were made for the CMDT, OACV, the Office du Niger, Operation Mills-Mopti, and Action Riz-Sorgho where it is assumed that successful completion of original Five-Year-Plan projects or the absence of post Five-Year-Plan projections will provide them the opportunity to work on replacing encadreurs rather than continuing to build-up sufficient cadres in order to implement new projects.
Estimates for turnover from encadreur to moniteur and moniteur to CTA are based on professional examination results from the last 4 years. Turnover from encadreur to moniteur was estimated at 4%/year for five years for each stated Operation. Turnover from moniteur to CTA was estimated at 2/year for the same period and for the same Operations. In addition, it was estimated that these Operations would begin to replace approximately 4% of the encadreurs with moniteurs.
It is socially and economically unrealistic to assume a massive replacement of encadreurs by moniteurs. First, the employment of encadreurs represents a significant savings in personnel costs for the Operations and other employer services, with little additional cost or loss of effectiveness because of their lack of professional agricultural training. Second, the continued employment of moniteurs represents an important and preciously guarded source for the directors of th. Operations to exercise discretionary budget allocations. Third, given the large numbers of encadreurs currently employed, it is obvious that this job position represents not only a source of employment for those

excluded from further schooling, but an additional cash in-flow into the agricultural sector, since most encadreurs are usually the sons of farm families.

Hypothesis Number 4.

In the next 8 years, our estimates suggest a total demand for 1,623 CAA graduates or an average yearly demand of 203 CAA graduates from 1976/77 until 1984/85. Of all the hypotheses considered, this probably gives the most realistic long-term demand estimates. It is based on current hiring practices, immediate post-Plan demand, lagged needs for current projects which will be financed, the extension of some current projects, and estimates accounting for replacements and turnover.

The minimum CAA-expansion plan to meet these needs would have to increase the capacity of at least 2 centers and improve the capacity in the 3rd CAA.

In several ways this hypothesis also generates conservative estimates. It does not account for upwardly revised estimates or personnel needs for currently unfinanced operations once they become functional. Moreover, in the face of massive amounts of foreign public financing which will be flowing into Mali within the next 8-10 years, this hypothesis discounts the creation of new agricultural sector projects and related services which could profitably use CAA graduates. More specifically, long-term moniteur manpower demands should be revised upward to account at least for the 10,000 - 15,000 hectares expected to be brought under production in project Kessou-Killy, the 400,000+ hectares which can become productive as a result of the Selingue Dam and improvements in the Office du Niger. In addition, demands could reasonably be created from a revised and revitalized Cooperative Service Program, Farmer Training Programs as well as much

needed expansion of agronomic research. (Demands for these programs could reasonably be defined in terms of placing 1 agent for each service in each of Mali's approximately 290 arrondissements.)

Equally significant, this hypothesis discounts the multi-purpose uses which would be possible in improved and expanded training facilities. For example, improved centers would provide the possibilities for innovative programs to provide agricultural and rural development training for rural school teachers as well as all government agents working in rural areas, including health, social affairs, youth and sports and functional literacy.

In the long-term, projects which seek to diversify and improve the use of the larger CAA facilities create a sounder basis for demanding an improvement and expansion program than manpower estimates. While manpower demands could fall off, there will always be a need for viable educational and training institutions which can provide the facilities and staff for a multitude of future rural development training programs.

III. Brief Explanatory Notes of the Situation and Manpower Demads by Operation (including the Institute of Rural Economy, Water Resources and Forestry, and the Farmer Training Centers*

COMPAGNIE MALIENNE POUR LE DEVELOPMENT DES TEXTILES (CMDT). OPERATION MALI-SUD

The agricultural services of the Malian Company for Textile Development extend throughout the 3rd Region (Sikasso), and parts of the 1st (Kayes), 2nd (Bamako), 4th (Segou), and 5th (Mopti) Regions. In this area, CMDT covers about 75% of the farms and 87% of the rural population in approximately 4,000 villages.

The overall objectives of the CMDT are to improve cotton and kenaf production as well as increase the production of cereals and food crops. Extension services are organized into 4 regions and 23 secteurs which are divided into 122 Zones d'Expansion Rural and 561 Secteurs de Base. According to 1974 estimates, the extension responsibilities of each chef de secteur de base extended over an average of 162 hectares to cover 33 hectares of rice, 55 hectares of cotton, 3 hectares of dah (kenaf), 55 hectares of millet/ sorghum and 16 hectares of corn.

In 1974/75, 804 agents were directly involved with extension activities. They were distributed, by professional category, within the extension structure as follows:

	ISA	ITA	CTA	Mon.	Other	Contract	Foreign	Total
Region		1	1		1	1	2	6
Secteur	8	3	8			5	4	28
ZEA		6	6	13	2	95		122
SB				24	25	512		561
Other	3	3		2	19	53	7	87
	11	13	15	39	48	666	13	804

Source: Ministere de la Production, CMDT, Rapport Annuel, Compagne Agricole 1974/75 in zone cotonniere, Annexes, Tableau No. 10.

*All data and calculations are based on information supplied during interviews with the Operations' staff as well as the documents cited.

As this table shows, CMDT relies heavily upon the use of contract-hire encadreurs. Of the total 683 ZER and SB positions, only 37 posts or 5% were staffed by moniteurs. In contrast, 607 ZER and SB posts, or approximately 90% were staffed by encadreurs.

For the remainder of the Five-Year-Plan, CMDT requires 94 extension agents or about 31-32 per year. This manpower demand is roughly consistent with past employment practices.

CMDT, Past Employment of Moniteurs and Encadreurs (as Chefs ZER and Chefs SB)
1963 - 1973

Year	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
No. Employed	175	308	336	372	385	401	408	443	N.A.	N.A.	566
Difference:		+135	+28	+36	+13	+16	+7	+35	(av 41/year)		+123

SOURCE: Ministere de la Production, Service de l'Agriculture, l'Agriculture au Mali, Tome 1, p. 131.

If sufficient numbers of C graduates were available, and assuming that approximately 10 of the estimated 90 available posts would be staffed by ITAs or CTAs, CMDT could easily employ 20-25 CAA graduates per year until 1978/79. In the absence of a significant short-term increase in the availability of CAA graduates, and if CMDT maintains the current ratios of 1 moniteur to 16 encadreurs, CMDT will probably satisfy its extension manpower demands by employing approximately 88 encadreurs and 6 moniteurs. This would be roughly consistent with the number of CAA graduates received by the CMDT in the past two years. (See Table 16).

Given the different extension agent:farmer ratios under experimentation in the newly created "Actions" and CMDT's efforts to expand the provision of agricultural services into food crop production, CMDT officials are reluctant to make reasonable manpower estimates for extension agents beyond the current Five-Year-Plan. Nevertheless, if we assume that 4% of the current encadreurs become moniteurs each year, that 2 moniteurs/year move up to CTAs and, that CMDT will replace approximately 4% of the encadreurs by moniteurs, CMDT may create a demand for 235 additional

moniteurs in the post-plan period.

Documents consulted:

Ministere de la Production, Service de l'Agriculture, L'Agriculture au Mali, Situation Acutelle, Perspectives, Tome I (n.d.)
_____, C.M.D.T., Rapport Annuel, Campagne Agricole 1974-75 en zone cotonniere (n.d.)
_____, Institut d'Economie Rurale, Projet de Development Agricole dans la Zone Sud, Rapport de Factibilite (Juin 1974).

OPERATION ARACHIDE ET CULTURES VIVRIERES (OACV)

Operation Arachide was the first operation created in Mali. Since 1967 it has expanded its zone of activity from the cercles of Koulikoro, Bamamba, Kolokani and Kita to the cercles of Bafoulabé, Kayes, Kenieba and parts of the cercles of Ségou, San, Tominian, Niono, and Macina in order to cover the better part of the 1st, 2nd, and 4th regions. The Operation covers 105,000 farms which brought 305,535 hectares of cereals and 170,455 hectares of groundnuts under production in 1976.

The agricultural services of OACV are organized into 5 Zones and 10 Secteurs. The Secteurs are divided into 31 Sous-Secteurs and over 300 Secteurs de Base staffed by 64 moniteurs and 242 encadreurs. In order to implement its Five-Year-Plan program, OACV has demanded 117 agents. In response to the current availability of moniteurs and past hirings, OACV will probably hire 9 moniteurs and 83 encadreurs through the end of the Plan. This will create an immediate post-plan demand for 25 moniteurs in order to redress the moniteurs encadreur ratio. In the long run, OACV will demand an additional 100 moniteurs in order to cover turnover and replace endadreurs.

OPERATION HAUTE-VALLEE

The extension service of Operation Haute-Vallee is organized into 3 Secteurs which are divided into 11 ZEs and 72 Secteurs de Base. Moniteurs and encadreurs in these positions serve an estimated total population of 143,115 in an area of 7,500 square kms. Given the deteriorated condition of the roads and the heavy bush

in the Haute Vallee area however, extension agents can only serve 30,000 farmer families who live within 10 kilometers of the 2 major roads serving the Haute Vallee zone.

While the Operation specializes in tobacco production, it has recently sought to provide agricultural services for all industrial and food crops grown in the Upper Niger River Valley.

Operation Haute-Vallee now pays all its operating costs, except for a FED-financed research program and extension personnel costs which are reimbursed by the Government at the end of each crop year.

The manpower needs expressed by the Operation for the Five-Year-Plan period are based on the projected expansion of production activities in both food and industrial crops. These projects are now under study for possible financing by the World Bank and USAID. In the continued absence of external financing however, the Operation will accept 1-2 moniteurs per year for the remainder of the Plan period in order to establish a more permanent corps of extension personnel.

From the point of view of agricultural production and marketing potential, the well-watered 7,500 km^2 served by Operation Haute Vallee could easily become one of Mali's pilot agricultural zones. The Selingue Dam will eventually create several possibilities for dry season agricultural production, and the proximity to Bamako creates a ready and rapidly expanding market for both food and industrial crops.

Documents consulted:

Ministere de la Production, Service de l'Agriculture, Operation Haute-Vallee, Rapport d'Activites, Campagne 1974-1975.

BAGUINEDA

The State Farm's market gardening program at Baguineda currently employes 22 moniteurs. Fourteen moniteurs control the agricultural production activities on the State Farm while 8 moniteurs and 20 encadreurs work directly with the farmers in 21

villages to develop vegetable and fruit production. Two of the moniteurs working in the market gardening section are in middle-level administrative positions as chefs secteur.

The unfinanced Baguineda project seeks to bring 1,000 hectares under production by an additional 1000 families over a 5-year period. In order to achieve this objective, the project demands at least 6 moniteurs and 27 encadreurs for market gardening and related production activities as well as 7 moniteurs for the expansion of the State Farm.

In the absence of financing for the pilot project, the State Farm and extension activities at Baguineda will probably continue to employ 1-2 moniteurs per year for the remainder of the Plan period.

Documents consulted:

Project dossier under preparation.

OFFICE DU NIGER

Agricultural services and production in the Office du Niger are organized in 5 Secteurs de Production (plus 1 secteur for sugar cane production by direct administration) and 23 Unites de Production. Each UP is composed of 4-8 villages. The Office du Niger now covers a total of 123 villages with an active farm population of 31,645 cultivating 30,916 hectares of rice. In 1974, 14 moniteurs and 2 experienced encadreurs were emploued as chefs UP or "instructors." The remaining 9-10 moniteurs were employed as chefs d'equipe who were responsible for executing the extension topics directly with the colons in the villages.

In 1973/74 there was 1 encadreur for every 300 hectares and one moniteur for every 1,700 hectares. With approximately 0.88 hectares/person, each encadreur is responsible for 340 cultivators while each moniteur is responsible for 1,930 rice growers.

During the Plan period, the Office seeks 94 moniteurs. At midpoint in the Plan,

the Office has received 34 CAA-graduates. This leaves a minimum demand for 62 moniteurs during 1977 and 1978. In the longer term, the Office would like to achieve a ratio of 1 chef d'equipe/200 hectares as well as replace all encadreurs with moniteurs. In order to implement this policy and account for turnover, we have estimated that the Office du Niger would create a demand for an additional 75 moniteurs in the post-Plan period. In the following years, the manpower demand is expected to increase dramatically as the current structure is organized into smaller sous-secteurs and smaller unites de production.

Documents consulted:

Office du Niger, Service Agricole, Un Concept de Formation de l'Encadrement a l'Office du Niger, Tibou Fayinke, (n.d.)
U.N.R.D.A. (U.D.R.A.O.), Mali, Office du Niger, Rapport d'Indentification Edition definitive (juin 1974)
B.D.P.A., Rapport de Mission sur l'Etude des Structures d'Encadrement de l'Office du Niger et sur les problemes posees par la formation et le perfectionment du personnel d'encadrement agricole. Tomes I, II, (1964).

OPERATION RIZ-SEGOU

The extension and production services of Operation Riz-Segou are organized into 4 zones covering 34,300 hectares of irrigated rice land which are cultivated by approximately 11,000 rice growers. The 4 zones are divided into 14 casiers which are in turn broken into souscasiers and cellules. Each sous-casier is managed by a monitour who is responsible for approximately 3 cellules each made up of 300 families growing approximately 100 hectares of rice. In order to manage the production of irrigated rice, introduce several techniques to improve production and provide purchasing services, ORS employs 45 moniteurs and 106 encadreurs. (Compared with the manpower demands given in the CNPER project outline, ORS is right on schedule. The Operation now employs 151 extension agents in comparison with the projected demand for 149 by 1975/76.)

The medium to long-term manpower demand for moniteurs and encadreurs in ORS depends upon whether ORS seeks to intensify or to expand its production activities. If ORS intensifies rice production during the remaining years of the Plan, it will need an additional 24 moniteurs and 17 encadreurs in order to achieve the desired ratio of 1 moniteur:500 hectare and 1 encadreur:250 hectares, or 1 moniteur: 2 encadreurs.

If on the other hand, ORS seeks to meet the original project goal of bringing 45,000 hectares under production, an additional 21 moniteurs and 42 encadreurs could be used in the immediate post-plan period. In the long-term, ORS, or another Rice Operation, could create a demand for approximately 90 moniteurs and 180 encadreurs in order to bring 30,000-50,000 hectares under production.

Documents consulted:

Ministere de Development Rural, Direction Generale de l'Agriculture, Operation Riz-Segou, Monographie Succincte (Decembre 1975).
Ministere de la Production, Direction Generale de l'Agriculture, ORS Programme Campagne 1975-76.

OPERATION RIZ-MOPTI

During the 1974/75 agricultural season, 22 moniteurs and 82 encadreurs in Operation Riz-Mopti covered 16,276 hectares and provided extension services to 6,498 rice growers. (The extension and purchasing services in ORM are organized like those in ORS). On the average, each moniteur was responsible for 740 hectares and 295 growers while each encadreur worked with 198 hectares and 79 cultivators. The current ratio of moniteurs and encadreurs to farmers in 1:62.5. In order to achieve the desire ratio of 1 agent for 50 farmers, ORM needs an additional minimum of 16 CAA graduates and 68 encadreurs to provide effective extension services to approximately 5-6,000 new rice growers on 14,814 hectares, which brought under production during the period of the Mopti I Project.

The Mopti II Project, scheduled to begin in 1977, will bring approximately 40,000 additional hectares under production with approximately 17,000 additional

OPERATION RIZ MOPTI

Total Cultivated Surface	Number of Rice Growers	Number of Encadreurs	Number of Moniteurs
16,276	6,498	82	22

Number of Encadreurs/ha	Number of Moniteurs/ha	Number of growers/encadreurs	Number of growers/moniteurs
1: 198	1: 740	1 encad.: 79	1 monit.: 295

MOPTI I PROJECTED MANPOWER NEEDS FOR MONITEURS AND ENCADREURS

Total/Year	1974	1975	1976	1977	1978	1979	1980	1981	1982
Surface (ha)	17,230	20,010	22,630	25,250	27,830	28,390	29,960	30,520	31,090
Moniteur	21	24	28	32	32	35	37	38	38
Encadreur	82	95	109	122	122	138	145	147	150

DISTRIBUTION OF AGRICULTURAL PERSONNEL BY CATEGORY 1972-75

	1972	1973	1974	1975
ISA			2	2
ITA		1	2	2
CTA	6	7	7	7
Moniteur	13	16	20	21
Encadreur	15	28	59	84

hectares under production with approximately 17,000 growers. If this Five Year project is approved for financing, it will require an additional 68 CAA graduates and 272 encadreurs in order to maintain the current moniteur:encadreur ratio as well as the ratio of one extension agent for every 50 cultivators. Thus, discounting the CAA graduates to be received by June, 1976, and the number of encadreurs who successfully complete their ongoing training program (about 30), OMM might create a maximum need for approximately 84 moniteurs and 340 encadreurs to implement the extension efforts for Mopti I andII during the next 8 years. In the long-term, OMM's effort to replace encadreurs with moniteurs will create an additional demand for CAA graduates.

Documents consulted:

Bureau pour le Development de la Production Agricole, BDPA), Amelioration de la Riziculture en submersion libre au Mali Delta Central du Niger, Rapport de Mission (Janvier-Fevrier 1970)

Ministere de la Production, Service de l'Agriculture, Operation Riz-Mopti, Rapport Annuel, Campagne 1974-1975, A.O. Kande, M. Sinanta, Section Vulgarisation, (Mai 1975).

Unite de Gestion de Mopti Sud, Cercle de Mopti, Monographie Succincte L. Seydoux, (Avril, 1971).

OPERATION MILS-MOPTI

Operation Mils-Mopti currently employs approximatley 35 moniteurs and 86 encadreurs, or one moniteur for every 3 encadreurs. Nineteen moniteurs, or 54%, are chefs de ZER. Fifteen moniteurs, or 43% are chefs de Secteurs de Base. (The totals do not add to either 35 or to 100% due to absence of information from one ZER). In other words, 68% of the ZERs, and 16% of the Secteur de Base, are staffed by CAA graduates. In the long term, OMM seeks to staff all the secteurs de base with moniteurs and to limit the employment of moniteurs at this level.

Given the uncertain financial status of OMM in recent years, no firm manpower projections for moniteurs and encadreurs during the Five-Year-Plan were available.

With recent financial support of USAID, the Operation is now undergoing a period of rapid expansion in both cereals and vegetable production. Consequently, the Extension service is currently experimenting with a variety of extension agent: farmer ratios in order to establish realistic manpower needs in the coming years. Presently a cost-benefit study of OMM conducted by the Institute of Rural Economy will help define future agricultural manpower needs for the Operation.

In the absence of more detailed information, we can estimate a minimum need for 15 additional moniteurs and 45 encadreurs during the remainder of the Five-Year-Plan if OMM moves into 15 new arrondissements and if in the short-term the arrondissements are maintained as the ZER boundaries. In the post-Plan period we estimate a demand for 35 additional moniteurs in order to cover turnover and replace encadreurs.

Documents consulted:

Ministere de la Production, Direction de l'Agriculture, Operation Mils-Mopti, Resultats Preliminaires de l'Enquete Socio-Economique dans Les Cercles de Bankass et Koro (Mopti, Juillet 1973)

_____, Resultats Preliminaires de l'Enquete Socio-Economique dans les Cercles de Douentza and Bandiagara (Mopti, Aout, 1974)

_____, Reunion de Fin de Campagne Agricole 1973-74 (Mopti, Novembre 1974)

Direction Regionale, Developpement Rural, Conference Annuelle sur le Developpement Rural, Tenue a Mopti du 13 au 15 Mars 1974 (Mopti, Septembre, 1974).

OPERATION TEREKOLE, KOLOMBINE-LAC MAGUI

This agricultural development project for bringing the Terekole, Kolombine, and Senegal valleys under production through controlled irrigation was presented for possible financing to the Federal German Government in 1973. Using 1 extension agent for every 50 farmers the projects seeks to produce an additional 18,000 metric tons of rice, 8,000 T of cereals, and 10,000 T of vegetable crops in the river valleys. There has been a considerable delay in the preliminary topographical and hydrological studies needed to finalize the project. As of December, 1975, Genie Rural said the necessary studies will be finished by mid-1979. Consequently the

need for 76 encadreurs and moniteurs will occur at the earliest during the 2nd Five-Year-Plan.

Documents consulted:

"Mise en valeur de la Region Terekole-Kolombine-Lac Magui, Compte Rendu de la Reunion de 30 decembre 1975.

OPERATION KAARTA

Operation Kaarta, currently extends over the Cercle of Nioro, parts of the Cercles of Bafoulabe, and Nara in the First and 2nd Regions of Mali. It includes approximately 87,000 hectares of millet, sorghum and corn cultivated by approximately 47,000 farmers. When Canadian financing begins, the Operation plans to staff about 50 secteurs de bases with moniteurs and encadreurs and 5 Secteurs d Development Rural with CTAs and ITA, in order to increase cereal production in the zone by over 45,000 metric tons in 5 years. In addition to a production project, the Operation also seeks to establish a research substation in order to develop and adapt technical agricultural practices to the area.

Based on past employment practices, Mil-Kaarta can reasonably be expected to demand approximately 2 moniteurs/year until the end of the Plan. In the absence of external financing, these additional CAA graduates would be supported by either the Regional Budget for Rural Development or the National Investment Budget.

In the long-term, if the Operation successfully develops into an Office de Developpement du Sahel, responsible for agricultural production and development for the area north of the Office du Niger to the Senegalese border, a large number of moniteur-level positions will be created.

Documents consulted:

Note: Reactualisation du Dossier de Projet Etabli en Mai 1972.

OPERATION LACUSTRE (LAC HORO)

Operation Zone Lacustre extends form Niafunke in Mali's 5th region to Goursa-Rharous in the 6th Region. The Operation covers an area with considerable agricultural potential which can be brought under production only with a fairly extensive rural works program. After a 2-year delay, part of the FAC-financed rural works program began in 1974. Since 1975, the project has been without a source of external financing. Consequently, any manpower needs for moniteurs will arise largely during the 2nd Five-Year-Plan.

PERIMETRE EXPERIMENTAL DE DIRE; or ACTION BLE-DIRE

Although this Action is officially part of Operation Zone-Lacustre, it is operationally independent of the Lac Horo and has received FAC financing until 1978. The Action is currently staffed by two ISA, one ITA, 3 moniteurs and one Technician Superieur (Genie Rural) who are responsible for 12 hectares of experimental wheat production. Between 1977 and 1979 the Action hopes to bring approximately 100 hectares of wheat and other crops under production through controlled irrigation.

The variety and potential of agricultural production in this area is impressive. With controlled irrigation techniques, sorghum can be grown from July to October, wheat from November to February, and vegetables, cotton and anise production (at 400-500 MF/kg with 1,900 kgs/hectare) can be improved. With traditional irrigation techniques, wheat and barley can be grown from October to March, while sorghum and rice can be grown as the Niger River goes down. Mango and date orchards are also possible. In addition to the high irrigation costs for realising these production possibilities, the poor to non-existent road transport and inadequate river transportation creates a very difficult marketing problem.

The low need for additional moniteurs over the next two years reflects not only the experimental nature of the projedt, but the philosophy that effective administration rather than an expanded extension system will be largely responsible for

increased production in the area.

OPERATION KESSOU-KILLY

This pilot project was originally part of Action Blo. It was designed to provide agricultural production and extension services to small farmers growing wheat and corn with traditional methods of irrigation in the areas of Dire-Goundam. The project dossier is now being rewritten for possible financing from FAC or from Saudi Arabia.

PROJET DES CULTURES SUCRIERES ET FOURAGERES

Another ambitious effort to improve and develop the wide variety of agricultural production possibilities along the Niger River flood plain near Dire, this project has been suspended for the following reasons: (1) Commercialization of products poses serious problems; (2) the proposed forage crops would cost too much to produce and (3) the water requirements to produce 300 hectares of sugar cane, the minimum required to make the project financially sound, would be impossible to meet without causing serious downstream shortages during the dry season.

ACTION RIZ-SORGHO

In two of the three ARS secteurs de development rural (SDRs) during 1975-1976, 7 moniteurs and 6 encadreurs worked with 454 rice growers and 397 sorghum producers. With USAID financing, ARS hopes to expand the land under rice cultivation by 15,000 hectares and to increase the area of sorghum cultivation by 10,000 hectares. In order to achieve an extension ratio of 1 moniteur for 1,000 hectares and 1 encadreur for 500 hectares during the course of the AID-financed project, ARS estimates a need for a minimum of 30 moniteurs and 60 encadreurs over the next 3 years.

In order to cover turnover and replace encadreurs by moniteurs ARS may create a post-Plan demand for an additional 35 moniteurs.

Documents consulted:

Ministere du Developpement Rural, Direction Generale de l'Agriculture, Rapport de la Fin de Campagne Agricole 1975-1976, Action Mis-Sorgho Decrue-Gao.
_____, Etude de Reconnaissance de la Vallee du Niger dans la Region de Gao, Tome I, Rapport de Synthese (SATEC, avril 1975).
_____, Tome III, Etude du Milieu Humain

INSTITUTE OF RURAL ECONOMY

The Institute of Rural Economy employs 30 monitours who are distributed among the various research agencies as follows:

Central Office, IER, (Seed lab., analysis, publication of results)	8
Institut de Recherche Agronomic Tropicale (IRAT) (research substations, experimental stations, Sotuba labs, agropedologie)	14
Institut de Recherche Cotonniere et Textile (IRCT) (field trials, entomology, research substations)	3
Centre National de Recherche Fruitiere (CNRF, Formerly IFAC; trials, substations, labs.)	5
Centre National de Recherche Zootechnique-Sotuba (forage crops and animal feeding)	2
Section d'Elevage et de Recherches Zootchnics du Sahel-Niono (Animal Feeding)	2
Section des Plantes Nouvelles (The Sikasso; research field trials and processing)	5
	39*

Source : Institute of Rural Economy

Until recently, agricultural research programs in Mali have been directed and staffed largely by foreign technical assistants affiliated with French research institutes. Few trained Malians have been involved in agronomic research and a system to replace foreign research personnel with trained Malians has neither been well-defined nor respected.

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*In addition, the Livestock Research Program calls for 9 moniteurs and encadreurs at Nioro for the Project ILCA.

Manpower demands for CAA-trained personnel in agricultural research arise from new initiatives to staff the agronomic research system with qualified Malian technicians.

According to the CNPER, the successful implementation of this policy should not only help make agronomic research more adaptive to Malian conditions but also help to regionalize research efforts among interested African States.

Planned research activities during the Five-Year-Plan call for 26 moniteurs in agronomic research and 15 for pre-investment studies for livestock projects coordinated through the IER. According to Table 15, the IER has almost satisfied its projected Five-Year-Plan manpower needs. Fifteen CAA graduates were employed in 1974, 10 in 1975 and 15 have been requested for 1976. As the recommendations of the 16th Annual Meeting of the National Committee for Agronomic Research are implemented, the demand for qualified CAA-level personnel in agronomic research is expected to increase rapidly.

DEPARTMENT OF WATER RESOURCES AND FORESTRY

The Water Resources and Forestry Department (Direction Nationale des Eaux et Forets) currently employs 190 CAA-level graduates as forestry agents. As of December 31, 1975 these agents were divided among the relatively different and independent divisions as follows:

Distribution of Forestry Agents (Preposes)
by Division

(December 31, 1975)

Division	Number
Administration (Direction Nationale)	1
Research (Recherche Forestiere, IPR)	8
Planning and Production (Operation Amenagement et Production Forestiere)	10
Fishing Production and Commercialization (Operation Peche)	2
Baoule National Park (Oporation Nationale de la Boucle du Baoule)	16
Regional Offices:	
Kayes	24
Bamako	22
Sikasso	13
Segou	24
Mopti	21
Gao	23
Temporary duty in other government services, and training programs	10
TOTAL	166*

The manpower needs for agents until 1986 are based on maintaining a ratio of 4CAA level graduates to 2 technicians,1 ingenieur. Following this formula, in 10 years the Water Resources and Forestry Dept. seeks to employ 600 agents, 300 technicians and 150 ingenieurs. Thus, by 1986, the Water Resources and Forestry Department estimates a need for an additional 410 CAA graduates (41/year) 215 additional technicians(22/year) and 100 ingenieurs (10/year). This means the department would need to recruit 3 times the yearly average number of officers recruited since 1970 Given the short-term unavailability of CAA graduates and past hiring practices, the WR & F Department will probably demand approximately 18 CAPAs/year until the end of the Plan. This would leave a total demand of 356 CAPAs in the post-plan period.

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* Mission unable to varify the discrepancy between this figure or the figure of 190 stated earlier.

In order to resolve its manpower needs for agents, and in light of the current yearly capacity of the CAAs, the department has suggested reducing the CAA training period to one year and compensating for the last year of general studies by requiring the DEF for those interested in forestry. According to the department, this would resolve the problem of quantity, but not of quality. Graduates would be very young and lack the physical and psychological qualities found necessary to be an effective forestry officer. The department has also considered the possibility of recruiting those discharged from military service, who are between 21-35 years of age, and have at least an 8th or 9th grade education. This approach has several advantages. The recruits would be older and as a result of their military training and service, they would also have the physical stamina and psychological preparation and work experience which would prepare them quite well for their work as forestry agents. The only drawback to this system is that it requires an additional period of training in forestry. As shown during 1971-1972, when an effort was made to recruit recently discharged soldiers, the total absence or any kind of agricultural training made even the simplest forestry principles difficult for the untrained to understand. The third and most extreme solution envisages reclassifying the forestry agent within the civil service to accommodate the increasing number of students who receive the DEF but were unable to continue into secondary education. This would be similar to the 1972 reclassification of agricultural agents and forestry officers from Civil Service Category D to Category C. As the department fully recognizes, since this kind of change has civil service implications it would probably be very difficult to implement.

Documents consulted: Ministere du Developpement Rural, Direction Nationale des Eaux et Forets, Conference Nationale des Eaux et Forets 8-15 Mars 1976, Rapport sur le Personnel (n.d.)

FARMER TRAINING CENTERS : CENTRES D'ANIMATION RURAL

The DNFAR will probably continue to staff the CARs with approximately 2 additional moniteurs/year, even while it seeks to get the Operations to take responsibility for the farmer training centers. A proposed expansion of the CARs call for approximately an additional 22 moniteurs during the post-plan period.

IV. PROFESSIONAL AGRICULTURAL EDUCATION AND TRAINING IN MALI

Professional training for the Agricultural Service in Mali is administered by the Ministry of Higher Education and by the Ministry of Rural Development. The Rural Polytechnical Institute (Institute Polytechnic Rural, IPR) at Katibougou is within the Ministry of National Education while the three Centres d'Apprentissage Agricole (Agricultural Apprenticeship Centers) are run by the Ministry of Rural Development*. (See Table 6).

A. Post-Secondary Agricultural Education

Senior and middle-level administrative and planning staff for the Ministry of Rural Development are trained in two coordinated, but independent education and training programs. Senior level personnel, Ingenieurs des Sciences Appliquees, follow a four year post-BAC, post-secondary training program which permits them to specialize in agriculture, forestry, livestock or rural engineering. Middle-level staff, Techniciens Superieurs, follow a four-year, post-DEF or post-primary training program with similar specializations. Although both programs are open by entrance examination, most students are "directed" into the cycles following their primary or secondary education. As a result of the Government's policy to provide training and subsequent employment for all students holding the secondary-level Baccalaureat (Bacheliers) and those holding the post-primary Diplome d'Etudes Fondamentales, as well as the urgent needs expressed in the late 1960s and early 1970s for qualified senior and middle-level personnel to man the agricultural

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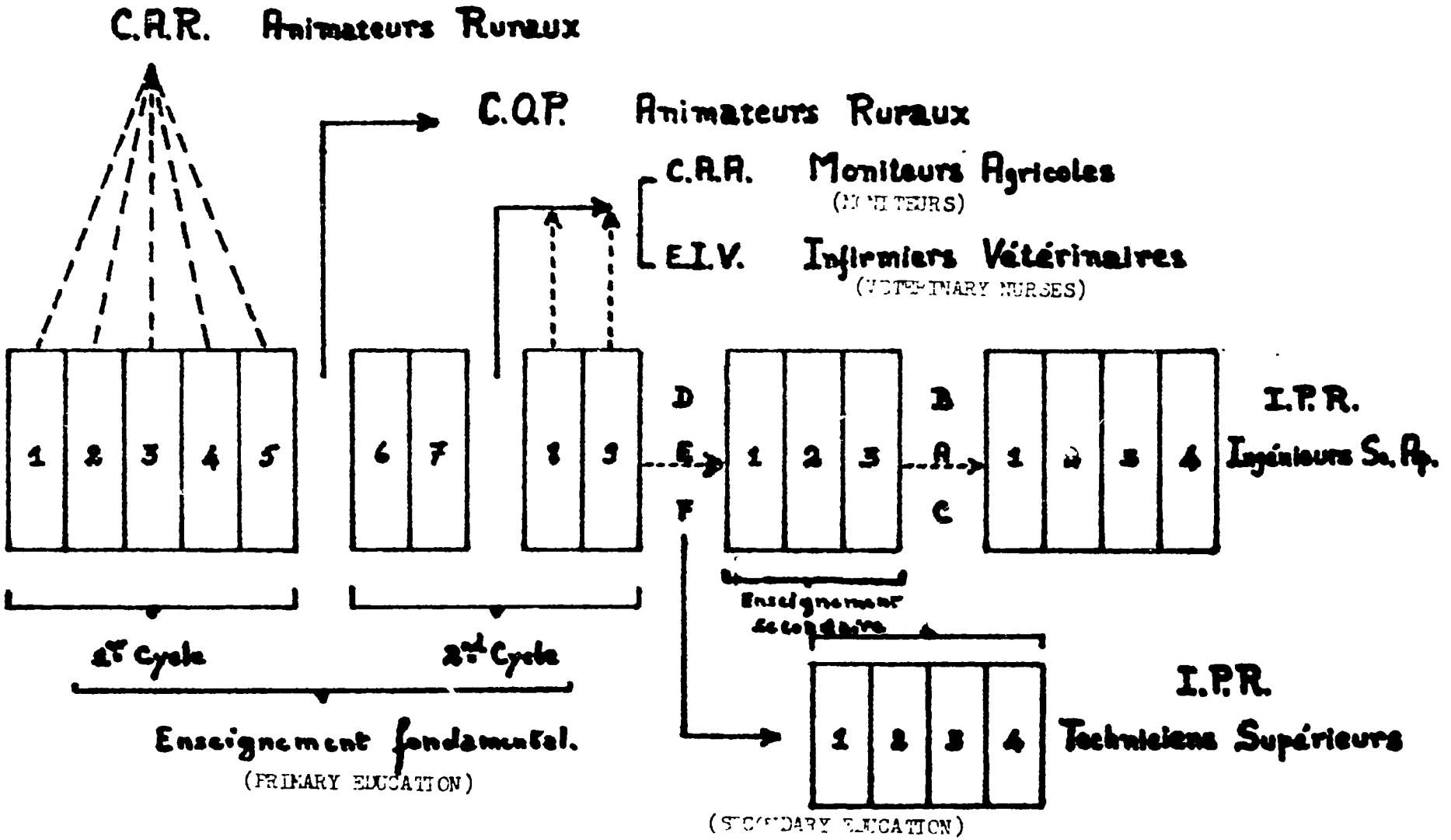
* Note : The basic structure of Mali's system of professional agricultural education remains essentially unchanged from that which existed during the colonial period when 7 CAAs throughout French West Africa trained moniteurs for the territory and 2 Colleges Techniques Agricoles (at Porto-Novo and Katibougou) offered the Brevet d'Enseignement Agricole. During this time, BEA holders could become Ingenieurs des Travaux Agricoles only through further training in France or Belgium.

TABLE 6

STRUCTURE OF AGRICULTURAL EDUCATION IN MALI



services, both programs at the IPR have been expanding rapicly. From 1972 to 1975 the number of DEF holders oriented to the IPR jumped 2.5 times, more than for any other technical and professional training in Mali.

TABLE 7

Assignment of DEF Holders
1971-1975
Technical and Professional Education

	Institution			
Year	L.T.	I.P.R.	C.F.P.	E.C.I.C.A.
1971	107	-	220	214
1972	154	107	148	307
1973	189	110	169	291
1974	288	212	163	340
1975	280	269	291	249

L.T. = Sycee Technique
I.P.R. = Institut Polytechnic Rural
C.F.P. = Centre Formation Professional
E.C.I.C.A. = Ecole Centrale pour l'Industrie, le Commerce, et l'Administration

Source: Ministere de l'Education Nationale

The assignment of Bacheliers also shows similar dramatic increases since 1970, in comparison to other institutions receiving BAC holders.

TABLE 8

Distribution of Bacheliers
1970 - 1974

	Institution							
Year	Foreign	ENA	ENS	ENI	IPR	ENM	Divers	TOTAL
1970	134	80	77	50	16	18	-	375
1971	173	93	143	55	60	17	8(IPEG)	549
1972	157	149	220	60	63	24	30	703
1973	126	97	284	60	100	40	72	229
1974	189	120	350	80	100	40	151	1,030

ENA = Ecole Nationale d'Administration
ENS = Ecole Normale Superieur
ENI = Ecole Nationale d'Ingenieurs
IPR = Institut Polytechnique Rurale
ENM = Ecole Nationale de Medecine

Source: Ministere de l'Education Nationale

These increases are reflected in the dramatic jumps in IPR enrollments in recent years and the projected outputs for 1980 and beyond. (See Tables 9a, 9b). As a result of these enrollment policies, as well as the absence of junior technician-level training facilities, Mali's agricultural service will soon resemble an inverted pyramid. The Water Resources and Forestry Department, within the Ministry of Rural Development, represents the most extreme case. This department is locked into receiving 167 senior and middle-level IPR graduates in the next three years, and by 1978 there will be as many middle-level staff as junior level, and one engineer for every two junior level staff. When the current and projected manpower needs for senior and middle level personnel are met, the government will still be forced to find employment for approximately 80 Ingenieurs and 140 Techniciens per year after 1980. The Government is painfully aware of this situation and during the most recent meeting of the IPR Administrative Council (Conseil de Perfectionnement), the IPR was advised to find the necessary means to restrict and cut back future enrollments.

While the quantity of trained personnel increases, the quality declines. The classroom and living facilities are incapable of handling the increased enrollments and the equipment and books are totally inadequate. Several governments provide staffing for the center which has indirectly led to some problems in coordinating classroom and applied work as well as prevented the development of a school espirit. Several courses, such as animal production, horticulture and plant protection lack staff and other courses which need to be taught, such as economics, management and

Table 9a

MALI

I.P.R. TOTAL STUDENT ENROLLMENT AND OUTPUT 1965-76

Years	Totals	Number in 1st year	Nationality		Course		Awarded Certificates		
			Malian	Foreign	Professionals	Technicians	Total	Prof.	Techn.
1965/66	108	64	91	17	0	108			
1966/67	144	87	119	25	27	117			
1967/68	193	72	155	38	51	142	23		23
1968/69	236	71	184	52	79	157	36		36
1969/70	342[1]	73	267	75	70	272	53	22	31
1970/71	358[2]	142	259	99	94	264	102	4	98
1971/72	448[3]	204	316	132	160	188	74	34	40
1972/73	549	184	480	69	218	329	100	45	65
1973/74	731	241	648	83	284	447	121[4]	49	72
1974/75	926	330	810	116	367	557	170	73	97
1975/76	1305	524	1229	76	523	782			

* Academic year: May-February.

1. Including former Livestock Assistants' School attached to I.P.R. in 1969.

2. Including former Livestock Assistants' Scholl and the teachers for the Practical Orientation Centers.

3. Professionals and technicians.

4. Of whom 111 were Malians.

Source: I.P.R.

Table 9b

M A L I

I.P.R. OUTPUT AND PROJECTIONS OF MAILAN I.P.R. GRADUATES BY SPECIALIZATION

1974-1980.

	ISA Level			Total	ITA Level				Total	Grand Total
	Agric.	Livestock	Forestry		Agric.	Livestock	Foresty	Rural Eng.		
1974[1]	29	11	9	49	24	10	19	9	62	11'
1975[1]	40	15	11	66	60	14	17	2	93	159
1976[2]	49	35	27	111	50	14	19	10	93	20
1977[2]	39	28	12	79	75	35	44	9	163	242
1978[3]	-	-	-	-	-	-	-	-	-	-
1979[2]	56	43	20	119	95	52	35	15	197	316
1980[2]	81	62	31	174	137	75	50	25	287	461
TOTALS	294	194	110	598	441	200	184	70	895	

1. Actual figures.

2. Projections.

3. The absence of graduates in 1978 is the result of action taken four years earlier in lengthening the duration of training programs from three to four years.

Source: I.P.R.

personnel practices, and extension are not given suffi ient attention. Furthermore, the staff:student ratio for some programs has reached an unteachable and "unlearnable" ratio of 1:75. Practical field work is limited and not properly supervised.

The government is conscious of these problems and has recently received a $5 million ADB loan to improve the Technician level training. FED currently plans a $7.5 million program to improve the lab and other facilities for the Ingenieur program.

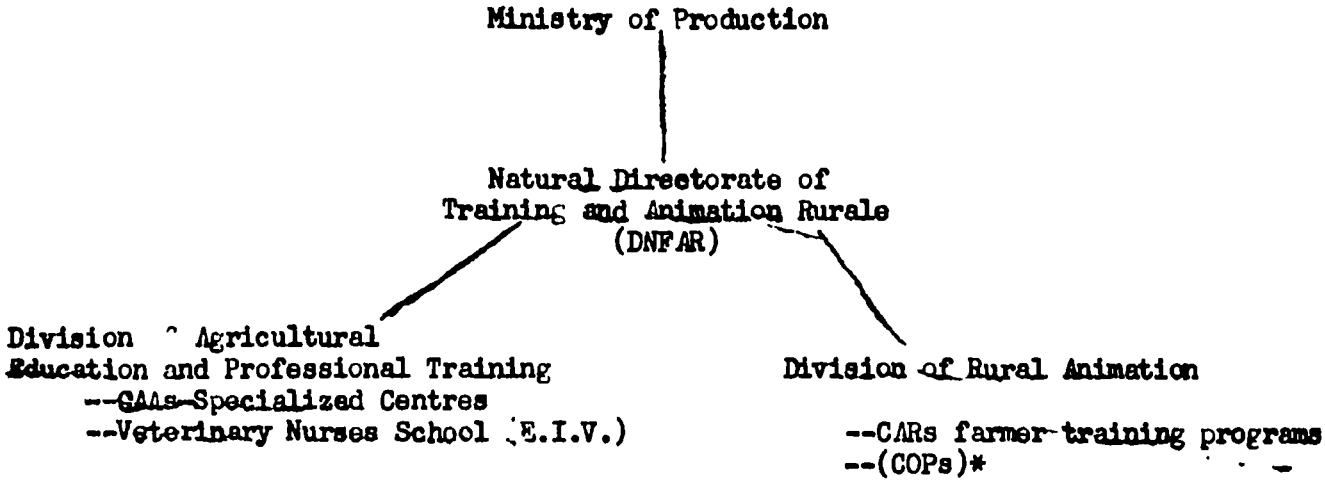
B. . Primary-level Professional Agricultural Training

Junior level agricultural staff, or Moniteurs d'Agriculture are trained in three Centres d'Apprentissage Agricole (CAA) and two Specialized Agricultural Training in the National Directorate of Training and Rural Animation within the Ministry of Rural Development. (See Table 10).

From 1965 to 1975 the CAAs and the program of professional agricultural education in Mali benefitted from two ILO projects. Project MLI 3 entitled the "Training of moniteurs and agricultural instructors" organized the CAA program and created the Specialized Center at Baguineda. It also assisted the Specialized Rice Center at Dioro, trained agricultural instructors and initiated a women's program for the farmer training centers in Mali. Project MLI 72/006 continued the MLI 3 activities by improving and consolidating the project undertaken for the CAA training programs and at Baguineda and Dioro. In addition, the project created the Specialized Centers at Tabakoro and Sotuba, as well as the Veterinary Nurses School (EIV). It also continued the training and women's program in the CARs.

The DNFAR was created at the suggestion and with the support of the UNDP/ILO as a means to centralize and coordinate junior-level professional agricultural and livestock training as well as farmer training programs. This reorganization

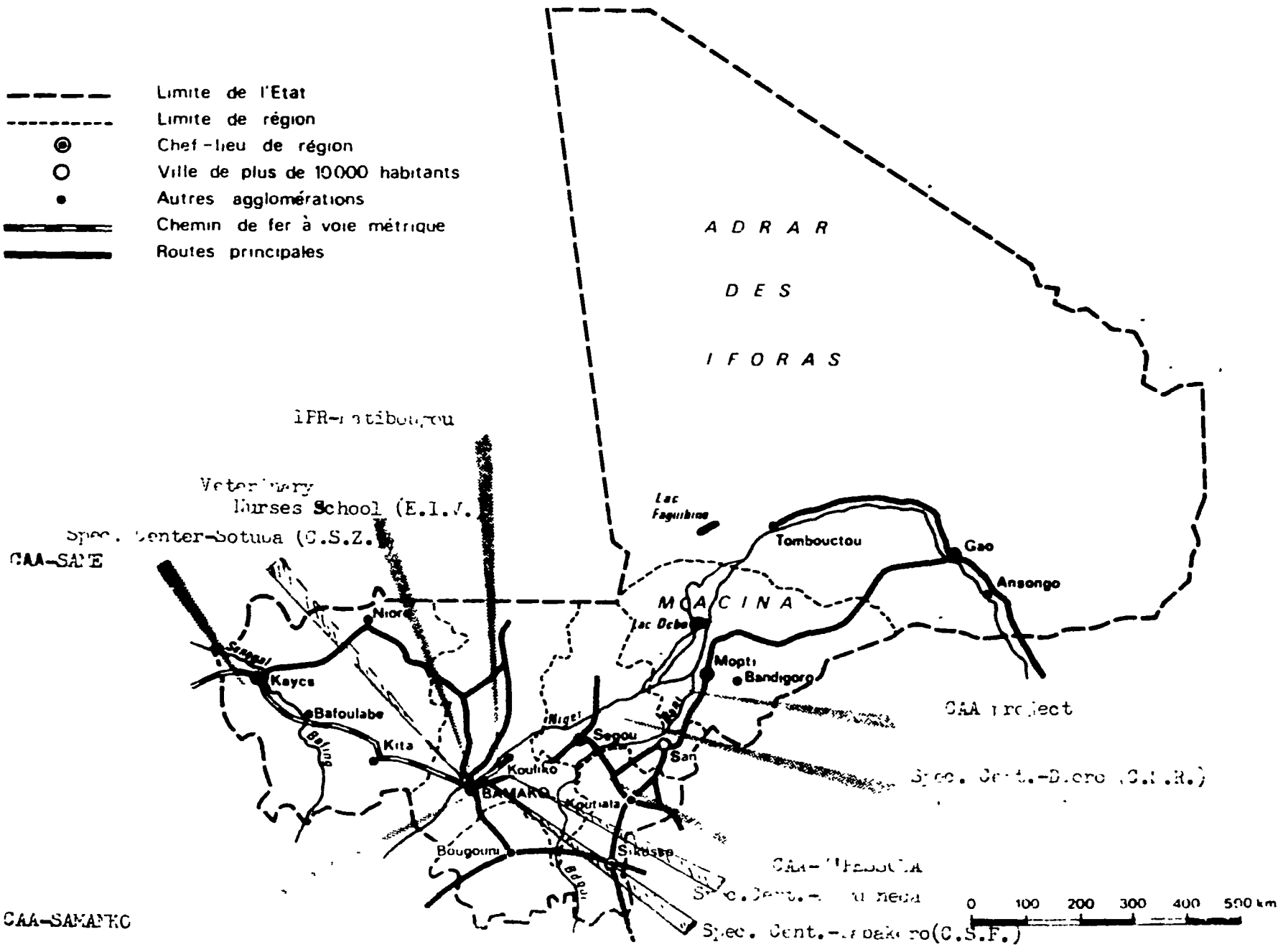
Table 10



* Disbanded ILO project

MAP 1

LOCATION OF PROFESSIONAL AGRICULTURAL TRAINING CENTERS



was also intended to facilitate and improve the impact of the work done by ILO technical assistance for agricultural education in Mali.

1. CAAs

The location of the three CAAs within the principal ecological zones of the country permits the cultivation of different crops and the practice of animal husbandry at each center. (See Map 1). If the centers are to serve as effective professional agricultural training institutions however, they are in dire need of repairs and renovation.

The CAA of Samé, located 18 kilometers from Kayes in Mali's first region, was opened in 1967. The center occupies a series of factory buildings and staff houses built in 1910 for a French sisal plantation. The teachers live in modified USAID-financed chicken coops. Roofs on the older buildings have serious leaks and are in danger of imminent collapse. Classrooms are unsatisfactory and temporary mudbrick (banco) shelters are in constant need of repair during the school year, or the rainy season.

The CAA at Samanko, 18 kilometers from Bamako in the 2nd Region was opened in 1962. It also occupies some old French sisal plantation buildings which were specifically remodeled for the CAA, as well as an old small and inadequate farmer training center dormitory located at some distance from the classrooms and fields. Since the faculty housing facilities were designed for bachelors, the married teachers have built at their own expense temporary mudbrick housing to accomodate their families.

The CAA at M'Pessoba, about 2 hours out of Segou and one hour north of Koutiala in Mali's 3rd Region was originally built in 1924-25 as a State Farm and training center. In 1954 it was established as one of the 7 CAAs in French West Africa. The classroom, workshop and lodging facilities at M'Pessoba are small and there is a serious need for improved faculty housing.

The Rice Specialization Center is situated along the Niger River approximately 50 kilometers northeast of Segou in the 4th Region. This is the only new, professional training center in the country. It was built in 1974 with FED financing, and except for an inadequate supply of teaching materials, the CSR is fully equipped to train 30-35 students per year.

In contrast, the Centre d'Application Maraichere at Baguineda, about 40 kilometers northeast of Bamako along the Niger River, has temporarily borrowed one-half of a building from the adjacent State Farm as well as built a temporary warehouse-lodging for students. This situation is highly unsatisfactory and relations between the State Farm, which seeks to recover the building, and the school are strained. The Forestry Specialization Center at Tabakoro also requires extensive improvement. The Livestock Specialization Center at Sotuba functions with the National Center for Livestock Research, but it needs dormitory facilities.

In 1974, the Government of Saudi Arabia made some financing for Same and M'Pessoba available to the MDR. But, by mid-1975, these funds had not been released to the centers. Until funds were diverted for drought relief, the FED planned to improve 3 CAAs and build a fourth center. Presently, no construction or improvements are being made at the centers.

Clearly, the present CAAs have considerable difficulty supplying the short-term demand for adequately trained moniteurs. They are absolutely incapable of meeting reasonable projections for middle to long-term demands for CAA graduates. In order to meet expected manpower demands, the DAEPT has recently proposed a comprehensive expansion program to build and expand a total of 6 CAAs with an average graduating capacity of 75/class/center, or approximately 450 graduates/year. The DAEPT also proposes to improve the Specialization Centers, create centers for groundnuts at Kolokani, for cereals at Mopti and for cotton at Sikasso, and to move the Baguineda Center

As part of this expansion program, USAID plans to finance the improvement and expansion of the centers at M'Pessoba and Same to increase their capacity to 320 students or 160 students/center and 80 students/class. The World Bank plans to finance the improvement of the center at Samanko, the construction of a fourth CAA in the Mopti region, as well as the construction of the millet and groundnut centers. Both WB-financed CAAs will be designed to handle 240 students or 120 students/center and 60 students/class. When all the new and improved centers financed by USAID and the World Bank become fully operational, with their first expected expanded graduating class in 1982, they will supply 238 CAPAs/year. (Gross output is 280; net output is based on a 15% dropout/failure rate.)

2. Budgetary Impact of an Expanded CAA Training Program (Tables 11a-b)

The Government's full employment policy for graduates from all higher professional training institutions, plus the unquestionable need for CAA-level people in agriculture and agriculturally-related projects assures the employment for the CAA graduates from the expanded facilities

Preliminary estimates indicate that the increased number of moniteurs who will graduate from the expanded facilities will have a minimal impact on the National Budget of Mali. Based on estimated CAA output from 1976 to 1985, correcting for replacement and turnover rate, and calculating total personnel costs on the basis of the 1976 average annual salary for a Moniteur (450,000 MF), the expanded CAA program will increase the total budgetary demand for moniteurs by a little over 2½ times (2.7) from 350 million MF in 1976 to 964 million MF in 1985. This is only 3% of the total 1975 National Budget request, and 23% of the 1975 National Regional and Investment Budget requests for the MDR, excluding the autonomous budgets for the Operations. Since the Operations employ and will continue to employ most of the moniteurs, not only are these percentages high, but the future budgetary impact should be considerably smaller.

Table 11a

Year	Moniteurs in Post [1]	Expected CAA Output	Professional Advancement Encadreurs to Moniteurs	Subtotal Moniteurs	Professional Advancement Moniteurs to CTA	Total Moniteurs	Total Cost (450,000/Moniteur/Year)
1976	678	98	50	826	30	796	358
1977	796	90	50	936	30	906	408
1978	906	90	50	1046	30	1016	457
1979	1016	90	50	1156	30	1126	507
1980	1126	90	50	1266	30	1236	556
1981	1236	90	50	1376	30	1346	606
1982	1346	238	25[2]	1609	45[3]	1564	704
1983	1564	238	- [2]	1802	45[3]	1757	791
1984	1757	238	- [2]	1995	45[3]	1950	878
1985	1950	238		2188	45[3]	2143	964

1. Includes an estimated 55 moniteurs in zones "Hors Operation".
2. Reflects a projected phasing out of professional advancement for encadreurs as additional moniteurs become available.
3. Projected increased promotion rate as the number of moniteurs increases.

Table 11b

BUDGETARY IMPACT OF EXPANDED CAM TRAINING PROGRAM

	Total no. Moniteurs	Total Cost (MF Millions)
1976	678	358,000
1985	2,143	964,000

* 1975	MDR Budget Proposal (MF Millions)	1,123,970
* 1975	MDR Budget Proposal	1,123,970
	Regional Budget Proposal for Rural Development (MF Millions)	558,498
	Investment Budget	2,327,457
	TOTAL	4,009,925

1985 Total Cost Moniteurs/1975 National Budget Proposal:

964,000/38,000,000 = 3%

1985 Total Cost Moniteurs/1975 MDR Budget Proposal and Regional Rural Development Proposal and Investment Budget:

964,000/4,009,925 = 23%

* Sources: Ministre des Finances, Direction Nationale du Budget Budget d'Etat 1975 Rectifié, Recapitulation Generale.

The major issues surrounding the CAA expansion program involve less the national budgetary implications of the future CAA-graduates, the administrative, organizational and financial viability of the DAEPT and the CAAs to handle an expanded program.

3. Legal Standing

The administration, organization and operations of the CAAs are governed by statutes and regulations which date from the colonial period. The CAAs are recognized by the Ministry of Rural Development as the official training institutions for moniteurs, but the CAAs do not have current statutory recognition by the Government of Mali. As soon as the DAEPT reorganizes (due to the departure of the ILO project) the "projet de statut" will be updated, submitted to the Cabinet of the Ministry of Rural Development, and transmitted to the Council of Ministers for approval, hopefully by the end of the year. This project includes such matters as the rights and responsibilities of CAA personnel, CAA relations to the State Farms the establishment of a CAA management council and regulations governing student life. In the absence of statutory recognition, the DAEPT faces considerable difficulties in its negotiations to secure teaching bonuses for CAA instructors and to gain control over the CAA examination process.

4. CAA Staffing

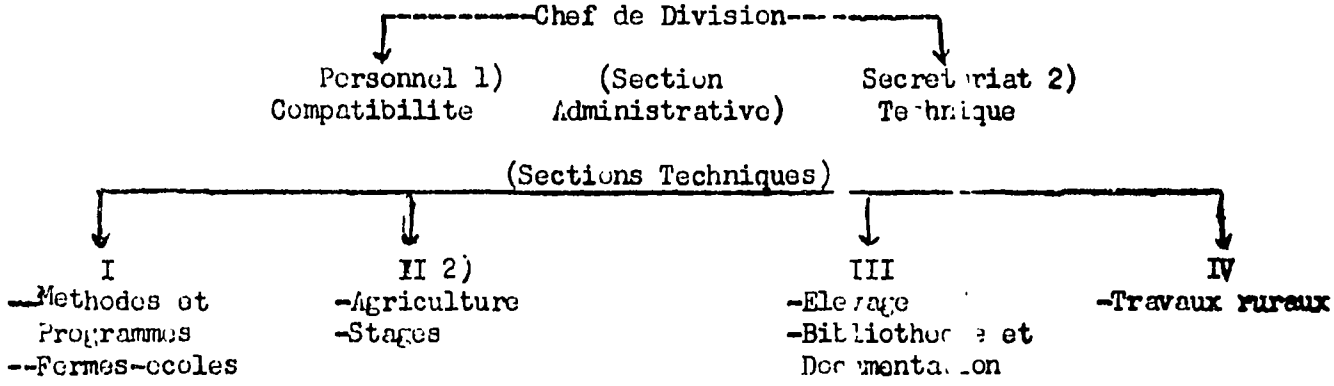
The UNDP/ILO Project MLI 72/006 supplied four foreign technical assistants to develop and sustain the necessary staff backstopping for the CAA program. The director of the ILO project was the counterpart to the Malian director of the DAEPT. Since the office of the ILO project director was located in the Institute of Rural Economy in Bamako, (in contrast to the Malian director of the DAEPT who was at Samanko), the ILO director was effectively in charge of handling most CAA administrative problems on a day-to-day basis in collaboration with the director of the DNFAR.

The other 3 technical assistants were responsible for developing and revising the teaching materials, schedules and methods at the CAAs They also provided inservice training to their homologues and future replacements.

During the course of the UNDP/ILO projects, all the Malian staff and teaching personnel affiliated with the CAA program received either specialized teachers training in Mali or short-term UNDP/ILO-financed training in Europe.

The DAEPT is now staffed by a competent and extremely able director, and assistant director, and three staff personnel who have had several years of experience with the CAAs and the specialized centers. (See Organigrams below). Unfortunately, with the departure of the ILO team, most of the trained Malian Division staff either left for more remunerative government positions, or now serve in non-CAA-related positions in the DNFAR. Consequently there is a critical need for a trained Malian technical support staff in the DAEPT to serve the current system as well as an expanded CAA program.

ORGANIGRAM OF THE DIVISION OF AGRICULTURAL EDUCATION AND PROFESSIONAL TRAINING



1) Now handled at the DNFAR
2) The assistant director is now in charge of the Secretariat Technique and Section II.

The CAA teaching personnel comprise 3 categories: agricultural teachers with at least the equivalent of a Technicien Superieur diploma, applied agricultural and livestock instructors who are former CAA students or graduates from the Veterinary School and qualified second cycle teachers. The number of teaching personnel at all 3 centers plus Dioro and Baguineda, by professional category is as follows:

TABLE 12

CAA and Specialized Training Center Teaching Staff, by Professional Category, 1976

Category	Number
Ingenieurs des Travaux Agricoles	4
Techniciens d'Agriculture	3
Conducteurs d'Agriculture	12
Moniteurs d'Agriculture	11
Maitre du second cycle	3
Assistants d'Elevage	3
Infirmiers d'Elevage	3
	39

According to the DAEPT, this total of 39 agents is five short of the required number to maintain the desired teacher:student ratio of 1:7 for the CAAs. As the CAA program expands, the DAEPT plans to recruit additional teaching staff from among a group of 114 Techniciens Superieurs who followed a special IPR teachers training program to prepare them to staff the Centres d'Orientation Pratique, COPs. Since this agricultural education program for school leavers has been terminated, the COP teachers were assigned to other posts within the MDR with the stipulation that they were at the disposal of the DAEPT and would be reassigned to the CAAs as the demand required. Nine COP teachers are already employed in the CAAs and ten COP teachers who still work in the few remaining and barely functioning COPs, will be posted to the CAAs during the next two years for in-service training to prepare for CAA-level teaching in the expanded program.

Most of the current CAA teaching staff are both undertrained and inexperienced. Rarely, if at all do CAA teachers have any field agricultural extension experience. As a result, their teaching tends to reinforce the already bookish orientation of the CAA training as well as perpetuate an elitist conception of peasant agriculture and the role of agricultural extension. (Part V) Teacher training and refresher courses are needed to improve the quality of CAA training.

5. CAA Budget and Staff Salaries

In 1974 the CAA "barebones" budget received only 50% of the total demanded. Based on available data and best-estimates, the 1975/76 budget did not fare much better, even though the 1975 request was significantly lower than the amount received in 1974. (See Tables 13a-b) These budgetary problems of the CAAs are similar to those faced by a myriad of other government programs which need foreign financing. The Ministry of Rural Development strongly supports the CAAs. During a period of extreme economic hardship the Government met its counterpart obligations to the ILO Project 72/006. In the face of continued financial difficulties the MDR allocation to the CAAs reflects the best of its capabilities.

Since the CAA teaching staff does not receive salary and fringe benefits comparable either to similarly placed teachingpersonnel within the Ministry of Education or to colleagues working for the Operations, most CAA teachers are very unenthusiastic about their jobs and spend more time fulfilling the administrative requirements to transfer out of the CAAs than in preparing lessons. (See Recommendation #5)

The unequal salary terms and conditions for CAA staff have existed for several years and they continue to pose a serious problem for CAA training. Despite the repeated demands by the DAEPT and the MDR to provide teaching bonuses to the CAA

Table 13a

OVERALL BUDGET STATUS OF DNFAR AND CAA PROGRAM 1974 BUDGET; 1975 REQUEST

	1974			1975		
	Personnel	Operating Costs	Total	Personnel	Operating Costs	Total
1. DNFAR Central Office and Services	78,582	32,000	110,582	117,705	73,201	190,906
2. CAAs and State Farms	122,404	55,500	177,904	64,665	65,800	130,465
3. TOTAL	200,986	87,500	288,486	182,370	139,001*	321,371
4. Total National Budget for MDR.	777,852	241,556	1,019,408	836,748	357,222	1,193,970
5. Total DNFAR/ CAA Budget/MDR Budget			28%			27%
1. 1/3rd DNFAR Central Office and Services	26,194	10,670	36,864	39,235	24,400	63,635
2. CAAs and State Farms	122,404	55,500	177,904	64,665	65,800	130,465
3. TOTAL	148,598	66,170	214,768	103,900	90,200	194,100
4. Total National Budget for MDR.	777,852	241,556	1,019,408	836,748	357,222	1,193,970
5. Total 1/3rd DNFAR-CAA Budget/MDR.			21% **			16%
6. Cost/Student= (331 students) = $ 1,370.						

* The Projet de Budget de Fonctionnement prepared by DNFAR for 1975 gives a total of 130,065 million MF.

** This figure seems high in comparison to other estimates calculated at other times with different figures which gave a cost/student between $ 600 - $ 1000.

Table 13b

ESTIMATED 1975/76 CAA AND DAEPT BUDGETS, MF MILLIONS.

		Personnel	Operating Costs	Total
1.	DAEPT	6,463 *	24,400	30,863
2.	CAAs.	41,671	49,120	90,792
3.	TOTAL	48,134	73,520	121,655 **
4.	DAEPT/CAA 1975 Budget Request (*Based on 1/3rd DNFAR costs)	103,900	90,200	194,100
5.	1975-76 Budget Estimates/ 75 Budget Request			62%

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* In the absence of other information this is 1/3rd the requested 1975 Operating Costs reported in the National Budget.

** Rounded off.

staff,* the Ministry of Finance is now asking the MDR to wait until the recommendations of the National Administrative Reform Commission concerning allowances and bonuses for MDR personnel are approved. Unless the salary conditions for CAA teachers are made equal to those of other teachers or agricultural personnel, the DAEFT will never be able to recruit and keep a competent and committed teaching staff and the quality of CAA teaching will continue to be second-rate.

6. Recruitment

Admission to the CAA is by a national examination open to young men between the ages of 17 and 20 who have completed 6 years of primary schooling. As the number of primary school students increases each year in Mali, both the number and educational level of students taking the CAA admission examination has risen. As Table 15 shows, in 1974 there were over 16 times the CAA candidates for the available places. The average educational level of CAA students is now 8th and 9th grade and some have even received the DEF. The ever growing number and educational level of CAA exam takers clearly indicates that the supply of more qualified CAA students will be assured for an expanded program in future years. Nevertheless, this reflects less a growing interest in making agriculture a profession than an effort to take the "exam of last resort" (la sortie de secours). For 6-8 grade leavers, it is a desperate attempt to obtain secure civil service employment. For 9th year leavers, the CAA exam represents a calculated effort to hedge their bets against failing the DEF and other post-primary professional education entrance exams.

* Note: The request for teacher bonuses has been based upon Decret No. 1968 of August 15, 1962 that provides bonuses for all corps of civil servants who "effectively teach". Future demands will probably be based on the bonuses available to agricultural personnel in similar categories within the MDR.

Table 15

Source: Division for Agricultural-Education and Professional Training, National Directorate of Training and Rural Animation, Ministry of Rural Development.

CAA ENROLLMENTS AND GRADUATES 1968/6. - 1976/77

Year	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
Number taking the Entrance Exam	1,089			1,200+	900+	1,700+			
Number invited to train	90		90	90	105	105	185	105	
Number of trainees in the first two years			(209)[1]	(218)	(219)	184 (239)	167 (259)	192[3] (291)[3]	
Number of trainees in third year								96[3]	96
—of which: Specialized Centers					73	69	72	60	60
C.A. Baguineda								10	10
C.S.R. Dioro								20	20
C.S.P. Tabakao								15/21[2]	15
C.S.Z. Sotuba								15/8 /	15
CAMs — CARs								16/22/	16
Operations									
IER								5/ 7/	5
Office du Niger								15/15/	15
Number receiving the C.A.P.A.	50	50	66	71	71	72 /76/	77 /72/	98	

1. The figures in parentheses represent the total enrollment at the centers for all three years.
2. Numbers in brackets and other figures cited by the Ministry of Rural Development. /
3. Mission unable to verify the discrepancies, eg. 192 + 96 = 188 not 291.

Under the current regulations which govern recruitment to the CAAs, the entrance exam process seriously impedes the effective and timely operation of the CAA program each year. Since the DEF exam results are not released until 1-2 months after the CAA school year begins in June, each year the CAAs must replace up to 50% of the first year class for those who were also successful DEF candidates. At M'Pessoba in 1975 for example, approximately 40% of the first year class was completed from the waiting list two to three months after most of the first year students began training. Clearly, this creates additional unnecessary administrative costs as well as critical problems for the continuity of the CAA training program.

Several solutions to this problem are now under study by the Government. Since the actual educational level of most CAA candidates is now 9 years of primary school, the DAEPT suggests that the DEF should be made the educational entrance requirement for the CAAs. This would provide a much needed and highly desirable increase in the general educational level of moniteurs and it would also improve and increase the level of general education courses offered at the CAAs. On the other hand, if CAAs students were required to hold the DEF they would also currently be eligible for a civil service classification equal to that held by a Technicien Superieur, or a classification that exceeds their current job responsibilities. (See Part VI which describes the Civol Service standing of agricultural personnel.) In order to solve this problem the Division proposes to reclassify moniteurs in a new public service category (C2), speed-up their entry into the civil service, or completely revise the system of professional agricultural training in Mali. Other policy-makers recommend that recruitement should be exclusively limited to 8th year school leavers or to those who have completed 7 years, but not 9 years of primary education. Still others recommend that all successful CAA candidates should be required to attend the CAA. In a country where even 9 years of primary education is a far cry from 7 to 8 years of primary schooling in the United States, limiting

recruitment to the 7th and 8th grade level would create unnecessary educational mediocrity among the corps of moniteurs. Obligatory attendance at the CAA, on the other hand, in addition to requiring a difficult-to-reach agreement with the Ministry of Education is needlessly restrictive and would probably have untoward, long-term results not only on the training program, but on the effectiveness and esprit de corps of the moniteurs.

The CAA entrance exam is written by the Ministry of Education which submits several types of questions for the approval of the DAET. The exam is administered throughout the country sometime between January and March each year, and corrected by teachers within the Ministry of Education who are reimbursed for their time. Written and corrected by the Ministry of Education, most of the CAA exam is devoted to general education subjects geared to the 7th year primary school level. Only the natural science question is designed and oriented around some elementary notions of agriculture. As such, the exam clearly favors the recent school leaver, especially the 8-9th grade students, rather than the young encadreur. Even though most encadreurs prefer to advance to the moniteur level by means of a professional examination, the current exam is prejudiced against the young, experienced encadreur who prefers the CAA certificat, which in turn improves his civil service status and his possibilities to advance professionally. While the DAET has not officially considered separate entrance exams for students and for encadreurs, policy-makers have recommended that the exam process be handled solely within the Division and without the participation of the Ministry of Education. This would give the Division more influence in writing the entrance exam and consequently, the possibility to emphasize its agricultural orientation. Allowing CAA personnel to correct the exams would also reduce the cost and increase the efficiency of the correction process. (This year for example the first-year CAA students will enter late because

of delays in the correction process due to the participation of the Ministry of Education).

7. Students Living Conditions

Each professional agricultural training center, except the CSZ at Sotuba, provides room and board to its students. Only the CSR-Dioro however is well equipped to house and feed satisfactorily its 30-35 students every year. At all the other centers, the sleeping and eating conditions vary from bad to worse.

Improved training facilities with electricity, running water and adequate sleeping and eating conditions will not create the "bright city lights" of the CAAs. All the centers are located far enough away from major towns to oblige the trainees to remain at the centers for the duration of their training. No effective and realistic goal is served by the populist notion that the so-called modern improvements, which are modest at best, will create an unbridgeable cultural gap between the moniteurs and the Malian farmer. On the contrary, better living and training facilities will improve training and might help develop a sense of prestige and professionalism among moniteurs.

8. Training Period

The professional training period for a moniteur lasts three years. Two years are spent at a CAA. At the end of the 2nd year, the CAA students list 3 choices for the third year of applied specialized training. (Because of the amenities available to forestry agents, a high percentage of 2nd year students make the CSF-Tabakoro their first choice). With the recommendation of the faculty at each CAA, the DAEPT sends the best students to one of the 4 specialized centers. The others go to the rural development operations, the Office du Niger, agronomic research centers or farmer training centers. (Table 15 gives the distribution of 3rd year students for the past 2 years). As more specialized centers are established, the

Table #16

DISTRIBUTION OF CAA GRADUATES

YEAR	AGRICULTURAL SERVICE																				
	CMDT	OACV	Haute Vallee	Riz Segou	Mil Mopti	Mil Nyeti	Lac Horo	Terekole (Kayes)	Mil Kaarta	F. Semanciere (Kayes)	Lacustre Gounjam	Textile Sikasso	Cult. Mar. Baguineda	Semence Babougou	IER	CAR	S & P	OF. U NIGER	IPR	TOTAL
1972	5	2	10	4		2					1		1	1	5	2				33
1973	6			8	10	8							4	1	14	5	17		2	71
1974	3	5	5	3	6	4	5	2	2	2		3	3		15	1	20			73
1975	2	3	2	3	3	5			2		2	1	2		10		18	19	2	71
TOTAL	16	10	17	18	19	19	5	2	4	2	3	1	2(10)	3	44	8	55	19	4	248

Note: Information supplied by the Division of Technical Agricultural Education and Professional Training with some revisions and additions based on documentation available from the employer services. No explanation currently available for the low number of graduates in 1972. The disparities between the number of CAA graduates placed for 1972, 1974, 1975 as shown in this table and the number of graduates receiving the C.A.P.A. as shown for the same years are probably explained by the graduates who have stayed in the CAAs as practical agricultural work instructors. Over the period 1972-75 the CAAs provided an average of 62 graduates per year. 46% of these graduates were employed by the Agricultural Services. The Five-Year-Plan suggests that an increasing percentage of CAA graduates should be assigned to the rural development operations, even though current data indicate that many of the past graduates have been assigned to either research or teaching postiions. The large numbers assigned to the Forestry Service reflects not only the relative popularity of the Service among CAA graduates, but also the demand of the Service as it seeks to upgrade existing cadres, establish an organized forestry service and provide for forestry development projects including nurseries, reforestation, and improved conservation programs.

DAEPT plans to send all students to a specialized center for training which will be coordinated with the relevant Operation.

Training for the 1st year class begins in June and continues until either January or February. (This year it lasted until March). The second year runs from June through December and the 3rd year for practical training begins in April/May and ends the following March. At this stage all 3rd year trainees take a week-long written and oral final examination in their speciality. The exam is administered by Division personnel with the assistance of selected staff from the agricultural development operations and others working in the Ministry of Rural Development. This year, graduates were distributed by speciality as follows:

Distribution of CAP Graduates
by Speciality and School, 1976

Speciality	School						
	Sama	% of Class	M'Pessoba	% of Class	Samanko	% of Class	TOTAL
Agriculture	13	40	13	42	22	63	48
Forestry	5	16	8	26	7	20	20
Horticulture	5	16	3	10	2	6	10
Rice	9	28	7	22	4	11	20
	32	100	31	100	35	100	98

Source: DAEPT

Upon successful completeion, the students receive the Certificat d'Aptitude Professional Agricole, C.A.P.A. Following this certification, the General Directorate of Agriculture distributes the graduates according to the available numbers and the requests by employer services. Since 1972, CAPAs have been distributed within the MDR as shown in Table 16.

After one year of in-service training, CAPAs are admitted into the civil service as moniteurs d'agriculture. If they perform unsatisfactorily during their first year of in-service training, they are automatically granted a second year. If they do

not perform satisfactorily during their 2nd year, they are not given a 3rd opportunity and are not allowed into the civil service. Statistics on the number of CMA graduates who do not become civil servants are unavailable. The estimated number however is very small and insignificant.

9. Training Program

The current study program for 1st and 2nd year CMA students was designed and implemented with the assistance of two UNDP/ILO projects which developed teaching materials and trained agricultural instructors and support staff for the CMAs. Despite the presence of CMAs since the colonial period, the study program was not well defined, teaching materials were inadequate and the practical training period nonexistent before the first Special Fund/ILO project MLI 3 in 1965.

The course schedule and timetables for 1st and 2nd year students is given on Tables 17a-b. Except for slightly more time devoted to theoretical agricultural studies in the 2nd year, both 1st and 2nd year classes spend about the same amount of time on the same subjects.

Practical Agricultural and Shop Work, TP, takes-up most of the students training week. Between 7 and 10 AM, 6 days a week, both 1st and 2nd year students are organized together into 3 teams in order to assist in the agricultural, livestock and shop work for the center and the state farm. Reactions to the utility and organization of TP are mixed. The last annual seminar of CMA staff directors and teachers recommended that more TP instructors be hired in order to separate the 1st and 2nd year students into 2 distinct groups. The seminar also sought to define the role of CMA agricultural instructors so as to exclude their responsibilities on the farm and to improve the coordination between CMA classroom and fieldwork.

Since many moniteurs lack previous experience with improved agricultural techniques, most CMA graduates interviewed during the course of this study acknowledge

Table 17a

CENTRES D'APPRENTISSAGE AGRICOLE STUDY PROGRAM.

Subjects and Activities	First Year		Second Year	
	Hours/Week	Hours/Year	Hours/Week	Hours/Year
Crop Production	6	216	6	216
Livestock Production	3	108	3	108
Rural Economics and Agricultural Extension	1	36	3	108
General Studies	6	216	6	216
Applied Studies	18	648	18	648
Study and Independent Work	5	180	3	108
Individual Study	5	180	5	180
Recreation	1	36	1	36
TOTAL	45	1,620	45	1,620

SUMMARY

Subjects	First Year			Second Year		
	Hours/Week	Hours/Year	%Time	Hours/Week	Hours/Year	%Time
Classroom Agriculture Studies	10	360	22	12	432	26
General Education Classes	6	216	14	6	216	14
Applied Studies (Field and Crafts)	18	648	40	18	648	40
Freetime and Recreation	11	396	24	9	324	20
TOTALS	45	1,620	100	45	1,620	100

WEEKLY CAA TRAINING TIMETABLE TABLE 17b

DAYS	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
CLASSES DES C.A.A.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
7 h 00	EVERY DAY, THE APPLIED STUDIES PERIOD DIVIDES ALL STUDENTS INTO THREE SEPARATE GROUPS (AGRICULTURE, LIVESTOCK, & RURAL CRAFTS).											
10 h 00	crop prod.	MATH	MATH.	crop prod.	crop prod.	MATH	GEO-GRAPHY	crop prod.	crop prod.	WRITING	WRITING	crop prod.
11 h 00	IND. STUDY	IND. STUDY	IND. STUDY	IND. STUDY	IND. STUDY	IND. STUDY	PHYSICS CHEMISTRY	LIVE-STK PROD.	IND. STUDY	AG. EXT.	SPELL-ING	crop prod.
12 h 00												
15 h 00	crop prod.	LIVESTK PROD.	RURAL ECON.	crop prod.	crop prod.	SPELLING	IND. STUDY	AG. EXT.	SPELLING	crop prod.		
16 h 00	LIVESTK PROD.	SUPER-VISED STUDY	SUPER-VISED STUDY	crop prod.	crop prod.	[illegible]	RECREA-TION	RECREA-TION	LIVESTK PROD.	RURAL ECON.		
17 h 00												
18 h 00	IND. STUDY AND WORK											

the overall utility of TP for their current work. On the other hand, two major criticisms of CAA TP raised by agricultural personnel demand some attention. First, during the field work with animal drawn equipment and sometimes with tractors, students are more often shown procedures and techniques rather than given the opportunity to practice them. As one young moniteur noted, while he was made familiar with the different kinds of ox-drawn carts sold in Mali, when a farmer came to him for assistance to assemble a recently purchased cart, the moniteur was unable to help him. Secondly, TP may apply some of the classroom agricultural principles, but it is basically nonadaptive and does not necessarily prepare moniteurs to work directly with the farmers. There is a glaring gap between agricultural field work in the CAAs and the need to adopt improved agricultural techniques to the varying realities of Malian agriculture.

The classroom agricultural training is similarly nonadaptive. Clearly, some teaching materials and a well-defined program of study are better than nothing at all. Nevertheless, the CAA courses are rehashed agricultural and animal production educational materials which have been written for French West Africa for the last 15 years. At the CAAs the courses are thorough, comprehensive, well-organized, and the dates of agricultural work described in the books have been changed to make the lessons real for Mali. But the educational materials do not show how particular agricultural principles are currently applied by Malian farmers, nor are the students told how they might find out how these principles are applied. As several agricultural people in the field have noted, the CAA training is too bookish (livresque) and doesn't sufficiently prepare moniteurs for what they are going to find in the farmer's fields. Despite efforts by the DNFAR to encourage the participation of the rural development operations in the CAA training program, students have no contact with working moniteurs or with the Operations until their third year, and they have

no useful microlevel farm management information available which might make their courses more realistic and adapted to the conditions of Malian agriculture. (When the DNFAR invited the directors of the various Operation to communicate their suggestions for improvements and new directions in CAA training, only 2 directors responded.) Furthermore, the 3rd year training period in the Operations is not well-supervised.

Given the responsibility of the CAAs to prepare moniteurs for a wide variety of jobs, the general educational courses are intended to make CAA students adaptable to different future job demands. The courses are designed to strengthen skills in French and mathematics in order to improve their ability to write reports and successfully fulfill administrativ work. Since the general education courses are geared to the 7th and 8th grade levels for students whose average education is 8th or 9th grade, the level of the general education courses may be too low to be effective for future moniteurs.

No professional courses based on the day-to-day work of moniteurs in the field, instead of all too readily available theoretical job descriptions, are offered.

Even if the courses were more adaptive, the CAAs currently lack even the most basic educational materials and teaching supplies. Despite quantity of materials supplied during the life of the ILO projects, well-worn blackboards are often the only available teaching materials in most centers. Teachers lack any documentation for preparing lessons and there is no functioning library for trainees and faculty. Most centers lack the transportation facilities necessary to take trainees on brief educational field tours.

As a result of these problems, the CAA training program for moniteurs, presumably the pivotal agents for agricultural development, remains isolated from the realities of Malian agriculture and the future job demands placed on moniteurs.

10. Women's Training Program

The CAAs do not offer a training program for women and women are not employed within the MDR at the same level and with the same responsibilities as moniteurs. The Government has a proposal to create a CAA level training program for monitrices under study.

This proposal suggests that trainees should have between 6-9 years of education and should be recruited directly from the areas in which they will work. The training period would involve one year of accelerated general education courses and two years of practical and theoretical training, followed by refresher courses after graduation.

The proposed method of training involves supervised practical village-level experience and an analysis of this experience upon returning to the center. (This method follows very closely that which should be incorporated in a CAA pilot rural development center. See recommendations.)

The staff of this womens' training program would be made up of one woman director, a woman teacher, a female nurse and one CTA in addition to relying heavily on visiting professors. Graduates of the program would have the same grade and civil service scale as moniteurs.

This proposal deserves careful study, not only for its training suggestions but the ultimate work, administrative rights and responsibilities of monitrices and the backstopping available to them.

11. Third Year Training Programs - Brief Description

a. C.S.A. - Diore

The C.S.A. - Diore was established in the late 1960s during the course of an FAO rice production project. The educational materials used at the center were written by the FAO and they have been only slightly modified by the current teaching

staff. Upon their arrival at the center in June, the 3rd year trainees are divided into 3 groups and assigned to live for 3 months with different families of rice growers in 3 different villages near Dioro. The students are given a sleeping natte, a kerosene lamp, writing materials and enough money to help pay their room and board. At the end of their live-in training, each group prepares a monograph on their village and each trainee prepares a technical-economic study of 3 farming units. The theoretical classroom courses begin in September after the rice fields are flooded and the major field work is completed. Courses are offered in farm machinery, hydraulics, extension, agronomy and farm management. The course schedule is defined weekly by the 5-man teaching staff. When possible, staff personnel from Operation Riz-Segou are invited to talk with the students.

The center does not have a library. The students do not have books, and the faculty lacks needed documentation. While the center is well-supplied with agricultural equipment, classroom equipment is either non-existent or unworkable.

b. Centre d'Application-Baguineda

The C. A. at Baguineda was established during the ILO Project Mali 3 and the practical training period was designed by ILO staff. During their year at Baguineda, trainees spend approximately onehalf of their time observing the work of moniteurs at the Baguineda State Farm and onehalf of their time directly with farmers who do not participate in the state farm extension program. The training period has been judged to be relatively successful, but the strained and uncertain relationship between the center and the state farm continues to hamper the effectiveness of the program.

c. Centre de Specialisation Forestier-Tabakoro

This center was created by the ILO project Mali 72/006 in collaboration with the Forestry Service in order to train forestry agents (preposes) after 2 years of

general agricultural training at a CAA. Before entering the CSF-Tabakoro, the third year forestry trainees first undergo 6 months of military training at the Segou military camp in order to prepare them for their future dual role as a state police agent as well as technician. Following the military training, future forestry agents go to Tabakoro and follow courses given by the Forestry Service staff from Bamako, in (fisheries), topography, and the forestry code. They also continue a physical training program. Applied training sessions are held either at Tabakoro or at the Faya forest reserve.

d. Centre de Specialization Zootechnique-Sotuba

The CSZ-Sotuba was also established by the ILO Project 72/006 in collaboration with the MDR Livestock Service. While the center is now used only for training veterinary nurses, in the long term it is hoped that the center can be used for short-term specialized livestock and milk production training to moniteurs.

e. Centres d'Animation Rural (CARs)

Each year several CAA trainees receive their 3rd year practical training in one of the 48 farmer training centers located throughout the country. Their first month is spent at the Samanko CAA for more training in agricultural extension. Following this short period, the trainees are sent to work during the growing season with a moniteur posted in a CAR. At the end of their stay, the trainees return to Samanko in order to present and defend their training report. The CAR trainees take the Agriculture specialty final exam and can be sent to either a CAR or an Operation upon receiving the CAPA.

C. Note on Proposals for a Reform of Professional Agricultural Education and Training

Since independence, professional agricultural education and training in Mali had undergone several controversial changes affecting the level of courses offered, and the length of the training period for different technical levels and diplomas.

While many of these chan s were impl mented in response to expressed needs for qualified a icultural p rsonnel, the/ have raised serious problems concerning the quality of personnel and their civil service status. In order to resolve these problems as well as establish a closer liaison between the training of junior level technicians at the CAAs, the DAEPT has recently proposed comprehensive reorganization o professional agricultural education and training. (See Part IV, Attach. following.)

This reform is based on six elements which affect the training and subsequent civil service stat s of agricultural personnel: level of training school, admission requirements, length of training, diploma and civil service scale.

According to the DAEPT these ambitious but sound proposals would help resolve the civil se vice related problems which are caused by the level of agricultural training offered, the admission of DEF level students into the CAAs, and the hierarchical org zation of MDR personnel within the national civil service. Furthermore, the DAEPT suggests that this reorganization of agricultural training will establish clear differences between training levels and permit all agricultural personnel at all levels to advance to the desired level depending on their qualifications. It also established a clear nd logical relationship between the training received and civil service classification.

Part V. EXTENSION

In orde to increas agricultur l production and promote rural development, the extension activities in all the Oper tions, except those producing irrigated rice, closely foll w the organizational pa tern of agricultural services established at independence. (See Table 18) Instead of paralleling the administrative structure, however, the Operations seek to defi e the limits of the field-level units by agricultural crit ria and by the fea ibility to provide extension services effectively. Thus, a "region" within CMDT may overlap parts of two or three administrative

Moniteurs, Infirmiers d'Elevage, Propôses des E & F, Surveillants du Genie Rural	Current Situation	Proposed
School	Centres d'Apprentissage and Specialized Centers.	No change.
Admission Requirements	Entrance examination open to those with a minimum of 6 completed years of primary education.	Diplome d'Etude fondamentale. (D.E.F.)
Length of Training	3 years: 2 years of theoretical training. 1 year of specialized practical training.	No change.
Graduation Requirements and Diploma	Final comprehensive examination leading to the Certificat d'Aptitude Professionelle Agricole (C.A.P.A.).	No change.
Civil Service Level	Category C.	No change.

Techniciens d'Agriculture, GR, Controleurs des E & F, Assistants Elevage		
School	IPR	IPR
Admission Requirements	"sur titre" - assigned after DEF.	By entrance examination open to DEF and CAPA holders.
Length of training	4 years: 3 yrs. of theoretical training with 1 yr. of practical training, plus a training period report.	4 years: 1 yr. preliminary training followed by a 2nd yr. selection exam; 2 yrs. of theoretical work. 1 yr. of practical training plus a training report.
Graduation Requirements and Diploma	Final examination granting the diploma of Technicien Superieur with one of four options: Agri., E & F., Elev or G.R.	Final examination granting the diploma of Technicien d'Agriculture.
Civil Service Level	B_1: Currently open only to conducteur d'Agriculture (CTA), a non-training title available only by professional promotion exam.	Category B_1.

Ingenieurs de Trauvaux: Agriculture, Livestock, Forestry and Rural Engineering.	Current Situation	Proposed
School Admission Requirements	IPR (Closest equivalent of training is to the Technicien Superieurs as cited above).	Entrance examination open to B.AC holders or the T.A. diploma.
Length of training		2 years of practical and theoretical work.
Graduation requirements and diploma		Final examination granting the diploma of Ingenieur des Travaux.
Civil Service Level	B_2	B_1.

Ingenieurs d'Agriculture, Elevage, E & F, and Rural Engineering.		
School Admission Requirements	IP... Assigned after the BAC.	IPR. Admission examination open to Ingenieurs des Travaux.
Length of training	4 years: 3 years of IPR and 1 year of pratical training with a training thesis.	2 years: 1 year at IPR and 1 year of practical training with a training thesis.
Graduation requirements and diploma	Final examination granting the diploma d'Ingenieurs des Science Appliquees with options in agriculture, livestock, forestry and rural engineering.	Final examination and diploma of Ingenieurs d'Agriculture, livestock, forestry and rural engineering.
Civil Service Level	A_1.	A_1.

Docteurs	Current Situation	Proposed
School	unavailable in Mali	IPR *
Admission Requirements		Assigned for specialized study with the fall Ing. degree.
Lenth of Training		2 years: 1 year at IPR and 1 year of practice with preparation of a dissertation.
Graduation requirements and diploma	~~Ingenieurs principal d'Agriculture~~	~~Dissertation defense~~, Docteur
Civil Service Level	A_2	A_2

Table 18

ORGANIZATIONAL STRUCTURE OF EXTENSION SERVICES IN THE RURAL DEVELOPMENT OPERATIONS.

	Suggested Civil Service Scale
All Operations except Operation Riz-Segou and Mopti:	
Region (of Zone in OACV)	A_1 - Ingenieur des Sciences Appliques, ISA.
Secteur Sous Secteur (OACV only)	B_2 - Techniciens Superieur [1] B_1 - ITA Conducteurs de Travaux Agricoles.
Zone d'Expansion Rural	C - Moniteur d'Agriculture
Secteur de Base	C and Encadreur Rural [2]
Operation Riz Segou and Mopti:	
Zone	A_1 - ISA
Casier	B_2 - ITA or CTA
Sous Casier	C - Moniteur Encadreur Rural

1. This is a non-diploma civil service promotion category which is obtained by professional examination only.
2. The Encadreur Rural is not a civil servant, but a contract hire agriculture employee subject to the Malian Work Code.

regions: a "secteur" may cut across more than one cercle and a ZER may cover more than one arrondissement in an effort to unify the extension activities in fairly homogenous agricultural areas. The irrigated rice development operations on the other hand, are organized on the basis of the efficient management of specified areas of irrigated rice fields rather than serving a specified number of villages.

Staffing the field administrative structure with agricultural personnel follows the principles of the National Civil Service. Administrative positions at the level of the zone or region are usually filled by Ingenieurs des Sciences Appliquées. The intermediate administrative levels including the Secteur, Sous-Secteur and Casier are usually staffed by Technicien Superieur or Conducteur, while the field operational positions (ZER, SB, Sous-Casier and Cellule) are held by moniteurs and encadreurs.

A. Philosophy of Agricultural Extension

Since the agricultural manuals prepared by the ILO projects are often the only documentation available to the Operations extension staff it is possible to talk about a common philosophy of agricultural extension for all the Operation in Mali. According to an outline prepared by the ILO MALI 72/006, agricultural extension is a form of technical education which teaches farmers to understand and apply new ideas and new techniques in order to improve their agricultural production. In order to achieve this objective, the future moniteur is reminded to be sensitive to the sociological and cultural aspects of technical agricultural problems. They are urged to determine the needs of the rural population and to work with rural youth associations as a means to popularize the acceptance of improved techniques. Furthermore, future moniteurs are encouraged to stimulate a demand by farmers for consumer goods while improving their agricultural productivity.

Moniteurs in the field faithfully reflect the principal lines of this philosophy. In response to the question, "What is agricultural extension?":

Moniteur, Action Riz- Sorgho	:	"Agricultural extension is to show peasants modern agricultural methods, to help them understand better and to show them the advantages of leaving old ways and adopting new techniques."
Moniteur, CMDT	:	"Agricultural extension is to improve rural life.
Moniteur, Operation Riz-Segou	:	"Agricultural extension involves increasing agricultural production and improving the socio-economic condition of farmers."
Moniteur, OACV	:	"Agricultural extension is a method of introducing new techniques."

Conspicuously absent from the CAC and the above-cited personal philosophies of agricultural extension is the notion that extension begins by being responsive to the farmers situation. On the contrary, as expressed by the head of the extension service in one Operation, extension begins by presenting the results of agronomic research to farmers and then employing the most appropriate teaching methods in order to get farmers to understand, accept and apply the proposed innovations. This philosophy of agricultural extension, or "popularization" is not unique to Mali. It is a common feature of the theory and practice of agricultural extension throughout French West Africa. It makes the farmer the object not the agent of agricultural development and it cannot sustain significant long-term increases in agricultural production, much less serve as the basis for rural development. On the other hand, this philosophy justifies, supports and sustains a highly centralized command-type structure for implementing agricultural extension programs.

B. Implementation of Extension Programs

Based on the results of agronomic research performed by a research unit within the Operation or by an appropriate research institute in Mali the extension and

training staffs in each Operation develop a yearly program of applied extension topics. Following the specific crop calendars, the agricultural improvement package(s), usually based on the growing and cultivation requirements of improved seed varieties, is transmitted topic-by-topic, step-by-step down the extension hierarchy to the moniteurs and encadreurs through frequent and regularly organized short in-service training sessions. When they are necessary elements of the extension t pic, improved seed varieties, agricultural equipment and other inputs on short-term credit are also made available for distribution by moniteurs and encadreurs. Once the agents have received their in-service training for each topic, they begin a series of meetings with villages and individual farmers at the rate of approximately one extension topic per month. For each theme, the extension agents usually requests the village head and his counsel rs in each village and hamlet within his district to fix a date for an information meeting. When the encadreur or moniteur is inexperienced or the topic complex, supervisory staff usually accompany the agent. If the topic involves an agricultural technique such as tracing straight planting lines or harrowing, most agents run a field demonstration immediately following the general information meeting. Field demonstrations are organized differently in each Operation. Some agents use demonstration plots with or without pilot farmers, pilot farmer field plots, or the fields of volunteers.

Following the group contact, extension agents may visit the farmers' fields on a regular basis. Usually this means that encadreurs and moniteurs visit and concentrate on the pilot farmers, (paysans pilotes, or paysans de points). (Pilot farmers are usually larger farmers with sufficient labor, equipment and capital to implement the suggested agricultural improvements with relative ease and minimal risk. Paysans suivis or paysans de points are also pilot farmers. As used by the CMDT in order to show the maximum possible impact, a paysan suivi is any farmer who accepts and

applies any one of the CMDT suggested agricultural production improvements.) In some cases, encadreurs and moniteurs may work on a one-to-one basis with the most "resistent" farmers. According to the few agents who use this technique, it takes longer to get significant results, but overcoming the resistance of the most recalcitrant often leads to a much broader and longer lasting impact on increased agricultural production. Whatever their specific techniques, agricultural agents submit regular activity and production reports which are summarized by supervisory staff and transmitted up the extension hierarchy. These reports and summaries should serve not only as a basis for professional evaluation but also to develop and refine extension topics for the coming year. In contrast to the pre-Operation days of agricultural production, this method of extension, organized through the Operations works. Equipment, seeds and other agricultural inputs plus crop purchasing are made available to more and more farmers in order to increase production and productivity. (Inadequate supplies and distribution of agricultural inputs as well as marketing and storage problems however, still exist.) Agricultural agents in turn are closely supervised and they are provided with either bicycles or motorbikes in order to facilitate their work. Furthermore, and in contrast to those agents who work in the zones hors operations, most encadreurs and moniteurs within the Operation generally reflect an attitude of having a job to do and are given the means to do it.

What makes the agricultural services work however, is also the base of the paradox of agricultural extension in Mali: The centralized command structure of extension in the Operations adequately provides inputs for farmers and support to extension agents, but this same structure is also basically unadaptive and discourages independent, innovative efforts to adapt extension topics to local exigencies. While the Operations effectively place moniteurs and encadreurs in direct contact with the farmers

as the pivots for introducing improved production techniques, the rigid organisational hierarchy obliges the moniteurs and encadreurs to be more responsive to administrative requirements than to farmers' problems. If moniteurs practice adaptive extension techniques, they adapt the extension topics at the margins only in order to present justifiable and satisfactory weekly progress reports.

The technical packages or extension topics introduced by the Operation do not require the strict acceptance and rigid programming demanded by packages based on the High Yielding Varieties. Most of the packages seek only to improve current practices. (The major exceptions involve: 1) the introduction of animal traction in parts of the 3rd, 5th and 6th regions where either the tse-tse-fly or the absence of sufficient forage has prevented the adoption of animal traction w/oxen and, 2) the introduction of post-harvest plowing of irrigated rice fields.) Contrary to present methods, the long-term success of the Operations might be more secure if based on the ability and flexibility of agricultural agents to adapt and introduce topics on a farmer-specific basis. Before this technique could be successful however, moniteurs and encadreurs would need to be trained and given the working flexibility to be able to work with the farmer's total farming system.

Agricultural extension in Mali remains crop specific, despite the popular notion that agents are polyvalent. Furthermore, women are excluded from extension activities, except for the unique case of Riz-Sikasso (an "action" within CMDT). (Operation Riz-Pluvial et de Bas Fonds is a special case because in the area of the "action" women have been largely responsible for rice cultivation.) Consequently, the major difficulties encountered by agricultural agents arise from their insensitivity to the additional labor and time demands required for the successful application of some extension themes. It is the rare agent who advises farmers how to schedule plowing and planting according to his crops, available labor and field location.

While this situation may be shocking, it is not surprising. The systematic collection and use of micro-level farm management economic data has never been undertaken in Mali and neither at the IPR or the CAAs do future agricultural staff learn anything about Malian agriculture.

c. Effectiveness of Extension Agents-Some Preliminary Measures

The effectiveness of agricultural agents, their capabilities to carry out required tasks, and their interest in agricultural work has been assessed by the following means: farmers' responses to the question whether it was advantageous to work with an agent, the evaluations of responsible officials in the Operations, the means of transportation available to agents for their work, the number of moniteurs who now wish to take a nonagricultural service professional or entrance exam, and their ability to explain how they helped farmers resolve the labor and time problems at different times during the growing season. (A more reasonable assessment of the effectiveness of the agents, in terms of promoting increased productivity would require a detailed analysis which lies beyond the data tabulation possibilities of this preliminary study. Despite the small sample of encadreurs and moniteurs interviewed, one crude measure suggests that it may be fairly representative. According to the statistics on moniteurs available from the National Administrative Reform Commission, the average age of 555 moniteurs in 1975 was 29 years. The average age of the 38 moniteurs interviewed for this study was 30.28 years.)

Most farmers being interviewed in a parallel study of farmer training, functional literacy, community development and agricultural extension in the Segou Region recognize clearly the advantages of working with the extension agents. Whether the individual farmers worked with an agent or not, they all noted that working with the agent was the way to increase production. Responsible officials in the Operations hold mixed views about the effectiveness of their extension agents. In those

Operations staffed with large numbers of foreign technical assistance personnel, there is a tendency to prefer the non-CAA trained encadreur over the CAA-trained moniteur. Presumably the encadreur is still "closer" to the farmers and less dissatisfied when posted in the villages. It should also be pointed out that encadreurs cost less than moniteurs and since they can be hired and fired at will, they provide an element of flexibility to the personnel policy of an Operation. In other Operations, most officials preferred to work with, and employ moniteurs who had a good agricultural base upon which to build, rather than encadreurs who do not necessarily have a long-term committment to agriculture. It was often noted that because of their specialized training, once moniteurs learned the lay of the land, they could be entrusted with more responsibility and independence in their work.

All other things being equal, and thanks to a policy accepted by all the Operations as a result of foreign financing, extension agents have an adequate and economical means of transportation to make the rounds among their farmers. Each Operation provides its personnel with a monthly transportation allowance over a two year period to cover the payment of a bicycle for the chefs de secteur de base and the chefs cellules. Chefs de UERs, chefs de sous-secteurs and de secteur receive an allowance to pay for a motorized bicycle, plus operation and maintenance expenses for the same period. After two years, the bicylces and motorized bikes are replaced. Among the moniteurs interviewed, 77% had mobylettes and 26% had bicycles (i.e., some had both). Sixty-eight percent of the encadreurs had mobylettes and 71% had bicycles (again a good deal of overlap, plus some double reporting, since most encadreurs don't want it known that they may have sold their bicycles in order to help pay for a mobylette). Except for the chefs secteur in OMCV who must cover a very large area, the agents in Action Riz-Soja who could more profitably use camels (or dune buggys), and some agents in the rice operations who literally work in the mud, the bicycles

and mobylettes solve one of the major problems of any extension organization and greatly facilitate the agent's work.

Another aspect of the moniteurs' effectiveness might be usefully estimated by their ability to describe some basic characteristics of their work situation. In this category, the moniteurs interviewed just barely make the grade. Rarely would moniteurs or encadreurs either understand a question about what they advised farmers to do in order to orgainize their work efficiently or be sensitive to the fact that farmers faced critical labor and time problems at different periods during the growing season. With some enlightening heartening exceptions, most moniteurs and encadreurs felt that the farmer's inability to undertake timely seeding or weeding reflected his laziness and disinterest in being a "good farmer".

If effectiveness involves the interest of moniteurs in their jobs, as measured by their interest in different professional examinations, then our findings suggest that the corps is interested at least in rural development work. Of the 40 moniteurs interviewed, 43% wanted to take a nonagricultural professional exam. Of these 12 moniteurs however, 8 wanted to take an examination which would lead into another area of rural development. In response to the question: "Do you want to take a nonagricultural professional examination?"

No : 28
Yes : 12

Examination Preferred	Nurber Wanting to take this exam
National Center for Community Development	6
Livestock Services	1
Forestry Service	1
DEF	1
Customs	1
Undecided	2
	12

It must be pointed out that this in no way assesses the extent to which interest in agricultural service measured this way exists as a function of the absence of other possibilities).

Admittedly, these measures of the effectiveness and interest are crude, preliminary and subject to a multitude of qualifications. There are only a tentative and unproved first step toward a qualitative assessment of Mali's agricultural extension personnel.

D. Agent-Farmer Relationships

While most extension agents need to improve their professional capabilities, the absence of clear lines between their personal and professional roles places moniteurs and encadreurs in close contact with most of the farmers in their districts. Villages usually provide housing for the agents, and often as the only French literate in the village, the moniteur and encadreur may act as a spokesman for personal or village business with the administration. Farmers often come to the agents' houses to seek agriculturally-related advice and information, as well as to discuss what they have heard on the radio concerning national and international events.

Moniteurs and encadreurs also establish a variety of personal economic relationships with farmers. The development of these relationships is facilitated by the relatively low turnover at this staff level.

One way to begin to explore the economic relationship between farmers and extension personnel, and also understand why they prefer to work with larger farmers, is to look at the relationships between the moniteurs and encadreurs' field holdings, work animals and agricultural equipment.

Do you have?:	Moniteurs		Encadreurs	
	Yes	No	Yes	No
Personal field	25	13	27	9
Work animals	4	34	3	33
Agricultural Equipment	5	33	5	31

As this table shows, most extension personnel have personal fields, but they do not have either the animals or equipment to work those fields. This creates the ideal

conditions for the extension agents to enlist the support of the larger farmer who has the animals and equipment, and usually labor available. For the agent, working with the larger farmer not only is a relatively easy way to arrive at respectable production figures in his area, but it also justifies asking the farmer to help cultivate his field in return for cash or perhaps some agricultural inputs which the agent can make available.

Extension agents also provide an informal means of promoting agricultural production through their participation in village age-group work societies, or tons. Although the agents do not have the time to participate in the field work performed by the ton, they may often substitute a variety of agricultural supplies or equipment for their presence.

Language and related ethnic group differences between the extension agent and his farmers do not appear to have a negative impact on the farmer-extension agent relationship. Language differences appear to create only short-term minor inconveniences. In some areas, the agents preferred to be "foreigners", since they could do their work without having to respond every day to the responsibilities and requirements of a salaried worker to his extended family.

The biggest stumbling block to effective communications between the Malian farmer and agricultural agents arises from the latter's youthfulness and lack of experience (See Table 19) in a society which bases authority, knowledge and skill on age. The young age of moniteurs and encadreurs by itself creates an initial skepticism on the part of farmers. But the youthfulness combined with the lack of practical field experience often gives rise to a reciprocal form of misunderstanding and distrust between the farmer and agricultural agent. In order to compensate for his age, insecurity and lack of familiarity with the agricultural techniques, the young agent tends to express an extremely derogatory view of the farmer's capabilities.

TABLE 19

Age Distribution of Agricultural Personnel - By Category

Ages	Moniteur level	CTA	ITA	ISA
20-24	39	1	3	2
25-29	265	34	12	18
30-34	114	67	25	20
35-39	27	33	14	14
40-44	16	10	7	13
45-49	11	9	1	-
50-54	32	4	2	-
55-59	35	5	1	-
60--	2	-	-	-

	Moniteur level (n=555)	CTA (n=167)	ITA (n=68)	ISA (n=69)
Average Age	29	34	33	33
Median	29	33.19	33.9	33.62
Maximum	61	58	57	43
Minimum	21	23	24	24

Source: Ministry of Rural Development

and to assume a paternalistic, elitist comportment with the farmers. Faced with a "foreign" (nonvillage) young man in his mid-20s, dressed in the lates fashions, who is asking him to accept a practice which may jeopardize an already high risk situation, the farmer is naturally very cautious about accepting the agent's advice. The farmer's caution in turn is interpreted as obstinacy which only reinforces the agent's (false, but self-protective) feeling of superiority and justifies an even more authoritarian approach toward farmers. After 3-4 years of experience, however, most moniteurs and encadreurs and an awareness that the farmers may have something to teach as well as to learn.

E. Rural Radio

Radio is a powerful and influential medium to support agricultural extension in Mali. Rural radio programming is an invaluable aid for agents in all of the Operations. OACV makes programming follow-up a special part of each chef de secteur de base work, and Action Riz-Sorgho has sought with considerable difficulty to establish "radio clubs" as part of its extension program. Friday, the farmers' day of rest, is devoted to radio programming directed primarily to farmers. During this time, as well as during the week, each major Operation has the opportunity to broadcast, on a regular basis, information relevant to farmers within the area of its activities. Furthermore, teams from Radio Mali often interview farmers and agricultural staff throughout the country. Without exception, moniteurs and encadreurs are enthusiastic about the utility of radio programming for their work. They not that it reinforces what they try to teach and gives the farmers more confidence in what they hear on the radio than they do in the first instance on what they hear from the extension agent. Problems however are posed in those areas where the activities of two operations overlap and where one operation has less developed programming. In these areas, farmers participating in the operation without much programming have been noted to accept the agricultural advice and recommendations they hear most often on

the radio, thinking that perhaps recommendations for one crop are valid for all crops.

F. Summary Comments

Changing and improving the extension system to make it more sensitive to the farmers' conditons (apart from the need to build the system from and with the farmer rather than down to the farmer) will require more than introducing the American theory of extension. The unadaptive command structure of the system is not only inherent in the commonly accepted definition of extension, but it reflects basic civil service distinctions within the extension services. In principle, moniteurs and encadreurs are agents of execution while their supervisors are agents of conception and supervision. The system rewards execution and encourages adaption only at the margins in order to achieve the successful execution of requirements. While most agricultural agents are quite adept at finding unique ways to improve and assure their personal well-being in the villages, as professionals they are discouraged from exercising independent action and analysis. Thus, just as the Operations themselves represent the response to an inherent administrative system which was found unsuitable for effectively promoting agricultural development, perhaps it is time to review the appropriateness of some of the underlying principles of the civil service for their adaptability to effective agricultural extension and the promotion of rural development.

VI. Brief Note on the Structure of the Civil Service and Agricultural Personnel. (Table 20)

The Malian National Civil Service is administered by the National Directorate of the Civil Service and Personnel within the Ministry of Labor. The rights and responsibilities of government career employees are defined by the rules and regulations of the Genreal Civil Service Statutes of Mali. These statutes place all civil servants in four levels and salary scales which are defined by the nature of the job, and the expected educational level needed to perform the job effectively. The highest level, A, is reserved for senior administrative and planning personnel who have received advanced, post-secondary education. Level A is subdivided into Class A2 and A1. Class A2 staff in the Agricultural Service hold the title of Senior Agricultural Engineer Their base salary scale goes from 1,350,000 MF/year, ; 2,610,000 MF/year, (or '2,880/year at $240/month-$5,556/year at $463/month) with a Classe Exceptionnelle level of 2,700,000MF/year,(or $7,760/year at $480/month). Training for the A2 class staff is unavailable in Mali.

Class A1 staff are now called Senior Engineers in the Applied Sciences with specialities in agriculture, forestry, livestock or rural engineering. (They were formerly Ingenieurs des Services de l'Agriculture.) The A1 base salary scale is 1,200,000 MF/year to 2,190,000 MF/year, (or $2,553/year at $213/month to $4,660/year at $388/month) I.S,A.'s receive four years of post secondary (post-Baccalaureat, or 12 years) education and training at the Katibougou Rural Polytechnical Institute.

The B level for middle-level management personnel is also subdivided into two classes. Class B2 staff are Techniciens Superieurs or Ingenieurs des Travaux Agricoles, the title officially recognized by the Civil Service. Techniciens receive four years of post-primary (DEF level) education at the IPR and specialize in either agriculture, forestry, livestock or rural engineering. This class is also open by professional advancement examination. Their salaries range from 750,000 MF/year to

TABLE 20

CIVIL SERVICE SCALE, TITLE AND EDUCATION
OF AGRICULTURAL PERSONNEL

Civil Service Level & Class		Title	Educational Requirements
A	A2	Ingenieurs Principaux de l'agriculture (Ing. Pl.) or Senior Engineers.	Baccalaureat plus foreign schooling.
	A1	Ingenieurs des Sciences Appliquées (ESA) formerly Ingenieurs des Services de l'Agriculture./1	Baccalaureat plus 4 years at IPR, Katibougou
B	B2	Techniciens Supérieurs /2 or Ingénieurs des Travaux Agricoles (CTA).	Diplome d'Etude Fondamentale plus 4 years at IPR or by professional advancement examination.
	B1	Conducteur d'Agriculture or Conducteur des Travaux Agricoles (CTA).	By professional advancement examination only.
C		Moniteur d'Agriculture (Certificat d'Aptitude Professionelle Agricole, C.A.P.A.)	7th grade level plus CAA training, or by professional advancement exam.
D		Auxilliaires Décisionnaires	
Contract-Hire (non-Civil Service)		Encadreurs Ruraux	Usually requires a minimum of 7th grade education plus in-service training.

Note: All Malian civil servants are subject to the rules and regulations and exercise rights and responsibilities under the General Civil Service Statutes of the Republic of Mali (Statuts Générales Des Fonctionnaires du Mali) which are administered by the National Directorate of the Civil Service and Personnel. (Direction Nationale de la Fonction Publique et du Personnel, in the Ministry of Labor).

Encadreurs are contract personnel who are subject to the rules and regulations of the Malian Labor Code (Code du Travail) administered by the National Directorate of Labor and Social Laws. (Direction Nationale du Travail et des Lois Sociales).

/1 The title was changed in 1973 to accommodate a 4 year post-secondary training period which allows specialized options in agriculture, forestry, livestock and rural engineering.

/2 This title is not officially recognized by the DNFP, but was adopted for the same reason as the I.S.A. diploma. It established a common diploma for those who have followed 4 years of post-primary training at the IPR which specializes in either agriculture, forestry, livestock and rural engineering.

1,650,000 MF/year, (or $1,596/year at $133/month to $3,5[illegible]0/year at $293/month). Class B1 is a professional advancement category only and successful candidates hold the title of Conducteurs d'Agriculture, CTAs. Their base salary scale runs from 675,000 MF/year to 1,500,000 MF/year, (or $1,436/year at $120/month to $3,191/year at $266/month).

Level C staff are junior level technicians. Within the MDR these are the Moniteurs d'Agriculture, the Forestry Agents (Préposes), and Veterinary Nurses (Infirmier Veterinaire) who have received 3 years of primary level professional training at the CAAs or the School for Veterinary Nurses. This level is also open by professional promotion exam. The base salary scale is 480,000 MF/year to 900,000 MF/year, (or $1,021/year at $85/month to $1,914/year at $160/month). Inorder to compensate for the absence of sufficient middle-level management personnel in the 1960's and to justify the employment of junior-level technicians in middle-level management posts, Moniteurs, Forestry Agents and Veterinary Nurses were elevated from Level D to Level C in 1972. With the continued absence of sufficient B level personnel, this has led to a situation of functional overclassification for C-level personnel within the MDR. As more and more Techniciens Superieurs graduate from Katibougou however, this situation should resolve itself. As Table 21 shows, the MDR is one of 2 or 3 ministries which relies heavily on C-level personnel.

Level D staff are the implementation staff who have received no special training. Their salary scale ranges from 300,000 MF/year to 720,000 MF/year, (or $638/year at $53/month to $1,532/year at $128/month).

The largest number of agricultural agents , Encadreurs Ruraux, are not members of the civil service. They are regulated by the Malian Labor Code administered by the National Directorate of Labor and Social Laws. Encadreurs are hired and trained by the Operations. Their salary scales and advancement possibilities are fixed within each Operation. (A first year Encadreur usually earns 15,000-20,000MF/month,

DISTRIBUTION OF STAFF, ALL MINISTRIES, BY SALARY CATEGORY (1974)

Source: C.N.R.A. - D.N.F.P.P.

	Category A	Category B	Category C	Category D	Category E	Diverse	Total	Level C % of Total
Presidency	70	59	46	31	1	10	217	21%
Foreign Affairs	65	38	19	9		7	138	14%
Labor and Civil Service	33	64	22	5		4	128	17%
Finance	159	214	275	502	18	27	1190	23%
Internal Defense and Security	105	126	240	342		25	838	29%
Justice	104	92	36	8		6	246	15%
Tansp. & Telecom.	110	228	443	410	28	15	1234	36%
Commerce	23	31	59	9		11	133	44%
State Interprise	132	79	45	26	1	5	288	11%
Industrial Dev. & Public Works	119	227	238	125		28	737	32%
Primary Education	37	2258	4970	25	289	28	7567	65%
Higher Education	408	291	166	20	6	19	902	18%
Information	27	31	20	15		3	96	20%
Health & Social Affairs	98	654	1059	331	2	43	2187	48%
Undetermined	50	96	117	83		47	393	30%
MDR	195	546	887	44	20	42	1734	50%

or $32/month at $384/year - $43/month at $516/year.)

Each level is divided into classes and echelons, plus a special listing for trainees. Each class and echelon has a corresponding indice which is used to determine the individual's salary. Levels D and C are divided into a 2nd class with 8 echelons and a 1st class with 5 echelons, in ascending order. Level B is divided into a 3rd class with 5 echelons, and a 2nd and 1st classe with 4 echelons each. Level A is divided into 3 classes each with 4 echelons and a Classe Exceptionnele, the top of the civil service. Advancement by echelon is automatic every 2 years, while an advancement into another grade is made by an administrative commission (paritaire) using the civil servant's evaluation forms from the 3 previous years.

In order to benefit from the automatic advances as well as the promotion by grade, the date of actual entry into service is extremely important in the life of the civil servant. This date is also critical in determining the titularisation, i.e. the date when a new civil servant is no longer a trainee, but a full-fledged civil servant, as well as calculating retirement benefits, etc. Because it is so crucial in a civil servant's life, the exact establishment of this date in the personal dossier is also the cause of endless administrative haggling, especially among agricultural staff in the field. Uncontrollable transportation and communication difficulties in rural areas, the use of these problems as excuses, and inefficient administrators create innumerable problems and delays in the system of automatic advancement.

Allowances and Bonuses:

As fixed by the General Civil Service Statutes, all civil servants receive a fixed salary and a housing and family allowance. In addition, civil servants may receive

the following kinds of allowance and bonuses:

Allowances	Bonuses
Compensation for the position held	Production and Efficiency Bonus
Indemnité forfaitaire	Seniority Bonus
Indemnité differentiel	Prime de Technicité
Allowance for Job Responsibility	
Transportation Allowance	
Per Diem Allowance	
Work Risk Allowance	
Compensation Allowance	
Overtime	

Agricultural personnel are eligible for the following discretionary allowances and bonuses, by category:

	Moniteur	CTA	ITA	ISA
Compensation for Position		X	X	X
Compensation for Job Responsibility				X
Transportation Allowance	X	X	X	X
Per Diem Allowance	X	X	X	X
Production Bonus	X	X	X	X

The additional allowances and bonuses available to different civil servants often make a significant difference in the take-home salaries of civil servants who are of the same level, class and categories. The availability of allowances and bonuses is determined by the financing behind the service and personal decision of the director of the service. The often substantial foreign financing available to the Operations has made it possible for the Operations to supply the motivation and working conditions for agricultural personnel which are better than any other possibilities within the MDR. In comparison, personnel outside the Operations are disadvantaged. As of January 1976, the National Administrative Reform Commission has sought without success to implement a reform which would regularize the distribution of allowances and bonuses. The proposed reform would severely curtail the flexibility and discretion of the Operations to distribute bonuses. Consequently, it has met with widespread resistance within the MDR.

In service evaluation:

While each operation may establish its own criteria for evaluating personnel, all civil servants receive a common annual evaluation by their immediate supervisor. This evaluation is given on 5 criteria which are graded from 1-20 or poor to excellent: professional comportment, self-discipline, method and organization of work, professional level and general interests (culture generale) (See Attachment 1).

Advancement:

Civil servants can advance from one corps to another up to the engineer level by professional advancement examination after 5 years of service. In order to protect their professional status, ISAs up to the present time have successfully lobbied to prevent ITAs from achieving the ISA level by professional exam. The following advancement, with 5 year waiting periods at the beginning and between each advancement, are possible:

Encadreur to Moniteur
Moniteur to Conducteur
Conducteur to ITA
ITA to ISA only by entrance exam to Katibougou

If the agent feels capable, it is possible to skip stages. Thus, a moniteur could take the ITA exam directly and the Encadreur could take the CTA examination.

Figures on the numbers of extension personnel taking the professional exams when they are offered are unavailable. As the Table 22 shows however, movement up the professional ladder is fairly regular.

The CNPER encourages the use of professional in-service training to promote encadreurs to moniteurs. Few Operations seriously pursue this activity. Where professional in-service training programs have been emphasized, as in the CMDT, they have been very successful. Of the 49 encadreurs who passed the moniteur professional examination in 1974, 65% were from the Sikasso Region, or the zone of CMDT.

TABLE 22

ADVANCEMENT BY PROFESSIONAL EXAM

EXAM YEAR	Encadreur to Moniteur			Moniteur to CTA			CTA to ITA		
	Exam Date	Results Given	Number Passing	Exam Date	Results Given	Number Passing	Exam Date	Results Given	Number Passing
1970	(unavailable)			12/70	2/71	0	12/70	2/71	1
1971	(unavailable)			7/71	1/72	35	7/71	1/72	12
1972	----------unavailable----------								
1973	10/73(?)	11/73	4				5/73	10/73	10
1974	1974	1975	49	10/74	7/75	32	12/74	5/75	21
1975	----------No Exams held in 1975**----------								
1976	in preparation			in preparation			in preparation		

TABLE 23

Encadreur to Monite[illegible]
by Professional Examinati[illegible], 1974
Distribution of Successful Can[illegible]ates by Region

Region	Kayes	Bamako	Sikasso	egou	Mopti	Gao
No. of successful Candidates	5	6	32	4	3	0

The biggest stumbling block to professional promotion possibilities appears to be the inefficient administration and untimely correction and publication of results. As a result of the delays in 1974, no professional exams were given in 1975. Furthermore, while the impact is impossible to assess without additional data, it is curious that the professional exams are given immediately following the heaviest field work period for most agricultural personnel, rather than in April or May after most extension personnel have had a few quieter months in which they may be able to prepare more adequately for the exam.

RÉPUBLIQUE DU MALI — Un Peuple - Un But - Une Foi.

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MINISTERE.................

ANNEXE IV

FICHE DE NOTATION

ANNEE 19

NOM : ______	Elements d'Appréciation	Note chiffrée (sur 5)
Prénoms : ______	1. Activite physique et professionnelle..............	______
Grade : ______	2. Discipline................	______
Classe : ______	3. Méthode et organisation du travail................	______
Echelon: ______	4. Connaissances professionnelles..................	______
Date de Naissance : ______	5. Culture Générale..........	______
Date d'entrée en service: ______	TOTAL...............	
Titres Universitaires: ______		
Connaissances accessoires: ______	Note CHIFFREE DEFINITIVE obtenue en faisant la moyenne des notes afférentes aux divers éléments ci-dessud..........	______
Décorations: ______		______

Situation de famille: ______

Nombre et âge des enfants: ______

Adresse : ______

Téléphone personnel: ______

EMPLACEMENT RESERVE A L'AGENT NOTE

L'intéressé peut donner, s'il le juge utile, des indications sur sa situation et les fonctions ou affectations qui lui paraitraient le plus conforme à ses aptitudes :

______

______

______

Le soussigné déclare avoir pris connaissance de sa note chiffrée ainsi que des notes partielles corvantde base à son calcul.

SIGNATURE

INDICATIONS A L'USAGE DES NOTATEURS

Sur proposition du supérieur hiérarchique immédiat du fonctionnaire noté, le chef de service ayant pouvoir de notation andique la qualification de l'intéressé au regard de chacun des éléments d'appreciation selon un barême de 0 à 20 les notes correspondant respectivement aux appréciations suivantes :

0 : mauvais ; I à 5 : médiocre ; 6 à I0 : passable ; II à I5 : bon I6 à I8 : très bon ; I9 à 20 exellent.

Apres établissement de la note chiffrée la fichecest communiquée à l'intéressé.

L'appréciation générale (au verso) n'est portée sur la fiche qu'après cette communication.

Réductions ou majorations (au titre de l'année ______ (au titre de l'année ______ (ou des années antérieures ______

TOTAL........... ______

Date de la dernière promotion...............

Grade..

Date de la dernière promotion...............

Echelon......................

Date à laquelle l'intéressé peut être nommé au grade supérieur : ______

______

VII. CAA PROJECT RELATED RECOMMENDATIONS

1. Organizational and personnel management courses and Africa and US training opportunities should be developed and offerred at all levels of professional agricultural education and training.

2. Statutory recognition and detailed explanations about the current budget situation and adequate budget support for the expanded CAA programs should be received before an expanded program is undertaken.

3. Innovative training programs, preferably in West Africa, for CAA teaching and administrative support staff should be developed as part of a total assistance package for the CAAs.

4. The equalization of salary conditions (allowances and bonuses) for CAA agricultural teachers should be made prerequisite for financing an expanded CAA program.

5. USAID should recommend that CAA entrance exams be designed for field agricultural personnel as well as for students.

6. USAID should recommend a revision of the general education courses at the CAAs to make them comensorate with the actual educational level of CAA trainees.

7. The use of a French speaking contract person, with experience in training and agricultural extension in French West Africa and preferably in Mali, to manage or evaluate the project should be explored carefully.

8. Although the DAEPT feels that the ILO produced CAA teaching materials are adequate and should not be tampered with, the training program requires an overhaul. Some components of a project to revise the current program and make it self-revising might include:

a. An invitation by the Minister of Rural Development to all the directors of the Operations and other major CAA graduate employers for a meeting to sollicit their comments and criticisms of the current program and suggestions for improving CAA training.

b. The creation of a permanent "Conseil de Perfectionnement" or review board composed of the DNFAR, DAEPT, CAA staff, representatives of the Ministry of Rural Development; the directors of the Operations and other employers of CAA graduates.

c. The establishment of a permanent means by which the Operations' staff people from the central offices to the moniteurs could offer seminars or assume short-term teaching responsibilities at the CAAs.

d. The establishment of a permanent link between the ongoing agro-economic research conducted by the IER and the translation of this research into CAA teaching material. (Equally important, considerable long-term institutional support should be given to the IER to develop and sharpen its capacity to undertake useful micro-economic farm management research).

e. The possibility of short-term exchange training between the CAAs and the National Center for Community Development should be explored.

f. A course in organizational and personnel management adapted to the managerial tasks required of moniteurs in the field should be developed.

g. One CAA should be developed as a pilot rural development training center which would be responsible for training agricultural as well as health and other government personnel working at the village level. This center could also be responsible for implementing pilot rural development efforts in cooperation with the Operations.

h. All aspects of a women's training component should be studied very carefully. Perhaps a women's program would offer one way to collaborate closely with the National Center for Community Development. A special training program for the interested wives (even if non-French literate) of current moniteurs should be explored.

VIII. More General, Long-Term Agricultural Education-related Recommendations

1. Considerable institution-to-institution (i.e., with a capable US university) should be provided in order to develop, expand and sharpen the capacity within Mali to undertake micro-economic farm management research in cooperation with ongoing agricultural production and development programs (e.g., Michigan State University, Cornell, CRED).

2. An expansion of Radio Mali rural radio programming should be encouraged and supported.

3. In order to establish continuous information links between agricultural cadres, the re-publication of the Bulletin de l'Institut d'Economie Rurale should be examined, endouraged and supported if necessary.

4. Ways should be found to make what agricultural documentation that does exist more widely available to extension personnel. Traveling libraries, etc). Furthermore, a study to asses the availability of all forms of ag-related documentation (journals correspondence courses, etc) and the development of possible publication and subscription programs should be undertaken.

5. Considerable support should be provided to the development of a functional literacy program in the 5th and 6th regions and in the Office du Niger, and to the subsequent publication of sufficient reading materials, such as weekly or monthly ag-related documents in the local language.

Annex 1.

FIELD VISITS

Feb. 16, 1976 Segou-Office du Niger--meetings with M. Dotianga Diamoutiné, Directeur Général Adjoint, M. Maigor, Chef Service Agriculture, M. Ba, Chef Bureau d'Etudes
OACV-meeting w/M. Amadou Diarra, Chef de Zone (V) Segou and Aliou Kanté, Responsible de la Formation, Ségou

Feb. 17-19, 1976 Sansanding-meeting w/M. Koné, Chef d'Arrondissement, Sansanding
ORS-w/M. Batie Oura Togola, Chef Casier Sossé; M. Madani Tall, Chef Adjoint Casier, Sossé; M. Dramane Kane, Chef de Zone de l'Alphabétisation Fonctionnelle Sansanding; Mmes. Seck and Koumaré, Centre de Développement Communautaire, Sansanding; M. Bakary Diallo, Chef Casier, Sibila; et les moniteurs et encadreurs de Sossé et Sibila

Feb. 20-21, 1976 Marina-meeting w/M. le Commandant de Cercle, Marina
ORS-w/M. Bilaly Diarra Chef Casier, Marina et plusiers encadreurs et moniteurs de Marina

Feb. 23-24, 1976 Konedimini-ORS M. Mamadou Coulibaly, Chef Casier, Konodimini and moniteurs and encadreurs

Feb. 25, 1976 Segou-ORS-M. Tafing Koné, Chef Service de la Formation

Feb. 26, 1976 N'Gara-ORS-w/M. Mahamedi Koumbia, Chef Zone Tamani; M. Issoufou Keita, Chef Adjoint de Zone, Tamani; M. Sidi Samake, Chef de Casier, N'Gara; Mme. Samake (Aminata Maigu), Responsable Centre de Développement Commonautaire, N'Gara; M. Aly Coulibaly, Chef de Zone de l'Alphabétisation Fonctionnelle, N'Gara; and several moniteurs and encadreurs

Feb. 28, 1976 Segou-ON-M. Ba, Chef Bureau d'Etude

March 1-3, 1976 Tamani-M. Zan a Moussa Daou, Chef d'Arrondissement, Tamani;
-ORS-M. Gaoussou Djire, Chef Casier, Tamani; M. Ibrahim Djire, Responsable de Centre de Developpement Communautaire, Zone de Tamani; and several moniteurs and encadreurs

March 4, 1976 Barouel-M. de Chef d'Arrondissement, Barouel:
CMDT-M. Soumaila Sidibe, Chef ZER and several moniteurs and encadreurs

March 5, 1976 Sanando-M. Chef d'Arrondissement, Sanando
CMDT-M. Chef de ZER, Sonzio Dembele and M. le Chef adjoint de ZER
CAR-M. Dissoko, le Chef de CAR and two moniteurs at the CAR

March 8, 1976 Bamako-CMDT-Messrs. Garimali, Chef de Service Formation and Moineau. Chef de Service, Vulgarisation
-M. David Brewin, World Bank, Abidjan.

March 9, 1976 Bamako-National Administrative Reform Commission: Mssrs. Serge Vieux, Mikolvsky, Chassain

March 10-12, 1976 Dioro-M. Abdoulaye Bill, Chef d'Arrondissement
ORS-Mssrs. Amadou Tandia, Chef de Zone Dioro; Seydou Dissa, Chef Casier Dioro I, Habibe Serra, Chef Casier Tien, Tien Soké; Baba Toure, Chef de Zone de l'Alphabétisation Fonctionelle; Mmes. Diallo et Sylla, Responsables de Centre de Développement Communautaire
CSR-Dioro, M. Demba Diakité, Directeur

March 14-15, 1976 Niono-ON-Mssrs. Tibou Fayinke, Chef Adjoint, Service de l'Agriculture; Dramane Sossa, Responsable de la Formation
Kogoni-IRAT-Mssrs. Goita Kalifa, Chef de la Station Mathia Diarra, Charge des essais de l'oire l'oration varietale

March 17019, 1976 M'Pessoba-M. Dentiè Dembélé, Directeur, CAA
Sikasso-M. Toussouf Sidibé, Commondont de Cercle, Sikasso
CMDT-Mssrs. Touba Koné, Chef Region; Michel Boussquet, Chef Action Riz
Niena-
CMDT-M. Mamadou Coulibaly (No. 1), Chef de ZER and some encadreurs
Sikasso-
CMDT-M. N'Golo Sanogo, Chef Secteur, Sikasso and several moniteurs and encadreurs.
Klela-
CMDT-w/several moniteurs and encadreurs

March 23-25, 1976 Mopti-OMM-Mssrs. Bocar Birahim N'Diaye, Chef Service Personnel et Comptabilité Tenanco Diabaté, Chef Service Formation; Sagha Ouedraogo, Chef Division de la Zone Hors Operation (DRDR): M. Touré, Chef Service Vulgarisature, M. le Chef Bureau d'Etudes and le Chef ZER and one encadreur at Bondiagara

March 26, 1976 Séyaré-ORM-Mssrs. Mabayan Sanghanta, Directeur ORM; Diadie Tembely, Jean Fort, Service de la Formation
San-OACV-M. Harouna Diané, Chef Secteur, San
CMDT-M. Mahamane Maigu, Chef Region, San

March 27, 1976 Segou-ON-Mssrs. le Chef et Chef Adjoint, Service Administratif

March 29-30, 1976 Bamako-Eaux et Forets-Mssrs. Sanankoua, Chef des Etudes et de la Formation; Dramane Cissé, Conseiller, Amadou Dembelé, Chef Personnel

April 1, 1976 San-CMDT-Mssrs. Maigar, Chef Region; Moussa Coulibaly, Formateur and several moniteurs and encadreurs
OACV-M. Diané, Chef Secteur and several moniteurs and encadreurs

April 2, 1976 San-ORS-Mssrs. le Chef et adjoint Chef de Zone, San; le Chef et adjoint-Chef de Casier, San-Overst et le Chef de ZAF.

April 7, 1976 Baguineda-State Farm; Mssrs. D'Anjou, Adjoint Directeur; Gulon, Adj, Chef Vulgarisation; Roy Schelper, PCV
Bamako-OHV-M. Moussa Kante, Adjoint Directeur

April 8-10, 1976 Gao-ARS-Mssrs. Sanago, Directeur; Tahirou Coulibaly, Chef Service Formation; Chaga Coulibaly, Chef Vulgarisation Seonkaraba Mounicoro, Chef Secteur, Moudakam; Amadou Cisse, Chef Secteur Forgho and 1 moniteur and 1 encadreur; Boubacar Ovedrago, Chef Secteur, Gargounai and 1 moniteur

April 12, 1976 Baguineda-State Farm-Mssrs. Bocar Sada Diallo, Directeur; Seydou Toure, Chef Service Vulgarisation, D'Anjou, Gulin and Schelper and several monite s

April 13, 1976 Bamako-OHV- M. C
I - M. Panier, M. Diane, Chef Service Personnel
DNFAR- M. Habib Diop, Directeur

April 14, 1976 Bamako-OHV-M. Sambo Traore, Chef Vulgarisation
CMDT-M. Garimal, Formation
IER-M. Lionel Seydoux, Conseiller Technique, 6th Region

April 15, 1976 Bamako-OHV-en tournée w/M. Traore; w/several moniteurs and encadreurs

April 16, 1976 Bamako-Agriculture-M. Ousmane Niare, Conseiller Technique
IER-M. Samake, Bibliotheque

Annex L.

Summary of IBRD Preliminary Proposal for CAA Project.

As part of the IBRD's Second Education Project in Mali, the CAA component would assist the GOM to increase the number and improve the training of junior-level agricultural technicians by:

a) providing better facilities at the Samanko CAA;
b) creating, furnishing and equipping a new CAA in the Mopti (Fifth) Region;
c) supplying equipment to the existing specialized center for rice production at Dioro;
d) providing one chief agricultural education expert as team leader for 2 1/2 years; and
e) offering 5 man/years of fellowship for the personnel of the Division of Agricultural Education and Professional Training (DAEPT) and of the CAAs.

At Samanko, new construction would include dormitories, classrooms and staff housing. Many of the existing buildings would be improved or converted to other purposes.

The IBRD also seeks the enactment of an appropriate legal statute for the CAA and the introduction of allowances for teaching staff.

Preliminary cost estimates, excluding construction, for the facilities at Samanko, in the fifth region, the new specialized center and the specialized center at Dioro are $100,000. The costs of the additional personnel which would be financed by the IBRD, for the new CAA and the new specialized center, for two years are estimated at $58,900. All technical assistance and fellowship costs are estimated at $250,000.

also be provided. The center would have a capacity of 40 students.

As of June, 1976, the preliminary construction studies for these two centers had not been completed.

At Dioro, the project would finance the purchase of appropriate equipment to enable the center to carry-out its training programs more effectively.

The IBRD tentatively plans 8 man/years of specialist services, including a chief agricultural education expert as team leader (2 1/2 years), an agricultural education specialist (2 years), an agricultural teacher (3 years) and a farm management/training consultant (6 months), but suggests that USAID and/or ORT furnish all the technical assistance except perhaps the team leader.

The IBRD also plans to offer 1 fellowship for 2 years in agricultural education management for a staff member of the DAEPT and ten short-term fellowships for CAA teachers in the areas of rural engineering, extension and teaching methods.

During negotiations the IBRD seeks to encourage the establishment of arrangements to ensure the close cooperation between the Samanko CAA and Operation Haute Vallee and Operation Arachide et Culture Vivrieres, and between the proposed new CAA and the four rural development Operations in the Mopti Region.

The IBRD also seeks the enactment of an appropriate legal statute for the CAA and the introduction of allowances for teaching staff.

Preliminary cost estimates, excluding construction, for the facilities at Samanko, in the fifth region, the new specialized center and the specialized center at Dioro are $100,000. The costs of the additional personnel which would be financed by the IBRD, for the new CAA and the new specialized center, for two years are estimated at $58,900. All technical assistance and fellowship costs are estimated at $250,000.