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EVALUATION

MALI: OPERATION MILS-MOPTI

(688-0202

AGENCY FOR INTERNATIONAL DEVELOPMENT

1982

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FOREWORD

This evaluation report responds to a very thorough and demanding scope of work prepared by the USAID Mission, Bamako. We have tried to deal with the many concerns expressed in that scope of work and to answer its many questions. In some cases, we have been forced to limit or reserve our comments due to a lack of data. In those cases, we have recommended actions to obtain the data for future analyses or project design.

The report follows a fairly standard format. The Executive Summary contains every major finding and important recommendation. A careful reading of its 27 pages, and the synthesis of recommendations which immediately follow, should provide Mission and AID/W management with the information necessary to decision-making both as to the need and usefulness of continued assistance to basic grain production in the project area and also as to how the project should be carried out.

The sections on Project Management and Financial Management describe in great detail difficulties and problems observed by the team and ways to deal with them. These sections are intended to provide persons directly charged with the project and its finances with guidance on how better to meet their respective responsibilities.

The section on Project Components, and its various sub-sections, is more technical in nature. The information and recommendations provided should give the generalist a clearer understanding of the technical aspects of the project. They should particularly interest the specialist seeking to understand the project's problems and how he/she may contribute to their resolution. The section on Engineering deals with both a separate component of the project, road building, and with engineering problems affecting the project as a whole.

Finally, the entire report, as well as its various sections, is designed to support the overall conclusion of the evaluation that basic grain production in the Fifth (Mopti) Region of Mali is worthy of continued AID support provided that prompt and effective actions are taken to correct the deficiencies herein described.

PREFACE

The team that gathered together in Sevare in mid-February 1982 consisted of five persons from Development Associates, Inc., under contract to AID, the USAID Mission anthropologist and an agricultural economist from the Institute of Rural Economics (IER) of the Ministry of Agriculture. The team members and the parts of the report for which they were primarily responsible were:

Frederic Bergier, Civil Engineer
- Section VI. Engineering

Amadou Camara, Economist
- Annex III. Credit
- Annex IV. Marketing

Gerald Cashion, Anthropologist
- Section V B1. Animal Traction Credit
- Section V D. Village Associations
- Section V E. Action Moulin
- Section V E. Blacksmiths Shops

Alan Fleming, Agricultural Economist
- Section V B. Agricultural Credit
- Section V C. Agricultural Marketing

Parke Massey, Management Advisor
- Section I. Executive Summary
- Section II. Summary of Major Recommendations
- Section III. Project Management
- Section V E. Wells

Sanath K. Reddy, Agronomist
- Section V A. Agricultural Research and Extension

Charles Wilding-White, Financial Advisor
- Section IV. Financial Management

Mr. Parke Massey also acted as team leader and was responsible for final organization and editing of the complete evaluation report.

The assignments listed above do not adequately indicate the contributions made by each member of the team to the work of the others. During the four weeks at Sevare, all of the team but the engineer (who finished his field work in a little over a week) met regularly in the evenings for an exchange of ideas, knowledge, concepts and experience.

The contribution of Gerry Cashion was very special. He organized, scheduled and conducted the various field trips out from the main base. He advised and gave direction on protocol and inter-personal relationships. He used his skills as an interviewer to develop information needed by other team workers.

We had expected Amadou Camara to act primarily as an advisor, giving us the Malian perspective. Instead, he became a very integral part of the team. He worked very closely with Alan Fleming and many of their ideas were thrashed out jointly in long sessions of discussion and interchanges. Mr. Camara wanted to make his own separate contribution and his material is included as additional and supporting views on credit and marketing, in Annex ~~B~~ III and ~~C~~ IV.

During the team's stay at Sevare/Mopti, we were joined for part of the time by Mr. Kurt Fuller, Project Officer, and by Mr. Robert Shoemaker, Design and Evaluation Officer. Both made major contributions to our knowledge and understanding of the project, its setting in the Mali context and its part in the overall U.S. assistance program. In Bamako, we had substantive discussions with all elements of the Mission involved in the implementation of the project or its supervision. We received excellent logistic support from the USAID Mission and we were received in a very open atmosphere despite the obvious fact that some of the team's findings were bound to be critical of past and present Mission actions or practices.

Finally, the team wishes to express its very special thanks to Miss Linda D. Smith, who was contracted in Bamako as the team's administrative assistant. She prepared vehicles, supplies and equipment for the trip to Sevare/Mopti. She got the team established in its quarters. She handled all logistics while in Mopti, including supervising the cook, handling the group's subsistence funds, controlling fuel, vehicles and chauffeurs, keeping track of individual whereabouts, and after long work-filled days, undertaking occasional secretarial tasks, including preparation of preliminary recommendations for presentation to OMM management. After our return to Bamako, Miss Smith demobilized vehicles and equipment and assisted in the logistics of getting this evaluation written, reproduced and organized. It is literally true that this evaluation could not have been carried out without her assistance.

I. EXECUTIVE SUMMARY

A. Introduction

The United States Agency for International Development (USAID) has been assisting the Government of the Republic of Mali (GRM) in a project to stimulate the production of millet and sorghum since 1972. The project is executed by the Operation Mils-Mopti (OMM), a financially separate entity within and under the supervision of the GRM Ministry of Agriculture. The project is being carried out in the Fifth Region of Mali in the central part of the country over 600 kilometers to the north and east of the nation's capital. This area, which includes a river delta, a high rocky plateau and a wide, mostly sandy plain, is the country's major millet/sorghum producing area. The plateau also produces garden vegetables (mostly onions) and the river delta produces rice (supported by a separate World Bank financed project).

OMM was created by the GRM in May 1972 and received its initial financing from grant of U.S. PL 480 local currency funds. Total funding through 1975 was about $1.5 million equivalent. This permitted the organization to build a staff and acquire some equipment. Although various ancillary tasks have from time to time been attached to the Operation, its main task has been to stimulate the production of millet and sorghum. It has worked to increase both productivity and the area cultivated. It has provided an extension service and a supply service (cash and credit). At one time, an announced purpose of the Operation was to increase the marketing of the cereals produced. Unfortunately, the intervention into marketing has been counterproductive to the other announced purpose, the increase of total production.

In February 1976, AID authorized a grant to the GRM for Operation Mils-Mopti with an estimated life of project (three years) cost to the U.S. of approximately $6.0 million. The first year grant amount was $2,189,000. Subsequent additional obligations raised the grant to $5,489,000 by February 1979, of which $4,442,000 had been sub-obligated as of that date.

By June 30, 1981, when Phase I expenditures stopped (Phase II Agreement had been signed in April, 1980), total obligations amounting to $6,288,000 had been expended.

This project was evaluated in February, 1979. The resulting report pointed out a number of difficulties that had impeded progress toward project purposes and made several recommendations for changes in project operations.

Recommended were:

- a marketing system based on producer price supports;
- strengthening the OMM capacity for developing and using socio-economic data; and
- the development of village organizations.

In the area of management, the report recommended technical assistance to OMM in financial management and noted that the failure of the USAID to provide a full-time project officer to the project had contributed to some project failures. This evaluation made no specific recommendations as to the long term future of the project but clearly implied that with some improvement in management, concept and direction, the project was well worthy of further AID support.

In July 1979, a Project Paper was submitted to AID/Washington requesting the authorization of a new grant to the GRM for Phase II of Operation Mils-Mopti. The grant proposal was for $9,962,000 to finance the project through FY 1983. The Project Paper took note of the recommendations of the evaluation report and contained provisions for improved management, a refinement of project purpose and the addition of certain project elements. The paper also proposed evaluation in the spring of 1981, about halfway through the planned life of the project, and in 1983 at the end of the project.

A project agreement was signed in April 1980. The agreement defined the project as "the provision of technical assistance, training and goods and services required to increase the production and productivity of rain-fed crops in the Fifth Region of Mali." The agreement listed eight activities which would make up the project. They were:

- a strengthened planning and statistics division;
- renovation of agricultural research facilities;
- a broader training program;
- formation of village associations;
- expansion of the OMM credit fund;
- new equipment and financing for road construction;
- training of blacksmiths and provision of vehicles; and
- equipment and millet mills.

The project agreement specified (Section 5.1) that joint evaluations of project implementation would take place during the second and fourth years of the project. In December 1981, USAID requested contract assistance to carry out a mid-course evaluation of the project. A detailed scope of work was proposed on the basis of which a contract was signed with Development Associates, Inc., of Arlington, Virginia, to provide an evaluation team. This team, consisting of a management/information specialist, an agricultural economist, an agronomist/extension specialist, an accounting specialist and a civil engineer, met in Washington, D.C., for a one-day briefing on February 10, 1982. They arrived in Bamako, Mali, on February 11 where they spent a week in briefing and reading project documents. On February 18, the team moved to Sevare, the headquarters near Mopti of the Operation. The team was joined there by the USAID anthropologist (six years' experience in Mali) and an agricultural economist from the Institut d'Economie Rurale of the Ministry of Agriculture. The period February 18 to March 18 was spent in the project area conducting field trips and interviewing OMM officials, extension agents, other field personnel and peasants involved in or affected by the project.

B. Program and Policy Issues

The evaluation team has been asked to address certain programmatic and policy issues that should be considered in the evaluation of all USAID supported development projects, not just this one. These issues are included in various discussions throughout this evaluation report, both directly and indirectly. It

seems appropriate, however, to address them here, specifically, separately, and with some primary recommendations included.

1. Management and Budgetary Capabilities

While the project has suffered from a number of management failures, detailed below, the project is clearly within the management capability of both the OMM and USAID. The organization of OMM is appropriate to its main tasks, its headquarters staff is adequate in numbers and qualifications though seriously in need of some technical assistance. USAID has the resources needed for monitoring and for logistic support. The project has suffered from an excess of ancillary tasks attached to its main purpose. Wells, roads, blacksmiths and millet mills are all useful but their introduction into the project has resulted in an element of management confusion. The project should be more sharply focused on activities contributing directly to the goal of increased production.

The project is moderate in size and cost, the planned grant expenditures have only been slightly over $2 million per year, clearly appropriate for the area of coverage and the purposes of the project. Its size and focus seem consistent with overall USAID mission strategy. The demands on the USAID operating expenses budget are reasonable; a "full-time" project officer, monitoring cost including travel, general management and supervising support does not seem to represent any great cost burden. At the time of this evaluation, however, the GRM seemed to be suffering a financial crisis that may reflect a chronic condition. The GRM is responsible for paying the base salaries of permanent civil servant employees attached to the program. They have apparently met this obligation only late and with difficulty. This is a generic problem, common to other projects and other donors. We recommend that it be dealt with in a multi-donor context, probably by an agreement to reduce development demands on the GRM budget.

2. Financial Accountability

The financial management of the project does not meet acceptable standards of financial accountability. Budgets are inadequately prepared, submitted

tardily and do not adequately reflect planned expenditures. Budget line items do not match agreed financial plans. Requests for reimbursement do not follow budgets. In the accounting system, controls to prevent over-subscription of budget line items are inadequate. Inventory recordkeeping and control is only partially adequate. The evaluation of 1979 recommended technical assistance to the OMM financial office. The project paper promised 12 months of specialized technical assistance in financial management to be provided in the first year of project implementation. Annex I of the Grant Agreement stated that the service of a financial management consultant should be provided. Problems of financial management have plagued this project since its inception. Letters of implementation are mainly devoted to financial management problems. The USAID controller has worked very closely with project officers and OMM management trying to resolve problems and differences.

Unfortunately, the promised technical assistance was never provided. At the moment, the project is devoid of all financial resources. We make two recommendations. For the short term, technical assistance must be provided immediately to establish adequate accounting procedures and controls so that USAID disbursements can be resumed. As soon as possible thereafter, long-term technical assistance should be provided in the form of a financial manager. This individual should be made available for the balance of project life under the current agreement. If this project is to be continued as a valued element in AID's assistance program in Mali, future continued financial technical assistance should be carefully considered. The defined technical assistance task must not be limited to advice; it must involve actual management operations, including authority over budgets, expenditure controls and reimbursement requests. This technical assistance should provide on-the-job training through instruction, example and demonstration.

3. Economic and Financial Feasibility

The project's economic impact is almost impossible to measure precisely over the medium term (say ten years) because grain output is determined by an exogenous variable (rainfall) that cannot be controlled and whose statistical impact has not yet been isolated. We do have rainfall statistics, over a long time span, and broken down in time and space. The Fifth Region contains a

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number of microclimates created by land formations, wind patterns and water flows. These micro-climates change from year to year and even from month to month. One area may receive rainfall in sufficient amounts, beneficially distributed over the growing year. Another area, only a few kilometers away may receive less water, less well distributed. With the same inputs, output will vary widely by as much as 100 percent. With a minimum of inputs, labor, selected seed, working of the soil, natural and chemical fertilizer, effective weeding, the rain favored area will tend to outproduce a rainfall-short area which has received a greater input effort. Moreover, the yearly improvement in output expected by changes in inputs or in cultivation practices are statistically smaller than the yearly variations in output caused by the rainfall determinant. Although we may have a wealth of micro-economic, anecdotal data showing that certain practices result in increased output at highly positive benefit-cost ratios, we still cannot measure overall project success or failure. For this reason, we believe that the Economic and Statistics Division of OMM should increase its efforts to develop input/output data at farm, village, and sub-regional levels to be combined with detailed rainfall data in an analysis to determine at least the general magnitudes of the project's impact on production. Software required to process the data is probably already available; it is the detailed information that is lacking. Of course, we have noted that farmers -- poor, marginal, subsistence farmers -- are already investing in inputs now available from and recommended by the OMM agents. This indicates a recognition of project economic benefit by those who are taking the only real economic risk involved. Moreover, we can isolate one statistic. OMM economists estimate that a grain surplus of about 30,000 tons will be marketed in 1982 after meeting the needs for auto-consumption and security stocks of the peasant producers of nearly 120,000 tons. The history of grain production since the Great Drought would lead one to believe that any substantial surplus over immediate consumption need is a measure of OMM success. Given world grain prices and demands in other areas for petroleum based inputs, the project is economically feasible.

The question of subsidies is more complex. The project provides inputs at prices that contain a high element of subsidy. The OMM services in extension, provision of inputs, credit and marketing are, of course, financed by a foreign assistance contribution or from the nation's general revenues. Credit

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is at a subsidized rate. On the other hand, the peasant has long been required to sell part of his output at a below market price that represents a subsidy to the urban consumer. Over the long term, the various elements of direct subsidy can be eliminated. As the peasant receives a market determined price for his output, he can pay a market determined cost for his inputs. This long term process can be speeded up. Subsidies can and should be gradually removed. As OMM increases its efficiency in delivering needed inputs, and as continued market liberalization brings higher returns to the farmer, especially the more efficient farmer, as the private sector enters the input market, and as the farmer, organized into his village association, comes to rely less on the state, subsidies will become unnecessary. That the provision of agricultural services to its largely agricultural population will long remain a Malian national budget responsibility is undeniable. That international donor assistance in meeting this responsibility will long be required seems equally undeniable. It is in the interest of economic rationality that the team makes a major recommendation. The grain marketing system carried out by OMM should be based on price support in an essentially free market. It should provide a floor price for the producer on which he can base his investment decisions. With such a marketing system in place, the need for subsidized inputs should disappear.

4. Recurrent Costs

The project has incurred substantial costs for construction and for equipment. Additional AID financed expenditures for construction and for equipment are contemplated. Maintenance of buildings and especially of equipment represents a major element in expected future cost requirements. Motor vehicle operating costs, including fuel, lubricants, replacement parts and repair services are nearly equal to personnel costs in the total operating cost budget of the project. Somewhat over half of project personnel costs are now borne by the national and regional budgets of the GRM. USAID supports the balance of personnel costs and all other operating costs. AID support for the project is now scheduled to end in FY 1983. It is very doubtful that the GRM could, at that time, take over the full operating costs of OMM. However, if assistance to OMM is continued as part of a longer term commitment, any future project agreement should provide for gradual assumption of operating

expenses. Less important costs should be assumed first. In ascending order of magnitude,these might be: office and building maintenance, salary supplements and allowances, motor vehicle maintenance, contracted personnel, motor vehicle operations.

Under conditions of proper management and effective financial control, the credit program and the marketing support operations of OMM should be self-supporting.

In summary, while there is little possibility that the GRM could begin to carry the full burden of OMM operating costs within the near future, planning should begin now for the gradual assumption by the GRM of at least some of the costs.

5. Prospects for Private Sector Participation

The basic purpose of the project and its individual design elements support a private enterprise, the small peasant owned and operated agricultural enterprise. Moreover, the peasant sells most of his surplus to private dealers, his product is transported on privately owned trucks, camels and donkeys. The peasant's small cash resources are spent (after taxes) in that tiny, private commercial sector that exists in a remote area of Mali. This does not represent "adequate emphasis on the role of the private sector in planning, management and financing of project activities." At the current stage of project operations, the modern private sector is pretty much limited to selling not very large quantities of agricultural chemical inputs to OMM for distribution to the peasants on short term credit or for cash. There exists, therefore, the danger that as OMM expands and/or intensifies its operations, as it attains a certain measure of success, it could become a state agricultural input supply monopoly. At the moment, the basic infrastructure to support a meaningful private sector intervention is not in place. Roads, transport equipment, storage facilities, distribution outlets, a monetized credit system, trained merchandisers, a knowledgeable, discriminating clientele are all underdeveloped. The creation of these necessary conditions must be part of the hoped for result from a successful project carried out over a number of years. If we expect these favorable

conditions to exist, planning for the eventual private sector intervention should now be included in planning for the project's future. We would suggest, in any redesign or continuation of the project, the introduction of an experimental private sector activity on the supply side. It should include jointly determined expected levels of demand, establishment of one or more private input distribution (sales) points and at least partial monetarization of the credit system.

On the output side, we recommend, starting now, a continuation of the efforts of the GRM to establish a truly free market in basic grains. The intervention of the Government should be limited to establishing an effective support price mechanism designed to protect the peasant from unscrupulous exploitation and, by assuring him a market outlet at a previously established price, encouraging and informing him in his investment decisions, i.e., what to plant, when, where, how much and with what inputs, and how to work his land.

C. Implementation of the Project

1. Project and Financial Management

In evaluating the management of Operation Mils-Mopti, we have discovered that an entire section of the report had to deal with financial management. In fact, while overall project management needs a thorough overall, and other project elements are the subject of important recommendations, in both the short and medium term, financial management reforms are the key to continued support for and implementation of the project.

a. General Project Management

We found the basic design of Phase II of the project sound, appropriate to the purpose and manageable. We did find that the addition to the basic design of a number of ancillary activities such as grinding mills and retail stores was a mistake and unduly complicated project management. We found that the basic implementation plan was good. It called for a full time project officer, appropriate technical assistance in certain

management tasks, including financial management, and it recommended a collaborative style, later picked up in the Grant Agreement for the joint development of essential implementation plans and programs. The implementation plan was never implemented.

Probably the single most important project management mistake was the failure in 1980 to prepare an Implementation Letter No. One for the project setting forth exactly the responsibilities and expected activities of both parties in carrying out the project. That this essential project management tool was never produced can only be ascribed to careless management and inadequate supervision of an inexperienced project officer.

For some time, the project lacked almost all project officer support in the sense that either there was not one available or time available for this project was so limited as to make effective monitoring impossible. The project officer now assigned is doing extremely well but he still needs to establish his own management, monitoring and reporting system and he will need guidance and help from his supervisors to do it. Happily, the new agricultural development officer is both experienced and interested in project management.

Recordkeeping for the project is inadequate. No progress reports are prepared, reports of site visits, conversations, decisions taken, etc. are nearly non-existent. This is, of course, symptomatic of the lack of project management and monitoring system.

The present evaluation is based on a very thorough scope of work and the evaluation team hopes that it has responded with a thorough, complete, useful and positive report. Another evaluation is scheduled to take place before the Project Assistance Completion Date (PACD) of September 30, 1983.

In the area of general project management, we make two major recommendations. The second one is also clearly a major programmatic recommendation.

Recommendations

(1) On the basis of written agenda, the project officer should meet regularly with the management of OMM. Jointly prepared action work lists should come out of these meetings. The project officer should prepare monthly reports of site visits, actions taken, actions required, negotiations and discussions, etc. He should prepare a quarterly progress report to keep his own activity organized and on the record and to inform his superiors, colleagues and Mission management.

(2) The next evaluation should be scheduled for April 1983. That evaluation should be carried out by a combined design and evaluation team. Its task should be the preparation of a combined evaluation and Project Paper, assessing the results obtained from and since this evaluation, the then current status of the project and justifying continued support in a Phase III provided, of course, that events and conditions then so indicate.

b. Financial Management

The evaluation of Phase I first uncovered weaknesses in OMM financial management. The Project Paper proposed that long-term financial technical assistance be provided during the first year of project life. The project grant agreement contained this provision as part of the project description. The same Annex I states that proposed implementation and financial plans for the project will be developed jointly, annually. Despite the Phase I history, the evaluation findings, the fact that financial technical assistance was not on board, and the clear intent of the article cited, there was no condition precedent to initial disbursement calling for a first year budget and a detailed, jointly produced financial plan. The project financial plan attached to the project grant agreement did not meet the need, it was too general and its structure did not match budget and reimbursement request line items. It is only in Amendment No. 2 to the grant agreement that we find a condition precedent calling for a 1981 budget; that amendment was signed May 30, 1981, five months into the

budget year. To have produced an acceptable and useful 1981 budget on a timely basis would have required a very active cooperation between OMM and USAID. The "passive" monitoring style described above still prevailed, however. The result was a budget approval in October.

We have found that OMM faces an immediate financial crisis. OMM has not been reimbursed for any operating expenses since May 1981, because its accounting practices and procedures cannot be certified by the USAID as meeting acceptable standards. There is no encumbrance system; supporting documentation for expenditures is inadequate; inventory control is inadequate. The Operation has assets, reimbursement requests approved or in process that are in amounts sufficient to cover a year's operating costs and also permit repayment of funds borrowed from the credit fund to pay operating expenses in the interim since last May. In other words, it is clearly possible to put OMM on its financial feet.

While it is possible to produce a bare bones minimum standard in a brief period, correction of the manifold problems, accumulated errors, unsound practices and basic deficiencies of OMM's financial management is a long term prospect. We have found major problems concerning:

- the preparation and use of budgets;
- accounting, accounting discipline, accounting procedures;
- procurement and payment for procurement;
- inventory control;
- reconciliation of bank accounts; and
- financial policies, periodic statments, credit accounting and financial organization and personnel.

This tangled mass of problems has developed primarily because OMM never received the promised financial technical assistance. We make two major recommendations:

Recommendation: Short Term

USAID should provide as rapidly as possible technical assistance for about four months to put the OMM financial operation in good enough shape to meet certification requirements. This should take about two months. The other two months would be spent in watching the system work its way out and in preparing for the long term assistance recommended below.

Recommendation: Long Term

The long term financial advisor, so long promised, should be contacted for and assigned to work with OMM in Mopti as soon as possible. If feasible, his assignment should overlap with that of the short term advisor recommended above.

The technical assistance contract must be very carefully drawn. It must be thoroughly discussed with, understood by, and agreed to by the director general of OMM. He must understand that failure to abide by its terms will mean financial decertification. The contract must give the financial advisor concurrent authority to approve all budget submissions to USAID, all reimbursement requests, all encumbrances of USAID reimbursable funds, and all expenditures thereof. During the life of the project, he will certify that each reimbursement request is based on a system of encumbrances, accounts and records that meet acceptable standards. The contract will thus provide technical management and assistance that will train by example and precept in an on-the-job cooperative experience.

Recommendations: Other

On March 15, the team, namely the financial advisor, left with the OMM director a list of nearly 40 detailed recommendations. They appear in Annex II.

2. Agricultural Research and Extension

The research component incorporated into the project design in both Phase I and Phase II focused on applied research with three objectives:

- to build confidence in the initial technology package;
- to modify the package elements from the experience gained in the field; and
- to serve as a feedback mechanism, testing and adapting in farmer's fields results from ongoing work at research institutions and experimental stations.

Implementation of the research component is progressing satisfactorily. The Seno Agricultural Research Station has minimal facilities and needs upgrading, but it is operational. Training is on schedule. Technical assistance has been provided but a gap now exists as a result of illness. Commodities have been provided. Construction has lagged.

We have noted that research objectives are reasonable and sound, if somewhat ambitious. Given the likely resource availabilities, it seems desirable to keep the research program sharply defined and focusing on the improvement of existing farming systems.

Major Recommendations

(1) An experienced Field Trials Specialist should be immediately recruited for the remaining project life.

(2) Construction of a modest guest-house and an office/laboratory building should be started as soon as possible.

(3) An annual research plan should be prepared.

The team also looked into the research component of the vegetable production activity on the Dogon Plateau. We discovered that this component of the

project has not been implemented in any significant way. A short term horticultural advisor was provided. He apparently accomplished nothing. The research proposed in the Project Paper is not adapted to the Plateau conditions. The operation is marginal to OMM's overall activity.

Recommendations

The Dogon Plateau research activity in market gardening should be dropped.

Phase I extension activity has continued into Phase II with only one major change. The concept of the "pilot village" as the target of extension activity has been introduced. Two pilot villages have been selected in each Secteur (Rural Development Sector or SDR) except that of Tenenkou and each of these 12 villages has been assigned an agent. Normally, an agent covers six or seven villages and works with a number (usually ten) of "pilot farmers." The idea is to create a more rapid multiplier effect in gaining acceptance of the improved practices and technology proposed by the extension service. This responds to findings learned from the Phase I experience that indicated that the ink blot effect on other farmers from the results obtained by the pilot farmer would just take too long.

The Project Paper for Phase II also recognized a need for improved training of extension agents, the encadreurs. The "en cascade" or trickle down method (each level teaches the next lower level) resulted in training that was poor at best and often almost useless. The OMM has responded by establishing a temporary training center in borrowed facilities at Bore about 135 km from OMM headquarters at Sevare. The facilities are quite inadequate. The distance means both inadequate supervision of training and the inability to make regular use of resources available at headquarters. From independent reports the team recognizes that training of agents in direct contact with the farmer is probably the single most important factor that can hinder or help project success. The evaluation of Phase I noted: "The majority of the lowest level positions are currently staffed with contractual employees (encadreurs) who do not meet the minimum requirements for the position. The solution to the

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problem is not the expansion of numbers but rather continuous upgrading of personnel through appropriate training. This, together with the improvement of communication and travel, should upgrade the service." The team agrees that this statement is still fully valid.

Recommendation

A modest training center should be established at Sevare (OMM headquarters) to provide medium term training for encadreurs (eight to nine months) and short term training (four to eight weeks) for various levels of extension staff. The resources of the project are already sufficient, especially if such other construction as ZER staff housing is cut out. A sketch of the proposed center can be found in Appendix III to the section on Agricultural Research and Extension.

3. Agricultural Credit

The Phase II Project Paper retained the assumption from Phase I that provision of a supply source and credit to purchase supplies was essential if the farmer clients of the project were to adopt and use the more modern agricultural methods and inputs recommended to them by the extensionists. In fact, an expansion was contemplated. Proposals regarding sales commissions and interest rates were made designed to assure the financial integrity of the supply/credit function. Some very ambitious goals were set and some technical assistance was promised. As a matter of fact, transition from Phase I to Phase II for the credit program was very smooth --nothing changed. No technical assistance was provided and the head of OMM's credit program was not trained. These failures are the proximate cause of a lack of a coherent credit policy and lack of functional understanding of the role of credit at the extension agent level.

The most important problem we encountered was the lack of a defined, written, easily understood, consistent credit policy based on a credit strategy keyed to the intent of the project. Numerous internal documents contradict each other. Local agents have been properly given some flexibility on extending

credit. They decide who gets how much, for what purpose, at what cost. The evidence is that guidance in applying this flexibility has been lacking. During the 1981-1982 crop season there was a clear effort to tighten up on credit, especially on terms for large ticket items. Higher down payments were called for as well as shorter repayment terms. On one time inputs, more sales were made for cash. The intent was to roll over credit funds more rapidly. The result was an increase in cash sales from 26% to 58%, but a drop of 23% in total sales occurred.

The credit program for agricultural inputs is central to OMM's research and extension effort. During interviews, farmers stated on numerous occasions that they were not capable of purchasing equipment -- even when available locally from private merchants -- until credit was made available to them by OMM.

Let us define a credit strategy as defining the spectrum of borrower clientele; as determining if subsidies are called for, whether in supply prices or credit terms; as establishing an acceptable default rate; and as setting forth a bad debt collection policy. Similarily, we can define credit policy defining interest rates, terms of loans, penalties for short term delinquencies, methods of collection. OMM needs all of these.

Major Recommendation

OMM should be provided as soon as possible before the 1982-83 crop year with short term technical assistance to develop a credit strategy and policy.

4. Agricultural Marketing

The Phase II Project Paper recognized that the GRM grain marketing program which involved OMM in support of OPAM (Agricultural Products Marketing Office) put OMM in the marketing business in a way that was counterproductive to its main activity, research and extension. As long as the farmer was forced to sell part of his surplus output (and not always surplus) at a far-below-market price, frequently at an inconvenient location, he was going to look upon the agent as a tax collector, not a supportive advisor. The Project Paper avoided the issue, probably in recognition:

- that this is a matter completely outside the scope of project influence, being a national government policy matter; and
- that the matter was being dealt with more generally at the donor community level.

In any case, the developments since Phase II have been highly favorable. The purchase price has been steadily raised until it approaches the free market price, the compulsion element in quota setting has been reduced, more pick up points have been used, and some private merchants have been licensed to purchase grain during the official marketing season. During the 1981-1982 season, only about 5% of all grain produced in the Fifth Region will be marketed through OPAM, or only about one fifth to one-quarter of the marketable surplus. The atmosphere is changing and the movement is toward a freer market with OPAM becoming a true price support agency. As that development continues, assuming it does, OMM's operations in collaboration with OPAM will become supportive of OMM's own goals to increase production and improve productivity among the target farmers. For this reason, in the section on marketing we make only a number of minor recommendations to help the system work more smoothly. We make no major recommendation except to endorse the donor efforts to keep the trend moving and we suggest some statistical research that might be supportive.

5. Village Associations

The Phase I evaluation recognized, as did the resultant Project Paper, that the work of the extension agents with individual "pilot" farmers was limited in its effect. It could be of great help to the individual farmer, who could double his output. But the impact tended to be limited to the immediate beneficiary and possibly some of his immediate neighbors. The "oil stain" was spreading too slowly. Consequently, it was recommended that a new approach, the "pilot village," be tried. In such case, an agent would be assigned to work with a whole village, a village selected for its receptivity to extension assistance. From the pilot village, the next step would be the "village association," a village self-help organization able to take on other social and economic development tasks, not just receive extension help. The idea was modeled after the village associations developed by the Malian Textile Production Company (CMDT) among cotton farmers of the Third Region.

There are now 12 pilot villages, selected in 1980, receiving special attention. They were carefully selected as were the agents assigned to them. The system seems to be working well and it appears to please the villagers. However, there are over 1,400 villages in the Operation Mils Mopti area. If the pilot village idea is to be effective, it must be expanded on a regular planned basis.

None of the 12 pilot villages has moved toward developing a village association. The villages lack the means, motivation, and skills to do so. Nevertheless, the creation of village associations is a direct support to the extension activity, making it more cost effective and increasing its overall impact on production and income. We make two major recommendations for this activity.

Recommendations

(a) Expand the pilot village activity by at least six villages per year.

(b) Develop a program for the creation of village associations in the pilot villages. To this end, provide the technical assistance already promised for this activity in the Project Paper.

6. Engineering

The construction activity under the project consists mostly of upgrading of roads and the building of relatively simple structures for warehouses, offices and staff housing. The project designers apparently felt that this was a relatively simple engineering program and consequently the Project Paper recommended that engineering monitoring be left to the USAID engineer. They apparently underestimated the complexity of the program and overestimated the capability of the USAID engineer, given other demands, effectively to monitor the project's construction.

The road activity as originally planned under Phase I covered 460 km of roads. The Phase II plan reduces the goal to 307 km; of these, 246 km were supposed to be built by April 1, 1982. Acutally 97 km have been built and some of these are already being repaired. In other words, less than 40% of the goals have been achieved. With the exception of drainage structures, work is apparently to acceptable standards, but these standards are inadequately documented and there is a lack of standard guidance.

AID's major support to the road construction program has been the purchase of equipment and the payment of operating costs. Much of the equipment needs overhaul or repair.

The building activity of Phase II has never been started since the Rural Engineering (Genie Rural) of the GRM, which is charged with producing plans and specifications, has only recently submitted satisfactory designs for part of the program.

In the meantime, i.e., since April 1980, the building demands and priorities have changed. Staff housing is hard to justify, whether in Sevare or at secteur or ZER levels. On the other hand, a training center near Sevare is badly needed. The building program proposals from Genie Rural exceed the original plans in numbers of buildings, total floor space and total cost. We understand that the first bid package for seven warehouses to be built at ZER levels covers a very high priority in terms of project needs. We do not believe, however, that either Genie Rural or OMM understand the need to work within budget constraints. Genie Rural apparently designs what OMM would like to see built. For this reason, we make a major recommendation in this area.

In our discussion of Project Management, we mention motor pool problems of OMN similar to those encountered in the Road Brigade; the recommendation takes note of this.

Recommendation:

A stateside recruited long term engineer (civil) should be assigned to the project for the rest of the life of the project. He should be stationed in Sevare. He should have the following tasks:

- To supervise all engineering matters relating to the program.
- To monitor road construction, topographic work, establishment of standard road cross sections and production of standard drawings for drainages, culverts and other structures.
- To review the project building construction program to establish priority needs, a construction schedule and a construction budget.
- To review all aspects of motor pool operations and prepare a vehicle disposal, replacement, repair, maintenance and use program.

To recommend a spare parts policy and parts procurement and control system.

7. Ancillary Activities

There were three ancillary activities prepared in Phase II designed to support, more or less indirectly, the major activities such as research, extension, production, credit and roads. There were: millet grinding mills, village wells and blacksmith ships. One was a failed experiment, one has been an operational failure, one had achieved only a bit over one-half of its target output but is still a moderate success.

a. Millet grinding mills were supposed to relieve village women of an onerous chore and to provide OMM with a modest income from their operation. Exactly one mill was placed, and twice relocated. It was a mechanical and economic failure. The activity was not too well thought out in the first place and was unsupported by any realistic economic or social analysis. Some years in the future, when the opportunity arises and the cost of the village women's daily labor justifies it, the experiment might be repeated. For now, we make a minor recommendation: sell off the remaining 11 mills and forget this activity.

b. The well digging program was carried over from Phase I. It was only incidental to production; the wells were intended to be village wells providing water for human and animal consumption. No hydrological survey was made. Only nine wells were finally produced; four dug wells and five drilled wells. Ten dry holes were drilled. We make a minor recommendation to cut out the well activity. The USAID, in recognition of the importance of wells to village well-being, might seek to involve a PVO in this activity.

c. For Phase I and again for Phase II, it was recognized that repair facilities for plows, carts and cultivators in the remote Fifth Region were few, ill-equipped, poorly manned and far apart. During Phase I, a start was made in training trainers, ordering equipment, identifying prospective trainees, preparing a training program, etc. Under Phase II, 22 (of a planned 40) blacksmiths have been trained and, in varying degrees, equipped. Obviously, the 22 vary widely in their knowledge, skills, tools, equipment and installations. They all do a great deal of work other than repairs and spare parts for OMM supplied agricultural equipment. After all, virtually every agricultural tool used in the region is hand forged and/or hand made. There are some problems regarding supplies and equipment; in some cases it is not suitable to the local conditions; in others, it is overpriced. Nevertheless, we can say that the blacksmith training and equipping activity has enjoyed a fair measure of success. We make the following recommendation because we consider it of long range importance.

Recommendation:

The training of blacksmiths should be stopped for the time being. During the balance of project life, the activity should concentrate on continuing support from the trainers to continually upgrade skills. The material available for sale to the blacksmiths should be re-priced at fair local market value, the credit mechanisms should be better developed and made more national and supportive. Finally, in carrying out the pilot village activity, the need for the village blacksmith should be recognized and provided for. Future training of blacksmiths should be planned as part of the pilot village activity.

D. Future of the Project

1. Major Activities

The major activities of OMM are applied research, extension of a set of cultivation and production practices, provision of agricultural equipment and supplies, for cash or credit, and the provision of a marketing service to OPAM. The first two of these activities are producing very positive results at the individual farmer level. Adoption of the technology being presented by the extension service can and has created dramatic increases in farm income and return to the farmers' labor. The extension service still touches only a small percentage of farmers in the region and the impact on production of the ? rainfall variable. However, even a brief glance at Appendix I, Table II, of the Agriculture's Research and Extension Section shows us something about the project's effectiveness. Total output for the region held steady from 1980-81 to 1981-82. Improvements in yield and areas harvested in the Koro and Bankass sectors more than offset losses (rainfall again) in other sectors. Ascribing half the increases to the project and assuming that losses could well have been twice as great in Mopti and Bandiagara, even at the official price the project resulted in farm income at least as great as project operating and investment costs. At free market prices, the project probably paid for itself during the 1981-82 season several times over.

The marketing activity of OMM was long considered contradictory to its main purpose. The changes in this system described below indicate that this is increasingly less the case. In fact, dependent on developments exogenous to the project, but expected to occur, the marketing activity of OMM could become over the next few years a very positive support to the producer in terms of income insurance or stability.

The basic conclusion of the evaluation team is that Operation Mils-Mopti is a valuable GRM activity, contributing to two major development goals, improving small farmer incomes and increasing, or at least maintaining under worse case conditions, the production of food, and a basic grain a that. It is

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consequently, as a project, highly deserving of continued financial support from the Agency for International Development. In fact, it would be hard to find a better candidate -- food and farmers in an extremely poor country with a harsh and threatening environment.

Regrettably, the project has not been well managed and at the moment is in financial crisis. Moreover, the management failures make more difficult the documentation or demonstrations of project benefits. The team is making a number of major recommendations to improve financial management, engineering management, research, and extensionist training. Our single most important recommendation, detailed below, is that in the spring of 1983 after management reforms have had some impact, a design and evaluation team should prepare documentation in support of Phase III of the project, committing AID to further support through about 1987 and implying a long term U.S. commitment to support Malian food production for several years to come.

2. Ancillary Activities

In addition to research and extension on millet and sorghum, Phase I of the Operation Project called for road building (a major separate activity), well digging, vegetable production research and the training and equipping of village blacksmiths.

Despite the fact that none of these activities had progressed very far, they were all continued into Phase II. Phase II added a village association activity and a retail store experiment. It also added a program to buy millet grinding mills and set them up in various villages to relieve village women of a time consuming chore and to constitute a revenue source for OMM.

The status of the these activities is as follows:

- The road building accomplished is only 40% of planned as of this date despite a cut-back from the original goals.
- Of 30 wells planned, four open wells have been dug and are providing water. Five drilled wells found water, four are operating, one had a pump breakdown and a replacement, second-hand pump was being assembled for installation when we visited the well site (Dourou). Ten dry holes were dug, one over 100 meters deep.

- Long term technical assistance in market vegetable research was never forthcoming; it would probably not have been very useful. The short term assistance was useless.

- Approximately half as many blacksmiths have been trained as originally planned. They have received various levels of equipment, some equipment was unsuitable, almost all of it, as well as the materials, are overpriced for local market conditions.

- The village association's activity, which was only expected to receive some short term resource support, has been changed into a "pilot village" program as part of a shift in extension activity and focus.

- No retail stores have been established.

- One millet grinding mill has been tried in three locations. It was an unsuccessful experiment: the mill broke down; it could not pay its own way. Eleven mills are in inventory. The OMM project director is trying to sell them to anybody who will take them.

The team believes that attaching all these activities to the basic project was a mistake in the first place. It certainly confused the project purpose and added to both the general and financial management problems. We recommend that no further activity be undertaken or financed under Phase II for wells, vegetable garden research, blacksmiths, retail stores, or millet mills. No further road program should be included in Phase III. The pilot village concept should be continued and supported throughout the project life of Phase II and strengthened in Phase III. Moreover, the village association's concept should be picked up again in Phase III, resource needs identified, and resources provided to start the process of creating village associations in the developing pilot villages. Since this is probably the best way to speed up the extension process, it is a perfectly legitimate part of a project which is concentrating on applied research and practical extension.

3. Geographic Focus

The Operation Mils-Mopti has expanded its basic activity in two ways: where it has been active in a certain area, a cercle or arrondissement, it has intensified its activity by adding more villages thus creating new secteurs de base (base sectors) and expanding development zones and rural development

sectors. It has also expanded extensively by moving to cover more of the Fifth Region. It has opened a Sector (SDR) in Tenenkou, west of the Diake River; it has moved into Djenne, on the edge of the rice delta; it has moved into the far northeast, around and north of Douentza. In terms of production prospects, some of these moves seem justified. However, they seem more inspired by a policy of full regional coverage than by a careful measuring of increased operating cost versus increased production, productivity or even increased numbers of farmers effectively served. Part of the area in northeastern Fifth Region can only be reached about four months of the year.

The team really did not concentrate on the problem of geographic dispersion. When the budget talks resume, both for the balance of the project life and for any Phase III, this might be the time and forum for a full USAID/OMM discussion with USAID taking the position that geographic expansion must be justified by a high probability of estimated positive returns. AID funds and AID/OMM management resources should not be spread out over remote areas offering little prospect of economic or social benefits.

4. Sources of Financing

As of now, the GRM contribution to OMM consists of paying the salaries of permanent civil servants assigned to the project. Their salaries may be paid from either the national budget or the regional budget. All other operating expenses identified below are provided by USAID funding of the project:

- salaries of contract personnel;
- bonuses for permanent personnel;
- vehicle operations, maintenance and operation of motor vehicles;
- rents and utilities;
- spare parts;
- office supplies;
- travel per diem;
- training costs; and

- technical assistance costs

From time to time, OMM enjoys some cash receipts. OPAM pays for OMM marketing services, but the margin is supposed to cover costs, not generate a profit. If there are any earnings, they are supposed to be earmarked for truck replacement. The credit and sales program is supposed to be self-sustaining including covering its own operating costs. Actually, the funds will be decapitalized unless its finances are restructured. Earning some operating funds from millet grinding was a quixotic notion, since abandoned. OMM is not supporting the production of an exportable, reasonably valuable cash crop like peanuts or cotton. It really cannot seek to cover a part of its operating expenses by providing a service (marketing) that producers need and can be expected to pay for. Leaving aside, then, those operations that can and should be self-sustaining (supply, credit and marketing services to OPAM), the basic operations research and extension will have to be a charge on somebody's budget. They are normal costs of government. But they do not have to be so much of a charge on a foreign donor budget. The GRM should be prepared to start assuming some of these costs. In fact, the Phase II Project Paper said that the GRM would assume project operating costs by the last year of the project, i.e., 1983. The GRM is going through a financial crisis. Its budget cannot take on any new loads just now. However, planning for the gradual shift of costs to the GRM should begin with the next phase. We suggest that vehicle maintenance, repair, operations and, as needed, replacement are foreign exchange costs appropriate for external financing. The costs of technical assistance should be a grant financed at Mali's level of development. This is also probably true of both internal and external training costs. However, the GRM should very soon start funding other operating costs, utilities, supplies, rents and, by the end of Phase III, take over full time employee bonuses and finally contractual employees' salaries. The latter should, of course, be phased out and replaced with more fully qualified permanent employees.

Recommendation:

The financial plan for Phase III should relieve AID of responsibility for all but what might be called "donor appropriate" operating costs. This definition should be consistent with our understandings with other donors.

5. Life of Project

The current Phase II Project has a Project Assistance Completion Date of September 30, 1983. This date can be extended by mutual agreement. If, as we recommend below, a design and evaluation team can start work in about April 1983, it could be possible to approve a Phase III in advance of the PACD and consequently avoid an extension of that date. If that does not take place, any extension must be conditional upon the acceptance by the GRM of certain changes we would expect to see in Phase III. Assuming AID continued support through Phase III of four years, the association of AID with this project will have extended over 14 years, PL 480 financing for about three years prior to 1976, four years of Phase I from 1976 to 1980, three years of Phase II from 1980 to 1983, and four years of Phase IV reaching into 1987. Association with and support for the project will probably continue for several more years, although we would hope at greatly reduced level of cost to AID. Some may deplore such a long term association with a project. Why not finish up and get out? This is a naive view of the problems of development. Equally naive is the view that a donor should make very long-term commitments, up to 20 years. The beauty of financing support to an ongoing project in phases and increments is that it forces designers, evaluators and implementers to stop periodically and ask themselves: "Where were we, where are we, and where are we trying to go?"

The team makes no recommendation as to future life of the project. That decision should be deferred for about one year.

6. Implementation Problems

The team has recommended immediate short term financial management assistance to get OMM out of its present financial hole. We have recommended long term assistance in financial management, engineering, agronomic research and medium term assistance in extension training. We clearly envisage a contract team of management and technical assistance. The conditions we have found and that we seek to correct have been developing for a long time, nearly ten years. They will not be cured between now and the end of the Phase II project.

Recommendation:

Any Phase III Project Grant Agreement must provide for the continued presence of a contract management and technical assistance team with real management authority (shared with the OMM Director General) over AID financed inputs to the project.

II. SUMMARY OF MAJOR RECOMMENDATIONS

All the many recommendations contained in this report can be summarized in three overall recommendations under three major headings:

- Program and Policy;
- Implementation; and
- Project Future.

A. Program and Policy Recommendation

The Operation Mils-Mopti project should be continued as an applied research and extension project in the Fifth Region through the current planned life of the project and probably thereafter in a Phase III.

The current road building program can continue through the Project Assistance Completion Date. It should receive no further support thereafter other than the turnover of used project equipment.

All other ancillary activities except village associations should be dropped from the project, i.e., wells, retail stores, blacksmith shops, etc. This does not by any means exclude the possibility of attention to such needs or activities on the part of the USAID. To bring to the attention of PVOs the potential usefulness of a village well program or a self-help, labor intensive road repair project is both appropriate and highly recommendable. It might even be appropriate to support such PVO activity with a participatory grant. But this should not be an activity attached to this project and should not be a responsibility of the OMM project officer. Working with PVOs on project development and implementation might be considered as one of the responsibilities appropriately assigned to the program office, the project design office or to the deputy director.

The village association activity should continue as a part of the extension activity which now deals with "pilot" villages.

Additional resources should be applied through and in conjunction with the agricultural extension activity to prepare villagers to assume greater

responsibility for their own social and economic development. The supply/credit activity should receive special attention during the balance of Phase II. The short term credit advisor should be a member of the team of longer term advisors in financial management, engineering and agronomy.

B. Implementation Actions

We are recommending two areas of action to improve management performance. We propose technical assistance to Operation Mils-Mopti and we propose changes in monitoring methods in the USAID.

The Operation has problems of an implementation nature in financial management, engineering, agronomy, extension agent training and credit management. A contract team should be recruited and established in Sevare. It should consist of a financial management advisor with general management experience who should also be team leader.

An engineer should be included to help manage road construction, facilities construction and equipment maintenance, use and repair. The agronomist, also long term, should have experience in research station operations and be able to advise the OMM Seno Research Station manager on operational problems including research program planning, budgeting, costs, inputs required, etc. The credit advisor, medium term, should be with the team from the beginning of its assignment. The training advisor's arrival could be delayed until the physical facility is almost ready. The team must be assured adequate support including vehicles. It is essential that the technical assistance be provided in the context of a management team, not an uncoordinated bundle of individual assistance efforts.

The project officer should be freed as much as possible from other responsibilities and should concentrate on this project. There is not time now to reconstruct the project history; this evaluation will have to suffice. He should start immediately keeping a project record. His regular visits to the project area must be documented before, during and after such visits. He must make regular written reports to his supervisors. He should prepare a quarterly

progress report for Mission management. This report should show financial, physical, and execution progress. It should report action taken. It should alert managment to upcoming problems on critical events. It should propose actions.

C. Future of the Project

This is the team's basic recommendation. It is also an act of faith. We believe, and recommend that the Operation Mils-Mopti Project, Phase II should be continued through its current PACD of September 30, 1983. The project's research, extension, credit, village association and road building activities should receive continuing financing through that date. The project seems extremely well suited to the kind of AID program that is appropriate to U.S. interests and objectives in Mali. Therefore, a Phase III of the project should be considered, hence recognizing a continuing long term AID commitment to food production in Mali. However, that is our current opinion. We have just completed an evaluation that leads us to this conclusion. We have yet to see the results of the evaluation on the carrying out of any of our recommendations. Therefore, there should be in April 1983, one year after this evaluation, six months before the PACD, a combined design and evaluation intended to produce a justification for Phase III strong enough to leave little doubt as to the wisdom and feasibility of carrying on with the Operation Mils-Mopti program of research and extension in support of food production and small farmer income and well-being.

III. PROJECT MANAGEMENT

A. Project Design

The Project Paper

The Project Paper for Operation Mils-Mopti, Phase II was submitted to AID/W in July 1979. The drafters of this paper had the benefit of an evaluation of Phase I prepared in February 1979, as well as several years of experience in seeing the project being carried out and observing its implementation successes and failures.

The evaluation had made several recommendations for changes in project design and management. It had endorsed the basic concept, however, with its emphasis on adaptive research, extension services to the farmer and production and productivity in support of farmer income. The Project Paper took the recommendations into account and consequently the PP made a number of specific statements regarding the new emphasis in the project, the changes in activities, the additional implementation support.

An important change was made in the Project Purpose. Recognizing that the GRM compulsory marketing system had been counter-productive, the purpose of "increased commercialization" was deleted. This tighter definition of project purpose was clearly an improvement. It ignored, however, the fact that OMM was still heavily involved in marketing on OPAM's behalf as well as the fact that increasing the outputs of subsistence farmers is only possible, useful and important when those farmers have a market outlet for their increased production.

The evaluation noted and the Phase II proposal picked up the need to strengthen OMM's economic and statistical capacity. The problem is that moving from anecdotal evidence to statistical certainty is almost impossible when dealing with a subsistence crop dependent on a non-controlled variable, rainfall.

The evaluation pointed out the need for stronger project supervision at the USAID. The Project Paper reported that a full time project officer position had been in existence for two years. It failed to note that the position had never been filled.

The evaluation had pointed to OMM deficiencies in financial management. The Project Paper proposed that twelve months' technical assistance in financial management be provided during the first year of the new Phase I. The Project Paper was equally responsive to other recommendations such as changed training methods and the promotion of village associations.

The planners of Phase II, despite the evidence from Phase I that showed ancillary activity lagging badly, not only continued such activities as blacksmith training and well digging, they sought to add millet grinding mills, community development projects and retail stores. OMM - Phase II planning did not narrow the project focus; it expanded it.

The evaluation had already indicated that the project had over-ambitious goals. The new project design compounded this error. The clearest indicator of this over-optimism is found in the logical framework. On the purpose line, a 50% yield increase among 20,000 farmers is expected to reach 10,000 farm families per year. The area had just suffered the worst drought in centuries. Crop production is dependent on rainfall, yet rainfall is not even mentioned among the assumptions. The output columns lists 20 verifiable output indicators in very precise quantification. The relationship to planned input is remote. It is hard to say now if this overestimation of project achievements was needed to gain AID/W approval of the project. If that was the case, it is most unfortunate that after making such promises, the USAID Mission failed to provide management follow up to its ambitious planning. Equally, AID/W failed to provide the personnel support or the promised technical assistance that might have made output achievement somewhat more possible or probable.

The plan for management/implementation of the project was sound. The fact that the "full-time" project officer position had never been filled was passed over. However, the need for financial management assistance was recognized and promised. A good engineering plan recognized the need for collaboration in developing plans, specifications and contracting. The procurement plan was sketchy but had all the essential elements, including how procurement responsibility might be exercised by USAID. The necessary waivers were prepared. A PERT had been prepared and the PERT Chart Index provided a time phased implementation plan.

In summary, at the end of the planning stage in December 1979, AID had a fairly well designed project based on an operation which had had modest success, been evaluated and had its major failings corrected or at least noted. The project was over-complicated and its immediate objections were over-ambitious. Over-optimism and positive thinking are far better than the reverse. Project implementation was not to be as good as project concept.

B. Project Implementation

1. The Project Grant Agreement

The Project Grant Agreement was signed on April 28, 1980. This PGA was fairly standard. It provided for incremental funding, contained a detailed project description in Annex I and a condition precedent concerning submission of contracts for USAID approval prior to expenditure of funds for construction. Section V of Annex I called for jointly developed financial and implementation plans.

There was a financial plan attached to Annex I of the PGA. This plan made no specific reference to operating costs although it did refer to commodities, salaries, primes, and maintenance which could probably be stretched to include most all elements of operating costs. The Second Amendment to the PGA, which added $615,000 in incremental funding, also added a condition precedent calling for submission to and approval by AID of a detailed budgeting plan for calendar year 1981. The condition precedent was made retroactively effective to the first of the calendar year 1981.

All in all, the Project Grant Agreement was an effective document. It clearly needed flushing out with Implementation Letters and jointly produced implementation, procurement and financial plans. The basic management document was in place. However, neither Operation Mils-Mopti nor the USAID paid much attention to it.

2. Project Implementation Letters

It has long been a practice in AID to use Project Implementation Letters (PILs) to fill in the specifics of project description and project management. Respective responsibilities are deliberately left general in the loan or grant agreement. Ideally, the first and most important of these PILs (Implementation Letter One) is drafted, negotiated and mutually understood before the project agreement is signed. Generally, it is issued immediately after signature of the PGA. It is usually a long, detailed, even cumbersome document detailing precisely the actions which the borrower/grantee is expected to take in order to receive funding, make purchases, provide reports, etc. The various forms and formats of implementation action documents are usually attached. PIL No. 1 has long been considered for day-to-day management even more important than the PGA. No such PIL was ever prepared or provided to OMM. Failure to provide detailed and mutually acceptable instructions to a grantee can only be ascribed to inexperienced project management, inadequately supervised.

On April 23, 1981, nearly a year after the PGA was signed, a brief PIL No. 1 was sent to the Ministry of Agriculture asking for monthly reimbursement requests by budget line items with supporting documentation. No copy was sent to OMM. Over the next year, nine more PILs were to be sent out. Their contents are described in the section on Financial Management below. Suffice it to say here that these documents were more expressions of frustrations at the unwillingness or inability ~~to~~ of OMM to meet financial standards than they were effective tools of project implementation.

C. Project Organization

1. Organization of OMM

The Operation Mils-Mopti (OMM) is a semi-autonomous regional entity, depending from the Ministry of Agriculture, and like similar operations devoted to the production and productivity of a specific crop or crops, in this case millet

and sorghum. In as much as OMM involves itself with other crops, vegetables and peanuts for example, and in as much as it is concerned with community development, wells, roads, mills and blacksmiths, it resembles an integrated, regional, rural development project. Nevertheless, most of OMM activity is devoted to research, extension, credit and marketing of millet, the principal crop of the Fifth Region. (In the delta between the Bani and Niger Rivers, the principal crop is rice. Here Operation Riz Mopti is active with similar programs for rice farmers with World Bank support.)

OMM is managed by a Director General. He is assisted by a Deputy Director and six Division Chiefs. Among the Division Chiefs there is no clear division between staff and line functions, but in general it can be said that the Extension Division is the most important Line Division since it controls the field personnel in virtually all their operations. Other Divisions include: the Finance Division, under which falls credit operations; an Economics and Statistics Division; an Administration Division, mostly concerned with personnel but also handling minor procurement and correspondence and records; a Training Division, concerned with external and internal training; an Alphabetization Division, under separate financing and with its own field personnel; and finally a Division for Other Activities which is charged with following up on road construction, wells, vegetable production, community development and rural health.

Among field personnel, those in direct contact with the peasants are the 252 encadreurs/moniteurs, called Chefs de Secteurs de Base or Base Section Chiefs. Each base chief handles about six villages. He is responsible to a Chef de ZER or Chief of a Rural Development Zone. Each zone generally consists of about seven base sections. Above the Zone is the Rural Development Sector (SDR), each with about seven zones (one sector has but three subordinate zones, two have eight). (The sector is at the same level as the administrative cercle, the zone corresponds to an arrondisement.) Most zones and all sections are one man operations; only at sector level do staff personnel appear in the form of secretaries, bookkeepers, credit agents,

training specialist, etc. As can be seen, the structure is pyramidal with the top being the Extension Division at Sevare/Mopti whose chief reports to the Director General. It seems to work reasonably well as an organization. It can and does get extension recommendations down to the lowest level. There is a communications problem, however.

The Director General holds a monthly meeting with his seven sector chiefs and his Division chiefs to discuss progress, problems and plans. Out of this meeting comes a proces-verbale of decisions taken and plans made which is distributed to other operations, the Ministry of Agriculture, the governor of the Fifth Region and all participants in the meeting. A monthly report is also prepared (by the Administrative Division Chief) which gets similar distribution. After the meeting, the sector chiefs go back and advise their ZER chiefs of the results and decisions; the ZER chiefs pass on information to the chefs de base who presumably take all this into account when working with the individual farmer or the "pilot village." Obviously, this system can get information, with some loss of precision, from top to bottom using the weight of authority. There is little assurance of any effective feedback. It is with an understanding of this communications problem that certain recommendations as to extension training and training facilities are made in that part of our evaluation.

2. USAID Support Organization

The United States AID Mission to Mali is organized along traditional lines; project officers report to section chiefs and office chiefs. They all meet with the Mission Director and his staff on a regular basis. These meetings are intended to keep the Mission Director informed, to identify problems and seek problem solutions. They are based on written problems and seek problem solutions. They are based on written agenda but not on written periodic reports. They normally do not produce a written record of decisions or written guidance for project management or supervision.

Administrative support to the operating divisions of the Mission seem good. After some previous difficulties, probably personality related, the services provided under a Joint Administration Agreement are reported as very satisfactory except in the area of motor vehicle maintenance.

AID/Washington support has been dismal. Technical assistance has not been forthcoming; there have been long gaps in filling positions; in one case, inappropriate procurement was forced upon the Mission. AID/W seems to make little effort to see or understand the problems of the Mission, especially those related to the simple fact that Mali is an LDC.

Controller support for the project has been mixed. Until recently, a most important management control, the periodic financial and pipeline report, was not prepared. Until the newly appointed project officer found a number of deficiencies in reimbursement requests, they seemed to have received rather perfunctory review. This changed early in 1981 as Controller office personnel made three trips to Sevare in support of the project officer attempting to first identify accounting problems and then seek solutions. A draft report was prepared in April. It recommended the provision of immediate financial technical assistance "in correcting the financial system." Since April 1981, the Controller's office has continued to support the Project Officer in his efforts to improve OMM financial management. The Controller's office has been understaffed during most of this time. The failure by AID/W to provide timely financial management technical assistance remains the key factor.

Project officer support for the project was for some time poor to non-existent. The promised full time project officer position was never filled. The name of a project "manager" appears in the Phase II Project Paper. This person actually was assigned a much wider range of responsibility, but he had time for only brief irregular and widely scattered site visits. He had no opportunity, nor was he called upon, to prepare project reports. Monitoring was limited to passing on reimbursement requests after cursory review. In 1981, a new project officer, with some previous IDI acquaintance with the project, took over. He has made relatively frequent site visits; he was on each of the controller's review visits; he recognized early the financial management problems. He has tried to correct deficiencies

with the limited resources at his command. He is still not the "full-time" project officer originally contemplated as he has other demanding responsibilities including a project even more distant from Bamako. Nevertheless, he is tenacious, conscientious, intelligent and trained in management. The project now has a project officer; we will recommend below how he might best organize his responsibility.

3. OMM/USAID Relationships

Relationships between OMM and the USAID are going through a crisis that parallels the financial crisis discussed below. For all of the period when the project was financed by PL 480 funds and for all of Phase I, the USAID was for OMM merely a source of funding. There were occasional site visits but they tended to be ceremonial. Neither the 1979 evaluation nor the 1980 PGA sent any signal that things were going to change. The financial crisis of 1981 was perceived very differently by each side. USAID felt that OMM was not living up to its contractual agreements, which was clearly spelled out in the PGA. OMM felt that USAID was unilaterally changing rules, especially as the belated PILs began to appear. As the crisis got worse and as the USAID was forced to cut off funding by the inability to certify accounting, relationships seem to have gotten surprisingly better. At the moment, there is reason to believe that once the critical situation is resolved a sounder, more effective and truly collaborative relationship can be established. This was evidenced by the full and friendly cooperation from OMM in this evaluation.

4. Reporting and Recordkeeping

Reporting and recordkeeping on the part of the USAID is inadequate. Site visits for specific actions (review of finances, for example) may result in specific action documents but other visits may not be recorded at all. No monthly project reports are prepared. The project officer reports orally to his supervisor and through him to Mission Management. We could find no record of these oral communications.

The program office maintains a documentation center of basic central files and documents. We found a very complete set of basic documents for both Phase I

and Phase II. Cable traffic is filed and easily accessible by subject. There are occasional memoranda and some letters, although sometimes only one side of an exchange. From these files there is a very good skeleton history of the project: when it was proposed, authorized, agreed upon, and when PIL's were made. But there are virtually no background data. We know that a PIL was sent, where and what it says. We don't know why. The lack of normal periodic and monitoring reporting at the project officer level leaves us uninformed, and at times distressed.

D. Project Execution

1. Procurement

Procurement is carried out by OMM for office and operating supplies, vehicle spare parts (large lots and piecemeal), items and equipment considered off-the-shelf and costing less than $2,500 equivalent, agricultural equipment and supplies and motor bikes. USAID, on OMM's behalf, procures or has procured larger items of equipment including furniture and vehicles. Procurement is difficult in and for Mali. Selection is limited, after-sales service is poor, spare parts inventories are often both meagre and irrational. Procurement lead times on U.S. source items are very long. For these reasons there is a need for a procurement plan. Before the beginning of each budget year, the project officer, the OMM director general, and representatives of the controller's office and management office (Procurement) should get together to prepare the annual procurement plan. Procurement responsibilities should be assigned, necessary documentation prepared and procurement action started.

Since the procurement and use of vehicle spare parts seem critical at this time, there should be an early meeting of this "procurement committee" to establish a spare parts policy. There is much to be said for a policy of keeping pressure on the local equipment or vehicle to maintain an adequate spare parts inventory. But this should be measured off against project progress and cost alternatives.

An AID/W failure to understand and support the USAID in a major procurement is discussed below.

OMM should re-organize its procurement function, centralize it and give it control of all purchases and all deliveries to the warehouse door. The receipt, storage, allocation, issue and distribution of items purchased is a supply function. As discussed below, all these operations are closely linked to financial management but they should be independent of it.

2. Transport

The transport function at OMM is handled by a vehicle park which is described in the Motor Transport List at the end of this section. Excluding trucks, cars and other vehicles assigned to the Road Brigade, OMM has 24 vehicles of mixed makes and models for the transport of people and some light transport of supplies and equipment. It also has nine heavy trucks intended for use in the grain marketing program. Two HINO KB ten ton trucks with diesel engines are in good condition. Of the seven ten ton (gasoline engines) International Harvester trucks, three are running, four are down. Since these trucks are considered uneconomical to operate, there seems little urgency in getting them repaired.

Of the 24 other general purpose vehicles, seven are down for repairs, six of them International Harvester Scouts, one a Toyota Land Cruiser. Two gasoline Scouts and one diesel Scout are operating. This situation apparently resulted from USAID's efforts to standardize project vehicles with International Harvester, failure of the dealer to maintain adequate spare parts inventory, inadequate maintenance and poor driving habits, and finally a decision by AID/W to accept, during a strike, International Harvester vehicles that did not fully meet the specifications prepared by the Mission.

Recommendation:

USAID, OMM and the contract engineer should review all aspects of motor pool operations and make appropriate changes in driver and mechanic training, fleet composition, control of usage, spare parts, etc.

3. Personnel

The personnel structure of OMM is described fully under the discussion of the extension service. We only note here that OMM does not have full control of its personnel. Each year a number of monitors graduate from training or are appointed after practical experience and written examination. The various operations and agricultural entities bid on this personnel pool. If it is too large, the operations may have to accept superfluous personnel. While salaries are paid from the national or regional budgets, extra personnel do affect operating costs. We were advised that this year, with a total on-board strength of 477, OMM was asking for no more monitors and seeking to freeze its personnel level.

Recommendation:

USAID and OMM should study the relationships between personnel ceilings and operating costs. We currently pay personnel and operating costs for contract personnel (encadreurs); we pay operating costs for moniteurs. The composition of the personnel force within the ceiling affects total costs from USAID.

E. Project Monitoring and Evaluation

1. The Project Officer

For most of the project's life, Phase I and Phase II, there has not been a project officer. As previously noted it was expected that a project officer would be assigned to OMM full time. That never happened. Until about early 1981 there was usually someone assigned who had manifold other duties, including duties of higher priority. This was a result of (a) a consistent failure of AID/W to provide adequate personnel support and (b) a failure at the Mission level to understand the principles of monitoring.

At no time since it became a Mission has this Mission had a full-time on board staff; it probably never will. At any given moment absences due to health, leave, essential TDY, etc. are bound to be large. But slowness in filling vacancies is a major problem. When there is no overlap and when essential

positions such as the controller or the chief of the Agricultural Development Office are left vacant for six months at a time, the effects are felt down through all the projects where project officers do not receive adequate guidance, supervision or assistance.

The present project officer has been in the position for just over a year. He had worked on the project as an IDI before that. He has had formal advanced education in management, a rare case. He is tenacious, conscientious, dedicated, and intelligent. He has received no training or guidance in project management and has had to learn on the job. Moreover, he took over a project which had been inadequately monitored. Until about a year ago, the Bamako Mission operated under a management style that might be called passive. Grantees were advised to submit requests for reimbursements, technical assistance or procurement and the Mission would react. There seems to have been no joint, collaborative effort to prepare annual budgets, construction plans, training programs, technical assistance schedules and all other plans and programs essential to project execution. For this project, at least, there was no system of periodic reporting and there still is not.

The new project officer has spent most of his time trying to bring some management order to the project. As shown in the section, Financial Management, he was beginning to make considerable progress with a lot of help from the controller's office. However, he had not progressed to the point where the financial and accounting systems of OMM could be certified as meeting acceptable standards. Hence, the project has received no funding since last summer; reimbursement checks are being held until standards are met.

The project officer has had little opportunity to attack some of the other management problems in such areas as construction, technical assistance, procurement planning, etc. He has not had the resources to work with either in the form of onboard technical assistance or mission supervision and help.

Assuming that the current financial crisis can be overcome, we recommend a program for monitoring by the project officer that represents to us a change in past Mission practice, especially in the establishment of a written history of project implementation.

Recommendation:

The project officer should meet in Mopti with the management of OMM on a monthly basis. These meetings should probably last at least five working days. They should be regularly scheduled and the schedule adhered to. Prior to the meeting, the project officer should prepare a written agenda for the meeting setting forth what he intends to discuss, what he intends to achieve and what problems he expects to encounter. He should review the agenda with his supervisors. At the end of his site visit, he and the OMM Director General should prepare work lists of actions to be taken during the coming month. Upon his return, he should prepare a trip report that discusses what he did, saw, recommended, reported, negotiated, etc. His trip report, with agenda and work lists attached, becomes part of the permanent progress file. These are used to prepare a quarterly progress report. Copies are circulated to his supervisors and support officers such as program, management and controller. The quarterly progress report becomes the basic information document for Mission Management as well as the information source for AID/W Backstopping.

Recommendation:

As one early priority, the project officer should pull out of the recommendations in this report all those that call for collaborative action with OMM and set up a schedule for taking those actions. This schedule should be agreed upon within USAID and with OMM, reduced to writing, given a time-phased critical event format and used as a basic tool for the monitoring of this project over the next six to twelve months.

2. Other USAID Entities

There are three major entities within the USAID which impinge directly and importantly on the work of the project officer and the monitoring of the project. They are the controller, the management office, principally procurement, and the program office. Support to this project from the controller's office has been extensive and effective, it should have been called for earlier. The controller/project officer relationship should be very close and should be carefully worked out at the time PIL No. One is

issued for a new or newly financed project. Backstopping from the procurement office seems good although the frustrations arising from long supply lines and indifferent backstopping from the U.S. occasionally create frictions. The project officers interviewed in Bamako, including the one assigned to this project, believe that the program office puts too heavy a demand on them for information that the office should already have. We make no recommendation; we only note that a regular set of timely reports might make it possible for the program office to meet its planning responsibilities more easily without the need to keep seeking data from the project officer.

3. Periodic Reporting

With the exception of a controller's report recently initiated that covers obligations, sub-obligations, expenditures and pipeline on a project and line item basis, there is no system of periodic project reporting in the Mission, even for internal use. When crises arise, one may or may not find a memorandum in the file laying out the problem. In discussions with OMM and USAID officials, we have heard varying accounts of conversations and events; there have been no memoranda of conversations to refer to. Letters of implementation are issued, the file is silent on what created the need at that time for that letter. Phase I of the OMM project has two Project Agreements, the first incremental tranche of funding was provided by a second Project Grant Agreement rather than by the normal amendment. There is no explanation in the file. In fact, the very existence of the first Agreement was not made known to the evaluation team; we stumbled upon it by accident during a basic document review.

A system of periodic reporting parallels the issuance of action documents; it explains them and clarifies the circumstances surrounding them. Periodic reporting completes the project history. In the absence of complete project history, there can be no effective future project or program planning. We have recommended a specific form of periodic reporting for this project based on regular site visits, agenda, action lists and trip reports supporting a quarterly progress report.

Recommendation:

The USAID Mission should seriously consider adopting a system of periodic progress reporting. The system might be adapted from the system proposed above for this project.

4. Executive Supervision

The project officer works in an agricultural development office which is divided into two sections, crops and livestock. His immediate supervisor is the crops section assistant agricultural development officer. Above his immediate supervisor is the agricultural development officer and above him, the deputy director and director. This should provide adequate supervision and guidance. Unfortunately, the various positions have often been left vacant for long periods.

The mission director meets with each of the two sections once a week. The meeting is based on a written agenda prepared by the ADO. It tends to be a list of problems and upcoming actions. The action officer is indicated. The meeting and the agenda serve several purposes. They inform the mission director of project status, they identify problems, they develop solutions, they make action assignments, and they indicate the time pressures and constraints within which actions must be taken. These meetings are usually attended by the deputy director, a representative of the program officer and someone from the controller's office. At the meeting, the mission director makes notes either on the agenda sheet or on a separate sheet later attached. He keeps these notes as a chronological record of events and action assignments.

This meeting is clearly the most important management tool used in executive supervision of project monitoring. The Mission Director has noted that its effectiveness might be strengthened if the meetings were linked to the production of some sort of periodic project progress report and the design of such a report is in the works. We would like to make a suggestion in this regard. If a periodic reporting system is linked to the management review

meeting, it might well be possible to cut down on the frequency of meetings. A possibility might be a monthly "trouble-shooting" meeting with a simple actions taken/problems/actions required report sheet and a quarterly progress report meeting. The mission could then begin to produce the sort of project histories it now lacks.

5. Evaluation

This is a mid-term evaluation as called for in the Project Paper and the Project Grant Agreement. It is a little late, but the project is running a little late; in fact, we are just about two years into Phase II as these words are written. The scope of work for the evaluation is very thorough, asking questions to which no answers can be given, but at least eliciting suggestions as to where answers might be found. It also asks questions to which answers are known but for which confirmation is sought. The evaluation itself comes at an opportune time. The project has suffered growing management difficulties especially financial management; it is in the midst of a financial crisis. A number of the activities attached to the project need reassessment; should they be continued? Finally, if this project, in its basic elements, is a strong candidate for continued AID support, then now is the time to start the planning process for an improved project, cutting away the unneeded, emphasizing the proven effective and correcting mistakes, whether in concept or execution.

Another evaluation is called for at the end of the project. We believe this should be combined with the development of and justification for Phase III of the project. About twelve months from now many of the results of this evaluation will be known. We will know if the financial crisis is overcome. We will see what management changes have occurred. The research and extension recommendations should be being followed. Training programs and technical assistance should be having their impacts.

Recommendation:

In about April 1982 a combined Evaluation and Design Team should meet in Bamako for about eight weeks. It should consist of USAID, AID/W and consultant personnel (about six). Building on this present evaluation it should prepare an updated Evaluation and Project Paper combined. This document should be presented to AID/Washington to justify Third Phase financing. Such a combined Evaluation and Project Paper, prepared as a unit, should do a better job of assessing project benefits, resolving programmatic issues, justifying the commitment of resources, integrating the project into a country program, establishing an implementation process rather than a Project Paper alone, or even a PP supported by an earlier and/or separate evaluation.

IV. FINANCIAL MANAGEMENT

A. Background and Funding

PL 480 OMM Support

Operation Mils-Mopti (OMM) was established in Region Five of Mali by Decree No. 62/PG-RM dated 26 May 1972. Funding was provided in part by the Government of Mali (GRM) and in part from the proceeds of sales of foods supplied by the United States under Public Law 480 (PL 480) -- Title II. Three-year financing from PL 480 counterpart funds were provided in annual installments to carry OMM through October 1975.

OMM Project, Phase I

From this beginning, Phase I of the current OMM Project was developed and the Project Grant Agreement (PGA) was signed on 29 June 1976. U.S. funds then committed were $2.189 million. An additional $1.6 million was obligated by a PGA of 13 May 1977. Estimated life of project was five years, U.S. funds to be appropriated were estimated at $8.875 million. In three years, $6.288 million was actually obligated, at which time (following a major evaluation in 1979) Phase I was terminated and remaining appropriated funds rolled over into Phase II project. By December 1979 all Phase I obligated funds had been committed and slightly exceeded approved OMM reimbursement requests. This difference should, however, be covered by the transfer of unexpended pipeline balances. Shortly after the PGA for Phase II was signed in April 1980 obligating $2.38 million, a reimbursement request was received by USAID from OMM for $454,376* for the period September 15 - December 15, 1979. Reimbursement was of necessity made from Phase II funds. This ostensibly reduced funds to meet the first year's budget but since the termination date of Phase I is unclear, the question is

* Throughout this report the Dollar/Mali Franc exchange rate used is $1 = 500 M.F. In reality the exchange rate has fluctuated in the range of 400 - 600 M.F. per dollar. For purposes of consistency, the 500 M.F. rate has been used. It is the rate used in recent USAID reporting.

moot at best.* What is of real concern is that this and other continuing misunderstanding on the line item allocation of reimbursement requests cited in the same report and discernable in Table F1, are indicative of a lack of active cooperation between OMM management and USAID/Bamako personnel in coordinating OMM, USAID and PGA line items. This problem may well have originated in the Financial Plans in the Phase I Project Paper (PP) which were inadequate for effective implementation.

OMM Project, Phase II:

Project Paper and Project Agreement

The Project Paper was approved on 20 July 1979, and the PGA on 28 April 1980. Proposed expenditures in U.S. funds were $2.381 million in FY/80, $2.062 million in FY/81 and $9.962 million for the four-year life of the project. Proposed H/C total expenditures were $2.784 million at the then current exchange rate (see Table F2). $2.380 million was obligated by the PGA in April 1980 and increased by four PGA amendments to $6.020 million in October 1981. H/C agreed funding was not less than $2.764 (see Tables F2 and F4). Expenditures of $2.948 million were incurred in 1980. Estimated 1981 expenditures were $988 thousand. Budget and proposed expenditures for FY/82 and FY/83 are $2.084 million and $3.942 million respectively, for a total of $9.962 million as originally proposed (see Table F4). Use of incremental funds for FY/80, FY/81 and FY/82 are shown in Table F5. Corresponding H/C figures are not currently available. (See Table 3 for Phase II Incremental Funding - Pro/Ag and Amendments.)

Phase II, Management

Requirements and Services:

In the interest of good financial management and control, certain joint actions to meet OMM and USAID needs were specified in various project documents.

* Source, Hardy, Ernest S., USAID/CONT: Draft Report of On-site Review of OMM; Bamako, 3 April 1981, pp. 1-4.

Table 1

Operation Mils-Mopti - Phase I

Total Expenditures - in $U.S. (000)

	Expenditure Category	Proposed Appropriated FY/76-80 Funds	H/C Contrib.	U.S. fds. obligated	Expended	Unexpended oblig.
	TOTAL	$8875[x]	$1761[xx]	$6288	$6300	$ (12)
1.	Tech. Assist.	600	Details not Available	499	545	(46)
2.	Training	116		57	47	10
3.	Construction	2445		2229	2250	(21)
4.	Roads - Const., Maint.	248		394	0	394
5.	Other Construction	570		377	0	377
6.	Ag. credit fd.	-3760		739	0	739
7.	Operating costs OM-M			1944	3458	(1514)
8.	Contingencies	1136		49	0	49

Notes

[x]Distribution of the $8.875 million dollars of originally planned funding was re-constructed from Annex 1 of the Phase I Pro/Ag.

[xx]From same source. Excludes an additional $3299 from estimated proceeds from grain commercialization by OPAM, sales of "mobylettes" and credit reimbursements.

Table 2

Phase II - $(000)

Proposed Budget Appropriated Funds (P.P.)

	FY/80	FY/81	FY/82	FY/83	Total
U.S. Contrib.	$2381	$2062	$3272	$2247	$ 9,962
H/C "	495	N.A.	N.A.	N.A.	2,784
					$12,746

Table 3

Phase II Incremental Funding - Pro/Ag and Amendments

U.S. Contribution

P.G.A.	Amend. No. 1	Amend. No. 2	Amend. No. 3	Amend. No. 4	Total
Ap. 1980	Aug. 1980	May 1981	Sept. 1981	Oct. 1981	Increm.
$2,380	$800	$615	$1,825	$400	$6,020

Proportion of total U.S. contribution funded 60%

Table 4

Phase II Current and Future Expenditures[x]

	Actual Exp. FY/80	Committed Exp. FY/81	Budget Exp. FY/82	Proposed Exp. FY/83	
U.S. Contrib.	$2,948	$ 988	$2,084	$3,942	$ 9,962
H/C "	N.A.	N.A.	N.A.	N.A.	2,784
					$12,746

[x]Source: USAID/Bamako Controller Pipeline Report and Project Budgets

Table 5

Phase II Use of Incremental U.S. Contribution

	1980	1981	1982
Pro/Ag	$2,380	CFwd $ 232	CFwd $2,084
Amendments	800	2,840	
Available	3,180	3,072	
Expended	2,948	988	
Carry Fwd	$ 232	$2,084	

In the PGA:

Implementation and financial plans were to be jointly developed.

Disbursement procedures for OMM local currency expenditures were to be based on reimbursement of appropriate, documented expenditures.

Grantee agreed to:

- Carry out project with due diligence and efficiency in conformity with sound financial and management practices.
- Provide qualified and experienced management and train such staff as necessary.
- Maintain books and records in accordance with generally accepted accounting principles and practices.
- Furnish to USAID reports as reasonably requested.
- Submit its books to regular audits.
- Manage certain activities as follows:
  Establish 5% or greater commissions on agricultural input sales and use these to cover related expenses; establish agricultural terms to ensure credit fund viability; deposit charges to OPAM for handling grain into a special account restricted to replacing nine grain trucks; deposit proceeds from sales of "mobylettes" (to its staff) into an account restricted to buying new "mobylettes;" use profits from grain mills to purchase more mills.

USAID agreed to:

- Provide a financial management consultant for twelve months to assist OMM in establishing better financial and planning procedures.
- Provide an additional $689,000 for the previously established revolving agricultural credit fund (actually $697,000 in the financial plan) and to purchase fifteen utility vehicles and twenty-two more "mobylettes."

In the PGA Amendments (4):

Despite the agreement to jointly develop implementation and financial plans, USAID blocked (Amendment No. 2 - May 20, 1981) the disbursement of funds until the grantee provided and USAID approved a detailed budgetary plan for 1981, with a 60-day CP limit.

In Amendment No. 3 (August 29, 1981), disbursement of funds was further blocked until the grantee provided a 1982 budget, also with a 60-day CP limit.

In Amendment No. 2 (May 30, 1981), both parties agreed to establish personnel ceilings for OMM by July 30, 1982.

It is to be noted that the financial plans in the Phase II Project Paper and PGA were inadequately prepared and of no help to OMM in developing operating budgets. Hence, active cooperation would have been required to coordinate OMM and USAID line item requirements.

Financial Implementation Problems:

Review of Reimbursement Requests

In June 1980, a young IDI with a degree in management and banking experience, was temporarily assigned to OMM. He made a thorough review of the OMM reimbursement request of operating expenses for the period 15 December, 1979, to 14 April, 1980, and rejected items totaling 243 million Malian Francs (38% of total request) as uncertifiable. Prior to that, it appears from conversations with USAID personnel, reimbursement requests were routinely approved. Subsequently, when the IDI was assigned as project officer to OMM, he reviewed every reimbursement request submitted from March 1981 on, including substantial arrears from 1980. Rejected items were later discussed with OMM and approved when adequate justification was forthcoming.

Hardy Report (April 1981)

In early 1981, the USAID/Controller scheduled a review of all USAID projects. OMM was selected for the first review and three trips were made to the Mopti area by 2-4 man teams. The draft report, issued on 3 April 1981, criticized every major aspect of financial management at OMM; specifically, budgetary control, accounting, inventory, credit, bank account and cash flow controls. It concluded that financial management practices as OMM were fundamentally unsound. It also observed that budgetary problems appear to have started with the first budget attached to the PGA signed on 28 April 1980: "This budget neither authorizes

Operating Expense, per se, nor does it distinguish between Local Costs, Dollar Costs, USAID direct payments or GRM reimburseable costs. More importantly, the budget attached to the PGA does not specify a time period. "...The budget submitted to USAID by OMM covers the period January 1 to December 30, 1980, and was submitted after the signing of the PGA."* The report recommended provision of technical assistance (not under 12 months each) to:

- Introduce a standard funds accounting system, monitor operations and train personnel at the "Direction" and in the field.
- Implementation of a system of inventory control and warehouse stock management; monitor operations and train personnel.

Immediate recommendations included:

- Monthly submission of reimbursement requests to permit timely releases of funds to OMM and maintain its operating resources at a satisfactory level.
- Blocking transfers between bank accounts.
- Formalizing the credit program by PILs.
- Halting the release of funds to the credit fund until all discrepancies in the account has been satisfactorily corrected. The report commented favorably on the team's reception, stating that the personnel at OMM were very cooperative and willing to accept recommendations for improvement. Because of this and the usefulness of the report, it is singularly unfortunate that the report was not completed, translated into French and sent to the Director.

Ministry of Agriculture Audit

In the fall of 1981, a team of auditors from the Ministry of Agriculture conducted an audit lasting a number of weeks. The only tangible result to date was, according to the OMM Director, a recommendation that two bank accounts, No. 267-68 (Literacy Training) and No. 267-69 (Agricultural Marketing), be closed because of high bank charges (about $40/year each) and funds transfered into account No. 267-34, the OMM operating account. This was duly done, without consulting USAID which had originally requested establishment of these accounts. Literacy is funded by a separate USAID account and its funds should not be comingled with

*Op. cit.: Section V - Controller Comment.

those of OMM, though USAID had expected to cease funding Literacy Training in September 1981 and had authorized OMM to make the above transfer by PIL No. 3 of that project. Now it appears that USAID may fund Literacy Training for one more year. To date, OMM has not received any report from the Audit Team.

Corrective Actions

As implementation problems surfaced, a number of actions were taken by the USAID mission seemingly intended to produce more information about the state of the project's financial management and possibly to arrest or even reverse its progressive deterioration.

Rejection of Reimbursement Requests

From March 1981 on, the new project officer regularly reviewed all reimbursement requests and rejected items unacceptable to the Controller. Checks were then issued forthwith. Rejected items were discussed with OMM and those items which were adequately justified or supported by necessary documents were later approved and paid. From March until December 1981, seven requests were successfully processed (Nos. 4 to 10 on Table 6). The 11th and 12th requests for June and for July - September 1981 have also been processed, but payments are being withheld because of the AID/W funds release restriction imposed on December 31, 1982. OMM is currently preparing the request for October to December 1981, and for January and February 1982. The overall rejection rate is 25%. If continued, this will fairly quickly result in a cash flow problem. An analysis by the project officer of the major reasons for rejecting requests resulted in the following tabulation:

Item Category	% Rejections	Major Reasons
1. Commodities	36%	Not in accordance with the Grant Agreement
2. Previously reimbursed	24%	Duplicate requests.
3. Construction	16%	Contracts signed without USAID approval.
4. Miscellaneous	24%	Overpayments and errors on purchases, donations, government, organizations, taxes, lack of supporting documents.
	100%	

Table 6

Phase II - Reimbursements to OMM by USAID for Operating Expenses (USAID Proj. Line Item 7)

Request	Date Requested	Date Approved	Date Paid	Period Covered	Amount Requested	Amount Approved	No. of Cheque	Remarks
					(Thousands of Mali Francs)			
1	3/4/80	N.A.	6/5/80	1/9-14/12/79	203,970	203,970	26165	Approved
2	18/6/80	N.A.	11/7/80	15/12-14/4/79	390,854	242,896	27418	Reviewed by I.D.I.
3	24/7/80	N.A.	3/9/80	15/4-30/6/80	227,109	227,109	28540	Approved
4	3/3/81	3/3/81	9/4/81	1/7-30/9/80	343,430	120,274	32183	P.O. instituted
	1/4/81	6/4/81	4/6/81	Resubmitted	Reduced Balance	49,268	32913	Routine reviews
	23/7/81	29/7/81	5/9/81	"	"	4,422	34793	
5	9/6/81	17/6/81	18/7/81	1/1-31/1/81	35,801	31,999	35032	
	10/7/81	15/7/81	14/8/81	Resubmitted	Reduced Balance	1,537	34352	
6	13/7/81	22/7/81	2/9/81	1/10-31/12/80	109,333	91,998	34605	
	13/7/81	22/7/81	2/9/81	Resubmitted	Reduced Balance	9,158	34606	
7	24/7/81	29/7/81	23/12/81	1/2-28/2/81	61,640	35,265	35265	Withheld until 1981 budget was submitted
8	24/7/81	29/7/81	23/12/81	1/3-31/3/81	32,126	32,682	35266	
9	27/7/81	6/8/81	23/12/81	1/4-30/4/81	66,936	56,038	35267	
10	27/7/81	6/8/81	23/12/81	1/5-31/5/81	12,429	11,084	35268	
11	2/12/81	12/12/81	---	1/6-30/6/81	67,617	67,617	---	Cheque withheld:
12	---	---	---	1/7-30/9/81	185,941	84,493	---	Request withheld:
13	---	---	---	1/10-31/12/81	N.A.[x]	N.A.[x]	---	pending certification of accountability
					1,737,186	1,295,681		
					Rejections:	441,505 = 25.4%		

[x]Estimated amount of October to December 1981 and January-February 1982 reimbursement requests: 161,591,115, and 64,531,658 Mali Francs respectively. Total 226,122,773 MF.

Project Implementation Letters (PIL)

Shortly after the Hardy Report in April 1981 (on April 23, 1981), a series of implementation letters were issued dealing chiefly with the financial management of the project. These were the first since the Grant Agreement was signed in April 1980. No initial PIL was ever issued defining in detail the budgetary, procurement, contracting, accounting and reimbursement procedures necessary to meet AID requirements. Such a PIL is a long standing AID practice. A skeleton financial plan, slightly amended from that in PGA, was attached to PIL No. 1 issued on April 23, 1982.

The PILS were:

- PIL No. 1, April 23, 1981: Stated that reimbursement requests should be submitted monthly in accordance with budget line items, with original receipts (there was no approved 1981 budget).
- PIL No. 2, May 18, 1981: Requested arrangements for routine access by USAID to bank statements of OMM accounts in the "Banque Nationale de Developpement."
- PIL No. 3, June 19, 1981: Requested a detailed status report on the Credit Program's activities since its inception, with bank statements, commodities purchased, supporting documents, cost and date, cash and credit sales (with complete details), amounts financed, interest charges, current status, future plans, etc.
- PIL No. 4, June 25, 1981: Requested a completed report on all commodities purchased during Phases I and II including descriptions, dates, cost, authorization documents, current status of each, a procurement plan to conform with the current (non-existent then) budget.
- PIL No. 5, September 25, 1982: Extended the C.P. deadline for mutual approval of an OMM budget for 1981 (per PGA amendment No. 2 - May 30, 1981) to October 31, 1981. In fact, USAID had received an OMM 1981 budget proposal on August 19, but had not acted on it.
- PIL No. 6, October 23, 1981: Approved a modified OMM budget and requested an OMM decision of acceptability by October 31 (Mopti is 400 miles from Bamako, with infrequent communication). It restricted expenditures on commodity and credit operations until requirements in PILs 1-4 were met and construction until contracts are submitted to USAID for approval.
- PIL No. 7, January 11, 1981: Released (in principle) reimbursements previously withheld pending USAID/OMM agreement on a 1981 budget and instructs OMM to reimburse the Credit Bank Account for all funds used for other purposes. The next two PILs block the above release.

- PIL No. 8, January 11, 1982: Was issued on the same date as No. 7. It acknowledged receipt of a proposed 1982 OMM budget (reception date not given) and blocked reimbursement of 1982 expenditures due to alleged late submission of the budget. It further blocked all disbursement of local currency as of December 31, 1981, pending satisfaction of an AID/W imposed financial accountability requirement.

- PIL No. 9, January 12, 1982: Repeated more precisely the accountability certification restriction in PIL No. 8 and defined the minimum AID/W requirements so that project accounting procedures may be certified as satisfactory for the release of further local currency by USAID. Hence, no further releases have been made.

- PIL No. 10, March 8, 1982: Approved a substantially modified OMM 1982 budget. Comments on the manner in which these PILs were issued is necessary. They were technically accurate in terms of the quality of financial management and flow of information that could be expected from a project that has been properly conceived, designed, assisted and monitored and where there had been, from the beginning, a freely flowing dialogue and mutual understanding and respect between the project and USAID. However, some of these important elements were missing. The project seems to have been over-ambitious for effective financial managements, financial management requirements of AID were never defined, promised financial technical assistance was not provided. Despite this, monitoring of budgetary accounting, contracting, purchasing, credit and other financial activities appears to have been negligible and reimbursement requests seem to have been approved routinely. It is probable that there had been a long history of such neglect starting as far back as 1972 with the PL 480 food assistance program. Prior to the intensive review of reimbursement requests and the Hardy report, there had been little awareness or concern by USAID of the financial disaster progressively overtaking OMM. While the PILs were an appropriate technical response to the problem, there seems to have been little realistic appraisal of the impact of the PILs on the grantee or indeed of their probable effectiveness in getting the problems solved.

OMM management was stunned. There had been long discussions of the problems but the PILs were received and viewed as a unilateral set of ultimata. There is no way that OMM could have responded to most of the demands that were made and USAID should have known this from the Hardy report, from reviewing reimbursement requests, from the poorly drafted budget proposals and from the information being supplied to it by the new project officer. Predictably, therefore, there was no response from OMM and the management there went into a state of shock, but it continued business as usual.

Thus, the crisis had been transferred right back to USAID when AID/W imposed (on December 31, 1981) a moratorium on the disbursement of local currency to projects which the USAID Director could not certify as meeting AID/W minimum accountability

standards. USAID immediately declared the accounting system uncertifiable (correctly so) and accordingly issued the last two PILs in January 1982.

In January, the Minister of Agriculture called the Director-General and Director of Finance of OMM to a crisis meeting to which personnel from other projects which had received similar PILs were also called. We have been informed by OMM that a comprehensive reply to all the PILs has been drafted and will shortly be sent to USAID by the Minister.

B. Current Financial Situations

1982 Budget

The 1982 OMM budget was first prepared in July with an improved format recommended by the project officer. After several discussions, it was taken to Bamako in November by th OMM deputy director and finance chief for further discussions with the project officer and the controller. After additional changes were made at OMM, it was formally presented to USAID on December 23, 1981. After substantial modifications, the budget was technically approved by USAID and PIL No. 10, drafted in mid-February, was issued on March 8, 1982. The GRM National and Regional (or provincial) budgets present few problems as they cover administrative personnel salaries and account for about $438,000 of a total approved 1982 budget of about $2.5 million dollars (Table F7, columns 3 and 4). In the USAID supported portion of the budget, the OMM and USAID proposals, $2,592,000 and $2,084,000 respectively, differed by $508,000. The major differences occured in the USAID mainly dollar funded portion line items, Nos. 1 to 6 in Table F7. OMM had asked for $819,000 to replenish the Agricultural credit account (line item 6) which currently has a substantial deficit. For operating expenses, OMM requested $519,000 and USAID counterproposed $509,000, which is lower than 1980 and 1981 expenditures (cols. 1 and 2). About half of the operating budget is for salaries of contractual employees and for salary supplements on administrative personnel. Vehicle maintenance and POL for a total of 28 currently operating vehicles require $61,000 and $111,000 respectively. Fuel prices are high, 520 Malian Francs per liter for gasoline and 365 Malian Francs for diesel fuel, or approximately $4.00 and $2.70 per gallon for gasoline and diesel fuel, including Malian taxes, which OMM includes in its reimbursement requests. OMM reports that the seven

Table 7

OMM 1982 Budget

in $ U.S. (000) - ($1 = 500 MF)

Sources of External funds[x]	(1) Prior Expend-itures 1980	(2) Prior Expend-itures 1981	(3) OMM Budget Propos. 1982	(4) USAID Counter Propos. 1982	(5) Finan. Plan Future Years	(6) Proposed 5-Yr. Tot. per P.P. rec. approp.
Tot. Ext. funds	$ N.A.	$ N.A.	$3,030	$2,522	$ N.A.	$ N.A.
GRM Nat. Budget	$ N.A.	$ N.A.	$ 271	$ 271	$ N.A.	$ N.A.
GRM Reg. Budget	121	155	167	167	N.A.	N.A.
USAID Budget	2,948	988[xx](E)	2,592	2,084	3,942	9,962
1. Tech. Assist.	158	15	142	315	455	943
2. Training	27	14	191	130	35	206
3. Commodities	654	4	286	153	37	848
4. Evaluation	49	0	110	136	116	301
5. Construction & Roads	494[xxx]	114[xxx]	525	781	2,645	3,688
6. Agric. Credit	168	42	819	60	167	437
7. OMM operating	1,398[xxx]	799[xxx]	519	509	487	3,588
a) Vehicle maint.	--	--	--	61	N.A.	N.A.
b) Cont. & salary supp.	N.A.	N.A.	N.A.	267	N.A.	N.A.
c) Bldg. Maint.	N.A.	N.A.	N.A.	11	N.A.	N.A.
d) Rent, util., teleph.	N.A.	N.A.	N.A.	11	N.A.	N.A.
e) Travel and Transp.	N.A.	N.A.	N.A.	17	N.A.	N.A.
f) P.O.L.	N.A.	N.A.	N.A.	111	N.A.	N.A.
g) Off. Sup. & Printing	N.A.	OMM uses other line items	N.A.	12	N.A.	N.A.
h) Tech. Serv. & Meetings	N.A.	"	N.A.	9	N.A.	N.A.
i) Field Optg. Exp.	N.A.	"	N.A.	10	N.A.	N.A.

(cont. of Table 7)

Notes

x The project also generates internal funds from grain commissions and interest on credit sales (Agricultural inputs, blacksmith equipment, grain mills) and "mobylette" sales to administrative and field personnel. These revenues are not included above. They are discussed in Section D-3-i.

xx The original 1981 budget was $1,443,000 (PIL No. 6 - Oct. 23, 1981 and PIL No. 7 - Jan. 11, 1982). Unexpended balances in Line Items 1-5 have been transferred to the 1982 budget. Expenses against Item 6 were allowed though not in original budget and Item 7 is unchanged. Hence, final 1981 estimate is $988,457.

xxx Road construction expenditures transferred out of Operating Line Item for consistency with other years and more accurate presentation of expenditures.

International Harvester grain trucks provided by USAID are seldom used because they are excessively expensive to operate (gasoline instead of diesel engines) and ill designed for loading bagged grain. The two smaller HINO diesel trucks are used instead. The last two columns (5 and 6) of Table F7 were derived by the P.O. from the balance of funds recommended for total appropriation for the 4-year life of project in the Project Paper. If appropriated, they should suffice to meet the PACD in September 1983.

We are advised that, under instructions from the Minister of Agriculture, OMM is developing yet another revision of the 1982 budget.

Reimbursement Claims

On 28 February 1982, the status of unreimbursed OMM local currency expenditures was:

Period	Amount - MF (000)	Status*
June 1981	67,617	Approved, payment withheld
July - Sept. 1981	84,493**	Approved, payment withheld
Oct. - Dec. 1981	161,591	Not submitted
Jan. - Feb. 1982	64,532	Not submitted
Total MF	378,233	
or		
US$	756,466	

OMM's Estimated Financial Status - February 1982

By looking at OMM's expectations of reimbursement as of February and comparing them with its current liabilities and upcoming expenses, we can create a sort of

*Payment of approved reimbursements is currently blocked by the lack of OMM accountability certification.

**Amount requested: 185,941

current balance sheet, at least for that part of the operation that is USAID funded. From this, we can estimate what resources will be available to meet what demands during 1982. The following chart shows:

	MF (000)	$ U.S.
AID approved operating budget	254,521	509,042
Bank balances	16,380	32,760
Reimbursement claims	378,233	756,466
Total Assets	649,134	1,298,268
Accounts Payable	92,633	185,266
Salary Arrears	52,225	104,450
Surplus	504,276	1,008,552
Total Liabilities	649,134	1,298,268

Bank balances may well have been further drawn down and OMM is known to have liabilities in kind for borrowed POL, hence the surplus is probably overstated. Moreover, the internal debts between accounts do not appear. The credit fund has been used to pay operating expenses; it also has a small countervailing debt to the operating account for input purchases.

From the above, we arrive at the following conclusions. We first make two heroic assumptions: The OMM can and will stay within its operating budget; the reimbursement claims will be largely justified, at least after re-submission. In that case, after covering operating expenses for 1982 ($509,042) there should be about $500,000 equivalent available to pay back to the credit account some of the funds diverted to operating costs. In other words, given some well-supervised financial management, the project can be put back on its financial feet.

C. Financial Organization

Internal and External Relationships

Reporting directly to the Director-General of OMM is the chief of the finance Division, who is responsible for all financial activities of OMM. Hence, this

division is divided into eight sections: Budget, General Accounting, Cashier, Purchasing, Receiving and Warehousing, Inventory Accounting, Agricultural Credit Accounting, Transportation and Motor Pool.

Externally, OMM has financial policy and accountability relationships with the Ministry of Agriculture, the Board of Directors ("Conseil d'Administration") and USAID. OMM receives funds from the first and third and generates some funds internally through its credit operations and collection of grain on commission for OPAM. OMM seems to obey unquestioningly all instructions from the Ministry (and the Board) and has ignored instructions from USAID. While serving three masters, the one with direct authority over OMM receives the most attention.

Fiscal Calendar

OMM functions with several fiscal years. Originally it adhered to the GRM fiscal year, January to December. The Board of Directors at their only meeting in 1979, instructed OMM to shift to an April through March fiscal year so as to encompass a complete agricultural campaign in the fiscal year. This was promptly done in the General Accounting Section until the 1981 fiscal year, which has been extended to March 1982, making it into a 1981/82 15-months fiscal year. Meanwhile, USAID has been demanding OMM budgets since 1979 and OMM has and still does prepare these on a January through December fiscal year. Finally, USAID itself operates on an October through September fiscal year.

D. Budgetary Planning and Control

The Budgetary Process

The first OMM budget appears to have been prepared for 1979 and, after many changes, was eventually approved by USAID. The accuracy and internal logic of OMM budgets has improved since 1979. It is now a comprehensive document which includes all projected revenues from USAID, from the GRM (National and Regional budgets), from the credit account and from its own operations. Expenditures are presented by object class, then subdivided by function.

Allocations are not based on past experience. Vehicle maintenance, for instance, seems to be allocated more on a basis of individual rank than on logical need. Thus, the Director is allocated three million Malian Francs (about $6,000 at $1.00 = 500 Malian Francs exchange rate) for his vehicle; the Deputy Director one million, the Chief of Finance 1.2 million. Other division chiefs (six in all) are allocated amounts ranging from 1.2 million down to 750,000.

There is no budget calendar and budgets are prepared erratically and too late to be useful. Under pressure from USAID, this has improved and the 1982 budget proposal, after some prior discussions and modifications, was presented to USAID in December 1981. Excessive USAID delays in responding to OMM budget proposals are common and the whole process shows only slight evidence of being a collaborative effort. USAID technically approved the 1982 budget after some reductions and internal change (in effect, a counter-proposal) in March 1982 but is withholding disbursement approval pending certification of OMM's accounting system. Meanwhile, the Ministy of Agriculture has recommended substantial changes in content and total expenditures. The OMM Budget Section is accordingly drafting a revised and somewhat larger budget which will conflict with the budget approved by USAID.

The GRM pays the salaries of its personnel assigned to OMM. Hence, these expenses appear in two Mali budgets: the National Budget and the Regional Budget. USAID/OMM funds pay contractual salaries and salary supplements ("primes") to personnel who qualify. These are regulated by the Ministry of Agriculture (formerly Ministry of Rural Affairs) to establish uniformity among all projects in Mali.* In brief, then, OMM is affected by four budgets, two of which (OMM and USAID) are partially integrated into a single budget.

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*Source:
Ministere du Developpement Rural
Lettre Circulaire No. 1224 MDR-CAB
29 September 1977

Budgetary Structure

Expenditures in the OMM budget are presented by object class and sub-divided by function, geographic sector, etc. The degree of subdivision is rather excessive and could hamper operating flexibility if control by encumbrances were practiced.

Compared to the OMM budget, the USAID financial plan is excessively simple containing only seven line items, the last one covering most of OMM's operating expenses (local currency). There are no definitions of line items, no U.S. $ and L.C. demarcations and no precise allocations of responsibility. Thus, road construction expenses (L.C.) may be charged to OMM Operating Expenses (Item 7) which inflates that item and causes eyebrows to be raised, or to Construction (Item 5) and mingled with what may be partly dollar expenditures.

Purpose of the OMM Budget

Replies to questions at OMM about the role of budgets as a planning and control device suggest that OMM would prefer to exist without budgets and did so for many years in happier times, no doubt the best state of affairs in the best of all possible worlds. OMM regards budgets as a necessary requirement in order to obtain USAID commitment of funds. Once approved by USAID, OMM makes little further use of the budget. There is no system of encumbrances and expenditures are made without regard to budgetary availabilities.

Implementation and Reimbursements

Expenditures are made without regard to the budget and are charged to a large number of ledger accounts. Periodically (or rather, occasionally) expenditures are summarized according to these accounts and sent to USAID via the project officer with a request for reimbursement. Unable to determine the validity of requests as classified, the project officer laboriously reclassifies them in accordance with subcategories of Line Item 7 (OMM Operating) which he and the USAID Controller have developed. Expenses which do not fit these categories are often rejected.

Utility of the OMM Budget

As of now, the OMM budget is of little purpose. If it were prepared in a truly collaborative manner and related to history and future needs of comparable expenditure categories, it would be fulfilling a useful planning role. If expenditures were encumbered in accordance with pre-agreed (OMM and USAID) operating expenditure Line Items, the budget could serve as an excellent control device and reimbursements could be processed more expeditiously and with a lower refusal rate. At present, none of this is being done.

E. OMM Accounting

Form, Chart of Accounts, Bank Accounts

OMM is as long on accounting as it is short on budgetary management. It maintains a double entry bookkeeping system with well over 100 accounts, depreciates all its assets and calculates a "profit or loss." This system, much more complex than anything USAID requires or indeed seems appropriate, is imposed on OMM by GRM regulations applicable to all rural development "Operations." Article 12: "Every 'Operation', to which financial autonomy has been granted, shall maintain its accounts in commercial form."* This was confirmed by a visit to "Operation Riz Mopti" where the chief accountant displayed a similar required accounting system, also without an encumbrance journal.

USAID does not require commercial accounting, but does require that there be no comingling of funds and hence has recommended and, for certain funds, insisted that OMM maintain separate bank accounts. This creates a conflict because, with a well maintained double-entry system, separate bank accounts should not be necessary. OMM is adhering, in theory, to the requirements of both masters and is doing neither one well. Posting to its accounts is haphazardly periodic instead of continual and its reimbursement requests to USAID often lag by six or more months, not including processing time required by USAID. The initial

*Source:
Document prepared by OMM in 1981 with extracts of laws regulating the four "Operations."

rejection rate at USAID is currently about 25%. As a consequence of all this, OMM's operating account (No. 267-34) is depleted and OMM pays its expenses indiscriminately from any account that has a favorable balance, or transfers funds between accounts to meet immediate needs. Recently, a large sum was transferred from the OMM transit account in Bamako to an account in Mopti, but the Bamako bank statement failed to show this withdrawal. OMM continued to draw on the Bamako account though it knew the balance was overstated. Eventually restitution had to be made causing an additional strain on an already difficult situation.

To satisfy USAID requirements, OMM has maintained several bank accounts in both Bamako and Mopti at the Banque Malienne de Developpement (BDM). The history of these accounts has been rather checkered, but the Chief of Finance reconstructed it from memory as best he could since his arrival at OMM:

Status in November 1978

Acct. No. 267-13 Road Brigade - Bamako
Acct. No. 267-45 Transit Account - Bamako
Acct. No. 267-34 Operating Acct. for OMM - Mopti
Acct. No. 267-37 Ag. Credit and Grain Marketing - Mopti

Status in November 1978

Acct. No. 267-69 New account in Mopti to isolate grain marketing activity.

Status in March 1979

Acct. No. 267-68 New account in Mopti to isolate literacy program.

Status in January 1982

Acct. No. 267-69
Closed out and balances transferred to Operating Acct., No. 267-34

Acct. No. 267-68

Table 8

2. Bank Account Balances at the Banque Malienne de Developpement in Malian Francs on 28 Feb. 1982.

Acct. Location	Number	Purpose	Balance	Remarks
Bamako	26 700 045	USAID funds transit (only)	7,000,000 (2/15/82) (Est.)	-Also used as a convenience to pay creditors in Bamako.
Bamako	26 700 013	Road brigade	1,500,000 (Est.)	-Transfers are made by OMM to this acct. from acct. No. 34.
Mopti	267 000 34	OMM L/C Operating account	4,546,357	-94,546,357 on 28/2/82 - in early March 90,000,000 MF withdrawn for millet purchases.
Mopti	267 000 37	OMM Ag. Credit account (only)	3,201,945	-About 90,000,000 MF is owed to other accounts for purchases of Ag. credit products.
Mopti	267 000 68	Literacy Training	8,772	-Back interest. Account was closed out to acct. No. 34 in Jan. 1982.
Mopti	267 000 69	Grain Marketing (OPAM)	80,893	-Back interest. Account was closed out to acct. No. 34 in Jan. 1982.
		Total - Mali Francs	16,338,000	-Approximate total
		Total - $ U.S.	$32,676	

Accounts 68 and 69 were closed out on the recommendations of a Ministry of Agriculture team in late 1981 so as to avoid flat annual bank charges of 24,000 Malian Francs per account. USAID was neither consulted nor informed. These accounts had been established to isolate their funds from activities supported by project funds. Account No. 267-68 received and disbursed funds for the Literacy Program which is funded independently from a separate AID/W project.

Account No. 267-69 was established to receive and disburse funds from OPAM for its grain marketing program. The initial deposit was obtained by withdrawing OPAM funds previously comingled with Agricultural Credit in Account No. 267-37. OPAM operations are independent of USAID support (except for equipment provided in Phase I). Commissions charged by OMM from OPAM are intended to accumulate for eventual replacement of equipment, chiefly grain trucks. However, a number of grain scales were recently purchased for which USAID has refused to reimburse OMM.

Comingling funds from these two accounts with those of the OMM Operating Account funded by the USAID OMM project has added to an already existing confusion among the several funds.

Account No. 267-37 for Agricultural Credit operations was a blocked account established during Phase I to receive the proceeds of credit sales of agricultural equipment and supplies provided in kind by USAID. The account was unblocked in mid-1979 when it had a balance of $711,000 (according to the Phase I Evaluation Report) which was considered adequate to maintain credit operations until 1983. However, the account ran low, possibly because of credit arrears and losses, and OMM deposited funds in both 1980 and 1981. USAID reimbursed these deposits, despite the intended restriction.

Account No. 267-34 is the operating account for USAID supported local currency activities of OMM. It corresponds to Line Item 7 in the USAID Financial Plan of the PGA and is funded through the Bamako Transit Account No. 267-45. Like all other accounts, the integrity of Account No. 267-34 has not been respected. The same is true of the Transit Account No. 267-45 in Bamako. Suppliers located in Bamako are often paid from this account to avoid transfer charges and delays incurred with cheques for Bamako drawn on Mopti accounts of the same bank.

Account No. 267-13 in Bamako is intended solely to fund road building operations of the project which are executed under an unwritten agreement between OMM and the Ministry of Public Works ("Travaux Publics" or "TP") by the Road Brigade under the control of "Travaux Neufs" (T.N., a unit of T.P.) situated in Bamako. USAID operating funds for the Road Brigade move through the Transit Account No. 267-45 in Bamako and are under the control of OMM in Mopti. The Brigade requests funds from OMM and if approved and available (in any of its accounts), the funds are transferred to the Brigade Account No. 267-13. This account is maintained in Bamako chiefly because it is the headquarters of T.N. Brigade. Operations are in the Mopti area, but many of the vendors and suppliers are in Bamako. Given the slow communications between Bamako and Mopti and the cumbersome operations of the Bank, the Brigade activity is beset by a large number of relatively small money problems.

In view of the specific purposes for which these bank accounts were established, it would seem appropriate that an up-to-date file should exist with all regulations concerning uses and limitations of the various OMM accounts. No such file seems to exist and decisions on their uses are made solely by OMM on day to day exigencies.

Links Between OMM Accounts and Budgets

Bank Account No. 267-34 is directly linked to Line Item 7 in the PGA. Expenditures paid from this account are, if made for appropriate purposes, reimbursable by USAID. It is essential, therefore, that OMM operating expense accounts should correspond in nomenclature with subline items of Item 7 of the project budget -- not, it should be observed, in both the OMM and USAID budgets since they should be one and the same budget. This is not the case because OMM does not integrate its accounting and budgetary procedures and because of a lack of coordinated accounting between the project and USAID.

Bookkeeping

Bookkeeping consists of a series of laborious manual operations, further complicated by the indiscriminate payment of expenses from all the bank accounts and transfers between accounts. The following basic books are kept:

- Chronological or simple journals of expenditures (one for each bank account for checks and one for cash payments);
- Check registers for each bank account with separate columns for the principal expense accounts (extensively duplicated in each register because the bank accounts are not restricted to their intended purposes), including a column for cash requirements;
- A disbursement journal for cash payments with columns that duplicate those of the check registers;
- A chronological simple cash receipts journal;
- A cash receipts journal with columns for each bank account;
- An expense transfer journal;
- A general ledger with individual accounts for major vendors usually paid by check;

Accounts to small vendors, usually paid in cash, are not recorded until payment is made.

Expenditures are posted from the chronological simple journals (maintained by the cashier who also writes checks) to the check registers and cash journal. They are then posted to the transfer journal. Finally, they are posted to the ledger accounts. Receipts are similarly posted to the cash receipts journal, then to the accounts in the general ledger, i.e., debits to cash accounts for each bank account and credits to accounts for each source of revenue, including internally generated revenues:

- USAID advances and reimbursements;
- OPAM commissions;
- Agricultural cash sales;
- Agricultural credit reimbursements; and
- Mobylette credit reimbursements.

Payroll Accounting

Payment is made on the basis of certified payroll time sheets prepared in the Administration Division and based on the budgets which list all employees of OMM. No prior encumbrances are required, whether charged to the OMM budget or to the GRM budgets. A time keeper is attached to every work squad of the Road Brigade.

Certification of Expenditures

Certification of expenditures at OMM is a rather informal affair. Theoretically, all bills are approved for payment by the Director-General and Finance Chief. A sampling of receipted bills showed some bills approved by the Director-General, others by the Director of Finance, others by no one. The principal concern seems to be whether there are funds in a bank account with which to pay the bill. Payrolls also require signature of the Chief of Administration and Personnel. Checks are prepared by the cashier and signed by both the Director-General and Chief of Finance, not by the cashier. Many payments are made in cash and there is no upper limit to cash payments. Small vendors do not like the delays and complications associated with cashing checks at the BDM. This is a real problem that cannot be wished away.

Posting and Trial Balances

OMM accounting operates on a "periodic posting system," not on perpetual posting. There is a marked tendency to catch up on all these activities when there is a need for information or when financial statements are required. However, since the last financial statement was issued in 1979, there is little incentive from this quarter. Postings from the chronological or simple journals to the check registers, cash disbursement journal and cash receipt journals tend to be made fairly routinely. Postings to the transfer journals and to the ledger accounts are sporadic. Consequently, there are no periodic trial balances.

Many correcting adjustments were observed in the ledger accounts. This is because account numbers are not entered in the original journals by an accountant who is knowledgable and in authority. Each bookkeeper posts to the accounts that he believes appropriate. Since transactions do not exceed, on the average, 40 per day (from a count of several days' activity made with the cashier) it would not require very much time for the chief accountant or even the Chief of Finance to enter the account numbers before posting by bookkeepers.

Bank Statements, Charges, Reconciliations

The BDM does not provide accelerated service to its customers. In March 1982, the most recent bank statements received by OMM were for October 1981. OMM sent the cashier daily to request statements during the last week of the team in Mopti. After several days in January and February, statements were obtained from the newly installed small computer. November and December were still unavailable. It appears that in Bamako statements are normally six months in arrears and often contain mistakes.

The BDM charges a flat 24,000 Malian Francs annual service fee on each account and a 1/10th of one percent check face value fee for cerifying checks. Vendors in Bamako require certified checks when issued in Mopti to avoid collection delays and charges. The BDM pays interest on checking accounts, but the interest rate is mystifying and is entered on the statement once a year. Banking problems in Mali are real and must be contended with.

Under the above conditions, it is difficult to reconcile bank statements monthly as USAID might wish or to provide USAID with copies of bank statements as requested in PIL No. 2. The accountant of "Operation Riz" said that the best solution is to go to the Bank monthly with the "Operation's" check registers and reconcile them there with bank personnel.

F. Supporting Activities and Documents

Purchases, Payments and Supporting Documents

Prior to 1980, OMM had a Procurement Division, reporting directly to the Director General (D-G). It was responsible, in theory anyway: "For local purchases, motor pool operation, movement of project commodities to the ultimate destination, credit (agricultural equipment and farm implements) and also liaison with the USAID/Bamako Procurement Office."

Apparently purchasing authority remained with the D-G and the Division's only function was to issue purchase orders. It seemingly never maintained any files

on commodities purchased. In 1980 the Division was downgraded to a Purchasing Section and placed under the Finance Chief, an action that is criticized in the USAID survey quoted above.*

It is difficult to reconstruct what has occurred since 1980, but today it is clear that the "Section Achats" performs very little procurement. In fact, procurement is scattered about OMM with no defined authority. Purchase orders and work orders are, in theory, always approved by the Director-General. It seems, though, that almost anyone of stature can issue them.

When commodities are received, they may go to the central warehouse or they may be delivered directly to the "Secteurs" to which they are destined. Commodities are usually accompanied by an invoice ("Borderau d'Expedition") in several copies. These are signed by the warehouseman and the original is returned to the vendor as proof of receipt. He then attaches it to his bill as proof of delivery and sends it to OMM for payment. The "Borderau" is a most important document and is accepted as justification for payment without an internal receiving report (this is required only when there is no invoice). Where commodities are delivered directly to the sector where required, a copy of the signed invoice is returned by the sector chief to the warehouseman in Mopti who is apparently supposed to keep track of all commodity receipts and deliverables.

Payments are approved on the basis of the bill and (usually) invoice. After payment, original signed invoices are filed chronologically in the office of the Finance Chief. He stated that this is a requirement of the Ministry of Agriculture. Bills, with whatever other supporting documents are available, are also filed chronologically, but in a separate file. Some had purchase orders attached, some copies of the invoice, some a receiving report and some no documents at all. Under this system, it is impossible to track a commodity from its requisition to its use and disposition. Some receipts for cash received were also found in this file.

*Source:

End-Use Survey of OMM Project Commodities, memo from USAID/MGMT Moctor Diabite to ADO/CROPS David Delgado, dated July 31, 1980.

The warehouse (an inadequately adapted adobe house) maintains stock cards next to all items showing receipts, issues and balances. A sampling of stock items agreed with the balance on stock cards. However, the inventory control clerk in the OMM office does not maintain a perpetual inventory of items received and issued. Hence, there is no check on the balances shown on the stock cards. About the only function of the inventory clerk is to prepare stock issue requisitions. It seems doubtful whether all stock issues require such a requisition.

Agricultural Commodity Sales

The Agricultural Section is responsible for all activities related to procurement and sale of agricultural equipment and supplies. Since there is no adequate central procurement and warehousing unit, agricultural equipment and supplies are usually delivered by the vendors directly to the seven OMM sectors from where they are distributed to the ZERs for eventual sale to peasants who come in from the villages and Base Zones to buy their requirements (usually accompanied by the Base Zone Chief if a credit purchase is contemplated).

Cash sales are encouraged. Credit sales are short term (one year or less) and medium term (up to three years). Some experimental 5-year credit sales are being made in two selected villages. Accounting for agricultural stock inventories and credit pose a relatively difficult problem. In the rural areas, records are kept at the ZERs and summarized at the seven sectors. Three different multicopy and colored receipt books are used:

- one for cash sales (three copies of the receipt);
- one for short term credit (four copies of the receipt); and
- one for medium term credit (four copies of a long term receipt with coupons that can be torn off as each payment is made).

Cash and credit sales are recorded on long spread sheets showing the down payment and remaining annual payments. These are grouped on a summary sheet at each sector and turned in to the Agricultural Credit Section during the monthly sector chief meetings in Mopti. At the end of each Agricultural Campaign, a periodic theoretical inventory is calculated from the sector spread sheets. This is

checked against a physical on-the-spot inventory made by the section chief on a tour of the sectors. His records showed no discrepancies for 1978-79 and a relatively small number in 1979-1980, as shown below. These were explained as unrecorded issues of equipment and supplies made to farmers pending their down payments, when the sale becomes a recorded transaction. It was implied that these irregularities had disappeared as down payments were made, though there was no proof of this because the section chief was away on training in 1980-81 and the physical inventory records made by his substitute had been mislaid. Because a change in fiscal year to April-March is being adopted this year by this unit, another physical inventory is currently in process but results will be too late to report.

The reported discrepancies in the 1979-80 inventory are the following:

Item	Items sold	Invent. discrep.
TM plow	248	50
Bourguignone plow	987	219
Multicultivator	166	5
Seeder	101	3
TRP - 100 kg bags	741	245
Phosphate - kg	58700	300
Fungicide 8	40465	5163

From this rather meager information, it is difficult to assess the effectiveness of Agricultural-Inventory control. The impression is that it works, despite a somewhat cumbersome record keeping system, because the section chief is alert and makes it work and because annual figures are adequate, i.e., monthly statements are not required.

Agricultural sales records are kept by the same section. To date, total sales, cash sales and credit sales are reported as:

	Total Sales*	Cash sales	%	Credit sales	%(x)
M.F. (000)	683,371	187,322	27	502,627	73
In dollars	$1,366,742	$374,644	27	$1,005,254	73

*Note:
There is a small discrepancy between total sales and the sum of cash and credit sales.

Loan Accounting

Agricultural loan accounting is maintained at the ZER and sector levels. Activity figures are determined annually at the Agricultural Credit Section from similar spread sheets to those used for stock sales and inventory control which are received monthly.

Cumulative total agricultural sales and credit to date are shown in Table 9. Arrears for 1980-81 one-year credit sales will not be available until the credit section chief completes this current tour of the sectors.

Reimbursements and unreimbursed balances remained at about 60% and 40% respectively for three years (78/79 - 80/81) which suggests that the length of the credit granted does not affect the rate of reimbursements. However, as might be expected, arrears seem to climb as the years recede (25% for 1978/79). There is no policy for writing off bad debts which do eventually get reimbursed, as the low figure of 13.6% arrears for credit prior to 1978/79 suggests. Neither is there any policy about an acceptable loss rate or how to factor losses into the interest rates or mark-ups. Prices are based on C.I.F. cost in Mopti. Hence, there is an immediate loss on cash sales and a presumed loss on credit sales because of low interest rates (about 6% on agricultural products). OMM is providing a hidden subsidy which it has not calculated. Nor does OMM seem to be particularly concerned about the long-term effect on the cash flow of the credit fund.

The credit fund, when it was unblocked in 1979, was stated in the PGA Annex I, Part III-F to have a cash balance of $711,000. (No accounting notice seems to have been taken of inventory intended for cash or credit sale.) Ignoring cash sales, which merely revolve cash in the account, total credit (for equipment, supplies and draft animals) extended in three years (79/80 - 80/81 - 81/82) was $480,926 and total reimbursements were $266,506. Hence, the draw-down on the account (cost and credit sales) would have been $214,420, leaving a balance from the $711,000 of almost $500,000. However, OMM also obtained reimbursement from USAID for credit fund purchases of $168,300 in 1980 and $42,000 in 1981.

Table 9

Total Ag. Credit Sales, Reimbursements and Arrears to 30 Sept. 1981

In Mali Francs (000)

Fiscal Year	Credit Sales	Reimbursed	% of Tot.	Unreimb.	% of Tot.	Arrears	% of Tot.	% of Reimb.
Pricr to 1978-79	176,428	152,399	86.3	24,029	13.6	24,029	13.6	15.7
1978-79	85,737	54,420	63.5	31,317	36.5	21,674	25.2	39.8
1979-80	107,177	61,694	57.6	45,483	42.4	19,256	18.0	31.2
1980-81	92,905	56,600	60.9	36,305	39.1	N.A.	N.A.	N.A.
1981-82	40,381	14,959	37.0	25,422	62.9	----	----	----
Total all years	502,627	340,072	67.6	162,555	32.3	----	----	----
In dollars	$1,005,254	$ 680,144	67.6	$ 325,110	32.3	----	----	----
Total to 1979-80	369,342	268,513	72.7	100,829	27.3	64,959	17.6	24.2
In dollars	$ 738,684	$ 537,026	72.7	$ 201,658	27.3	$129,918	17.6	24.2
Total 79-80 to 81-82	240,463	133,253	55.4	107,210	44.6	----	----	----
In dollars	$ 480,926	$ 266,506	55.4	$ 214,420	44.6	----	----	----

Source: Agricultural Credit Section, OMM

Hence:

Assumed balance in 1979	$ 711,000
Estimated cost of credit sales	214,420
	$ 496,580
Addititional credit funds in 1980 and 1981	210,300
Current balance forward should be:	$ 706,330

According to OMM, the current cash balance in the credit fund bank account as of 28 February 1982 was about the equivalent of $U.S. 6,400. However, about 89 million Malian francs (about $U.S. 179,000) are reported outstanding in debts to suppliers or debts to other OMM accounts for supplies and material bought for the credit and supply operation, but not yet reimbursed. The credit fund has some other assets in the form of inventory in sector warehouse and apparently some accounts receivable for recent sales of blacksmith equipment. This is a long way away from the approximately 350 million Malian francs which should be available to the credit fund. We assume, therefore, that this amount, about the equivalent of $700,000, represents operating expenses funded out of the credit fund. As noted, OMM has submitted or will submit reimbursement requests to USAID totalling approximately 378 million Malian francs.*

Hence OMM has "Accounts Receivable" in the form of approved reimbursements from USAID. At the time those funds are released to OMM, full previous agreement must be reached on how much is owed to the credit fund, when it will be repaid, and how USAID can be assured that funds will be available to meet farmer demand for supplies and equipment for the 1982-1983 crop year.

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*Submitted and approved after June to December 1981	M.F. 152,110,000
To be submitted and subject to review January and February 1982	M.F. 226,123,000
TOTAL	M.F. 378,223,000
=	$US 756,466

The attached table shows credit sales activity to 30 September 1981.

Other Credit Sales

To ease the difficult problems of rural and administrative transportation in the OMM area, OMM buys and sells small motorcycles to its personnel on two-year credit at 10% interest with no down payment. There is no mark-up on the mobylettes. They are sold at C.I.F. Mopti cost. In order to obtain deliver~~ables~~y in Mopti, the OMM is sometimes obliged to make an advanced down payment. These operations are handled by the Finance [illegible]ief from the Operating Account No. 267-34. "Mobylettes" are stored unti[illegible]ld in the OMM warehouse. Priority is given to rural personnel. Since the estimated life of mobylettes in rural use is only two years, this operation is of substantial proportions. No study was made of "Operation Mobylette." However, the following sales figures were provided by the warehouseman:

Mobylette sales (numbers of M.)

	1980	1981 (to Feb. 1981)
OMM offices	7	27
DRDR	3	4
Literacy Program	4	0
Road Brigade	24	0
Bankass Sector	34	16
Douenza Sector	58	4
Koro Sector	44	6
Mopti Sector	45	12
Djenne Sector	22	19
Bandiagara Sector	56	5
Tenankou Sector	5	5
	302	98
Additioanl sales, Oct. 29-Dec. 31, 1982		16
TOTAL	302	114

No sales have been made so far in 1982, but substantial purchases have been made.

1982 purchases and stock are:

In stock from 1981	9	
Purchased and received	100	(Vendor A)
Ordered 25, received	8	(Vendor B)
Total inventory on 17 March 1982	117	
To be received	17	
Total available for 1982	134	

In 1981, mobylettes were sold for 346,500 Malian francs, including interest. The salary withholding is 14,440 Malian francs per month. The price in 1982 is expected to be close to 400,000 Malian francs.

Replenishment of Stocks and Equipment

The PGA (Article 5) is very specific about developing and setting aside funds in special accounts for replenishment of agricultural equipment and supplies, and for replacement of "mobylettes" and grain trucks used in the OPAM marketing activity so that these activities will become self-supporting.

OMM is not doing this; it is funneling all except agricultural sales through its operating account No. 267-34 and has a policy of not marking up items for sale. Such a policy can only deplete the funds established for these purposes.

G. Financial Reporting

Periodic Statements

The only "regular" financial statement is an annual "Bilan," i.e., balance sheet. The last one issued covered the 15-month transitional fiscal year for 1978-79, i.e. January 1978 to March 1979, and was prepared with contract technical assistance. It is a weighty report, replete with accounting work sheets, intermediate and futile depreciation entries and of absolutely no value to the D-G in managing OMM. Some of the operating divisions and sections issue reports

with activity statistics, but these too are not always of very much value, especially when issued very late.

Reimbursement Requests

If issued on a regular basis, these could be of some utility to the Director General in the absence of better financial statements. However, the previously described irregular fashion in which they are prepared negates any such usefulness.

Inventory and Credit Status Reports

This is a substantial and detailed report showing perpetual and periodic inventories by item, by value and by sector with an overall summary. It also shows credit sales per year by value and by sector; also, reimbursements and unreimbursed balances in amounts and percentages. It, unfortunately, does not show credit arrears. The latest report was issued in February 1980 and is too old to be useful. It covers the cummulative totals prior to 1976-1977 plus 1976/77, 1977/78, 1978/79 and 1979/80. If modified to show arrears and issued regularly, this could be a very useful document.

H. Funds Reimbursements

At irregular intervals, OMM prepares and sends to USAID a list of operating expenses paid by OMM from a revolving fund established by a cash advance from USAID prior to Phase II. For some time, USAID has been requesting these be accompanied by original receipted invoices or bills. OMM, however, is reluctant to do so, even if returned, because the Ministry of Agriculture requires that they be retained on file.

Project Officer Review

The present project officer borrows the invoices or bills from OMM during his periodic visits to Mopti and carefully reviews the list of expenses item by item, approving those that meet the criteria distributed throughout the project documents (PAR, amendments, PILs, etc.). Rejected items are discussed with OMM personnel and retained if justification is produced.

Controller Review

The list of items approved by the project officer gets a final review by the USAID Controller and is then processed for reimbursement.

Reimbursement Procedure

After final approval of the reimbursement requests, a voucher is prepared and sent to the USDO in Paris who returns a treasury check to Bamako payable to OMM.

Timing

Reference to Table F-6 (Reimbursements to OMM by USAID for Operating Expenses) shows that the major delay in the reimbursement process is the 3.9 (average) months taken by OMM to submit its requests. Approval by USAID takes about a week and the time to obtain a USDO check from Paris and deliver it to OMM is about five weeks, excluding reimbursements that have been held up for technical reasons. If OMM adhered to USAID's calendar for submitting requests by the 15th of each month following that for which requests are made, reimbursements should be in the hands of OMM (on the average) eight weeks after the end of each month (2 + 1 + 5 = 8).

I. OMM Accounting Personnel

Staff

Frequently during the many interviews at OMM, the complaint was expressed that accounting problems were inevitable because of the low caliber of the accounting staff. "Give me one good accountant and the books will quickly be in order" was said a number of times by the finance chief. After conversations with several of the staff, the problems seemed to be much more related to poor supervision, insufficient on-the-job training, followup, participation and knowledge about the function of bookkeeping, encouragement, etc. Equally important seems to be a total lack of accounting discipline and unnecessarily poor working conditions. Unforntunately, the chief accountant and his immediate assistant were both absent,

but there were revealing conversations in the budget section, agricultural credit section, warehouse and with the cashier. The budget and accounting staff work in a poorly lit square hall or bull pen surrounded by the relatively spacious offices of the division chiefs. Of three old calculators, only one worked. Account and reference books were piled on the floor for lack of office furniture in which to store them. The difference in lifestyle between the clerical staff, who often must buy "mobylettes" to get to work, and the division chiefs who have cars, full maintenance, fuel and housing provided free (to mention their most obvious perks) is striking.

Training

At all levels, the staff of the finance division seems to have had an adequate number of years of professional or clerical training. There was no way to assess the quality of the training. Lack of supervisory experience was obvious. The finance chief, for instance, was appointed to his present position immediately after graduating from business school. While knowledgable in the theory of his profession, he lacks the experience required to handle the responsibilities of his position. He recently spent several weeks in the U.S. as a participant trainee, but it is not clear whether this contributed very much to his technical or management skills. Of particular significance is the discovery that two of the most effective finance division employees had previously worked for some time (at least a year each) for USAID and the U.S. Embassy in Bamako. As often observed elsewhere, the experience of working in a disciplined and supervised environment is invaluable.

J. Problems

Problems Common to OMM and USAID

OMM and USAID have different lines of responsibility. OMM must answer to its own Board of Directors, the Ministry of Agriculture, and financial controllers of the GRM. USAID/Bamako looks toward AID/W, the Congress and the GAO. As a result, there is often a lack of understanding of the other organization's constraints. Moreover, there does not seem to have been any strenuous effort (until quite recently) from either side to achieve better understanding. The OMM has not

adequately studied the financial provisions of the Grant Agreement and its internal financial controls; operations and policies do not reflect what was agreed. USAID has not understood the accounting demands placed upon the Operation by its own authorities and by the inadequacies of the banking system. USAID did recognize the need for financial technical assistance. The unhappy chain of events that have kept this assistance unavailable seem to have resulted from a combination of bad luck and poor management follow-up by AID/W. On the other hand, USAID should have provided more interim assistance to OMM in setting up its financial system and the reports needed to meet USAID requirements. The failure to prepare and issue a detailed Project Implementation Letter No. One left OMM with inadequate guidance. In the absence of the careful mutual review of financial procedures called for by an appropriate PIL No. 1, OMM has never understood the rationale for USAID demands and instructions.

We have noted and applaud the recent efforts of the project officer to work out budgets with the OMM. Budgets and financial plans should have been prepared through close collaboration from the beginning. If the project officer and the controller's office continue their recent efforts to work closely with the OMM, and especially with the financial advisor, the problems of mutual misunderstanding should dissappear.

Problems Specific to OMM

OMM is facing a cash flow crisis that threatens the imminent shut-down of almost all project operations. This is caused by OMM's inability to obtain accountability certification of its accounting system because:

- There is no system of encumbrances prior to all expenditure commitments;
- Supporting documentation of all expenditures to permit tracking of expenditures and purchases to their source and disposition is lacking; and
- Inventory control is inadequate.

There are also many chronic problems, either financial or involving financial controls, that must be resolved either along with or as a result of the resolution of the immediate problems. The following is a listing of these problems:

- absense of supporting documents related to all expenditures to permit tracking expenditures and purchases to their source and disposition; and
- lack of adequate inventory control.

There is a long list of chronic problems and, until resolved, they will hamper efforts to correct the following immediate problems:

Budgetary:

- Budget used only to obtain USAID funds.
- Budget not a planning document.
- Fiscal year not uniform for all operations.
- No budgetary calendar.
- Excessive operating line items and lack of uniformity with PGA financial plan.
- No budgetary control of expenditures by encumbrances and limited transfers.

Accounting:

- Excessively complex, though fundamentally sound -- inflexibly imposed by GRM.
- Total lack of accounting discipline.
- Excessive number of journals and accounts.
- Excessively laborious bookkeeping.
- Account postings periodic and late.
- No trial balances.
- Undisciplined certification procedures.
- No chronological journal or list of reimbursable expenditures to hasten submission of claims to USAID.

Procurement and Payments:

- Decentralized, planned and undisciplined procurement.
- Payments often authorized without normal substantiating documents.
- Documents filed irregularly and apparently in a manner required by GRM but not effective for control.

Inventory Accounting:

- No perpetual inventory system at OMM or in field stations (Stock cards well kept at OMM warehouse).
- Certain stock issues made on verbal orders.

Motor Pool:

- Outside maintenance ordered indiscriminately.
- Little control over spare parts orders, issues.

Bank Accounts:

- Not limited to restricted purposes.
- Payments made indiscriminately from any account by crisis decisions.
- Unjustified transfers between accounts.
- Timely bank statements hard to get, especially in Bamako.
- Reconciliations rare and tardy.

Financial statements:

- No periodic management statements, i.e., encumbrances, disbursements, etc.
- An enormously detailed balance sheet, prepared occasionally, which is of no value.

Agricultural Credit/Accounting:

- Reasonably effective, but cumbersome.
- Does produce a useful annual report on agricultural credit activity.

Organization and Personnel:

- Financial Division authority is too broad for effective management and control of funds.
- Accounting and bookkeeping personnel inadequately
  - instructed
  - supervised
  - encouraged
  - provided with basic office furniture, lighting, equipment.

Problems Specific to USAID

USAID is facing a crisis of credibility. It has allowed the "Operation" to function for ten years with no control over its expenses. It has neglected to provide precise accounting guidance in a PIL No. 1 that should have been issued shortly after signing of the PGA. It has failed to provide technical assistance recommended in the 1979 evaluation and specified in the Phase II PGA. It has unilaterally issued a series of PILs without serious thought about their feasibility or adequate prior negotiation with the recipients. Correcting this situation will require that USAID maintain and strengthen its project implementation and financial management staff and this staff must continue the effort to develop a style of close collaboration with the grantee in the execution of the project and in its financial controls.

K. Recommendations

Immediate Problem

Technical assistance should be provided immediately to permit the early meeting by OMM of the requirements set forth in PIL No. 9, i.e., establish an encumbrance system, a receipts and disbursements journal, a control of bank accounts and an inventory control system. This technical assistance is needed immediately. Using some notes left behind by this evaluation team, the advisor should be able to complete work necessary for certification in about four to eight weeks. He should then stay on to keep the system running until a long term financial advisor is on board.

Chronic Problems

The long promised financial management technical assistance should be provided as soon as possible and should be provided for the life of the project. The contract for this assistance must be most carefully drafted and understood by all parties. The individual selected must have full financial authority over OMM expenditures of AID funds, including budgeting, committing and paying. No reimbursement request should be honored without his written approval. This authority must be given wholeheartedly and ungrudgingly by the Director General of OMM who, incidentally, has already indicated his willingness to accept it.

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The financial division chief of OMM must be allowed to share this responsibility as part of the transfer of knowledge and experience. The technical advisor must teach by example in a day to day working situation.

Lesser Recommendations

Brigade Piste Funding:

The road construction activity should be paid for from a separate activity budget and a separate bank account. USAID, OMM and the financial management advisor should agree on how much is to be disbursed for what purposes.

Central Warehouse:

To permit effective receiving and control of all purchases, construction or rehabilitation of the central warehouse should be high priority.

Recommendations List

To list here the nearly forty detailed financial recommendations seems unnecessary. They will be found in Annex II. In any case, they are really intended more as a checklist and guide to the long term financial advisor than anything else.

V. PROJECT COMPONENTS

A. Agricultural Research and Extension

1. Project Background

Phase II of the Operation Mils-Mopti was mainly conceived as a food production project with expressed purpose to "increase the production and productivity of rain-fed food crops in the Fifth Region of Mali" which would lead to the goal of "improved income and well being of farm families in the Fifth Region". Phase II began in April 1980 with a projected duration of four years, ending in September 1983. The project objectives were sought to be achieved by means of two major farm-level interventions:

- By implementing a research program to develop a technology package; and
- By improving the effectiveness of the extension system, primarily through training.

Several different activities were identified for implementation under each of the two major interventions. The details of these activities are presented under relevant sections in the following pages.

The evaluation of Phase I of the project (1976-79) assessed the then existing technical package and research approach which tended to focus heavily on the genetic improvement of varieties. While noting neglect of applied field oriented research, the evaluators rightly stressed the importance of such research "for the continuous testing and adaptation in farmer fields of results from ongoing research in the research institutions and experiment stations." With regard to the extension organization, poor preparation of extension agents and a lack of technical competence were noted, and better training was suggested as a means of increasing the effectiveness of the extension system. The "pilot farmer" approach used in Phase I was criticized as ineffective both in terms of reaching a large number of farmers and for the lack of demonstration-effect of pilot farmers and the evaluation team suggested the "pilot village" as an alternative approach.

2. The Agricultural Setting

Agriculture (millet production) is the main activity in the Fifth Region, a complex agro-climate area characterized by at least four major agro-climatic zones interspersed with several micro-climates. There is a variation in soils ranging from light sandy soils to sandy loams and to pockets of heavier clay. Traditional agricultural practices have evolved over the past several hundred years to fit the soil-climate conditions. Rainfall averages from 500 to 700mm occurring from June to October. Distribution is mostly erratic and uneven. About 90 percent of the area cultivated is under millet and sorghum. A limited area is under fonio, cowpeas and peanuts. Cowpeas and peanuts are grown as mixed crops or interplanted with millet and sorghum. Very small areas of peanuts are cultivated as sole crops. Crop rotation hardly exists and is currently among the several extension interventions that is gaining slow acceptance. Land preparation and other tillage practices are traditionally done by hand using a hand hoe. Earthen mounds are formed at the base of millet and sorghum during the two weedings, intended to incorporate weeds and protect plant lodging from heavy winds. However, one major disadvantage of this practice is quick loss of soil moisture by evaporation and wind erosion. Often seeds of millet and cowpeas are planted on the same mound year after year. Traditionally, farmers use cattle and sheep penning and household waste as sources of organic manures. While this practice helps soil productivity, full advantage is not realized since hoe cultivation does not incorporate the organic manure into the soil to decompose. Poor soil texture and low level of organic matter in the soil leads to further moisture losses by evaporation and leeching. Soils, while being uniformly low in productivity, are known to be deficient in phosphates.

Technical interventions (the package) promoted by the OMM extension organization have been, and continue to be, based largely upon research results from Malian and other organizations mostly outside the Fifth Region. The package, as presently defined, consists basically of a set of improved cultural practices with a proven track record in a variety of agronomic situations. Most of these practices could be called intermediate technologies requiring very little financial investment and possessing low risk profiles. Several among the ten practices comprising the package are well-known agronomic practices which have a favorable impact on crop production, soil

structure and fertility (tillage practices using animal traction, line sowing, optimization of plant population, seed treatment, crop rotation, seed selection techniques and use of organic compost). These practices, though not capable of producing quantum jumps in production, are undoubtedly very important in view of the peasants' own socio-economic conditions, the absence of proven results in the economic use of fertilizers (on millet) and the non-availability of improved seed varieties for the region.* Research at Malian agricultural research institutions, as well as at international institutions continues to be heavily oriented towards genetic improvement of varieties. Genetic improvement of crops is a long-term strategy. It is doubtful if any improved varieties -- superior to well adapted local varieties -- will be forthcoming in the next five to six years. During the last two years, therefore, researchers (notably ICRISAT) have shifted their focus toward developing technologies based on rotation, intercropping of millets and grain legumes, crop rotations, use of fertilizers, planting dates and optimal plant populations. Keeping in view the agro-climate conditions and crop production constraints specific to the Fifth Region, the research component incorporated into project design in both the Phases I and II focused on applied research. The applied research activity was proposed with three objectives:

(1) To bridge a certain confidence gap in the initial technology package;

(2) To modify the elements of the technology package in view of the experience gained in the field; and

(3) To serve as a feedback mechanism for testing and adaptation in farmers' fields of results from ongoing research in the research institutions and experimental stations.

3. Agricultural Research

a. Research Component Background

To meet the needs of improved technologies in the Fifth Region, the following activities were identified as necessary to achieve the research objectives:

*This is also true of at least one other project in the area (Operation Riz Mopti). According to project officials, there is no package available for rice as yet and research is going on under the direction of the West African Rice Development Association (WARDA).

Activities

- Agronomic research related to the project area on the basis of a program proposed by ICRISAT to include:

  - Farming systems research;
  - Applied research based on use of natural phosphates and synthetic fertilizers;
  - Crop rotations with legumes;
  - Association of legumes with cereals;
  - Managed fallows;
  - Productivity of forage crops; and
  - Moisture-water conservation techniques.

- Animal traction to extend mechanization beyond plowing to include weeding by cultivation.

- Multilocational testing (on farm trials) of research results coming out of the research stations and from such organizations as SAFGRAD AND ICRISAT.

The following inputs were deemed necessary to support research activity.

- Technical Assistance in the form of:

  - A U.S. field trials specialist to work closely with SAFGRAD over three years in the field testing of farming systems innovations.

  - A counterpart Malian agronomist to be provided by GRM.

  - ICRISAT to provide an agronomist (Malian) to head the Seno Research Station (Station Chief), with another Malian agronomist to be provided by OMM as a counterpart to the Seno Station chief. Two assistant field trials supervisors and two monitors will also be provided by OMM.

The Seno Station chief (ICRISAT) and his Malian counterpart (OMM) have both been trained at ICRISAT-India and after two years' experience, the station chief was to be sent for further training in the U.S. The project was to fund certain construction and operating expenses:

- 1 utility vehicle;
- 5 mobylettes for field trials assistants and monitors;
- animal traction equipment;
- soil testing equipment;
- generator;
- upgrading of facilities, housing, etc.; and
- operating expenses to be borne by project.

b. Current Status

The Seno Agricultural Research Station is operational. The facilities are minimal and need to be upgraded if the station is to meet the objectives for which it was established. (See Appendix for the existing facilities.)

- Technical Assistance: Progress in providing technical assistance has been satisfactory. The present chief (Samba Traore) has completed a 9-month training course at ICRISAT-India and is currently undergoing language training. He is expected to leave for the U.S. in August 1982. OMM has provided a Malian counterpart agronomist to work with the U.S. field trials specialist in the multi-locational field testing program. OMM has also provided the assistance of one ICRISAT trained technician to assist and supervise the field trials testing program. OMM has also provided additional staff to Seno Station, as foreseen in the P.P.*

- Two persons have been trained at ICRISAT-India, (including the Seno Station chief) who, as noted, is expected to leave for U.S. in August 1982. Hence, progress in training is up to date.

- Commodities, as foreseen in the P.P., have been placed at the disposal of the research station.

- Agronomic research conducted so far by the field trials specialist/SAFGRAD has been limited to the use of phosphate de Telemsi and crop rotations (millets and peanuts, sorghum and peanuts) using different densities of plant population. There is a scope for improving the current research design incorporating mixed cropping (sowing two crops, cereals and legumes in alternating sets of rows) and other elements.

c. Soundness of Research Objectives

Agricultural Research within the OMM operational area is presently conducted by three agencies: OMM, SAFGRAD and ICRISAT.

*A U.S. field trials specialist has been provided for the last two years (1980-1982) and has been conducting field trials in close cooperation with SAFGRAD.

OMM: A U.S. field trials specialist, funded under the project, conducts field trials assisted by a counterpart agronomist provided by OMM. This team, working in close coordination with SAFGRAD, develops research protocols to be followed. The trials are conducted in the OMM area on the farmers' fields with assistance from the OMM extension staff. At the end of the year, research results are presented to OMM. Forty-six trials were conducted in each of the two years, 1980 and 1981. However, these trials included only a limited testing of rock phosphate use and of rotation using grain legumes.

SAFGRAD has a national mandate for Mali. Promising research findings are picked up from research organizations and field trial protocols are developed and tested on farmers' fields. SAFGRAD strategy in Mali is focused on increasing crop yields through the use of millet-peanut rotation and use of fertilizers. As SAFGRAD works in close cooperation with OMM field trials specialist, no trials are directly conducted by SAFGRAD in the OMM area, except at the Seno Research Station. In fact, the strategy followed by the OMM field trials specialist is a replication of SAFGRAD trials.

ICRISAT has a national mandate for Mali and a very limited number of trials have been conducted in the OMM area (at two locations in the 1979 and 1980 seasons) in addition to the trials conducted at the Seno Station. ICRISAT research strategy (in Agronomy) is focused on varietal screening of sorghum (drought resistance) and millets (disease screening); intercropping (millet-cowpeas and sorghum-cowpeas); tillage practices; densities; spacing and use of fertilizers.

As indicated elsewhere, OMM is not a homogeneous agricultural area in terms of either soils, crops or methods of cultivation. (See Appendix IV.) Therefore, research concerns of OMM differ greatly from other regions. The approach to research should take into consideration the natural heterogeniety prevailing in the area. The approach should be focused on improvements in the existing agronomic practices, aiming at extendable results obtainable within a short time frame (3-4 years). The following

research focus seems suitable and could be easily incorporated into the field trials: millet/sorghum -- grain -- legume rotations; millet-legume intercropping; tillage-soil moisture conservation practices using animal traction; use of organic manures and incorporation of crop residues; maximization of legume hay; use of fertilizers and rock phosphate. In the absence of well adapted seed varieties for millet and sorghum and uncertainty of their availability in the near term (over the next five years), it is the gradual improvement in the production systems and practices that holds the greatest promise for the area.

In view of the discussion presented above, it appears that the research objectives are reasonable and sound and meet the needs of OMM.* However, it should be pointed out that the objectives are rather wide and ambitious given the limited resources and inexperienced research staff at OMM and Seno Station. Implementation of farming systems research would require a larger field staff and resources. (The limited number of field trials conducted by ICRISAT is an indicator.) It would be desirable, if further resources are not available, to concentrate existing resources on a research program sharply defined and focusing on the improvement of existing farming systems.

d. Problems and Issues Observed

An immediate issue, noted during discussions with OMM officials, has been the change under way in research personnel. The U.S. field trials specialist completed his contract on March 15, 1982, and will not be resuming his duty (due to health reasons). He is the second field trials specialist in two years. The previous incumbent also served only one year. The counterpart agronomist of the field trials specialist was scheduled to leave for Egypt on May 1, 1982, for three month's training in plant protection and will be absent during the planning, preparatory and planting stages of the 1982 field trials. The Seno Station chief will be leaving for the U.S. on a training program in July of 1982. All these changes cannot but adversely affect the field trials unless immediate steps are taken to ensure continuity.

*As proposed in Phase II, the research objectives come under the broad category of farming systems research.

Another issue is the operating expense at the Seno research station. Hired labor is costly during the planting season. Inputs must be available when needed for timely research operations. It would be desirable to have a separate budget item in the overall project budget to meet the operating expenses of Seno research station.

The Seno station is ideally situated and could play a very important role in developing and/or modifying site specific technologies and practices. In addition, it could serve as a demonstration center or tool for educating farmers and training extension agents. So far, this station has hardly played any role in these two functions. This could be achieved by arranging visits to the station by farmers from neighboring villages during the crop season and by conducting 1-2 day field seminars for extension agents to promote research-extension linkages.

Very limited experimentation focused on the needs of OMM is presently going on at the Seno station. In view of the short period during which the station has been operating and the absence of key personnel in training, it is rather too soon to expect results and the question of extension of findings to the multilocational testing phase is premature.

The location of Seno research station, its distance from the Mopti-Sevare area and the absence of accommodations for overnight stays for visiting researchers are hindrances to effective work. Provision of overnight accommodation for researchers, and some office space, would go a long way to improve working at the station.

At present, there is no well-defined plan of research for the Seno Station focusing on the needs of the OMM operational area. While several research organizations are involved in the work at the Seno Station, there is lack of a coordinated approach.

Evaluation of OMM's Technical Package

This section addresses two related issues with regard to the technical package offered by Operation Mils-Mopti (OMM) to its farmers. The issues are:

Technical and economic feasibility of the package. Is there a package? Is it adequate? Are the practices extended any better than those which the farmers have been using traditionally, based upon their experience and understanding of the agroclimate conditions?

Investment cycle in agricultural development. Should the donor be focusing on agricultural research rather than on production programs?

Very limited data is available about millet yields and the impact of technological innovations in the Mils-Mopti area. The existing data is sketchy and not of uniform quality. No reports are available at the OMM level which would allow us to make a thorough analysis of technical and economic feasibility. (See Appendix VI for suggestions on data collection and analysis.) However, a few research studies have been conducted in the OMM area since 1979 (Putman 1979; BARA 1980; Mamadou A. Toure 1981) by agencies outside of OMM. While they follow the same general sampling approach, they differ greatly in methodology and lack quality and rigor of data collection. The data from these studies, along with data supplied by the OMM on yields and placement of agricultural equipment and inputs, were used by the evaluation team to establish broad trends and draw conclusions on the technical and economic feasibility of the technical package offered by the OMM. Observations made during our visits to seventeen villages in the area and comments from area farmers support the conclusions drawn from the data.

The term "package" has often been used to denote a set of recommended agricultural practices developed as a result of rigorous experimentation and trials. A key element of the package has always been the seed (improved or hybrid) and the use of it (spacing, optimum dates of sowing, levels of fertilization, etc.). The development of technological packages has met with success, in general, in areas with relatively minor variations in key agro-climatic conditions (soil and rainfall), and areas with assured conditions of irrigation or farmers' ability to provide an occasional crop-saving irrigation to overcome short periods of plant stress due to delayed precipitation. Thus, development of a well defined package has been limited to certain crops such as wheat, corn and rice grown in relatively

stable agro-climatic zones. Even in the developing countries of South and Southeast Asia and South America, where significant progress in the development of a package has been made (for crops like rice, wheat and corn), development of a package for millets and sorghum acceptable and applicable to a wide range of farming conditions has been lagging behind. Thus, it is not surprising that in Mali, as in the rest of West Africa, there is no package yet for major food crops, millets and sorghum, based on improved seed.* This, however, does not mean that there are no extendable technological practices applicable to Malian conditions. The practices currently advocated by OMM and at least one other organization in the same region (Operation Riz Mopti) are those based upon well-known techniques of crop production such as selected tillage practices, use of manure and incorporation of plant residues, growing crops in association, crop rotation, soil management practices, seed treatment and judicial use of fertilizers. These practices have long been considered to be a part of productive agricultural systems and enable the farmers to achieve moderate increases in crop yields. While the above noted practices do not in themselves necessarily constitute a package in the conventional sense of the term, they do seem to constitute a set of viable technological interventions.

The practices recommended by OMM's extension service are:

- Seed treatment;
- Tillage equipment (cart, plows, multiculteurs, seeders);
- Crop rotation;
- Line sowing;
- Optimum plant densities (3 plants per hill);
- Preparation of compost pits;
- Use of fertilizers;
- Seed selection practices;
- Use of improved varieties of seeds (Peanuts: 47-10; Niebe 88-63);
- Choice and management of traction animals (oxen); and
- Piquetage (marking and measuring fields).

*African Rural Economy Working Paper; Sargent et al; March 1981. "For various reasons, a package which has been tested and proven at the farm level is not available for widespread adoption in most countries of Francophone West Africa as of 1981. Lack of significantly improved technology is particularly acute for dry land food crops, but in many parts of the region the opportunities for profitable cash crop production are nearly as limited." (p.61)

These practices, to the extent adopted by the farmers, constitute significant changes in the levels of technology and are in the nature of intermediate technologies. They are relatively low risk practices demanding smaller and affordable levels of investment by the farmers. These practices do demand certain behavioral changes and methods of work among the farmers, which is the crux of development (incorporating plant residues rather than burning; line planting of crops rather than sowing at random; crop rotation and/or growing crops in association rather than monocropping; optimal densities rather than low densities in the traditional method; preparation of compost rather than piling of waste and manures; seed treatment; judicial use of fertilizers; mechanical tillage rather than manual tillage). The advantages of these practices have been well documented in the literature. These practices are essential for the long run viability of continued production on a given piece of land and are necessary to maintain and improve soil fertility. These technological interventions enable the farmers to move to a slightly higher technological level through small increments, building gradual confidence in the new practices.

From the eleven practices indicated earlier, the most widely accepted are certain types of equipment (plows and carts), seed treatment and fertilizers. Plows have become quite popular and are used not only for plowing, but also for seeding and interculture operations by some farmers in the area. Carts, likewise, have found wide acceptance and have become a source of additional income for owners, while releasing the village women from hard labor involved in carrying harvest from fields to homes, collecting firewood from the countryside and often carting water long distances. (Appendix Table I gives an indication of the level of acceptance of various practices.) OMM has established a support service system by way of training village blacksmiths in the maintenance and repair of equipment as well as fabricating spare parts at the village level. Certain minimum requirements of tools are also being given on credit to these trained blacksmiths. Such a support service is essential and should be carefully nurtured. One important gap in the animal traction equipment package promoted by OMM is the lack of an appropriate implement for weeding and interculture. This gap should be filled as soon as possible.

Fertilizers have also found acceptance by certain farmers, apparently due to high grain prices in the open market (85 MF government fixed price versus 120 MF open market price). During our field visits, farmers reported not getting fertilizers in sufficient quantities. Crop rotations seem to be catching on slowly in certain pilot villages. Farmers seem to be aware of the advantage of pit-compost, but lack of water in the drier months was reported as the constraint in the preparation of compost.

Technological interventions presently advocated by OMM's extension service seem to fall into two broad categories, namely intensive land use practices (sometimes called land saving practices) and labor saving technology. The importance of intensive land use practices and labor saving technology in the OMM zone has been noted by a study recently completed in the area. The study was conducted in two villages (one on the Dogon Plateau, SDR Bankass and the other one on the Seno Plain, SDR Koro).

The following conclusions were reported in the study:

- Differences in the agricultural systems were largely due to differences in the relative scarcity of land and labor in the two villages;
- A large increase in total agricultural output will require the introduction of new technology;
- Land saving technology (i.e., intensive land use practices) such as improved varieties of sorghum to be grown mixed with millet, adjustment of plant population of competitive crops grown in mixture with millet and chemical fertilizer may serve to increase resource productivity in the land-scarce plateau village; and
- Farmers in the plain village are able to increase resource productivity through the adoption of intensive land use practices coupled with the introduction of labor saving practices.

*Stan Cohen: "Millet Production in Two Dogon Villages - Mali", M.S. Thesis, Dept. of Ag-economics, Purdue University, 1981, p. 245-46

The importance of labor saving technology (tillage and traction equipment) in the Sahel (including Mali) has been documented in several important studies and in many cases valuable lessons could be learned from these studies. A study* of 32 farmers (exploitations) in the OACV zone of the economic advantage, with certain limitations, of using traction equipment in combination with fertilizers. Yet another study, animal traction in Francophone West Africa** provides an excellent overview of the benefits achieved and problems encountered after the introduction of traction equipment in 27 project areas. The most fundamental piece of equipment which has been lacking in many of these projects (and also in OMM) has been an appropriate implement for cultivating and weeding. An often ignored reality is that plows may not indue farmers to increase their acrage if farmers are not also capable of effectively weeding this enlarged surface area. Mechanical weeding has also been shown to save the greatest amount of labor time.*** Another important finding of the Sargent study was that net farm income often drops during the first year or two following the introduction of traction equipment and then increases. Farmers generally require a period of time (3-5 years) to develop their skills with equipment use and for this reason also are often reluctant to purchase more than one piece of equipment at a time. Adoption rates in five projects (three of them in Mali: Office du Niger, Sikasso, Segou) indicated a consistant pattern of slow adoption at first followed by significant increases in later years (Sargent p.59).

*Institut d'Economie Rurale, 1978. Etude Agro-Economique de 32 Exploitations Agricoles en Zone O.A.C.V., Bamako, Mali. Unite d "Evaluation: This study showed that animal traction, with other production elements in OACV zone, accounted for 44% increase in gross production and 42% increase in cash revenues.

**Sargent, M.W. et al, "An Assessment of Animal Traction in Francophone West Africa," Dept. of Ag. Economics, Michigan State University, East Lansing, Mich. 48824. March 1981.

***Data from Mali indicates that animal drawn weeding reduces labor requirements for weeding by about 60% for peanuts and about 50% for cereals. Sargent, p. 42.

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Thus, given the absence or lack of research conclusions, OMM's choice of interventions seems to be reasonable and logical.* This approach would have to continue until better technology based on high yielding seed varieties well adapted to several major, if not micro agroclimates prevalent in the Mils-Mopti area, becomes available.

Available data also indicate that average yields have somewhat increased for the region as a whole, in spite of the less than normal rainfall during the last three years. (Appendix I Table II). Thus, the set of interventions currently proposed by OMM seems to have had a stabilizing effect on agricultural production on a regional basis rather than leading to sharp increases in production.

f. Investment in Agricultural Development

By and large, agricultural research has focused its efforts on the development of improved seed varieties, undoubtedly, an important element of production technology. Improved seeds under favorable conditions have outproduced local varieties and yield increases of 4-6 times on an average have been recorded. But research focused on development of improved seeds is a long range effort and one cannot be sure of development of such varieties in the foreseeable future for Sahelian climates. National and international efforts have been underway in the semi-arid tropics of the world for the last 8-10 years (in the Sahel for the last 6-7 years). But so far there has been no promising breakthrough in the development of seed varieties of millet and sorghum which are markedly superior to local varieties, both in terms of yields and adaptability.**

Discussions with ICRISAT researchers in Mali indicate that certain developments have been taking place which could result in the development

*See Appendix V. Notes on Farmers Opinions and Attitudes about some practices recommended by OMM.

**E35-1 developed at ICRISAT station in Upper Volta has met with varying degrees of success. Development of improved seed varieties in Sahel is a complex task which has to take into consideration several factors: An idea of the complexities involved can be gained from ICRISAT-Mali Cooperative Program report 1979. P. 1-13 and 30-31.

of millet hybrids in the next 3-5 years. Given the regular and frequent food scarcity situations occurring in the Sahel, it would not be prudent to wait for the development of new seeds in order to promote food production in the area. Thus in our view, while continuing to invest in research aimed at the development of better yielding and well-adapted genotypical varieties, efforts must continue to support food production programs using the well-known crop production technologies designed to expand the production base (rotations, intercropping, organic manures, judicial use of fertilizers, tillage practices, etc.). Further, as long as soil fertility and rainfall patterns remain critical factors of production (along with costly imported, high analysis fertilizers), it is less likely that varieties substantially better than local varieties would be developed in the near term. Therefore, in the Sahelian context, given the factors of agro-climate, poverty and limited means of rural population and long periods required for research breakthrough, there is a need to balance research efforts with the urgent needs of food production. The idea should be to get to the farmer certain viable interventions which are applicable to a wide range of situations.

What should be the focus/strategy of agricultural research in Mali and generally in the developing countries of the Sahel? The answer is not easy. But, we venture to suggest that crop production research (in the short run at least) should focus on:

- bringing about simple modifications to existing systems; and
- introduction of new systems wherever the possibilities exist.

In the first case, the emphasis would be less on changing the farmers' principal enterprise (millet or sorghum), and more on improving productivity within the existing farming system. In the second case, new systems or combinations of systems are needed for situations where production plateaus have been reached with existing practices. In situations where limits on expanding cultivated areas have been reached,*

*It is true of the Fifth Region of Mali, where crop and livestock enterprises coexist. Because of this, there is a limit to extensive farming which would encroach on pasture land and thus adversely effect livestock enterprise.

sedentary patterns need to be developed for farmers who no longer practice shifting cultivation. Both these approaches could be built into single farming systems program emphasizing applied research and integrated with ongoing development programs.

g. Recommendations

The following improvements are suggestions for each major category listed below:

1. Technical Assistance

- An experienced Field Trials Specialist/Agronomist should be immediately recruited for the remaining project life. In addition to being responsible for the field trials, he should work closely with the Seno station chief in defining and planning research relevant to the OMM area. (At present, there is no linkage between the two positions.)

2. Improvements to the Seno Station

- Construction of 4-room guest quarters with a kitchen, dining and bathroom facilities.
- Barbed wire fencing should be initially installed and subsequently live fencing should be installed as a long term measure (Prosopis, or any similar species "acacia").
- A simple building with three rooms to serve as offices and a laboratory should be built. The laboratory should be simple and equipped to take basic measures and weights. Sophisticated equipment for tissue culture and chemical analysis, etc., should not be installed in view of the present staffing and research requirements.

3. Research Plan

- The Seno Station chief should develop an annual plan of research for the Seno Station. Such a plan should focus on the research needs of the Seno Plain and the other areas of OMM. In developing such a plan, the approach should be twofold:

- to bring about improvements to the existing farming systems in the area; and

- to incorporate new ideas such as animal traction into the existing system. (This notion is elaborated in the following section.)

- the annual research plan should be developed in consultation and coordination with:

  - OMM's technical staff;

  - Research organizations participating in the Seno Research Station (SRCVO, ICRISAT and SAFGRAD); and

  - OMM's extension staff.

- A meeting/conference format is suggested to draw up an annual plan, well ahead of the season in March/April. During the same conference, results and experience of the previous year should be reviewed and necessary changes incorporated into the plans for succeeding years. Development of the research plan (i.e., specific problems to be researched) for the Seno Station should draw upon the knowledge and experience of OMM's extension staff, thus developing much needed research-extension linkages.

- The facilities at the research station, present and planned, and the land available would be adequate to implement a research plan while continuing to support the research activities of the participating organizations.

4. Budget

- A separate budget should be provided for the operational expenses of the research station for temporary labor, oil and lubricants, expendable research equipment and supplies, cattle feed, etc. The Seno Station chief should have easy and timely access to the funds provided by such a budget.

5. Technical Practices

- Results of rock phosphate trials so far (results of three year tests and two year tests) have given encouraging results in two sectors: Koro and Bankass. Operation Mils-Mopti should begin to extend this practice, selectively, in the two sectors.

- Vigorous attempts should be continued to educate farmers, especially in non-pilot villages, about crop rotations.

- Compost pits are not yet widely used. The reason cited was lack of water. However, farmers should be educated to dig compost pits for plant residue, household waste and goat, sheep and cow dung. This, in itself, would bring about a substantial amount of decomposition compared to surface heaps so often noticed in the villages. This should be the first step in the development of the practice of composting.

- OMM should step up its efforts to procure improved seeds of peanuts from OACV as a part of its efforts to promote crop rotation. Very small quantities have been procured in the past, though there seems to be enough demand.

- SAFGRAD/ICRISAT researchers should examine the scope for the improvement of current research design so as to bring about perceptible changes in the practices currently followed by farmers.

- OMM should make serious efforts to obtain suitable equipment for cultivating and weeding. This is a serious gap in the equipment package sold to farmers. (We were told that some trials have been conducted in the OMM area during the last two years by the Division du Machinisme Agricole and the equipment is likely to be available during the 1982 season.)

4. Agricultural Extension

a. Project Background

The organization of the extension service follows a pyramidal structure with four levels corresponding to geographical and administrative units of the country. At the top is the Director of OMM, assisted by the Chief of the Extension Division and followed by three levels in the field:

- The Secteur Developpement Rural (SDR);
- The Zone d'Expansion Rural (ZER); and
- The Secteur de Base (SB).

Each sector is headed by a sector chief who is assisted by an accountant, store keeper, training officer, field investigator and a secretary. In two sectors, special positions are provided for activities such as a blacksmith trainer and a functional literacy trainer. Each sector chief supervises several ZERs (six or seven) and each ZER chief in turn supervises several SBs (six to eight). A Secteur de Base consists of 5-8 villages.

Sector chiefs are provided with a vehicle, an office complex and residence. They are in touch with OMM headquarters by means of radio, which has proven very satisfactory. ZER and SB chiefs are provided with mobylettes on a hire-purchase basis and are provided a fixed quantity of gasoline per month. Housing and office space for these two levels is often provided by the village population (free of cost). In some villages visited during the evaluation, an office for the Chef SB and housing similar to that used by farmers had been constructed for the Chef SB and Chef ZER (by the local population).

Sectors are staffed by technically qualified graduates (Ingenieur d'Agriculture or Ingenieur des Sciences Appliquees), of the Institut Polytechnique Rural de Katibougou. Zones are staffed by ITAs (Ingenieur des Travaux Agricoles) or CTAs (Conducteur de Travaux Agricoles). SBs are supposed to be headed by Moniteurs Agricoles, but due to the shortage of Moniteurs (trained at Centre d'Apprentissage Agricole or CAAs) many SBs are headed by encadreurs. Encadreurs are directly recruited by OMM and given about five weeks of training before placement. Moniteurs undergo three years of training at one of the three CAAs located in the country.

Appendix II provides details of the organization and staffing pattern in terms of number of sectors, zones and SBs, and qualifications of extension personnel at different levels of the organization.

OMM's training organization consists of a chief of training division at headquarters who is responsible for all aspects of training. He is assisted by three trainers (at Bore) and one trainer at each of the Sector headquarters. It is these trainers (properly called instructors) who receive training from the training division. These then train the chef ZERs who in turn are supposed to train the chef SBs or encadreurs. These Sector level trainers are also expected to fan out into the SBs and train the SB level agents (encadreurs) at critical times during the agricultural season. This is the essence of the "en cascade" system of training. The training division is also responsible for a host of other activities such

as the training of village blacksmiths, establishment of grain mills and overseeing the functional literacy program which is operating in two sectors in conducting programs in two of the area languages (Dogon and Peul). What has been observed is the inability of the training division to follow up on the training, seek feedback and develop training materials based on local conditions and information. This, we are told, is due to lack of facilities and resources. This, however, seems to be as much due to lack of insights and experience in training methodologies.

At present, OMM's extension service performs a wide range of functions in addition to the promotion and use of technology to the farmers. These functions are: supply of inputs on credit, processing and collection of loans, estimating production in the village and setting grain procurement quotas for the OPAM (government grain marketing agency). They are also called upon to estimate the damage done to crops by animals and assessing damages to be paid to farmers. Thus, as much as 30 to 40% of the extension worker's time is spent on functions which are not strictly in the realm of extension. However, given the current situation in Mali, there does not seem to be an alternative.

The project objectives with regard to the extension component were to assist OMM in training its encadreurs and to upgrade the training of extension personnel at other levels of the extension organization. Thus, a better trained and equipped extension system was seen as essential to the food production effort in the Project Operation Mils-Mopti. It is with these objectives in mind that various activities and inputs were proposed in the Project Paper.

The evaluation report of Phase I looked at OMM's extension program in terms of organization (administration, supervision, etc.) approach to extension and training of personnel (level of preparation, communication and functions performed by extension personnel). Phase I evaluators noted the following and recommended changes:

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Organization: It seemed numerically adequate, but it was noted that "effectiveness of the system is more a function of other elements - level of preparation of personnel, communication problems, assignment of supplementary duties to personnel . . .", "Majority of the lowest level positions are currently staffed with contractual employees (encadreurs) who do not meet the minimum requirements for the position. The solution to the problem is not the expansion of numbers but rather continuous upgrading of personnel through appropriate training. This, together with the improvement of communication and travel, should upgrade the service."

Approach: The pilot-farmer approach, then followed by the OMM, was criticized because of the high concentration of effort on a small sample of the population (3% of farming units), unrepresentative pilot farmers and the doubtful demonstration effect of the pilot farmers. It was recommended that OMM try the pilot village concept where the entire village would serve as the audience of intensive extension effort. Rotation of villages would cover the area at a more rapid rate than the pilot farmer approach. Further, "advantage of the pilot village would be the bringing about of change in the village as a whole with the view of developing greater initiative organization, self-expression and self reliance of the village level, objectives which are not well served by the pilot farmer approach."

Strengthening of the Training Program: Abolition of the "en cascade" system of training was recommended "because implicit in the system is the decreasing quality of the trainer as one moves down the hierarchical scale." Training by polyvalent teams of well-experienced trainers was recommended. It was also recommended that (a) training emphasize the role of the extension agent as intermediary between farmer and research and farmer and the development bureaucracy, and (b) programs be flexible enough to accommodate differences among farmers and ecological settings.

To accomplish the project objectives, the following activities and corresponding inputs were proposed to strengthen the extension organization:

b. Activities

- Replacement of the "en cascade" system of training.
- In-country training of encadreurs - 6 to 8 months training for up to 30 encadreurs per year for 5 years.
- Participant training in the U.S. for five sector chiefs, the training to focus on philosophy and tools of extension, followed by a visit to Guatemala to observe these principles under developing country conditions.
- In-country training of CTAs and Moniteurs. Special courses and seminars to upgrade and update the training of CTAs and Moniteurs.
- Moving from the pilot farmer approach to the pilot village approach.
- Upgrading of facilities for certain extension staff: construction of housing for 17 ZER chiefs.

c. Inputs

- Technical Assistance
  - Extension Training Specialist: short term - to design a training program, design and arrange the participant training element, assist the extension department to plan, initiate and supervise innovations - 3 months first year, and 3 months follow-up per year through project year 4.
- Training
  - 5 Chef SDRs to be trained, 1 per year, 10 weeks in U.S. plus 2 weeks in Guatemala.
  - 8 months in-country training for 20 encadreurs/moniteurs per year, including travel, per diem and training materials.

d. Current Status

OMM has shifted its extension approach from "Pilot Farmers" to "Pilot Villages". Twelve pilot villages have been established during the 1980 season; thus, they have completed just two years under the new approach. (Two pilot villages in each of the six out of seven SDRs.) Each pilot village is under the charge of a moniteur or experienced encadreur. From our visits to about five pilot villages, it is our impression the response of the pilot villagers to the extension effort has been quite favorable.

In addition to pilot villages, each Chef SB works with ten pilot farmers and ten non-pilot farmers. While the pilot-farmers are the focus of the extension effort, other farmers (including the ten non-pilot farmers) receive advice and inputs, basically for comparison.

It would be desirable to continue with the Pilot Village approach. It is also recommended that after about 3 - 4 years, present pilot villages be dropped and a new set of pilot villages be selected. Experience in developing countries shows that as the multiplier effect takes hold, farmer awareness and interest in technology increases resulting in higher rates of acceptance of innovations.

Training at OMM continues to be in the "en cascade" system (indirect training). Training by polyvalent teams has not yet begun for the reasons indicated below. Switching from the "en cascade" to the direct training method requires certain minimum facilities which are not presently available at OMM, such as classroom space and training aids. It is noted that the PP, while recommending replacement of the "en cascade" system of training, did not make provision for any facilities.

Officials at OMM are well aware of the low technical preparation of its encadreurs and the need for training (in-service) for its middle level staff (Moniteurs, CTAs, ITAs), a great majority of whom have not had any training beyond the basic training.

Recognizing this need, OMM has temporarily acquired a set of four one-room structures belonging to a rural youth training center located at Bore, about 135 km from OMM headquarters and employed a nucleus staff of three trainees. Using the physical facilities and three-man training team, two groups of encadreurs, a total of 33, have been trained during 1980-81 and 1981-82. The training lasted 6 - 8 months in each case, comprising a full crop season.

The following conclusions were drawn from our visit to the training center and discussion with the three trainers, the chief of training at OMM headquarters and the Director of OMM:

- Ninety-five percent of the training is conducted by the three-man team (an ISA fresh from Katibougou, a CTA and a moniteur), with occasional visits from OMM's training chief.

- Because of the distance from Mopti-Sevare and lack of facilities, participation of experienced experts (expatriate and Malian) available at Mopti-Sevare is difficult.

- There is a complete lack of training materials and equipment for conducting training of a reasonable quality.

- Facilities for boarding and lodging of the trainees are rudimentary. During the training period, part of the so-called dormitory space is occupied by OPAM, the grain marketing agency. This is apparently the reason for lack of discipline and for morale problems, due to which seven trainees dropped out of the training.

- Destruction of crops by animals half way through the season affected at least one batch of trainees.

- OMM officials feel that since the buildings do not belong to OMM, it is not worthwhile making any investment.

- A report by an independent Malian consulting firm*, prepared for USAID, indicates serious deficiencies in training. Fifty percent of Chef SBs (Encadreurs) have received training varying from 1-4 months. Eighty-five percent of the encadreurs perceived their training as insufficient. Training needs identified by Chef SBs are basic to a field agent (Agronomy 45%, Plant Protection 30%, Extension Methodology 30%, Use of Farm Implements 60%). Training deficiencies** identified by Chef ZERs (majority of whom are moniteurs): extension 50 percent, accounting 60 percent, agronomy 40 percent, farm implements 30 percent, animal husbandry 30 percent. This is not surprising given the fact that moniteurs and CTAs have not received any further training since leaving the institutions where they were originally trained. Another indicator of training deficiency is the number of agents expressing communication difficulties (45 percent ZER chiefs; 35 percent Chef SBs).

*Bureau Africain de Recherches Appliquees, "Rapport sur la Formation: Operation Mils-Mopti", Fevrier-Mars,, 1980, Contract BARA/OMM/USAID/WO202.

**Training deficiencies in terms of lack of practical training, lack of extension skills and communication skills were also noted by another study, "Future Manpower Needs for CAA Graduates and an Evaluation of the Present Training Programs . . .of CAA's", Glenn Houze, May 1980.

In view of the observations noted above, urgent steps should be taken to establish a modest training center at the OMM headquarters. The OMM Director agrees with the recommendation and indicated the availability of land at OMM headquarters where a modest training center could be established.

Housing for seventeen ZER chiefs has been proposed in the PP at a cost of $272,000. Planning has not begun yet on the construction of these houses. A question could be raised about the feasibility of construction at ZER level in view of the past experience with construction of ZER level warehouses, finding contractors, supervision to ensure good quality construction and finally cost.

We were told that three of the warehouses (at ZER level) constructed during the last four years have become useless because of poor construction (the team visited one of the three warehouses). Our observations indicate that in some villages, villagers have constructed housing for Chief ZERs and Chief SBs free of cost (local style using local materials). This should be encouraged as it has a salutory effect on the development process. However, since roofing is the weakest part of village housing, requiring maintenance every year, it is recommended that the project provide roofing material such as wooden rafters and corrugated iron sheets, and drop full scale construction of housing units.

In-country training of extension staff, CTAs and moniteurs has not occurred, as planned for in the PP, due to lack of facilities and resources. As indicated in the earlier section, these two levels of extension agents need refresher training courses (recyclage) to upgrade their technical knowledge and professional skills.

Participant training of five sector chiefs called for in the PP has not occurred (U.S. and Guatemala). It is not certain that the training proposed for sector chiefs in the PP is desirable in view of the advanced conditions in the U.S., the language problem, applicability to Malian

conditions, logistics and extremely short duration of the proposed training. Several developing countries (Thailand, India, Philippines, Upper Volta) have successfully developed extension programs based on the U.S. model and concept of extension adapted to local situations. Three ORDs in Upper Volta have, under a World Bank Program, developed a training program to train extension agents on a continuous basis and have adapted, with good results, the training and visit system of extension.

It would be highly desirable for at least five sector chiefs, (the extension chief and the training chief) to visit Upper Volta to observe the training process and the extension system with the idea of implementing a similar system at OMM.

e. Assessment of the Capacity of the Extension Organization

An assessment of the capacity of OMM's extension organization is presented below in terms of structure, level of training, skills, attitudes, morale and support services and the agents' relationships with farmers.

As described earlier, the four tier pyramidal structure seems adequate in terms of the reach of extension personnel down to a group of villages. As noted during our field visits, there are clear and well defined lines of authority. Communication seems to be one way, top to bottom, with very limited feedback coming to the Operation level. This is primarily a function of tradition, system and training. At the lowest level, there are 252 encadreurs/moniteurs in direct contact with 1422 villages (one for every six villages on an average) who are supervised by 45 ZER chiefs who in turn are supervised by seven SDR chiefs. However, in practice as many as nine villages may be manned by one single encadreur in certain areas. While there is a plan for reducing the number of villages covered by a single agent (by increasing the number of agents), for the present, we do not recommend increasing the number of agents in view of serious deficiencies in the level of preparation of a great majority of extension agents, as indicated in the foregoing pages.

More serious is the problem of low level training and technical skills possessed by encadreurs. It is not surprising given the short period for which the encadreurs were trained (training received varies from one to four months). In addition, none of the 44 ZER chiefs (except two) received any training beyond their initial pre-service training at CAAs. Findings of a report prepared for USAID by an independent Malian agency (quoted earlier) attest to the serious lacunae in the training of a majority of extension agents. Quality of extension service and farmers' confidence in the system cannot be improved unless a training program of reasonable quality is established soon. Replacement of the "en cascade" system by a direct training system both for conducting the training of encadreurs and for conducting short duration training for other levels of extension staff (ZERs, SDRs) should be given top priority. This could be done only by the establishment of a modes training center at OMM headquarters. It is no use demanding improved training (as done in Phase I and the present evaluations) unless means are provided for conducting the training. Therefore, it is recommended that a training center be established (see proposal Appendix III.

Given the circumstances of low pay and hard living conditions, various extension agents we met in the field seemed to be in good morale and have helpful attitudes towards the farmers. Field extension agents from SDR to SB level seem to have sympathy for farmers, as could be noted during our discussions about the method of setting grain quotas under the system where the government marketing agency compulsorily procures fixed amounts of grain from each village. The quota is established by the extension agent based on his estimate of village level production. Quotas are set in favor of farmers, thus enabling them to sell more of their surplus in the open market where they receive a price of around 120 to 125 MF/kg compared to a fixed price of 85 MF/kg set by the government.

Farmers seem to have generally favorable attitudes towards extension agents. During the field trips, we could sense less than favorable attitudes only in cases of two SB level agents. Given the popularity of credit and certain items sold on credit (fertilizer and equipment, etc.) by the Operation, it did seem that extension workers have good rapport with farmers.

This was much more obvious in villages where generally experienced and better trained (moniteurs) extension functionairies are posted.

f. Recommendations:

1. Extension Organization

The extension organization as presently constituted is adequate in terms of numbers and the reach of extension personnel. No increase in personnel is recommended.

2. Training

Training continues to be in the "en cascade" system and the level of preparation of encadreurs is far below the requirements of the job. None of the ZER level chiefs (moniteurs, CTAs) had any training since leaving their training institutions.

Hence, it is recommended that a modest training center be established at Sevare (OMM headquarters) to provide medium term training for encadreurs (eight to nine months) and short term training (four to eight weeks) for various levels of extension staff. (See Proposal, Appendex 3). The proposed training center seems to be within the resources of the project, especially if ZER staff housing is cut out.

3. Technical Assistance

Long term technical assistance in the form of an Extension Specialist will be provided to assist OMM in establishing the training center, design and implement training for encadreurs and extension staff at ZER and SDR levels.

Short term technical assistance called for in the PP ($90,000/12 months) should be dropped in favor of long term technical assistance.

4. One-Time Training Program

The one time training program proposed in the report (Contract No. BARA/OMM/USAID/WO202) at a cost of $75,300 should be dropped in favor of establishing the training center st Sevare, which would have long term impact on the quality of training of OMM extension and other staff.

5. Overseas Training

Overseas training (U.S. and Guatemala $60,000) provided for in the PP for five sector chiefs should be dropped and instead five sector chiefs, the chief of the Training Division and the chief of the Extension Division should be sent to Upper Volta (Bobodioulasso) to study and observe the training system and Extension Program in the three ORDs of the region. This could be achieved at a very low cost and would be applicable to the conditions in Mali. They could be sent in groups of two or three at a time.

Suggested Schedule

- 2 Sector Chiefs and Chief of Extension;
  3 weeks (July);
  to observe extension program in the field;
- 3 Sector Chiefs;
  3 weeks (August);
  to observe extension program in the field;
- Chief of Training and Chief of Extension, and one of three trainers;
  3 weeks (January - April); and
  to observe the training program at the training center, Bobo.

6. Other Recommendations

- OMM should communicate the results of the multi-locational field trials to its extension staff in the field.
- Provide each agent de base (Chef SB) and Chef de ZER with written technical information (fiches techniques) on each of the practices advocated. They could be duplicated f not printed).

- OMM should examine the question of changing the pilot villages every three to four years. A similar policy should be followed for pilot farmers in non-pilot villages.

- OMM should pay special attention to pilot villages where credit for draft animals (oxen) is extended to promote animal traction. This attention should focus on educating the farmers about management aspects (feeding, disease control, etc.) of maintaining draft animals.

5. Vegetable Production on Dogon Plateau

a. Background

The objectives of this component (in Phase II) were to increase the overall vegetable production in the Dogon Plateau by increasing the efficiency of water utilization, land terracing activities, vegetable storage and marketing activities.

At this point it is important to note the background of the area. The Dogon Plateau has a long tradition of vegetable cultivation. It is situated on a rocky terrain overlooking the Seno Plain. Availability of land and water are extremely critical constraints. Vegetable plots are established on small parcels of land, often a few square meters, and are literally carved out of small areas of terraced slopes and rocky land. Often soil is carried from distances to give the very shallow and rocky soils a certain amount of depth for root penetration. Small vegetable plots, about 1/12 - 1/18 of a hectare, are irrigated by water hand-carried in pots, pans, and calabashes, from distances of 1/2 km or more. As a rule, most of these small vegetable plots are situated around water sources (often shallow wells dug in dried up streams) which are exhausted or dry up by the end of February. One or two mini-dams (actually structures designed to retain water for short periods) have been constructed in the area. Several more such mini-dams are being planned in the area under the German Foreign Aid program.

Among the vegetable crops grown, onions are very important, followed by small quantities of tomatoes, okra, aubergine and sweet potatoes. Onions are exported out of the area and are a source of cash income. Other vegetables are marketed locally. Small quantities of tobacco are grown mainly for family consumption although small surpluses are sold in rural markets.

It was observed during the field trip that sprinkler irrigation cans provided under the project ($25/can or MF 15,000/can), remained unsold as the farmers could not afford to pay for them. Small quantities of fertilizers are used by the farmers in the area.

b. Activities and Inputs Proposed

Activities: Horticultural research was proposed in the PP in the following areas: efficiency of water utilization, land terracing techniques, vegetable storage and marketing.

Inputs: A vegetable production specialist for two years and a full time counterpart to be provided by OMM. Short term consultants: irrigation, marketing (three months). Vegetable market research survey: two months.

c. Implementation Progress

This component was not implemented in any significant way. A short term vegetable specialist/horticulturist was provided for a duration of four months. There is no evidence that anything was accomplished by the specialist. Not even a tour report is available about the work performed.

Discussions at OMM indicate that this is not a critical area of OMM's overall activity and constraints are beyond immediate solution.

d. Recommendation

In view of the background presented above, it is highly questionable that the research element as conceived in the project paper is relevant to the conditions existing in the vegetable producing areas of the Dogon Plateau. Availability of water (even during the months of January/February) and land around the sources of water is the critical issue.

Therefore, it is recommended that his research component be dropped from the project.

6. Technical and Economic Feasibility

The evidence available to us indicates that farmers using a certain level of interventions are obtaining somewhat better yields than traditional farmers. A study by the Institut Rural de Katibougou (see Appendix I Table III) conducted in one sector of OMM using four different levels of technology provides reasonably dependable evidence that as the level of technology increases, average farm income also increases correspondingly from 93,545 FM to 1,218,502 FM, and that return to labor increases from 415 FM to 7,560 FM. This study was based on eight farmers, two at each level of technology, growing millet and peanut crops.

Similar conclusions could be drawn by another study, less rigorous in its methodology, conducted for USAID Bamako. (Appendix I Table IV.) This study is a micro-economic analysis of annual incomes and expenditures conducted in six villages (36 farmers, 6 in each village) spread among four agroclimatic zones in the OMM area. The data again indicates that as the level of technology increases (measured in terms of number of pieces of equipment such as plows, multiculteurs, seeders, etc.), average per capita income also increases. Average per capita incomes ranged from 22,645 MF for farmers with no equipment to 24,818 MF (average number of plows 0.33), 33,661 (average

*Stage 1: Traditional farmers
Stage 2: Traditional farmer - some recommended practices
Stage 3: Farmers with equipment
Stage 4: Pilot farmers

number of plows 1.11), and 61,600 (average number of plows 1.66). The average per capita income for the group possessing plows was 40,026 MF compared with 22,645 MF for the group with no plows. It is, of course, uncertain to what extent the traction equipment alone was responsible for these income differences.

A third study conducted by BARA (Appendix Table V) also indicates similar trends noted earlier but of lower magnitude.* Farmers at technological stage 3 had higher yields per hectare, compared to farmers in technological stage 1. Yields obtained by the farmers at level 3 were higher both for each zone as well as for all the four zones. Also in zones I and IV, highest yields recorded were 843 kg/ha and 1,392 kg/ha by farmers at technological stage 3.

Thus, the data from the three studies indicates a trend which supports the viability of technological interventions undertaken by the OMM. We do not have enough data to show the degree of economic viability of these interventions individually or in combinations. However, we believe that farmers are the best judges of both suitability and economic viability of the interventions.

At present, the only evidence in this regard is the demand by farmers for equipment and other inputs such as fertilizers and traction animals. Reasonably high loan repayment rates (up to 80%) is yet another indication of the profitability of the interventions. Thus from these indications, it is clear that OMM has a fairly viable set of interventions. These interventions, if adopted extensively, would have a long term effect of not only stabilizing production and maintaining soil fertility, but also of contributing to increased production of millets and other food grains in the region.

A thorough cost-benefit analysis of the project should be carried out. This will require data on amounts of inputs, costs of inputs, kinds and levels of interventions, marginal costs of interventions, opportunity costs of land and labor, levels of production, value of product including on-farm consumption, variations in output caused by micro-environmental differences, impact of

*Probable reason for lower yields of stage 2 and stage 4 farmers is sampling error; large amount of data missing for in these categories.

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exogenous factors such as amount and distribution of rainfall and the synergistic effects of various inputs, interventions and environmental factors. We have discovered that changes in production resulting from different rainfall patterns are far greater than those that can be attributed to project interventions or inputs. If it becomes essential for economic analysis that a parameter be developed that relates "normal" production under "normal" rainfall conditions to actual production under actual conditions with and without project inputs, this work should be carried out by the Economic and Statistics Division (DEES) of OMM in coordination with the Institute of Rural Economics (IER).

Recommendation

The Economics and Statistics Division of OMM should start a program of data collection and processing designed to permit accurate analysis of the economic impact of the project on grain production and farmer income. Technical Assistance under the project should be provided OMM/DEES and IER in support of this activity.

7. Overall Impact of the Project

The overall impact of the project seems to be positive. Considering the multitude of problems and issues involved in the Operation Mils-Mopti (technological issues, quality of extension organization, management and control problems, size and complexity of the project, etc.) and the poor natural resources and general poverty of the rural population, it is our opinion that the project has made a fair amount of progress.

While progress was not obvious in all the villages visited, (seventeen in all) we were heartened to see the impact of the project in several areas of village life such as increased production, acceptance of technology, general awareness of benefits of practices recommended, etc.

Certain villages and more so certain farmers are also receiving indirect benefits from project efforts such as additional income by renting carts and plows, reduced workload for women in the most laborious tasks of Sahelian rural life (fetching firewood and water) and access to rural markets, etc.

Exact quantitative benefits of these cannot be indicated in monetary terms due to lack of data. Availability of data across the project period has been a great drawback in making quantitative judgements about project impact. The groups of farmers we talked to were nearly unanimous in their opinions about the benefits derived from OMM. At least in the pilot villages, and some non-pilot villages, we visited in the Seno Plain, impact of traction equipment was clearly visible. The expressed credit needs to purchase inputs and the rate of repayment (75-80%) are additional indicators of the usefulness of the project. Corrective steps, discussed elsewhere in this report, if taken, would likely contribute to the project objective of increased food production and rural incomes in the Fifth Region of Mali.

B. Agricultural Credit

1. Background

The Phase II Project Paper retained from Phase I the assumption that the provision of a supply source and credit for modern agricultural inputs were essential if such inputs were to be increasingly adopted by the farmer clients of the project. In fact, an expansion of the supply and credit program was advised:

> "There is a need to expand production-related lending to a much greater number of farmers and to provide credit for production inputs such as draft animals and fertilizer."

On the other hand, the Project Paper also expressed the need for new procedures, including higher interest rates charged to farmers, in order to assure financial soundness of the credit program. The Project Grant Agreement specified that, in addition to interest, a minimum 5% service charge must be charged by OMM on the sale of inputs purchased from any source. The terms and interest rates for credit sales were to be such that the entire program could function as a financially viable and independent operation. In response to the perceived inadequacies of the former program (from the farmer's perspective), credit repayment terms were to be extended where necessary and credit was to be provided for the first time for fertilizers and draft animals.

Additionally, two to six retail stores were to be established and 10-15 sector-level warehouses constructed during Phase II. Attempts were to be made to provide credit through credit committees within selected village associations. Furthermore, five sector-level credit agents were to be trained and installed, and the head of OMM's Credit Section was to be trained in the U.S. for three months in the management of credit programs. Finally, short-term technical assistance was to be provided "to set up the credit and supply system and to train agents in its management." The anticipated result of this refurbished credit and supply system was that a total of 20,000 more plows, carts and seeders would be in the hands of farmers, and that 20,000 farmers would increase their yields by 50% by using equipment and/or fertilizers.

2. The Supply and Credit System

The system actually set up and operating has differed from that proposed or described in the Project Paper and the Project Agreement. In the first place, the operation has tended to be as much a supply as a credit operation. In the most recent year (1981-82), only about 42% of all sales were made on credit, and over the previous years cash sales were about 20% to 25% of all sales (data provided by OMM's Credit Section).

The OMM has tried to have in place at the beginning of the crop year those items the farmer is expected to need or that OMM would like to see him buy. Months before the beginning of the growing season, farmers are asked to furnish their anticipated input requirements to their Chef SB. Lists are thus compiled and transmitted upward through the organization.

The farmer is expected to buy some inputs for cash. Small quantities of fungicides are an example. Fertilizers are bought either for cash or on short-term (one crop season) credit. The credit cost (i.e., interest charged) is built into the price. The announced OMM credit policy is to sell equipment on medium term up to three years. Actually, the agents at the farmer level are often reluctant to extend credit for more than one or two years. Again the credit cost is, at least in theory, built into the price. A price is established for a cash sale; a successively higher price is established for sales on one, two or three year terms. A down payment is fixed. We have calculated from the announced fixed price, fixed down payment and annual installments, that an effective rate of about six percent simple interest on the unpaid balance of the loans has apparently been charged. We have found some anomalies, but they seem to be errors in simple arithmetic and not policy decisions.

The interest rate is supposed to cover the inflationary impact on inventory replacement costs as well as losses from defaults or excessive arrears. The current interest rate is obviously not sufficient and the credit fund will eventually be decapitalized and the supply system depleted of its inventory.

According to OMM's Credit Section, the 5% minimum service charge which was to be included in the basic price of any input sold to farmers has not in fact been fully charged. It was intended that this service charge cover all transportation costs incurred by OMM as well as storage costs and any other recurring operating expenses. Some transportation costs have been figured into the input purchase prices, but other expenses have apparently not usually been considered.

The head of the Finance Division of OMM has stated that the full service charge could not in the past be attached to the purchase price because other organizations (principally Operation Riz Mopti and SCAER) were retailing the same inputs in part of the OMM zone without such a charge. He also maintained that a 13% interest rate would have been difficult to employ because of the 3-6-9% charged over three successive years by the above organizations. It is difficult to determine to what extent this price competition acted as an effective constraint on OMM policy implementation.

According to OMM personnel in all sectors visited, significant improvements have been made in recordkeeping during the past three years. The evaluation team did indeed observe that agents in different locations used receipt books, inventory forms, etc., in a quite consistent manner. Furthermore, farmers are generally given receipts after each payment and are thus ordinarily aware of their unpaid balance. Improvements in financial recordkeeping at the agent level are laudable and needed to support improved financial management at the top. Nevertheless, basic policy decisions are still needed on terms, interest rates, delinquencies, etc., and they must not be neglected.

3. Supply and Credit Implementation

The technical assistance to be provided to help construct the credit and supply system was never in fact delivered. Neither was the head of OMM's Credit Section given the training which the Project Grant Agreement had called for. The current lack of a coherent credit policy or a functional understanding of the role of credit at the agent level can in large measure be traced to these failures.

The OMM supply system has suffered from other external developments outside its control. Under the previous project, and at the start of the second phase, OMM was supplied with inputs from SCAER, a state monopoly on agricultural equipment and supplies. The arrangement did not work well. SCAER supplied what it had, not necessarily congruent to project needs. SCAER's delivery policies in time and place were erratic and it is attempted to control resale prices to the lowest level. The dissolution of SCAER is probably a blessing, but it has required OMM to do a bit of scrambling to re-establish its supply system. It now procures agricultural equipment from SMECMA, a state corporation set up to develop and manufacture appropriate agricultural equipment. OMM is currently attempting to regularize the procurement of light production inputs from the cotton producing operation (CMDT) and draft oxen from ODEM, the organization carrying out the IBRD financed Fifth Region livestock development program. Seed fungicide is currently provided by SOMIA and vegetable gardening materials are sold by Protection des Vegetaux. This appears more complicated on the surface, but the end result could well be a more efficient supply system. A potential time constraint on the supply system may arise from the fact that all modern inputs extended by the Development Operations in Mali must first be approved by a national committee.

Village associations have not yet been significantly used as recipients of, conduits for, or monitors of credit. Even the credit for oxen in two pilot villages with village loan committees was still in reality individual farmer credit. As pilot villages are developed, it is expected that village associations will be created and will play a role in credit operations. For the present, and for the immediate future, credit to farmers of the Fifth region will be individually provided.

The sector-level credit agents have been installed at their posts. It remains in question, however, whether they have been sufficiently trained, supported and supervised to effectively administer the program. As of March 1981, no new construction of sector-level warehouses had been undertaken during Phase II. Neither had the proposed retail stores been created.

A factor which has worked to undermine the development of the credit and supply system is a lack of effective communication and cooperation between OMM and USAID officers. A document describing the proposed guidelines for the new system was requested by USAID in 1980. This document (Rapport sur le Systeme de Credit a l'Operation Mils-Mopti) was prepared by credit and finance officers at OMM and submitted to USAID about July 1980. Apparently, due to a lack of subsequent substantive discussions, this document was never accepted as (or modified to become) an official policy statement. This situation persists through 1981 and early 1982.

4. Issues and Problems

a. Official and Unofficial Policies

In compliance with the Project Paper, credit has been extended to fertilizers and, to a limited extent, for draft oxen. Numerous field interviews with OMM personnel and farmers indicated that an attempt has been made recently (particularly during the 1981-82 season) by SDR-level (and below) personnel to shorten the repayment period for equipment inputs (carts, plows, etc.). Although there is considerable local variation, a pattern has emerged of almost no three year credit for the larger ticket items, some two year credit and most sales on one year credit with substantial down payments. There seem to be three reasons for this movement: a desire to roll the credit funds over more rapidly, a belief that the larger the loan the higher the risk of default, and possibly an unspoken policy that provides a short term loan to keep repayment pressure on the borrower even though final payment may be late. There is also inconsistancy in the availability of credit. Farmers in one village claimed not even to be aware that credit was available. In another village, OMM personnel said that when fertilizer was plentiful they sold it on one year credit. When it was in short supply, they sold for cash. Moreover, they said that these decisions were made at the local level.

This diversity of policy and activity within the region illustrates:

- that the cascade system of training does not permit full comprehension of policy at the local level; and
- that no comprehensive credit policy for OMM exists.

There have been several documents printed by OMM during the past two to three years relating to overall credit policies. These have been prepared largely in the form of "report" and "studies", and it remains in doubt to what extent these documents are a realistic representation of official or unofficial policies. There are, indeed, a number of contradictions between documents and the information provided is incomplete from a practical working standpoint.

Among the general policy questions which OMM will have to first resolve are:

- On what criteria should the performance of the credit system be judged?
  - Is there an acceptable level of defaults or payment in arrears?
  - Is the quantity of inputs placed to be the principal measure of performance?
  - Should minimum repayment periods be available to all farmers in all locations to help stimulate demand for inputs?
- To what extent is SDR- or ZER-level policy adjustment allowable and/or necessary?
  - Are the inequities resulting from these adjustments (differing terms, downpayments and interest rates) counter-balanced by the advantage to field agents of having some flexibility in their collection process?
- Should OMM continue to provide credit to the poorest of farmers, even though their ability to repay the loan in time is in doubt? This position is supported in at least one document (Proces-Verbale de la Reunion de la Commission Chargee de l'Elaboration de cette Nouvelle Strategie de Vulgarisation Agricole, 9 February 1980 Annexe).

The behavior of extension agents in the field appears to support the contention that this last strategy is actually in operation. No consistent set of criteria is employed to determine whether or not farmers are creditworthy. Agents in all sectors, however, always record the official

government registration number (carte de famille) of any family taking credit. Some agents think that this helps with credit recovery, since it identifies the family to local authorities. In practice, farmers behind in their payments are only very rarely actually turned over to these authorities -- even when the delinquency period is long.

Since chefs ZER and chefs SB are not trained in the application of interest rates, they must use printed repayment schedules provided by the OMM Credit Section. Thus, in the event of an extension of a repayment period (or incomplete payment of an annuity) -- which occurs frequently now as terms are shortened -- they are unable to apply an appropriate interest rate on the remaining principal. In most cases, this delay benefits the farmer. It is clear that some flexibility must be maintained for local agents, but some prescribed means of penalty for delinquency should be covered in a written policy statement with appropriate tables.

We have also noted a number of discrepancies among the credit policy documents currently available:

- Interest rates to be applied to agricultural equipment and fertilizers:
  - 13% (Etude, p.1).
  - an actual effective rate of about 6.3% -- but as high as 15-16% for donkey plows purchased with two and three years' credit (Rapport, Annexe 3, p. 15).
  - no rate specified (Proces-Verbale. . .).
- Length of Repayment Period:
  - maximum of 1 year for "fertilizers and chemical products",
  - maximum of 3 years for traction equipment, (Etude . . ., p.1).
  - 1 to 2 years for "light materials."
  - 2 to 3 years for "agricultural materials for which the cost deducted from the annual income of the farmer leaves him without the means of subsistence." (Rapport. . ., p. 2).
  - 5 years for entire animal traction package (Proces-Verable. . ., Annexe).

- Downpayment

  - no specified downpayments (Etude . . .).

  - 1/2 and 1/3 downpayment for inputs as specified in (2.b) above (Rapport . . ., p. 2).

  - 1/4 downpayment for entire animal traction unit (Proces-Verbale . . ., Annexe).

b. The Demand for Credit and for Particular Inputs

The credit program for agricultural inputs is central to OMM's agricultural development effort. During interviews, farmers stated on numerous occasions that they were not capable of purchasing equipment -- even when it was available locally from private merchants -- until credit was made available to them from OMM. Between 74% and 80% of OMM's total agricultural input sales were on credit terms for the 1978-79, 1979-80 and 1980-81 seasons (see Table 10). The percentage fell to 42% in 1981-82 as OMM personnel tightened credit availability. Perhaps it is not coincidental that total sales were also down 23% in 1981-82 from the previous year -- reaching their lowest level since before the 1978-79 season.

It should be borne in mind that animal traction was not introduced into some areas of the Seno Plain until the late 1960's. It is, therefore, rather remarkable that in some villages between 60 and 80 percent of households now own and use it. This is due in large measure to the credit/supply activity of OMM. Neither the rates of placement of animal traction equipment nor of light inputs have increased over the past three years (and in fact fell sharply during 1981-82, contrary to expectations expressed in the Phase II Project Paper). It is probable, however, that supply inefficiencies and the tightening of credit terms of repayment were in greater measure responsible for this occurrence than was lack of demand.

The fact that the prices for ammonium phosphate and urea increased by 61% and 71% respectively between the 1979-80 and 1981-82 growing seasons has, however, undoubtedly reduced demand for these items. There is no such

TABLE 10

Total Cash Sales (000 FM) of Agricultural Inputs

	Before 78-79	78-79	79-80	80-81	81-82	Total
Douentza	3,422	2,370	1,890	1,620	3,726	13,028
Koro	18,092	7,191	6,682	6,709	25,963	64,638
Bankass	10,836	3,994	2,164	5,881	5,374	28,249
Mopti	--	--	13,047§	10,099	11,433	34,579§
Djenné	10,360	15,286	--	5,684	6,355	37,685§
Bandiagara	N.A.	N.A.	1,832	2,076	3,259	7,168
Tenenkou	--	--	837	705	433	1,976
Total Cash	43,710	28,841	26,452	32,774	56,543	187,323
Total Credit	176,428	85,737	101,177	92,905	40,381	502,628
Total Cash and Credit	219,138	114,578	133,629	125,679	96,924	689,951
% Credit of Total Sales	80.5	74.8	80.2	73.9	41.7	72.8

§ Mopti and Djenné data combined in 1979-80: Gestion du Materiel et des Produits 1979-80, p. 13.

Source: OMM Credit Section

Note: Mopti and Tenenkou were added to the OMM zone of intervention in 1979-80.

N.A.: Not Available

obvious explanation for the drop in sales of carts from 1204 units in 1980-81 to 478 units in 1981-82, or for the drop in fungicide sales from 160,483 packets in 1980-81 to 92,982 packets in 1981-82 (see Table 11).

It is clearly not necessary to provide credit for fungicides and perhaps other light inputs which may be purchased in small quantities. Ammonium phosphate and urea fertilizers, sold only in 50-kg sacks, are, however, certainly more easily extended on a short-term credit rather than cash basis. Sales of both of these fertilizers nearly doubled between the 1978-79 and 1979-80 seasons, during which time credit was first extended for their purchase.

The demand for particular items varies greatly among sectors and sometimes even among neighboring villages. Fungicides, carts and plows were the items most frequently cited by farmers as important. Fertilizers, however, are also being widely used, and on the Dogon Plateau (with its tiny, hand-cultivated vegetable plots) are much more important than traction equipment. Farmers' preferences in tillage equipment are particularly localized, depending upon soil conditions, cultural practices and the availability of donkeys versus oxen as draft animals. It is, therefore, extremely important that OMM continuously monitor such local rates of acceptance in order to assure that the demand can be met for the particular inputs desired in any given year and that the appropriate inputs are being offered.

c. <u>The Purchase and Delivery of Production Inputs</u>

The inability of OMM to deliver sufficient quantities of the required inputs on time was cited as a major problem in all villages visited. There was the additional complaint that the types of inputs delivered were not always appropriate to farmers' needs.

As noted earlier, the constraints imposed by SCAER, and the subsequent complications in finding input suppliers following its dissolution, have been largely responsible for these problems. The very fact that orders through SCAER had to be placed one year in advance meant automatically that

TABLE 11

Placement of Agricultural Equipment and Light

	Before 1978-79	1978-79	1979-80	1980-81	1981-82
Charrue TM	899	464	741	317	338
Bourguignon	217	0	183	356	119
Houe Asine	—	—	—	201	194
Multiculteur	58	45	34	77	1
Semoir	40	35	17	12	1
Charrette TRP 1000 kg	2,446	1,025	1,101	1,204	478
Ammonium Phosphate (T)	22.251	27.732	46.050	43.380	39.100
Urea (T)	35.725	18.473	36.475	43.450	8,100
Fungicide (packets)	325.687	112,595	84,636	160,483	92,982

sources: Données Techniques, OMM (Dec. 1981) and OMM data from Credit Section.

supply could not be sensitive to shorter term changes in demand. At present, all traction equipment is purchased through SMECMA, whose policy is to make materials available within three months of their order (January to March). It is vital that all suppliers of inputs to OMM be reliable in delivering the quantity of items ordered on time.

d. Repayment of Credit

According to the latest available statistics from OMM's Credit Section, as of September 30, 1981, 25% of credit repayments were in arrears (in value terms) from the 1978-79 season and 18% were in arrears from the 1979-80 season (see Table 12). If these figures are an accurate reflection of the degree to which farmers held to their original credit terms, then reimbursement has not been a major problem. It is clear, however, from field discussions that repayment has in fact often been a difficult problem in certain locations. It is for this very reason that the unofficial tightening of the terms has occurred during the last two years. OMM field personnel report that this latter approach has been effective in reducing the frequency of long delays in repayment. Unfortunately the data do not currently exist to test this assertion. When asked to estimate the percentage of their borrowers who were currently in arrears, a small sample of agents gave estimates between 4% and 80%, or an average of 32%. These figures are provided for indicative purposes only.

Farmers invariably cited the poor quality of their harvests as the reason for their inability to repay an installment of their loan on time. Obviously a farmer's ability to repay is related to the returns which he receives from his investment. In the case of plows and fertilizers, the key is whether the total value of a farmer's agricultural production increases. On the other hand, farmers may sometimes use equipment to reduce their labor requirements, increasing labor production rather than expanding production. The equipment may still contribute indirectly to household income in this case, however, if other remunerative activities may be pursued with the labor saved. Plows are also sometimes rented.

TABLE 12

Credit Provided per Year (000 FM) and Percent of Reimbursement in Arrears as of 30/9/81

	Before 1978-79		1978-79		1979-80		1980-81		1981-82		Total	
	Credit	% in Arrears	Credit	% in Arrears	Credit	% in Arrears	Credit	% in Arrears	Credit	% in Arrears	Credit	% in Arrears
Douentza	38,738	8.2	19,892	13.5	17,626	14.3	8,793	NA	12,403	NA	97,452	NA
Koro	61,149	16.9	13,542	46.8	17,135	21.5	28,033	NA	11,962	NA	131,821	NA
Bankass	47,280	9.9	18,241	7.5	11,562	26.6	17,227	NA	923	NA	95,233	NA
Mopti[x]	--	--	--	--	41,680[xx]	20.3	19,026	NA	1,635	NA	62,341[xx]	NA
Djenné	23,958	24.4	33,079	34.1	--[xx]	--	5,167	NA	4,836	NA	67,041[xx]	NA
Bandiagara	5,303	0.0	982	0.0	6,720	18.9	3,755	NA	5,338	NA	22,098	NA
Tenenkou[x]	--	--	--	--	12,454	2.0	10,902	NA	3,285	NA	26,642	NA
Total	176,428	1 .6%	85,737	25.3%	107,177	18.0%	92,905		40,381		502,628	

x Added to OMM zone 1979-80

xx Data from Mopti and Djenné were combined in 1979-80

Source: OMM Credit Section

NA: Not Available

Carts are used for a variety of purposes and are often rented for payment in cash or kind (in the case of millet transport). At the present time, research efforts have not been undertaken to accurately measure returns from the use of separate inputs of the technological package offered. It would also be instructuve to know how these items are being used in order to ascertain whether or not they add (directly or indirectly) to total household income. Neither are data currently available to calculate rates of arrears by type of input. Our best indication at present that farmers find several of these inputs economical (in the broad sense) is simply that they continue to demand these items and are, for the most part, repaying their loans within three years. This is not at all an insignificant fact if a primary objective of the project is in fact to improve the well-being and incomes of farmers of the Fifth Region.

e. Phase II Expectations

Clearly some unrealistic expectations with regard to the credit and supply system were included in the Phase II Project Paper. It was unrealistic to assume that the program could be diversified in so many ways before the basic program and policies were put on a sound footing. The predicted increases in sales of traction equipment units (35-45%) and fertilizers (60-100% per year were rather excessively optimistic. So were the goals of 20,000 equipment units to be placed and 50 percent yield increases for 20,000 farmers. There are too many variable factors (rainfall, insect damage and disease damage, for examples) to reasonably expect such yield increases in so short a period of time. There are, in like manner, many such uncertainties surrounding any projections of input placement; e.g., uncertain crop and input prices, delivery inefficiencies, and the moment at which the market becomes saturated for particular inputs. The demand for carts, in particular, may be expected to decline within the next few years (all other factors being constant) because their economic value will decrease as they become more widely distributed throughout the OMM zone.

5. Recommendations

a. Technical Assistance

A short-term technical advisor should be provided to assist OMM and USAID in jointly working out a credit strategy and a credit policy.

b. Credit Strategy

OMM and USAID should prepare a credit strategy document setting forth: who should be the program's clients; should it include poorer credit risks; should credit or supply be subsidized; what is an acceptable delinquency rate; default rate; how much flexibility should credit regulations give local OMM agents; how can agents be trained better?

c. Credit Policies

Based on the above strategy, a credit policy should be jointly established and disseminated to the field in written form and through organized classroom discussion. This policy should cover:

(i) an interest rate that covers defaults and inventory inflation;

(ii) a service charge to cover transportation and storage costs;

(iii) Inclusion of interest and costs in purchase price. If there is any subsidy, it should be clearly identified here;

(iv) a system of penalities for delinquencies.

d. Input Purchase and Delivery

In order to ensure a timely and sufficient supply of the required inputs to farmers, OMM should:

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(i) assess the reliability of suppliers with regard to these factors, and choose accordingly:

- adequacy of supply
- quality of merchandise
- regularity of delivery
- length of time between order and delivery

(ii) if supply problems continue, give consideration to the construction of a central warehouse;

(iii) proceed with plans to construct SDR- and ZER=level warehouses as required.

e. Information Requirements - Research

(i) To ensure that the appropriate technologies are extended in appropriate locations and to recognize promptly changes in demand as they occur, information must be continually gathered on:

(a) the particular effects on total production and resource productivity of each input;

(b) possible indirect benefits due to the use of inputs (e.g., labor saved to pursue other income-generating activities): how each input is actually used;

(c) the rates of acceptance of particular inputs in different locations, by different kinds of farmers.

(ii) These studies (above) conducted by the DEES should be greatly reduced in terms of sample size and be very specific in purpose, with data collected directly by a permanent staff of trained interviewers rather than by chefs SB, who are untrained in interviewing techniques and are already overburdened with other responsibilities.

(iii) More serious consideration should be given to the findings of ongoing research efforts outside the OMM framework.

(iv) Information should be maintained within the Credit Section on rates of arrears by type of input.

C. Traction Animal Credit

1. Background

In Phase I, an important assumption was that credit for agricultural equipment (plows, seeders, carts) and products (fungicides, fertilizers) was a necessary element in a project whose goal was an increase in production and marketing of cereals in the Fifth Region. In this phase, however, there was no provision for credit for purchasing traction animals.

Various studies have included figures on numbers of traction animals in the Fifth Region. For example, a survey done by OMM in 1972 offered these figures:

Element	Bankass	Koro
Population	108,000	140,000
Farm units	11,924	16,150
Total cropped area (hects)	54,469	81,619
Average area/farm unit (hects)	4.55	5.05
Number of work animals	145	134
Number of carts	186	120

The figures for the number of work animals would seem at a glance to be completely inaccurate.

A study done in mid 1976 by the Institute of Rural Economy (I.E.R., Estude Agro-Demographique Dans les Zones d'Intervention et d'Extension de l'Operations Mils Mopti, January 1978) cited the demand for plows, both in the delta zone and that of the Seno plain. It also noted the phenomenon of borrowing or renting animals in the Seno. Further, the study offered a figure of 26,000 traction oxen for the OMM area, excluding the cercles of Niafounke and Tenenkou (the cercle of Youvarou had not yet been created at that time and was likewise not part of the OMM zone). Unfortunately, the I.E.R. report included no breakdown for these animals except to state that 67% were located in the cercles of Djenne and Mopti (p. 39). There are no figures for numbers of traction animals per farm unit.

A BARA study (Agronomic - Action Forgeron, October-December 1978) which covered 140 farm units listed 111 traction animals among these units broken down as follows: 49 oxen, 52 donkeys, 8 horses, and 2 camels. Over 50% of the oxen were owned by farm units growing rice in the cercles of Mopti and Djenne. Of these 111 animals, only 3 were purchased on credit, and this arrangement made between the buyers and sellers themselves. These figures do not tell us the number of traction animals per farm unit.

The same BARA report on finances cited the high cost of the package of plow and a pair of oxen as a major constraint to the adoption of cultivation by animal traction in the OMM area (p. 20). The majority of farmers, it stated, were unable to afford this high cost, particularly for the oxen. At the same time, this study reaffirmed the importance of extending credit to the rural farm family, stating that 60% of all carts and 30% of all plows purchased by farmers between 1972 and mid 1978 were bought on credit granted OMM.

The evaluation of Phase I identified three principal weaknesses in the OMM credit program (Evaluation Report, p. 11). These were:

a. Farmers' lack of knowledge about the credit offered by OMM.

b. Inflexibility of credit terms which resulted in relatively well-off farmers deriving the benefits of credit.

c. The lack of credit for draft animals.

Adopting the assumption that the lack and high cost of traction animals, especially oxen, were a major constraint to the expansion of production, the design team included long term credit for animal purchases in its program for Phase II. The Project Paper suggested that a special fund of $10,000 be set aside for animal insurance as well.

2. Achievements

In the summer of 1980, the pilot villages of Mandio and Pare were furnished with 19 and 43 plow oxen, respectively, on an experimental basis.

The down payment required for a pair of oxen was 45,710 MF. The total cost of the pair was 244,550. The many farmers with whom evaluation team members spoke at Mandio and Pare seemed, notwithstanding certain reservations, satified with the animal credit activity and there remains an unfulfilled demand for plow oxen in both these villages. Repayment of the loans has thus far proceeded without difficulty.

3. Problems

a. There is no special insurance fund as far as the evaluation team could determine. There seems to be no separate account with $10,000 as foreseen for animal insurance. It appears that whatever insurance funds as may exist are mixed with operating funds.

Three of the 62 animals have died. However, those who purchased them on credit have not yet been informed whether the animals will be replaced, whether the full amount of the loan will have to be repaid, or if the insurance fund will cover the loan amount outstanding.

b. The price of the animals seemed excessive to the farmers. Because OMM and ODEM concluded a contract with a cattle merchant for purchase of the animals at the market of Fatoma, near Sevare, and because of the time of year of purchase (June), the per head price of a four-year old animal averaged 90,000 MF. Farmers felt that the average price should have been closer to 60,000 MF and that no animal among those they received should have exceeded 80,000 MF.

After purchase, all animals were quarantined and received veterinary care during a forty day period by ODEM. The cost of this service plus interest charged to the farmer --it is unclear what rate of interest, if indeed any, is charged since there is no written OMM policy on this--brought the total cost of each animal to 122,275 MF.

Those farmers who had no other means of ownership of traction oxen were happy to receive the animals, in spite of their high price.

c. Some farmers also complained that the animals received were not all suitable to use as traction oxen. Specific comments were that they were too young, that some had either weak forequarters or in particular had a chronic limp, and that they would have themselves purchased other animals had they been afforded the opportunity to do so.

d. Farmers complained that the delivery of animals was ill-timed. The animals were distributed in August, too late to be used with the plow. The farmers thus had to nourish and maintain the animals for almost a year before being able to exploit them. Most of these animals ended up going on transhumance because of the lack of feed and water in the Region.

e. Studies thus far accomplished do not justify the animal credit activity. There are no data which validly indicate the need for animal credit. For example, a BECIS (formerly BARA) survey of 40 villages including 275 farm units (see Rapport Provisoire, April 1981) indicated that almost 42% of the farm units cultivated their fields with plows and traction animals. Of the 275 farm units, 37% owned plow oxen (the majority --54% -- in the delta zone) and 42% owned donkeys (of which the majority --75% -- were in the Seno plain). The report accurately stated that the nature of soils in the various zones dictates the traction animal most desirable. Thus, in the sandy soils of the Seno, donkeys can pull light plows while in the delta zone where clay soils are most prevalent and a dry season rice crop may be grown, the farmer uses a heavier plow which must be drawn by oxen.

As mentioned earlier, the 1978 BARA study of 140 farm units cited 111 traction animals. However, there is no breakdown by farm unit.

The BECIS study also noted that the vast majority of farmers who own traction animals have bought them for cash using revenues derived from various sources. For better equipped farmers, a large part of their cash for traction animal purchase comes from the sale of surplus crop production.

Some money comes as well from the sale of small ruminants and craft items, particularly woven blankets. Additional sums come from family sources in the form of loans or gifts. And though not cited by BECIS, no doubt some revenues used to purchase draft animals are derived from wage labor or services.

The studies and the field travel of the evaluation team suggest that it is not unusual for a farmer equipped with a plow to rent oxen to cultivate his fields. Some farmers rent both plow and oxen. Therefore, even farmers who have the means to make the capital investment in plows and draft animals may choose not to do so if rentals are available.

f. While the intent of the animal credit activity is to make traction animals available to those who have none, one result of the experiment thus far in Pare and Mandio has been the provision of oxen to some farmers who already possessed animals.

4. Recommendations

The evaluation team is at this time skeptical of the need for the animal credit activity. It is unclear from existing data whether individuals who themselves own no traction animals have access to such animals through their concessions. It is unclear whether individuals who own no traction animals have the means to invest in them, but consciously choose not to do so because of a preference for other investments. It is further unclear whether animal credit should be granted only for oxen purchase, given their high cost vis-a-vis that of donkeys, and only in the lake and delta ecological zones. The evaluation team thus makes the following recommendations with caution:

a. The DEES, in conjunction with the data anaysis units of ODEM and Operation Riz Mopti, should undertake a limited study or should analyze existing reports or raw data to determine:

(i) Existing traction animal numbers, ownership, and exploitation in the OMM zone.

(ii) Access of non-animal owners to traction animals whose ownership and management is exercised by the head of the concession of which the individual is a member.

(iii) Whether individuals or concessions owning no traction animals have the means to purchase animals but choose not to do so, preferring to make other productive investments.

(iv) The extent of the practice of paying for traction services or animal rental.

(v) Whether animal credit, if deemed necessary and justified, should be limited to traction oxen.

(vi) Whether credit for traction oxen should be limited to particular ecological zones.

(vii) The most opportune time of a year for the purchase of traction animals, considering such factors as pricing and markets, the transhumance, and the problems of dry season feed and water.

(viii) Farmers' perceptions of what constitutes a good traction animal, e.g., age, size, structure, disposition, health.

(ix) The possibility of shortening the duration of credit for traction animals, given the indication that perhaps the majority of farm family cash income is derived from non-crop production activities.

b. That the animal credit activity terminate at the end of Phase II unless the results of the above recommendation can justify it for a Phase III.

c. That the animal insurance fund be immediately constituted in an amount not to exceed $5,000, and that this fund be retained and augmented appropriate to the number of animals purchased on credit in the possible Phase III.

d. That animal credit, if continued, be extended only to those who are members of a concession which owns no more than one traction ox---in other words, that credit be extended to those who need it the most.

e. That a pilot village/village association animal advisory council be established consisting of the OMM training and extension division heads, an expert veterinary agent from ODEN, the local OMM agent assigned exclusively to the particular pilot village, the head of the pilot village's farmer committee, and one other local member knowledgable in livestock matters to be named by members of the farmers' committee.

f. That farmers granted credit for animal purchase be assigned the responsibility of buying their animals themselves, either individually or by group. The latter could be accomplished as it has been, for example, in the ECIBZV Embouche Payan program wherein the farmers' group names one of its members to act on behalf of the group and execute all animal purchases. This has worked very well. In this case, the advisory council would only provide advice.

This action would descrease OMM's administrative burden and eliminate farmer complaints about animals furnished to them, such as has been the case in Pare and Mandio.

D. Agricultural Marketing

1. Background

The Phase I Project Paper explicitly recognized a role for OMM in the marketing of millet and sorghum:

> "In the project area Operation Mils agents will perform the function of procuring surplus grain at the offical price for OPAM. Thus the farmer will be assured the offical price for his surplus production. The surplus grain will be temporarily stored at the arrondissement level by Operation Mils until taken over by OPAM for transporting to grain deficit areas. . ."

The rationale for OMM's involvement in marketing was not stated. It may, however, be hypothesized that: (1) the authors did not recognize that increasing sales through official channels at official prices was not in the best interest of farmers, and (2) the GRM's overall strategy of involving the Rural Development Operations (ODR) in marketing in order to reduce the burden on l'Office des Produits Agricoles du Mali (OPAM) probably influenced the decision.

The Phase I Evaluation Report noted, "the adverse impact of the official marketing system" due to the compulsory nature of the quota system and the low official producer price. The authors of the Phase II Project Paper heeded this information in stating that,

> ". . .no specific new marketing activity is included because it is not possible to justify an investment in a system which, on the face of it, does not contribute to an improvement in farmer income."

Nevertheless, OMM was not required to make any significant changes in the marketing system which had evolved with apparently little official USAID guidance throughout Phase I. The Phase II Project Grant Agreement states that:

> ". . .all transport commissions paid by . . .OPAM to OMM for marketing grain shall continue to be placed in a special account and that OMM may use this fund for replacing the nine 10-ton trucks previously purchased by the project . . ."

The only other Phase II subsidiary activity related to marketing was the proposed rehabilitation of 307 km of rural roads.

The Phase II Project Paper thus did not seek to modify the existing relationship between OMM and OPAM. It sought instead to minimize the negative impact of offical marketing policy on farmers' incomes in the OMM zone by reducing emphasis on the marketing activity. This included the suggestion that the GRM limit quotas in any given year to the maximum quantity sold during Phase I (9150 tons).

Underlying the decision to maintain the status quo was the assumption that a "basic policy modification" was in the works at the national level. The basis for such a modification was to be La Politique Cerealiere au Mali, a paper written in 1978 by an FAO team led by H. de Meel.

The donor community proposed to the GRM in 1980 a "Cereal Market Restructuration" plan. Two of the donor agencies' principal intentions for this project were to reduce the subsidization of cereals to consumers by producers and to allow OPAM to escape from its financial quandary. The de Meel report was used as the basis for the recommendations, the most important of which were:

- that producer prices rise over a period of 5 years (1981-82 to 1985-86) to approach those of neighboring countries, allowing for the effects of inflation and encouraging farmers to adopt modern technologies.
- that consumer prices rise (somewhat faster than producer prices) to a level equal to OPAM's net costs by 1985-86. Thus OPAM would theoretically be financially self-sufficient after five years.
- that certain licensed private merchants be allowed to purchase grain during the official marketing season, and that cooperatives (CAC) and Federations (FGR) purchase grain out of their own resources.
- that OPAM progressively abandon its purported monopoly and become instead a regulatory agency; i.e., that it intervene in the market only to the extent necessary to guarantee a floor price to producers and a ceiling price to consumers. If OPAM's interventions are to be minimized, a significant difference must exist between the producer and consumer prices.

It was hoped that by officially recognizing some private traders and the cooperatives as legitimate participants in grain marketing, the market would in fact become freer. Prior to 1981-82, all medium to large-scale purchases of cereals were illegal for all private merchants during the official marketing period. It should be noted that no specific mention was made of phasing out or abandoning immediately the quota system. It is inherently contradictory that OPAM is to function in only a regulatory capacity while the long-established quota system continues to be in operation.

The GRM accepted all of the specific points recommended in the Cereal Market Restructuration Plan in Presidential Ordinance No. 338, which was signed into law December 24, 1981. The opening of the official marketing period was, interestingly enough, declared to be November 1, 1981. Thus, even though the new marketing strategy was officially implemented during the 1981-82 season, all of its details were not widely disseminated until well after the official marketing season was to have begun. The producer and consumer prices were, however, known ahead of time. The head of the OPAM operation in the Bankass Circle told us that he had only received a copy of the ordinance in February.

2. The Official Cereal Marketing Structure

a. Its Limited Impact at the National Level

Among the Sahel countries, Mali has for years maintained the sharpest distinction between official and unofficial marketing channels. This is due to the amount of control that the GRM has attempted to maintain - particularly through OPAM in the cereals market. The fact that this control has actually been nearly totally ineffective is due to:

- low official producer prices for cereals relative to open market prices and prices in neighboring countries;
- the artificial fixing of demand by an oppresive and inflexible quota system; and
- the overly complex regulations under which OPAM has been required to work.

Although volumes traded on the open market are notoriously difficult to estimate, most studies concur with the Phase II Project Paper's estimations that roughly 15-20% of total cereal marketing is done through official channels and only perhaps 5% of total production is so marketed. These figures appear reasonable for both the Mopti region and the entire country.

b. The Role of OMM

As noted above, the GRM attempted to release OPAM from some of its local marketing activities as the Rural Development Operations were created during the 1970's. The particular responsibilities ceded to OMM were:

- the estimation of production and marketable surplus at the grassroots level; and
- the purchase of grain with funds and sacks provided by OPAM in certain zones, and the transport of this grain to OPAM warehouses -- most often at the arrondissement of Circle level, but sometimes at the regional level.

OMM has retained these responsibilities through the 1981-82 campaign, although their zone of intervention has been modified over the years. In 1973-74, OMM began its marketing activities in the Koro and Bankass Sectors, although at that time the actual purchases from farmers were made by the Federations des Groupements Rurales (FGR) for OPAM. OMM's zone of intervention has since expanded to include most of the Douentza and Mopti SDRs and part of the Djenne and Tenenkou SDRs. The Dogon Plateau -- including the Bandiagara SDR and parts of other SDRs -- has remained the responsibility of the cooperative/federation (CAC/FGR) organizations. There are also certain ZERs or secteurs de base (SB) within different SDRs where either the cooperative structure retains principal marketing responsibility or where no effort is made to buy cereals because of chronically poor growing conditions.

c. The Quota System

The quota system has been at the heart of the GRM official marketing policy since independence. Marketing quotas are established for all administrative

units within Mali, down to the village level. The quantities specified are to be sold to OPAM as its official representative (e.g., OMM) at the established official price. The grain thus acquired by OPAM has three intended uses:

- to supply urban consumers, including consumer cooperatives and government functionaries with sorghum, millet, rice and corn at prices below open market retail prices;
- to supply food-deficit Region (notably Gao, Tomboctou) and the larger urban centers; and
- to acquire a national security stock.

1) The Methods by Which Quotas are Established in the OMM Zone

Each chef SB working for Operation Mils-Mopti is supposed to closely monitor the agricultural activities of a sample of his farmers. Under the supervision of the SDR-level "agent socioeconomique" (the representative of the Division des Etudes Economiques et Statistiques - DEES), he records agricultural labor times throughout the growing season. He also measures approximately (by piquetage) the millet/sorghum fields on each of these farms and places one or two 25 m^2 yield plots in these same fields. Thus, yields and total production are estimated in October/November for the sample of farmers.

Each chef SB is in principle supposed to take ten pilot farmers and ten "ordinary" farmers for his sample. In practice, the number of farmers selected, their characteristics and the number of their fields which are measured were found to vary considerably. The head of the DEES admitted this lack of uniformity, but stated that each chef SB is strongly encouraged to follow a minimum of ten farmers. Unfortunately, the production and yield estimates for farmers employing different technologies are not maintained separately. Then each chef SB is largely left to his own devices to extrapolate his production estimates for his sample of farmers to the village and then to the SB level.

Once production estimates are made, each chef SB proceeds to the estimation of the quantity of grain that OMM may be able to buy that season in his secteur de base. These estimates are known as previsions de commercialisation, and once again a variety of procedures are followed locally. The offical procedure is as follows:

- calculate local cereal consumption requirements on the basis of 200 kg per person;
- calculate a security stock (including seed stock) on the basis of 1/10 of consumption;
- calculate the marketable surplus, i.e., production --(1 +2); and
- calculate the prevision as 1/5 of the estimated marketable surplus.

Thus, if farmers in the Mopti region produce surpluses which average 25% of total production (a conservative estimate for farmers of the Seno Plain and other relatively productive areas), OMM attempts to purchase about 5% of total production (.25 x .20). There is of course a great variability in production per capita within the Mopti Region. The Dogon Plateau, because of its lack of arable soils, is generally considered an area where farmers have difficulty providing for their own food needs. On the other hand, farmers in other areas often maintain a two to three year millet/sorghum stock, selling small quantities as required to meet their cash needs throughout the year.

Appendix I, Table II, Section IV, A, provides estimates of Millet/sorghum production, area harvested and yields for each of the 7 SDRs between the 1979-80 and 1981-82 seasons. It shows that overall production in the OMM zone has been quite constant the past three years, while area harvested has decreased somewhat and yields have risen. It should be noted that area harvested is calculated by OMM by subtracting disaster areas ("superficie sinistree") from total area planted. Thus, due largely to very poor rainfall, over 60% of the area planted in the Bandiagara and Mopti SDRs in 1981-82 was considered a disaster and was totally excluded from all production, area and yield calculations. A ZER, SB, village or even farm may be classified as a disaster area if,

in the judgement of OMM personnel, an insufficient quantity of cereals is produced that year to feed the population. Thus, if one includes disaster areas (where some quantity of grain is usually harvested), the gross production (and area harvested) has been somewhat higher than that reflected in Appendix I, Table II, and yields have been somewhat lower. Farmers in such disaster areas benefit from this method by being excluded from the quota system.

The previsions provided by local OMM agents are compiled at the ZER, SDR and finally direction-level, and are often adjusted at each level. Meanwhile, a separate process of negotiation is conducted by the Administration, which has the final authority to set the quotas. In September, a Commission Interministerielle pour la Commercialisation (including OMM representatives) meets in Bamako to plan the financial requirements of the upcoming marketing season -- based on very preliminary indications of the quality of that year's harvests. In November, a Commission Cerealiere de la Region, presided over by the Governor and attended by representatives of the Gendarmerie, OPAM, OMM, the CAC and other organizations, meets in Mopti. The Regional quota established in September is at this time discussed and revised -- based on more precise knowledge of the actual harvest and the previsions provided by OMM. Once an agreement is reached, the revised quotas are passed on to similarly structured commissions at the Circle (SDR) and arrondissement (ZER) levels. The arrondissement meeting is attended by the chef de ZER, all of the chefs SB and village leaders, as well as by Administrative officials. Throughout the long bargaining process by which quotas are fixed, OMM generally attempts to exert downward pressure on behalf of farmers (and on their own behalf, as quotas are not often met), while Administrative officials exert upward pressure. It is generally recognized that the Administration seeks to set quotas at 10% of total production.

Once quotas are made known at the village level (and after the funds and sacks have arrived), the chef de village and his counsellors allocate the quota according to their own locally established procedure. The

most important factors are ordinarily (1) a family's actual production that year, and (2) the number of adults or adult males in the family. Traditional social pressures work to encourage all capable households to provide at least some quantity of grain, but force is never a factor within the village.

2. The Impact of the Quota System on Farmers

Principally because of the very low prices which have been offered for their crops, farmers have always considered their required sales to the government a "tax". They have, therefore, sought to minimize these sales. In the past, coercion has at times been applied by authorities in order to achieve quotas. Farmers have apparently often been forced under these circumstances to purchase millet on the local market and resell it to the government at a low price. Such coercive tactics have been in recent years for the most part replaced by propagandistic techniques ("sensibilisation"). Nevertheless, there remains some pressure on farmers to "pay their tax", which remains such as long as it is required (even in relatively small quantities) and as long as the official price remains unattractive relative to the open market price. As the official price approaches the open market equilibrium price, farmers will of course be harmed less by the quota system. However, the very fact that the system remains inflexible makes it inefficient. Our visits with villagers revealed that some would have willingly sold more of their grain officially this past year had sufficient funds been available from OPAN just after the harvest.

d. Producer Prices

The table below presents the official producer price (FM/kg) for millet and sorghum between 1974-75 and 1981-82. Over this eight-year period, the official price rose 166%, although prices did not increase steadily until following the 1978-79 season.

Over the previous eight-year period

1974-75, 75-76, 76-77	77-78	78-79	79-80	80-81	81-82
32	36	40	50	70	85

(1966-67 to 1973-74), prices rose by 113%, but were quite stagnant for all but one year during that period.

Numerous studies have shown that producer prices in Mali have been very low relative to neighboring countries; have been, in the case of cereals, insufficient to cover farmers' costs or encourage production; and have been low relative to the average annual open market prices. Open market cereal prices have been shown to vary greatly within Mali over the course of any given year (generally lowest at harvest and increasing gradually until the following harvest), and also between years and/or regions. Even with the very significant official price increases over the past four years, most farmers still preferred to sell most of their millet/sorghum surplus privately in 1981-82 (based on conversations in numerous villages and an observed open market price between 120 and 140 FM/kg in March 1982).

Since 1974-75, following a recommendation by the Comite National de la Recherche Agronomique (CNRA), cost of production studies have been conducted for each of the major crops in order to provide "a more fair remuneration for the producer." The DEES of Operation Mils-Mopti has during the past four years taken an active role in this process. They have collected data on agricultural labor times (Temps de Travaux), which have been used, together with other variable cost estimates, to calculate what is considered by OMM a fair producer price. The key element of the procedure is the evaluation of one man-day of agricultural labor at the estimated average wage necessary to hire such labor during the farming season. This wage was estimated at 1100 FM/man-day for 1981-82. In villages on the Seno Plain (where farm labor should have a relatively high value), farmers said that they had to pay a maximum of between 800 and 1000 FM/man-day in 1981-82, so 1100 FM/man-day is quite liberal. Assuming an average yield of 600 kg/ha, a traditional farmer (using only seed fungicide) should, according to OMM's analysis, have received 115 FM/kg of millet/sorghum in 1981-82. Similar cost of production studies are conducted elsewhere for different crops and for different levels of technology. These studies have not yet been conducted by OMM, but may be found in Determination des Couts Moyens de Production des Principaux Produits Agricoles pour la Fixation des Prix aux Producteurs de la Campagne 1981-82, by the Ministry of Agriculture.

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Official producer prices are actually fixed after the April/May meeting of the Commission Interministerielle du Fixation du Prix au Producteur. At this meeting, OMM delivers its recommendation based on the above analysis. Debates follow and a compromise producer is finally selected. The leverage which OMM is actually able to exert during this meeting is unclear, but at least farmers' interests are now represented in this manner. The date at which official producer prices are announced varies from year to year. In recent years, they have been announced over the radio. Farmers told us, however, that they do not ordinarily know the millet/sorghum price before planting. Under the current cirsumstances, it is doubtful whether advance knowledge of the official price would greatly affect farmers' decision making. However, as the official price approaches the average open market price, and if official purchases become more timely and reliable, farmers could certainly be expected to respond by increasing their millet/sorghum production.

It may also be noted that while the official millet/sorghum producer price increased by 15 FM/kg in 1981-82, the OPAM consumer retail price jumped by 31 FM/kg. If this becomes a trend over the next few years (as was proposed in the Cereal Market restructuration plan), it should effectively alter the pattern of partial subsidization of consumer prices by overly low producer prices -- which has been documented in previous studies.

e. The Mechanism for the Purchase and Transport of Cereals

OMM has always depended on OPAM for the funds with which to purchase millet/sorghum, as well as for the necessary sacks. Funds and sacks are delivered to each SDR after quotas are known. OMM then distributes these funds within each SDR according to the quantity of grain to be purchased in each village. Sacks and funds are then distributed within each village according to the procedure described above. Farmers know the price they are to receive and also normally receive the money and sacks before providing the grain. This was not necessarily true five or more years ago. If they are unable (or unwilling) to provide the amount asked of them, farmers may not in most (but not all) cases return the unspent cash, rather than filling their quota by purchasing grain on the market. They

are as yet expected (mainly through intra-village pressure) to sell some quantity of their grain officially. The local OMM agent (chef SB) is responsible for all transactions within his secteur de base.

Villagers are responsible for transporting their grain to the nearest point de collecte, where an OMM truck picks it up and delivers it to OPAM warehouses at either the arrondissement or Circle level. Points de collecte most often coincide with the central SB village and there are now other collection points as well in more inaccessible areas. The Bankass SDR was said to have had a total of 25 points de collecte in 1981-82, while the Douentza SDR had them in "most accessible villages" plus 15 other locations -- according to the respective OMM chefs de SDR. This is a tangible improvement, according to villagers, because prior to OMM's involvement in marketing, farmers had to transport their own grain to the arrondissement level.

The OPAM funds are delivered to OMM in installments (tranches), with the requirement that a second installment cannot be ordered until a certain percentage of the first installment has already been spent. This system of "prejustification", along with the usual late arrival of the first installment, has greatly impeded the effectiveness of the official marketing process. This was particularly true in the past two years as higher official prices have induced some farmers to seek to sell more grain to OMM immediately after the harvest. OMM has often been unable to purchase this grain because of the late arrival of & insufficiency of funds.

While the official marketing period this past season extended from November 1 to April 1, it did not actually get underway (because of fund delays) in most OMM SDRs until later December or early January. According to the director of BECIS -- which recently completed a year-long market survey in the Mopti Region -- most marketing of large quantities of millet and sorghum is ordinarily already completed by the end of November. Farmers have immediate cash requirements (including the annual head tax payment) at harvest time, and so cannot easily delay a significant percentage of their annual sales -- regardless of the price being offered at harvest time. The

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longer official sales are delayed, the less desirable they become in the eyes of farmers; farmers' need to sell decreases after the harvest period and the difference between the official and market price widens.

The cash that OMM receives in installments from OPAM is only meant to cover the purchase of millet and sorghum from farmers. Transport, personnel and other costs incurred by OMM in the marketing process are fixed annually in a bareme. For acting as OPAM's marketing agent, OMM is paid these extra charges on the basis of the number of tons collected. The total amount paid to OMM over the producer price is intended to cover all operating expenses with a small margin. The bareme is calculated on the basis of transport as far as the arrondissement. If OMM transports grain to the Circle level or to Mopti, additional charges are added at a prespecified rate per ton.

Since 1979-80, OMM has held its own bareme, distinct from the one used by cooperatives. Since 1978-79, OMM's total commission has been 6.494, 3.156, 12.328, and 14.005 FM/kg in 1981-82. Table 13 presents the actual costs incurred by OMM in the marketing activity and the cash earnings from OPAM between 1978-79 and 1980-81. Data were provided by the head of DEES, but may be incomplete. Therefore, caution is advised in the use of this table. It will be noted that in 1979-80 both costs and earnings fell markedly, but the net result was 656,000 FM profit -- assuming all costs have been specified. In 1980-81, OMM's profit from the marketing activity supposedly rose to nearly 35 million FM. The two major expenses which have apparently been dropped since 1979-80 are vehicle insurance and incentive payments (primes d'indemnite) to OMM extension agents. The abandonment of incentive payments (based on quantity of grain purchased) may help to explain both the reduction in official purchases since 1978-79 and the apparent lessening of pressure on farmers to fill their quotas.

f. OMM Extension Agents as Marketing Agents

It would be reasonable to predict that the ability of OMM agents to carry out their extension duties effectively might be jeopardized by their role as marketing agents for the GRM. Discussions with farmers and field agents

TABLE 13

Financial Situation of OMM's Marketing Activity, 1978-79 to 1980-81 (FM)

Costs	1978-79	1979-80	1980-81
Fuel	14,072,805	11,860,835	8,774,345
Gardiennage	465,300	772,500	621,600
Manutention (loading, unloading)	3,422,835	2,065,200	1,984,400
Transport and Loading Losses	1,991,680	--	--
Amortisement Vehicules	7,757,700	2,782,645	2,782,645
Insurance	12,661,950	--	--
Maintenance and Repair	1,219,770	906,500	818,900
Salaries	933,475	1,396,855	927,685
Primes d'Indemnité	15,547,000	--	--
Management Expenses	28,800	--	--
Total Costs (FM)	58,101,315	19,784,535	15,909,575
Tons sold to OMM	6,555	4,083	4,112
Commission/ton (FM)	6,494	3,156	12,328
Total Earnings (FM)	42,898,880	20,440,845	50,692,736
Net Profit or Loss (FM)	-15,202,435	+ 656,310	+34,783,161

Note: Source of data is DEES. This table should be used for indicative purposes only as some figures remain questionable. The net profit or loss is calculated as far as the arrondissement only. OMM's commission is taken directly from the official barèmes.

indicated, however, that agents are not generally mistrusted. In fact, it was generally agreed that better estimates of production and marketable surplus may now be obtained because of the rapport developed in many villages between farmers and the chef SB. This is not to say that ill will is never created in any village or that the situation will necessarily remain innocuous. Agents would certainly stand to lose credibility and trust in their villages if the GRM at some point in the future were to revert to strong-arm tactics for grain collection. Another concern might be that too much time is diverted to the marketing activity from extension activities by OMM agents. Since most marketing is done during the dry season, this potential problem is minimized. To the extent that agents could otherwise take part in technical training exercises during this time, it would perhaps be preferable to transfer the responsibility for marketing. This appears, however, to be wholly impracticable in the near future.

3. Summary of Improvements for Farmers in Official Marketing During Recent Years

Some significant changes have occurred in the official marketing of cereals in the Mopti Region over the past 3-5 years. It is nearly impossible, however, to pinpoint the motivating forces behind each of these changes. Forces at the national level (e.g., pressure from the international donor community, general political instability and the frustrations of dealing with a long-inefficient cereal marketing organization) have commingled with OMM initiatives. Nevertheless, important improvements have been made because of (a) producer price increases, (b) less coercion in filling quotas, and (c) less distance for farmers to transport their grain. Another less tangible improvement made this year (though the long-term results remain to be seen) was the admission of selected private traders to the official marketplace.

a. Producer Price Increases

This is, with little question, the most important improvement for farmers. Its impact has been blunted, however, by OPAM's continuing inability to adjust its purchases according to local supply conditions. If farmers

could rely on OPAM's (or OMM's) capacity to purchase any amount of grain they wanted to sell at the official price and just after the harvest, it would eliminate price risk as a factor in their decision making. This in turn could lead to greater production. As the situation is now (the official price still somewhat below market prices and the quota system still in effect), probably most farmers see the main benefit from the price increases as a reduction in their "tax".

Table 14 presents the cost of a TM plow, TRP cart and 50-kg sack of ammonium phosphate fertilizer both in terms of Malian Francs and in terms of millet/sorghum over the past seven years. Since 1976-77, the terms of trade for the cart and plow have improved dramatically-- a cumulative result of stagnant equipment prices and increasing millet/sorghum prices. During this time period, the price of fertilizer has, on the other hand, increased at about the same rate as the millet/sorghum price. Thus, the recent cereal price increases have been essential in improving (in the case of traction equipment) or in maintaining (in the case of fertilizer) farmers' terms of trade. From the GRM standpoint, the cereal price increases (together with more liberal grain commerce) should have the effect of keeping more grain within the country -- the export market becoming relatively less attractive to Malian traders.

b. Less Coercion in Filling Quotas

The evidence to support this contention is both quantitative and qualitative. Tables 15 and 16 present the cereal marketing quotas and official sales, respectively, for each SDR between 1978-79 and 1981-82. Both total quotas and actual sales have consistently decreased over these last four years. Quotas have rarely been attained in most SDRs and in some cases the difference between quota and sales is striking. Table 17 presents for the entire region recent changes in quota-sales-production ratios. The percent of total production which OMM and the cooperatives have attempted to purchase for OPAM has been decreasing; so have the sales achievement ratios, i.e., sales/production and sales/quota.

TABLE 14

Cost of Agricultural Inputs, 1975-76 to 1981-82
(in Malian Francs and in terms of Millet/Sorghum Production)

	1975-76	76-77	77-78	78-79	79-80	80-81	81-82
millet/sorghum producer price (FM/kg)	32	32	36	40	50	70	85
TM Plow Cash Price (000 FM)	31.9	45.6	47.3	52.9	52.9	52.9	52.9
TRP Cart Cash Price (000 FM)	44.3	60.9	60.9	71.1	71.1	71.1	71.1
Ammonium Phosphate Cash Price (50 kg)	2750	4750	4750	6500	7000	12,350	11,250
Cost of Plow in tons of Millet/Sorghum	1.00	1.43	1.31	1.32	1.06	.76	.62
Cost of Cart (T m/s)	1.38	1.90	1.69	1.78	1.42	1.02	--
Cost of Ammonium Phosphate (kg m/s)	85.9	148.4	131.9	162.5	140.0	176.4	132.4

Note: Prices are official SCAER and SMECMA cash-term prices, unadjusted for transport to Mopti.

Sources: SCAER: "Evolution des Prix des Facteurs de Production Agricoles"; Ministère de l'Agriculture: Détermination des Couts Moyens de Production des Principaux Produits Agricoles...(1981).

TABLE 15

Cereal Marketing Quotas (T)

Sector	1978-79	1979-80	1980-81	1981-82	Total
Douentza	800	600	820	550	2,770
Koro	3,000	2,125	2,525	2,700	10,350
Bankass	3,300	2,700	2,500	2,800	11,300
Mopti	615	525	645	325	2,110
Djenné	1,200	1,204	300	415	3,119
Bandiagara	980	850	795	265	2,890
Tenenkou	600	400	400	500	1,900
Total: (excludes zone diffuse)	10,495	8,404	7,985	7,555	34,439

TABLE 16

Official Sales of Millet/Sorghum (T)

Sector	1978-79	1979-80	1980-81	1981-82
Douentza	708	162	578	
Koro	2,586	1,771	1,262	
Bankass	2,840	1,871	1,659	
Mopti	472	217	645	N.A.
Djenné	1,240	1,132	199	
Bandiagara	1,000	854	802	
Tenenkou	608	180	122	

Note:
- Sales recorded are "réalisations", not "rendu OPAM
- 1979-80 through 1981-82 data from SDR annual reports
- 1978-79 data from OMM Rapport Annuel 1978-79

N.A.: Not Available

TABLE 17

Recent Changes in Quota-Sales-Production Ratios

	1978-79 (1)	1979-80 (2)	1980-81 (2)	1981-82 (3)
Production (T)	162,300	144,343	143,245	142,621
Quota (T)	10,495	8,404	7,985	7,555
Official Sales (T)	9,454	6,187	5,267	N.A.
Quota/ Production x 100%	6.5%	5.8%	5.6%	5.3%
Sales/ Production x 100%	5.8%	4.3%	3.7%	N.A.
Sales/Quota x 100%	90.1%	73.6%	66.0%	N.A.

(1) OMM Rapport Annuel, 1978-79.

(2) From SDR annual reports.

(3) OMM Rapport Mensuel, Nov. 1981

N.A.: Not Available

Farmers in villages we visited reported no use of force in recent years in the collection of cereal quotas. OMM agents, likewise, stated uniformly that they are not authorized to call in the police in order to obtain millet/sorghum -- although they are not above occasional threats. Changes in the purchase procedure are also encouraging; farmers know the price and receive money and sacks beforehand; they may also sometimes return unfilled sacks and money.

c. Less Distance to Transport Grain

This was reported in all villages visited, other than the central villages of arrondissements or Circles. It is not known whether or not there are as yet sufficient points de collecte or whether they are properly distributed.

4. Continuing Problems and Questions to Resolve

Just as it is nearly impossible to isolate the forces behind each recent improvement in official marketing, it is also difficult to determine who should or does have primary responsibility in bringing about further reforms. It is clear, however, that OMM must work within the regulations set down by the GRM. The most basic question which remains to be answered is: Is OPAM in the near (or distant) future going to be able to discard its numerous problems and actually begin to function as the cereal market regulatory agency prescribed in the Cereal Market Restructuration plan? Or will it continue to be as ineffectual as it always has been -- in which case USAID and OMM strategy should continue to be to minimize its negative impact on farmers.

a. The Quota System

As long as official marketing policy retains at its base an inflexible quota system, it will remain very much apart from and secondary to private marketing. This would not necessarily be bad, as long as excessive obstacles are not created for private traders and farmers are decreasingly penalized. The quota system of marketing is bound to be economically inefficient because it cannot respond to local supply and demand conditions

by altering the price offered or adjusting the quantity of grain to be purchased. The negative impact of this system on farmers in Mali has been well documented. They still consider their official sales a "tax". The entire system will remain artificial unless OPAM enters traditional marketplaces alongside private merchants.

b. Operational Inefficiencies

The system by which funds are passed through the banks to OPAM to OMM is overly complex. Regulations abound at each exchange. Consequently, OMM field agents rarely receive their funds and sacks when farmers are most willing to sell -- immediately following the harvest. Even if funds arrive early, the prejustification system virtually ensures that the first installment will be insufficient to cover all grain purchases. If the Cereal Market Restructuration plan is followed through, OPAM should become much more financially stable. This could perhaps allow for a more flexible and timely delivery of funds to OMM.

c. The OMM - OPAM Relationship

Ideally, one organization would be in charge of official marketing, but this does not appear to be feasible in the Mopti Region in the near future. In its current role, OMM is able to apply pressure to make at least marginal improvements in the system. It does so without acquiring the excessive financial and logistical burden inherent in running the entire funding; transportation/storage activity. Because of the sorts of operational problems described above, there is often friction between OMM and OPAM agents in the field. It was frequently pointed out to us that OPAM and OMM scales do not often provide equal measurements. It is certainly true that the more hands involved in the marketing chain, the greater the opportunity for graft. Since the bareme used to pay OMM's commission is based on gross predictions of total expenses, the profit or loss actually incurred by OMM (or OPAM) can vary greatly from year to year. Finally, there remains the possibility that sometime in the future

(if the current more liberal course fails) the GRM will revert to authoritarian means to assure its grain supply. In this event, OMM's ability to continue with its technical program would certainly be in jeopardy.

5. Recommendations

It is the responsibility of USAID, through OMM, to carefully follow changes in official marketing policies and methods over the years and to use its influence in whatever ways possible to make the impact of official marketing on farmers more positive. This implies (1) a monitoring activity to help develop long-term strategies and (2) a series of short-term adjustments to marginally ameliorate the existing system.

Five basic policy issues should be continually addressed:

(a) Are producer prices rising sufficiently fast?

(b) Is the level of physical coercion remaining low?

(c) To what extent is the quota system being phased out or made more flexible?

(d) Is market entry easing for the majority of private merchants?

(e) Is OPAM's operational effectiveness improving to the point that it may eventually be capable of acting as a market regulator?

The monitoring of most of these issues may be done by informal observation rather than by controlled study. However, occasional market surveys should be conducted in order to (1) evaluate the performance of the open market in terms of prices offered to farmers and quantities sold by farmers at different locations during the year; and (2) identify possible local deviations from official policy, especially market barriers for private merchants. The recently completed market study by BECIS should be a valuable tool on which to

base initial answers to these and other questions. Subsequent studies, conducted preferably by outside organizations (not OMM), need not gather as much detailed information on market structure, and so should be relatively inexpensive.

If, from these studies, it is concluded that there is sufficient competition in the open market to allow a relatively free movement of cereals, and if OPAM does not become more effective, the major policy goal should simply be to minimize OPAMs interference in the marketplace. In this case, the opening date of the official marketing season should not be moved forward. As it is now, the lateness of the official marketing campaign impedes the effectiveness of that campaign -- but it has the major benefit of allowing cereals to be freely traded throughout the most important part of the season (October-November). On the other hand, farmers could benefit from an effective floor price, so efforts should continue to transform OPAM into a functional regulatory agency.

More short-term actions which should be taken include:

(a) the continuation of cost of production studies in order to maintain upward pressure on the producer price though the agricultural labor surveys should be reduced drastically in breadth and made to conform to the particular requirements inherent in evaluating farm technologies.

(b) pressure by whatever means possible on OPAM to deliver funds and sacks on time, preferably with enough flexibility to allow OMM to adjust its purchases according to local supply conditions.

(c) the verification, repair and/or replacement of scales to minimize the discrepancies between those used by OMM and those of OPAM.

(d) more careful and consistent measurement of marketing costs, with more guidance provided by USAID (e.g., on the recent apparent elimination of vehicle insurance).

(e) the preparation of a statement of marketing procedures followed by OMM, starting with production estimation and ending with delivery to OPAM warehouses.

(f) encouragement of the GRM to announce producer prices before planting time (preferably April), thus allowing farmers the opportunity to respond to price incentives.

E. Village Associations

1. Background

The Phase I evaluation recommended that OMM devote its extension efforts toward working with groups of farmers rather than with individuals. It suggested that the focus of the effort should be on pilot villages rather than pilot farmers.

In the Phase II project design, the discussion of the extension activity acknowledged that this shift in strategy would take place in Phase II with OMM installing pilot villages (PP, p. 22). In addition, the activity involving village associations was described and it's goal (the output) set forth as the development of a model of a socially and culturally feasible village organizational structure capable of assuming key agricultural production-related activities. Among possible activities were the administration of group credit; the determination of necessary inputs and their procurement and distribution; the marketing of village crops; the construction and maintenance of a village grain storage facility; the constitution of a village security food stock; the constitution of an equipment pool for loan or rental; the constitution of a village capital surplus fund and its reinvestment; cattle finish-feeding for market; group extension activity focused on non-association farmers; representation of the village before administrative and development authorities; and other community development efforts benefitting the village as a whole which could be in reforestation, water supply, range management, health, or education.

Such a village structure, it was stated, would serve to:

- improve farmer income through reduced input and marketing costs to the producer;
- more fully utilize local labor;
- stimulate local savings and investment;
- reduce the cost of OMM services and unburden the extension staff so that it might focus more on technology transfer to farmer groups;

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- stimulate village initiative and participation in the agricultural decision-making process; and
- provide a vehicle for a variety of self-help undertakings for the benefit of the community at large.

The village model developed by the Malian Textile Production Company (CMDT) was cited as a successful example of such an institution. The Phase II designers rightly recognized that the development of such a model for the OMM area would require much in the way of initial socioeconomic studies and surveys which would be done, it was postulated, by the OMM Division of Economic Studies and Statistics (DEES).

Inputs foreseen were: two short-term technical advisors who would assist OMM with survey design, methodology, and analysis as well as with processes for the village organization effort, training the rural agents in community development, planning, and monitoring progress. Four man months in each of project years two and three were to be provided. In addition, a local consulting firm was to provide technical assistance to DEES for data collection, but the content and duration of such assistance is ill-defined in the PP. The only other input cited was the provision of credit for "village association activities determined to be eligible" and the payment of operating costs (PP, p. 26). It is not stated who would make such determinations of eligibility nor what operating costs might be covered by project funds.

From the initial survey to be done, 10 to 12 villages were to be selected for active promotion of the village association concept. Note that the project designers recognized the important role that the functional literacy activity might play in conjunction with setting up village associations. They suggested that only such villages where the literacy program was operating, or selected for implementation of a functional literacy effort, should be included in the initial survey to identify village association candidates.

2. Achievements

Early on in Phase II, in February 1980 following a meeting at OMM headquarters which included sector chiefs and division heads, the OMM director distributed a "note circulaire" on pilot villages (18 February 1980). This note set forth

the definition of a pilot village, objectives, the means necessary to create pilot villages, the methodology to be employed in their creation, and various criteria for choosing them. The criteria were:

- preferably a medium-sized village;
- absence of land tenure conflict;
- millet cultivation as the principal agricultural activity;
- receptivity, open to change;
- positive will and attitudes;
- adequate availability of cultivable land;
- stable population;
- ability to present quarantees for the reimbursement of credit; and
- evidence of self-help and cooperation.

OMM modified the village association model of the CMDT to fit Fifth Region realities. This was retained as a long term goal. However, in the belief that the Fifth Region of Mali is fundamentally different from the CMDT zone of intervention, particularly the Third Region -- in ecology, the sophistication of farmers, their exposure to improved technology, the lack of a cash crop -- OMM adopted an evolutionary model wherein a pilot village is first created. Through the efforts of the extension service and the interventions of specially trained agents, the pilot village should develop a village association of farmers which will ultimately take over the entire responsibility for the economic and social progress of the village by exploiting its own resources and those services offered by private or governmental agencies.

Prior to the beginning of the 1980 agricultural campaign, twelve pilot villages were selected from candidates submitted by all sector chiefs. Two such villages were located in each sector except that of Tenenkou. Capable and experienced agents were assigned individually to each locale with the responsibility of devoting their extension efforts exclusively to a single village. Farmers in these villages were equipped, according to their ability to make a down payment, with plows and carts. Two particular villages were extended credit for oxen. In these same two villages, a commission of farmers was set up.

Thus, twelve pilot villages have now been functioning for two seasons. Though data collected by the DEES on these pilot villages is incomplete and in some cases of questionable validity, it does seem indicative that production and

productivity is higher than in non-pilot villages. Farmers seem well satisifed with the special attention they have received from OMM as pilot village participants. At this point, the pilot village phase seems to have been satisfactorily achieved, but none has yet evolved into a village association of the CMDT type.

3. Problems

a. Only two of the pilot villages, those in the cercle of Koro, benefit from a functional literacy program. Several of the other ten have asked to have this activity begin and at least two of these, Pare and Mandio, have constructed a classroom for functional literacy. This is an indispensable activity without which no pilot village can create a real village association.

b. While OMM Note Circulaire (18 February 1980) suggested that, given the demand for equipment repair and replacement parts, it would be important to select and train a pilot blacksmith in each pilot village, only two pilot villages have such blacksmiths.

c. USAID has not provided the short-term technical assistance called for in the project design (described above). Thus, neither the DEES, the Division of Training, nor the Extension Division has done any training of the pilot village agents in community development techniques, organizational methodology, planning, management, monitoring, and the essential aspect of the whole village association idea, encouraging the village to take over responsibility for its development.

d. Though the DEES has done some limited data gathering in pilot villages, it has not yet been able to fulfill its important role of measuring change in these villages. In the absence of essential baseline and monitoring data, it is doubtful whether the pilot village or village association undertaking will be able to be justified.

e. While the absolute necessity of close collaboration between the Extension, Training, and Studies and Statistics Division seems to be recognized in

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principle, the three divisions have not yet jointly designed any training activity specifically aimed at the pilot village/village association venture.

4. Recommendations

The real goal of this activity is to attempt to fit the structures, services, and resources of OMM to beneficiary needs as perceived by the farm population. This is a participatory process in which both OMM and the farm communities must be expected to discharge their respective responsibilities. In this fashion, development becomes a joint effort.

At this point, it has taken two years to identify and set up twelve pilot villages. To speed the evolution of farm community to pilot village to village association, as well as expand this activity, the evaluation team recommends the following:

a. The creation of six new pilot villages each year according to the criteria already described, but with the addition of:

- apparent harmonious intra-village relations;
- year-round accessibility;
- weekly market in village;
- prior familiarity with technology as might be indicated by equipment in village, impressive production figures, apparent receptivity to new techniques, some farmers already practicing such techniques; and
- existence of a forgeron candidate in the village or in a village nearby.

b. The immediate installation of functional literacy programs in all existing pilot villages and all new ones set up hereafter.

c. The identification and training of blacksmiths in existing pilot villages or, if none, in adjacent villages.

d. An intensive, focused effort by the Division of Economic Studies and Statistics (DEES) on data collection in all pilot villages so that

achievements can be measured and documented. At the same time, an equal number of non-pilot villages in the same ecological zones should be studied in depth to provide comparative information.

e. Socioeconomic agents now assigned to the sector office devote one-third of their time to working directly with pilot villages and their agents to facilitate data collection.

f. The Training Division continue its special attention to pilot villages, not only for the extension of production equipment and techniques which it does in collaboration with the Extension Division, but also in training pilot village farmers and agents in defining goals, planning for equipment and material inputs, credit requests, credit repayments, and instituting self-help activities for the village.

g. That the three divisions - Training, Extension, and Economic Studies and Statistics collaborate to jointly design and implement a training program especially for pilot village farmers and agents.

h. That such a training and implementation be conceived as a step toward the realization of a structural, processual, and procedural model(s) feasible for all Fifth Region villages where production systems are essentially agricultural.

i. That USAID, as determined necessary by both OMM and USAID, provide the short-term technical assistance originally planned for the village association activity; an alternative would be to provide OMM with the services of the AID mission anthropologist on a short-term basis.

j. That OMM and USAID reconsider the feasibility of helping village associations create modest village stores which might stock consumer goods, agricultural products, and other items as desired by the association. The village store/association might serve as poles of attraction for other government agencies. In carrying out this restudy of the village store concept as an economic and social support to the village association, two

references should be consulted: "Pilot Villages, Village Associations and Village Stores", Cashion, Gerald, Banako, 1980, and "Retail Stores in the Fifth Region of Mali", Bednarczyk, Stanley, Bamako, 1979(?).

F. Ancillary Activities

1. Action Moulin

a. Background

Based in part on the results of contracted sociological studies done during Phase I of OMM, the Phase II design team wrote the activity of placing grain grinding mills in rural villages into the follow-on phase. The sociological reports stated that women spend up to three hours every day pounding grain with a mortar and pestle and that they considered this task their most onerous. Setting up mills in rural villages would thus reduce women's workload and free them to undertake other income-producing pursuits. With the revenue generated from other activities, women would have the financial wherewithal to patronize grain mills.

At the same time, the installation and operation of mills was conceived as a means by which OMM could generate income which, along with other revenues, could be applied to the organization's recurrent operating costs. The discussion in the project paper noted the oil extraction machines would probably not be economically feasible, but concluded that grain mills in rural villages would be. By operating 330 days per year, three hours per day, serving fifty families and milling some 66 tons per year, a mill would provide $1380 in annual net profit to Operation-Mils. In the first year of Phase II, twenty mills were to be set up -- in unspecified locations -- and thereafter, twenty additional mills were to be installed each year. By 1984, so the Project Paper stated, one hundred grain mills would be in operation and providing OMM with an annual net income from this venture of $128,000 to help cover recurrent costs. The first twenty mills were to be financed with funds unspent from the Phase I budget. Project funds for Phase II would finance fifteen more, the other 55 were to be financed with profits from the first three years of milling operations. Estimating machine life and replacement costs, the first profits to affect recurrent costs would come in 1983. The Project Paper stressed the notion that the scheme was entirely realistic.

The only fixed costs estimated were those of the machine, its motor, its drive belt, and installation. Variable costs were cited as fuel and repairs and the salary of a halfday basis local manager for each mill. No mention or estimate was made of administrative costs or the administrative demand the mills would place on OMM. The only input was to be that of cash.

b. Achievements

One mill was received by OMM in 1979. This was set up on an experimental basis in July 1979 at the village of Toroli, sector of Koro. It was placed with a blacksmith, Garibou Guindo. The blacksmith trainer, Gaoussou Doubia, had been posted to Toroli by OMM upon his return from the CMDT training course in July. He installed the mill, instructed Guindo in its operation and maintenance, monitored its performance, and kept a daily log of receipts, operating and maintenance expenses, and Guindo's work.

Guindo, one of the blacksmith candidates for training, had not yet undergone any training. This took place later, also at Toroli, in February 1980. Gaoussou Doumbia stressed that he had no say in where the mill was located, that the decision to place the mill in Koro was made by OMM headquarters, and the choice of Toroli as the site and Guindo as the smith-operator was made by the sector chief. The mill operated there from July 26 to November 30, 1979. Doumbia calculated the milling fee which was set at 5 MF per measure -- a small pan -- at about 25 MF per kilogram.

Receipts by month were:

July	August	September	October	November
10,565 MF	20,110 MF	20,065 MF	5,575 MF	4,095 MF

Given the diminishing monthly receipts, OMM headquarters moved the mill from Toroli to Bakoro, sector of Mopti, and placed it with another blacksmith, Aliou Konare, where it rested throughout most of the year 1980.

According to Konare, he received no help from OMM with either the installation of the mill, operating and maintenance procedures, or setting

a fee schedule. The mill sat at Bakoro seven months before being set up to operate. A chauffeur from the regional public works office, Sekou Coulibaly, helped him install it and showed him how to operate and maintain it, says Konare. He stated that he initially set a fee of 50 MF per measure a metal bowl which was what he thought was the fee in Sevare, nearby. He had no clients for a week. One week into his operation, Konare learned the milling fee in Sevare for the same quantity was 35 MF. He immediately adjusted his own fee, but still had no clients. He soon lowered his fee to 30 MF per measure, yet his machine remained unpatronized. After three months of operation without clients, he asked Traore, the chief of the Training Division at OMM if he could move the mill to Sokoura, a nearby village slightly larger than Bakoro and closer to Sevare. He was accorded permission, moved the mill himself, installed it, and even though there was another mill operating there, his mill attracted a clientele right away. He states his average daily gross was 1,000 to 1,200 MF with an occasional day's receipts up to 1,500 MF. After about forty-five days, the motor broke down. He went to the OMM headquarters and informed Traore who told him to have a mechanic look at it. He had three look at it, but none of them fixed it. He then brought it into Sevare to the public works office where a mechanic worked on it, got it to run, but the motor had no power. At this point, says Konare, he had spent some 265,000 MF on mechanics' fees and parts and was fed up. He returned the machine to OMM headquarters from where the motor was sent to Bamako for repair.

In Bamako, it was discovered that the motor's fuel injection apparatus was bad and it was repaired and returned to Sevare. It now sits outside in the yard of OMM headquarters. Konare wants no part of it.

The mill activity, as it unfolded, was unsuccessful.

c. Problems

Until 1981, OMM had received only the one mill which was placed at Toroli, then Bakoro. In its 1980 budget, OMM asked AID to finance the purchase of twenty mills. It received none. In its 1981 budget, OMM again asked for

twenty mills and received financing for twelve mills and motors. These were bought locally. All the mills and seven HATS 7 horsepower motors were furnished by SOMEA (Bamako) and five Japanese YAMAR motors were supplied by Simago Associates (Segou). The timetable suggested by the Project Paper was thus not attainable.

OMM did not try to place mills in small villages where a local citizen would have managed its operation. Instead, it opted for a placement policy similar to that of the CMDT. This dictates that milling machines are placed with master smiths, those who have received two levels of training: that of simple forge techniques and tool use and secondly, small generator operation and maintenance, and fee scheduling and recordkeeping for receipts, expenses, depreciation, amortization, and replacement.

The evaluation team believes that OMM adoption of CMDT policy in this regard was a wise decision. Implementation of the policy suggested by the project paper would have underlined the difficulty of monitoring mill operating revenues and expenses. Moreover, it would have placed a large maintenance burden on OMM.

A change in this policy has recently occurred. OMM is now seeking to sell its mills to any buyer, preferably for cash, but also on credit, repayment terms being equal monthly installments over twenty-four months following a 25% down payment.

It does not appear to the evaluation team that OMM effectively informed field level agents of its policy concerning the placement of mills with blacksmiths. It may well be, however, that dissemination of the policy of placing mills with blacksmiths would have been premature if the experience at Toroli and Bakoro was considered to be experimental in nature.

Even if the Toroli - Bakoro mill experience is considered to have been experimental, OMM's performance in executing its policy was faulty on several counts. First, it did no feasibility study to try to ascertain the demand for the mill, either in Toroli or in Bakoro. It did not properly train the smiths prior to placing the mill. However, while the mill was at

Toroli, the blacksmith trainer monitored its operation. But at Bakoro, it appears that OMM provided no support to Aliou Konare whatsoever. At the time the decision was made to place the mill with Konare, one of the blacksmith trainers should have been temporarily assigned to Bakoro to assist Konare and train him before commencing operations. Further, OMM's decision to place a mill with a 26 year-old smith in Toroli who had no respected social standing in the community was inappropriate, for it seems that the falloff in milling receipts there was due in part to community resentment of the income the mill was generating for Garibou Guindo. Fifth, OMM did no survey of mills already operating in the project area to determine existing fee schedules with which it would have to compete. Sixth, OMM, if indeed it intended to follow the CMDT lead, bought inappropriate equipment. The motors it bought to power the grinders serve only that function whereas CMDT motors both power a generator to provide current for arc welding and also drive the grinding mill. Seventh, when the recent policy change was made to sell mills on 2-year credit terms, no provision was made to charge an interest rate at all (see Note de Service 0012, IS. OMM).

d. Recommendations

(1) OMM should sell mills on a cash basis only. No maintenance service is provided to credit buyers. Thus, if a mill sold on credit breaks down, OMM has no assurance that it will be repaid. Further, selling mills on a cash basis will remove an administrative burden, albeit limited, from OMM. The existing mills in stock number only eleven and should be sold within one year's time. If it should prove that cash buyers are not available, OMM should seek to arrange credit for potential purchasers at the Mopti branches of the BDM.

(2) Since OMM is seeking to purchase four welding units, hopefully arc-welding types, and place them with chosen smiths in Bakoro, Bankass, Djenne and Korientope, it should reconsider a policy of trying to place mills with smiths at some later date. The four selected smiths should take the CMDT course in welding and milling operations before the welding units are placed. Thereafter, OMM might consider purchasing appropriate grinding machines to place with these smiths.

(3) If recommendation No. 2 is acceptable, the two blacksmith trainers should be assigned the tasks of monitoring two smiths each, first on an intensive, daily basis during three months, and on a periodic but structured basis thereafter.

(4) AID planners should learn a lesson from this experience. The activity placed a management burden on OMM which it could not support. The original planning by AID was wildly irrealistic. Mr. George Eaton, in a recent memorandum on another project, stresses "Keep it simple". He joins a long list of those who have apparently preached in vain.

2. Wells

Phase I called for the construction of thirty village wells, open wells were planned to be dug by Operation Puits (Operation Wells), an agency of GRM. After 2 1/2 years, at the time of the evaluation, Operation Puits had started to construct four wells; all had been abandoned. Another agency of the GRM, the Hydraulic Service, then took over and they seem (the record is not complete) to have completed four wells. At the time Phase II was approved, it was decided to contract for the drilling of wells. This made sense, given the fact that water was only being found at considerable depths, 60 meters and more, far too deep for open-dug wells. The activity was thus continued into Phase II, but no more funds were provided. Clearly, the doubtful value of this investment was beginning to be apparent in 1979. The fundamental error had been made in 1975, when the Phase I Project Paper was written and the decision taken that: for the limited requirements of Operation-Mils, a ground water study and investigation need not be funded under this project."

In December 1979, the contract with the well drilling company was approved. The results have been only slightly better. According to Engineering Office records, fifteen holes were drilled. Ten were dry or almost dry. There are five wells producing water at rates varying from three to twelve cubic meters of water per hour. One we visited was out of service while its pump was being replaced. For information sake, we report that this well is fifty meters (165 feet) deep, has an output of three cubic meters of water per hour and costs 3,750,000 Milian Francs, about US $7,500, a modest sum. This leads one to the

conclusion that village well drilling might be the sort of program that a private voluntary organization would find attractive, appropriate and within its budget constraints.

In summary, the village well program seems to have produced nine wells, five drilled and four dug, the latter apparently completed by the Hydraulic Service. In as much as no Phase II funds were committed to this activity, and since it has not proven successful and could take up valuable management time and attention, we make no recommendation. We do endorse the Mission's decision to invest no further time, attention or money in the well program.

3. Blacksmith Shops

a. Background

The objective of the blacksmith activity was and is to assure that agricultural equipment placed with farmers can be maintained and that replacement parts for plows and carts will be available. The latter, in particular, has in the past posed a problem because SCAER, the government agency charged with the manufacture of such equipment and spare parts, could neither meet the rural demand for equipment nor for parts. Because OMM did not believe it prudent to sell equipment to farmers if it could not be serviced and because the lack of such service and replacement parts was a reality identified in the first years after the creation of Operation-Mils, the Phase I project plan included financing for the purchase of up to $100,000 worth of smithy tools and rod and bar iron stock for blacksmiths (p. 16; Annex A-1, p.3; Annex A-3, p.25, Phase I PP). While the Phase I Project Paper mentioned blacksmith training, it contained no suggestion of what such training might consist of nor who would provide it.

b. Phase I Accomplishments

In mid-1976, a PIO/C was executed (No. 688-202-6-60418) for the purchase of $44,000 worth of simple hand-operated tools. The commodities and some five thousand pieces of steel stock of various sizes were received by

Operation-Mils in December 1977, eighteen months after the PIO/C was prepared.

Two people attended a training session at the International Institute of Tropical Agriculture in Ibadan, Nigeria, from May 18 - June 10, 1978. These were Issaka Kone, at the time the chief of the OMM section of agricultural machinery, and Amadou Djibo, a blacksmith from Sagaremba, cercle of Bankass. The program consisted of both theoretical and practical training in the use of agricultural equipment and the fabrication and repair of replacement parts for plows.

In August 1978, at the request of the OMM director (Note de Service No. 0632/IK, 21 August, 1975), a survey was conducted by OMM during which fifty-five blacksmiths were identified as candidates for training and forge equipment. Of these, only nineteen were retained by OMM which had decided to restrict the blacksmith program to a small scale at the outset. The nineteen smiths retained were selected according to such criteria as:

- principal livelihood blacksmithing;
- located in an area of relatively high concentration of agricultural equipment;
- desire to learn and modify work methods;
- minimum of two employees or apprentices;
- permanently located; and
- willingness to buy tools and materials on credit from OMM and make the necessary repayments.

Apparently, a candidate's age, experience, technical knowledge, ability, community standing, clientele, and monthly or annual revenues were not part of the criteria.

Late in 1978, a second PIO/C (No. 688-202-9-70463) was executed for the purchase of essentially the same quantity, type, and sizes of handtools and iron stock. An order for forty hand-operated, table-mounted bellows was included. This material was intended to equip an additional twenty smiths.

Toward the end of Phase I, as the last evaluation noted, OMM had procured equipment and materials, sent twc people for training in Ibadan, and identified nineteen smiths as candidates for training. This was not much progress in almost three years. OMM, nonetheless, continued to view the blacksmith component as a vital one in the overall project. A major brake on implementation had been the lack of a blacksmith trainer attached to OMM. With the creation of the Division of Training in OMM, to which the responsibility for the blacksmith component was conferred, the addition of a blacksmith trainer to its staff was an absolute necessity. In his absence, Amadou Djibo, who trained in Ibadan, was, with the departure of Issaka Kone, the only person knowledgeable in modern forge techniques. It was OMM's intention to set Djibo up in Bankass as a master smith and equip him with the necessary tools to be able to provide repair service to surrounding farmers. Djibo did get equipped with an anvil, a vise, a wood saw, and some small handtools. The small generator and arc welder he was to receive had not yet been procured.

c. Phase II Background

The BARA agronomic baseline survey (October - December 1978) devoted a very small amount of effort to a survey of the fifty-five blacksmiths identified by OMM. The survey results confirmed OMM thinking in that it found that there was indeed a need for rural smithy services to repair simple equipment. It found also that the smiths had rudimentary and traditional tools for the most part, their technical knowledge was limited, and that good steel stock from which replacement parts might be fabricated was generally unavailable in tne rural areas of the Fifth Region. Thus, the Phase II Project Paper team, which in the Spring of 1979 put together the design for the follow-on phase, retained the blacksmith activity for Phase II.

The follow-on design specified that the nineteen smiths already chosen would receive training early in 1980. In addition, twenty-one other smiths would be selected, bringing the total of smiths to be trained and equipped during Phase II to forty. The professionally trained, practicing blacksmiths were to be hired by OMM. They were slated to go through the CMDT blacksmith

training program. Two of the forty smiths were to be equipped with acetylene/oxygen welding units. It was planned that all training would take place at the site of the individual blacksmith's shop rather than at OMM headquarters.

Training was to proceed in four stages:

(1) Construction of permanent shops and installation of equipment (no time duration given).

(2) Fabrication of simple blacksmith tools and spare parts for agricultural equipment, learn use of new tools (no time duration given).

(3) Learning welding techniques and how to estimate costs and establish prices and charges for repairs (time duration: 45 - 50 days).

(4) Learning maintenance and repair of water pumps and use of heavy welding equipment (time duration: 15 - 2 days).

Outputs to be generated by the component, as stated by the Project Paper, were projected to be: a developed village capacity to produce farm implements and spare parts.

The evaluation team suggests that there are several other outputs, unstated but implicit, which might have been expected such as:

- 40 trained blacksmiths with the equipment, materials, and technical ability to produce and repair agricultural implements as well as the necessary spare parts;
- 2 professional blacksmith trainers;
- an ongoing functional OMM blacksmith training capacity;
- a system for continuous provisioning of blacksmiths in steel stock;
- a schedule of fees for blacksmith services and parts which might vary from cercle to cercle;
- a limited production system for spare parts which might be kept in small stock at the sector level;
- an assured, functioning service for agricultural implement repair and parts replacement in the Fifth Region; and
- 40 "modern" blacksmith workshops constructed and functioning.

Inputs necessary for the achievement of the outputs were viewed by the project design team as:

- Training for 2 professionally-schooled blacksmith trainers and 40 rural blacksmiths;
- Commodities, among which were:
  1. all-terrain vehicle,
  2. additional sets of blacksmith tools, and
  3. acetylene/oxygen welding units.

d. Phase II Achievements

Blacksmith Trainers Engaged by OMM

Two blacksmith trainers now serve with the operation.

Just as Phase I was ending in May 1979, Gaoussou Doumbia, a 1971 graduate of the Centre Professional de la Zone Industrielle, joined OMM as its first blacksmith trainer. Doumbia brought much practical experience with him to OMM. After graduation, he had worked as a welder in the Somiex garage in Korofina, then for the private firm of SATOM, and was in business for himself for four years running his own blacksmith/welding shop in Missira (Bamako). Doumbia is currently the Koro sector blacksmith trainer.

Jacques Diarra graduated from the Centre Professionel de Niarela in 1980 with a speciality in metal work. He joined OMM March 20, 1981, and is currently posted at Bankass.

Blacksmith Trainer Training

Gaoussou Doumbia attended the CMDT course from June 1 - July 2, 1979, and worked during that time with one of the master smiths of the CMDT area, Souleymane Ballo. He was accompanied during part of that time (June 1 - 15) by Amadou Babo Traore, head of the OMM training division. Jacques Diarra worked with Aliou Konare, an experienced smith who resides in Bakoro near Mopti during February - March 1981 just prior to his official assignment with OMM.

Rural Blacksmith Training

Twenty-two blacksmiths have been partially trained.

After returning from Koutiala, Amadou Traore and Gaoussou Doumbia began the planning for the blacksmith training course and contacted once again all nineteen blacksmiths plus three more who were added to the program. The training course took place at Toroli, Cercle of Koro, from February 1 to March 4, 1980. Toroli was chosen as the site because thirteen of the twenty-two smiths to be trained were from Koro and nearby Bankass and because it was felt to offer the best facilities.

The training consisted of communally building a "modern" workshop; learning to work with hand tools unknown to the smiths such as hand drills, tap and die sets, vices, tin snips; making templates to be used as guides for the fabrication of all necessary replacement parts for the various types of plows found in the OMM operational area; assembling carts; and forging plow replacement parts to the extent that each smith is now capable of completely making an entire plow. To our knowledge, the smiths did not learn any welding techniques during this training phase because no such equipment was then available.

The training course was conducted by Gaoussou Doumbia with assistance from Amadou Djibo, the master smith from Sagaremba. For what it covered and from our talks with blacksmiths who participated, the evaluation team would conclude that the initial training program was appropriate and adequate in content and scope. Further, given the far-flung expenses of the Fifth Region, the cost and difficulty of transportation, and the limited numbers of personnel working exclusively with the blacksmith activity, we would conclude that doing individual training at each smith's shop, as the PP had proposed, was not feasible for the initial stage of training. The decision to group all smiths together at Toroli for training was a good one.

Workshops Built

The initial activity of the blacksmith program, even prior to graining in tools and techniques, was to be the construction of modern workshops.

These are said to be modern in the sense that anvils, vices, and bellows would be mounted on waist-high work tables, the notion being that a transformation of traditional smithy technology was necessary to make it more efficient. In addition, it was felt that a permanent structure in which tools and materials might be stored and used year-round, regardless of the season, was necessary. To date, only one such workshop has been completed to the point where it functions. Several have been constructed or are under construction, but only that of Amadou Djibo is set up as was intended. Others which are essentially complete stand vacant for various reasons.

Smiths Equipped with Tools

Of the twenty-two smiths who participated in the training session at Toroli, only two have received a full set of tools and equipment from OMM. Four others have received equipment which complemented what they already had; thus, they may be considered to be equipped with essential tools. Six in the sector of Koro have been accorded a few handtools such as a pair of pliers, a woodsaw, a hammer, and a monkey wrench. One additional smith in the pilot village of Falembougou, sector of Douentza, has selected a number of tools but has not yet received them. A very few smiths have bought a limited amount of iron stock. In sum, only ten of the twenty-two smiths trained have been at least partially equipped with the tools received in the past five years.

No training has yet been done in welding. No welding equipment has been received by OMM although the past two budgets submitted by OMM to AID have included a request for funds to purchase five units.

Miscellaneous Accomplishments

Though the activity has not reached its goals, it has achieved a limited capacity for repairing equipment and producing spare parts. There exists a system for supplying equipment and materials to the smiths and even those who have not yet been fully equipped can fabricate parts. A training capacity exists. A schedule of fees has been established by which OMM can

buy parts from the smiths and stock such replacements at central points, but such stocks do not yet exist.

e. Problems

Equipment Prices

The high prices that must charge smiths for the American equipment has been a constant block to the distribution of the tools. The Chief of the Training Division stated that on several occasions he had asked USAID to provide a list of the costs of the tools ordered from the U.S., but this was not forthcoming.

As a result, he attempted, as best he could, to calculate replacement costs of the very same items by researching the availability and costs of such tools at Bamako. Some of the tools are available in Mopti at an even lower cost than Bamako, but the assumption was made, correctly, that Bamako would be the only place in Mali where such equipment would be continuously available. He thus established a price list for the material on hand on this basis in August 1980. These prices being excessively high, he revised them downward in July 1981 to more accurately reflect local prices in an effort to move the equipment into the hands of the smiths. Yet the prices remain very high and because the Operation has requested a 33% advance payment on each purchase, the expensive but necessary tools such as anvils and vices remain out of the reach of most smiths.

The training division director also devised a scheme whereby the Operation would supply smiths with equipment on 100% credit terms and thereafter with necessary steel stock if the smiths would agree to fabricate replacement parts which would be purchased by the Operation and stocked in small quantities at the ZER level. He established a schedule of fees for each part. His idea was that the smith would be paid on a labor only basis and what he could earn in this manner would be deducted from the amount owed to the Operation for his tools. He felt his scheme would enable the smiths to pay for their tools, enable the Operation to constitute a necessary stock of replacement parts at the ZER levels where they are needed, and

effectively create a system of servicing and parts for agricultural equipment. His idea has not yet been implemented for two principal reasons: the set down payment required for tools and the lack of funds at OMM to purchase the necessary steel.

Inappropriate Equipment

While much of the smithy equipment purchased by USAID is useful, there are several items which are both expensive and unnecessary. For example, the hand-operated blower must be sold with an attached steel forge. Apart from the fact that the bellows is an inferior piece of equipment with an effective operating life of less than one month, the unit price is much higher than a comparable French-made one which is available in Mopti. If the unit were being sold at the U.S. unit purchase price plus an additional 25% to cover procurement cost and freight, its price would be almost six times that of the locally available one. Further, the steel forge is unnecessary. A waist-high mud brick forge will serve as well. Another example is that of a drill bit set which contains some fifty bits of almost every size available. If it were sold on the cost basis mentioned above, its price would be eight times that of the perhaps half-dozen bits that the smith needs.

Inappropriate Materials

The forth-thousand dollars worth of steel stock provided by USAID is almost entirely inappropriate vis-a-vis what the smith needs to make replacement parts. This stock has been, for the most part, unused and sits in the yard of OMM headquarters rusting away.

Diverse Responsibility

The training division concerns itself with training smiths. It would also like to place all equipment with smiths immediately. This responsibility, however, falls with the extension division which is also charged with all sector level administration --including equipment placement, granting of credit, recovery of loans and so on. The sector chief enjoys a certain

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latitude in deciding what credit terms he may grant to a borrower. We have thus seen that in one sector an administrator has stuck to the one-third down payment requirement, while in another a borrower has been granted more flexible terms and has thus been more fully equipped. There is, indeed, one case of a smith being granted 620,000 MF worth of tools without even having to make a down payment.

Lack of Delineation of a Clear Policy

Sector and ZER chiefs seem to have a clear idea of how agricultural equipment (plows, carts) and products (fungicide, fertilizer) credit is to be administered. They seem, as mentioned above, to enjoy a certain latitude in fixing credit terms according to the financial and production potential in the areas in which they work. They seem to have little awareness, however, of the manner in which credit for smith equipment and materials should be administered.

Six months ago, the chief of the training division devised a new, short-term contract for the placement of equipment with smiths. This was approved by the director. The training division chief stated that he did a long tournee, visited every sector, and explained the credit policy for smiths to field personnel. He further explained that he had devised a price list of replacement parts which might be fabricated by smiths and bought by OMM. Nonetheless, our questioning of field agents revealed that they knew or could recall very little of the details of the explanation they heard.

In addition, the system of providing payment receipts to the borrower seems to be functioning well in the case of agricultural equipment and materials. But the monthly repayments required of smiths seems to have no such system. For example, in one case a down payment of 250,000 MF for the purchase of a milling machine was entered in a short-term receipt book.

It seems clear that as an activity ancillary to the main task of extending agricultural equipment, products, and production techniques, the blacksmith program has received little attention from field personnel who lack

specific information about it. This state of affairs has likely resulted from the lack of written policy decisions and procedure directives promulgated by a "note circulaire" or a "note de service", which should have been furnished to all field personnel. While it is true that policy and procedural decisions and directives are summarized in the written minutes of each headquarters-level monthly meeting, then sent to each sector chief for his files, the information does not effectively filter down to ZER and SB level agents.

4. Recommendations

a) Freeze the blacksmith program where it is. Train no more for the time being. Future development and village smiths should be precisely keyed to the development of pilot villages and village associations.

b) Adopt the training division chief's recommendation to accept in kind payment from smiths as reimbursement of their equipment loans.

c) Adopt a policy whereby the realization of workshop construction, taking into account the amount of money and labor the smith invests in this, is satisfactory evidence of the smith's will to work in concert with OMM.

d) Consider the investment in the improved workshop as a down payment on big ticket equipment items (notably, anvils and vices) and place these items with the smith without requiring a cash down payment. Require, however, that his equipment be installed immediately in the new workshop.

e) Revise the equipment price list to reflect the lowest possible prices at which such equipment has been purchased or is locally available. That is, fix a U.S. dollar unit purchase price, add 25% for procurement and freight fees (PIO/C files do not indicate these in such a way as to calculate actual costs), and where this is lower than locally available items, charge this price to the smith. Where the local price is lower than the U.S. unit cost, charge the local price. In those cases where the U.S. provided items are inappropriate or inferior in value (bellows, machine drill bits), set an arbitrary low price to move such items.

f) Establish a set policy of demanding a 25% cash down payment on the low cost items and unless a smith provides evidence of already having such items, require him to purchase them (along with the anvil and vice) as a package.

g) Establish a budget line item for the purchase of flat steel in the appropriate sizes necessary for replacement parts fabrication.

h) Furnish a supply of such sheets to smiths on a full credit basis with an estimate of the quanity of replacement parts each sheet will provide. Purchase the parts made by the forgeron, constitute a rural stock of such parts, include the unit steel cost in the sale price of such parts, and deduct the smith's labor cost from the equipment debt he owes to OMM. Should there be a balance remaining on the smith's debt after a sufficient initial stock of replacement parts has been amassed, require him to make quarterly rather than monthly payments on such outstanding principal.

i) Once policy and procedural decisions have been made by the headquarters of OMM, circulate these in print by "Note circulaire" or "Note de service" to the field personnel at sector and ZER level.

j) If the four welding units requested by OMM are received, the recipients of these units should be required to attend a training course with the CMDT master smith Ballo to both learn the machine operation, refine their skill and techniques, and learn the system of preventive maintenance he practices. At the same time, the two blacksmith trainers should accompany them. At the completion of the training period, the blacksmith trainers should be assigned the exclusive three-month task of working only with the four welding machine recipients, initially helping them to properly install and operate the machine, and thereafter monitoring its operation and maintenance. An important aspect of the operating and maintenance procedures will be record-keeping (receipts, expenses, depreciation, amortization, and replacement schedule) and both trainers and smiths should be fully grounded in this task. Smiths must be required to open a bank account at the Mopti BDM (or OMM) to assure that regular deposits will cover the eventual replacement of the machine.

Finally, welding equipment should be generator-operated arc welding machines rather than acetylene/oxygen equipment for the former will be able to serve as a multi-purpose item and,further, fuel will be easier to obtain than replacement gas and oxygen.

k) The steel stock now being stored at OMM should be sorted into appropriate and inappropriate categories. That material considered inappropriate should

be utilized to make steel storage racks, shelves, and pallets to be furnished to sector and ZER level storehouses.

APPENDICES TO CHAPTER V

APPENDIX I

Table I: Placement of Agricultural Equipment and Inputs: Operation Mils-Mopti

Table II: Estimates of Total Production (Tons) Area Harvested and Yields (KG/HA): Operation Mils-Mopti

Table III: Influence of Technology on Yields and Farm Income: Operation Mils-Mopti Mali

Table IV: Influence of Technology on Household Income

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APPENDIX II: Extension Service Organization: OMM

III: Proposal for the Establishment of a Training Center

IV: Local Seed Varieties

V: Notes on Farmers Opinions and Attitudes About Some Practices Recommended by OMM

VI: Observations on the Availability of Agricultural and Economic Data at the OMM

APPENDIX I, TABLE I

PLACEMENT OF AGRICULTURAL EQUIPMENT AND INPUTS:

OPERATION MILS-MOPTI

Type of Equipment/Inputs	Before 1977-78	1978-79	1979-80	1980-81	1981-82 (1)	Totals
1. Charrue T:M (heavy plow - ox)	899	464	741	317	338	2759
2. Charrue Bourguignon (plow - donkey)	217	0	183	356	119	875
3. Houe Asine (donkey plow)	-	-	-	201	194	395
4. Multiculteur (2)	58	45	34	77	1	215
5. Semoir (2)	40	35	17	12	1	105
6. Charette-TRP-1000 kg (donkey cart)	2449	1025	1101	1204	478	6257
7. Amonium Phosphate (tons)	22.25	27.732	46.050	43.380	39.100	
8. Urea (tons)	39.725	18.473	36.475	43.450	8.100	
9. Fungicide Packets (3)	325,687	112,595	84,636	160,483	92,982	

Source: Données Techniques (Dec. 1981), l'OMM; and information supplied from OMM's credit division.

Notes: (1) Inability of the Malian government organization to supply various items on time caused lower levels of placement of various items in 1981-82. This was verified by the extent of unused stocks in the warehouses as of March 1982.

(2) Items 4 and 5 are among the least accepted items. First one due to high cost and second due to lack of suitability for the millet crop.

(3) SIJOLAN: Composition: Heptachlor 25%; Thirome 25%; Anthroquinon 25%; 1 Packet = 20 grams = enough to treat 10 kg of millet seed, cost 100 MF.

APPENDIX I, TABLE II

ESTIMATES OF TOTAL PRODUCTION (TONS)
AREA HARVESTED AND YIELDS (KG/HA):
OPERATION MILS MOPTI

	Production (tons)			Area Harvested (ha)			Yields (kg/ha)		
Sectors	1979-80	80-81	81-82	1979-80 (2)	80-81 (2)	81-82 (1)	1979-80	80-81	81-82 (1)
Douentza	20,000	23,700	25,080	47,705	47,447	45,600	420.0	499.5	550.0
Koro	37,398	47,100	51,258	88,705	72,551	75,250	421.6	649.2	680.3
Bankass	31,472	28,560	36,900	49,383	48,349	58,700	637.3	590.7	628.6
Mopti	18,447	19,348	6,810	35,799	33,649	14,100	515.3	575.0	483.0
D'Jenne	13,414	7,282	8,300	20,171	17,861	18,900	665.0	407.7	439.2
Bandiagara	15,676	8,729	5,293	30,356	16,569	12,858	516.4	526.8	411.7
Tenenkou	7,900	8,526	9,000	15,201	20,300	18,000	519.7	420.0	500.0
Total	144,343	143,245	142,621	287,320	256,726	243,548	502.4	558.0	585.5

(1) Monthly Report, OMM, November 1981

(2) SDR Annual Reports

APPENDIX I, TABLE III

INFLUENCE OF TECHNOLOGY ON YIELDS AND FARM INCOME: OPERATION MILS MOPTI - MALI

LEVEL OF TECHNOLOGY	STAGE 1			STAGE 2			STAGE 3			STAGE 4			
Variables	F1		F2	F1		F2	F1		F2	F1		F2	
Family Size[a]	12-3 Active		10-9	9-2		12-6	31-5		21-7	12-2		7-1	
Equipment (Nos)	-		-	-		-	2-4(ox)		1(2 ox)	3(2 ox)		3(4 ox)	
Cart (D/ox)	1(2D)		1(1D)	-		-	1(1D)		1(1D)	1(2D)		1(1D)	
Fertilizer: N/P	-		-	-		-	-		-	1200/600		600/300	
Crops:Millets (Ha)	4.25		6.00	3.5		5	13.0		7.0	12.0		6.0	
Peanuts (Ha)	0.666		-	0.25		-	0.5		0	2.0		0.5	
	Millets	Peanuts	Millets	Millets	Peanuts	Millets	Millets	Peanuts	Millets	Millets	Peanuts	Millets	Peanuts
Total Labor (Days)	182.13	2.2	285.08	93.57[1]	7.0	177.91	242.12[2]	9.5	271.25[3]	234.45[4]	28[5]	69.25[6]	6.5
Total Labor (Cost)	182,130	2,200	285,080	128,570	7,000	177,910	242,120	9,500	271,250	234,450	28,000	69,225	6,500
Yield/Ha/Kg	840	680	810	1,130	700	1,000	1,800	720	1,650	2,300	840	2,150	1,000
Total Production	3,570	45	4,860	3,955	175	5,000	23,400	360	11,550	27,600	1,680	12,900	500
Value: Total Prod(MF)	303,450	3,600	41,300	336,175	14,000	425,000	1,989,000	28,800	981,750	2,346,000	134,400	1,096,500	40,000
Cost of Production	213,205	2,760	317,095	141,185	9,400	196,460	303,545	14,300	319,445	795,135	47,200	326,260	11,300
Net Profit	90,245	840	96,005	194,990	4,600	228,540	1,685,455	14,500	662,305	1,550,865	87,200	770,240	28,700
Total Revenue	91,805		96,005	199,590		228,540	1,699,955		662,305	1,638,065		798,940	
No. Labor Days	184.33		285.08	135.57		177.91	251.62		271.65	262.45		75.72	
Return to Labor/Day	494.14		336.76	1472.22		1284.58	6756.04		2441.67	6241.43		10550.54	
Average Rev:Strata	93,545			214,065			1,181,130			1,218,502			
Return to Labor	415.45			1378.40			4598.85			7560.20			

APPENDIX I, TABLE III (cont'd.)

NOTES:
1. Hired labor 35 days
2. 29.25 hrs. plow - oxen
3. 15.75 hrs. plow - oxen
4. 12 hrs. animal traction hired. 1st interculture, 6.45 for harvest
5. 7 hrs. animal traction hired
6. Extra labor hired

REFERENCE: Mamadou A. Toure, "Les differentes stades technologiques dans la zone d'intervention de l'OMM et leur incidence sur la viabilité économique des exploitations" (Mémoire: IPR Katibougou, Déc. 1981).

a. Family Size: total no. active
Labor: 1000 M.F./day
Mils: 85 M.F./kg : peanuts 80 M.F./kg

Direct Expense - tools plus seeds plus fertilizers
Indirect Expense - labor plus dep. on animals/equipment
Cost of Production - direct and indirect expenses
Stage 1: traditional farmer - T
Stage 2: traditional farmer - some improved practices
Stage 3: farmers with equipment
Stage 4: pilot farmers

APPENDIX I, TABLE 4

INFLUENCE OF TECHNOLOGY ON HOUSEHOLD INCOME

Zone (No. of Villages)	Village (N=6)	Average Family Size	No. of Plows Owner	Average Per Capital Income (FM)	% Farmers With Plow	Average Area Cult/Active Entire Zone (ha)
Delta Zone - 3	Madiama	9.1	4	35,113	66.66	
	Kontza	11.0	9	18,071	83.33	
	Soufouroulaye	8.3	7	47,799	66.66	
	Average	9.46	6.66(1.1)	33,661	71.99	2.0
Dogon Plateau - 1	Dourou	11.0	0	22,645	0	0.8
Lacustrine Zone - 1	Debere	11.3	2.(33)	24,818	33.33	1.0
Seno Plain - 1	Toroli	23.6	10(1.6)	61,600	83.33	2.0

Source: Micro Economic Analysis of Annual Income and Expenditures for Typical Farm Families in the Opération Mils-Mopti Zone: (Diana Putman, September 1979, USAID, Mali)

Notes:

1. 75% of sample group (27/36) sold grain either to OPAM or to private traders which indicates a certain degree of marketable surplus among sample farmers.
2. 33,661 plus 24,818 plus 61,600 = 120,079 ÷ 40,026 (villages with plows).
3. Figures in parenthesis indicate average number of plows per farmer in the sample.

APPENDIX I, TABLE 5

INFLUENCE OF TECHNOLOGY(1) ON MILLET YIELDS (KG/HA)

Zone	No. of Villages	Stage 1 (N=70)	Stage 2 (N=37)	Stage 3 (N=30)	Stage 4 (N=13)	Average For the Zone	Highest Yield Recorded
I	5	335	315	468	208	332	843 (Stage 3)
II	8	260	96	263	185	88	399 (Stage 1)
III	2	307	337	N/A	236	293	379 (Stage 1)
IV	15	323	291	360	315	322	1392 (Stage 3)
Average	7.5	306	256	364	236	259	

Source: "Rapport Agronomique: De l'étude sur l'Opération Mils Mopti. June 1979 - February 1980": Bara; February - March 1980, pp. 8 - 9.

Note: Data is not available for several villages within a zone and for different stages within villages - see original source for explanations. Data corrected to account for missing villages.

(1) Stage 1: Traditional farmer
Stage 2: Farmers with culture attelee - no fertilizers
Stage 3: Farmers with culture attelee - plus fertilizers
Stage 4: Pilot farmers

(2) It seems that these (S-4) are farmers from pilot villages rather than "pilot farmers". Hence they would not necessarily be at higher technological level than those at Stage 3. Hence the distortion in the yield figures.

APPENDIX II

Extension Service Organization: OMM

A. Number of Professionals in the System(x)

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Ingénieur d'Agriculture	5	8	7	12	15	21
Ingénieur Sciences Appliquées	-	-	-	-	-	-
Ingénieur Travaux Agricoles	8	12	12	21	32	49
Conducteurs Travaux Agri.	10	10	13	21	18	19
Moniteurs	49	61	87	107	112	121
Encadreurs	80	81	112	121	148	152
Total	152	172	231	282	325	362

(x) Données Techniques, l'OMM, Déc. 1981; Rapport Annuel, Campagne Agricole, 1979-80.

APPENDIX II (ctd.)

B. Project Coverage: Area and Population

	1978-79	1979-80	1980-81	1981-82
No. of Sectors	5	6	7	7
No. of Zones	38	42	44	45
No. of SBs	157	209	249	252
No. of Villages	1,138	1,240	1,422	1,432
Total Pop. Covered	708,103	785,994	786,415	1,180,165
Pop. Agricultural	425,675	471,596	533,053	639,664
No. of Farm Units	65,000	73,800	75,000	7,520
No. of Pilot Farms	1,520	1,765	2,490	2,520
No. of Pilot Villages	-	-	12	12

APPENDIX III

Proposal for the Establishment of a Training Center

A. Objectives:

1. To train about 25 encadreurs per year for a period of 8 months/year (May - December).

2. To conduct short term training (recyclage) for middle level extension agents every year between December - April. (Moniteurs, CTAs, ITAs, etc.)

3. To conduct seminars and other training for senior staff (Chef SDRs) and OMM's administrative and support staff (credit agents, enquêteurs, etc.).

B. Strategy and Resources:

1. Use OMM's existing training staff and senior staff.

2. Use specialists available at Sevaré and Mopti from various organizations:

Opération Riz-Mopti
ODEM
WARDA
Opération Avicole
Visiting expatriate specialists

C. Funds:

1. Transfer and reallocation of required funds budgeted for 17 ZER level houses ($272,000) and short term training in U.S. ($60,000).

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2. Cost: Estimated at $100 to $120,000 including building and equipment (building cost estimated $80,000).

3. Operating Cost/yr., $38,000 per year (details Section F).

D. Justification

1. Proposed training both in terms of quality and cost would be very expensive ($180 per training month, which is based on annual operating cost and depreciation of building equipment). However, actual cost would be $140 per training month.

2. On the other hand, if encadreurs or moniteurs are sent to one of the CAAs for this type of training cost per month would triple, since they have to be paid for travel, boarding and lodging at the centers.

3. The training offered in the Sevaré area would be more relevant to the region's requirements.

4. It is doubtful if CAAs would accept encadreurs for training since they have not passed the "concours" organized for admission to these institutions. Also it is doubtful if CAA's with their existing resources (unless separately funded), would be willing to conduct recyclage for moniteurs or CTAs, etc.

E. Estimated Cost of Proposed Training Center:

1. Location: At OMM's headquarters at Sevaré on 3 hectare land available at OMM.

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2. Size: Two classrooms (20 trainees each)
Two offices
One audio-visual room
Two bathrooms - Turkish style
Generator room
(see enclosed plan)

3. a) Building cost: $100,000

b) Equipment: 7,000

(2) 16 mm sound proj., accessories	4,000
(2) slide projectors	1,000
(2) drawing boards	500
(1) duplicating machine	1,000
(1) typewriter	500
animal traction (existing)	-

c) Furniture 12,000

Classrooms:

2 desks at 150
2 chairs at 100
16 tables (3 trainees/table) at 150
40 chairs at 50

A.V. Room:

8 chairs at 50
2 tables at 200

Training Office:

4 desks at 150
8 chairs at 100
Shelves/1000

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APPENDIX III (ctd.)

d) Generator Set	15,000
Total a, b, c, d:	$135,000

F. Annual Operating Cost of the Center:

1.	Per diem for trainees (65) (see training plan/schedule)		$ 25,000
2.	Expendable Training Supplies		2,000
3.	Oil, etc. for generator		8,000
4.	Other Items:		
	a) Building maintenance	1,000	
	b) Cattle feed, etc.	1,000	
	c) Miscellaneous	1,000	
			$ 38,000

G. Training Cost Per Month/Trainee:

1.	Amortization of building/100 K/20	$ 5,000 /yr
2.	Amortization of equipment 35 K/50	7,000 /yr
3.	Annual Operating Cost	38,000 /yr
	Total	$50,000

4. Average cost per training month:

Cost ÷ no. of trng. months
i.e., 50,000 ÷ 272 = $ 183.00

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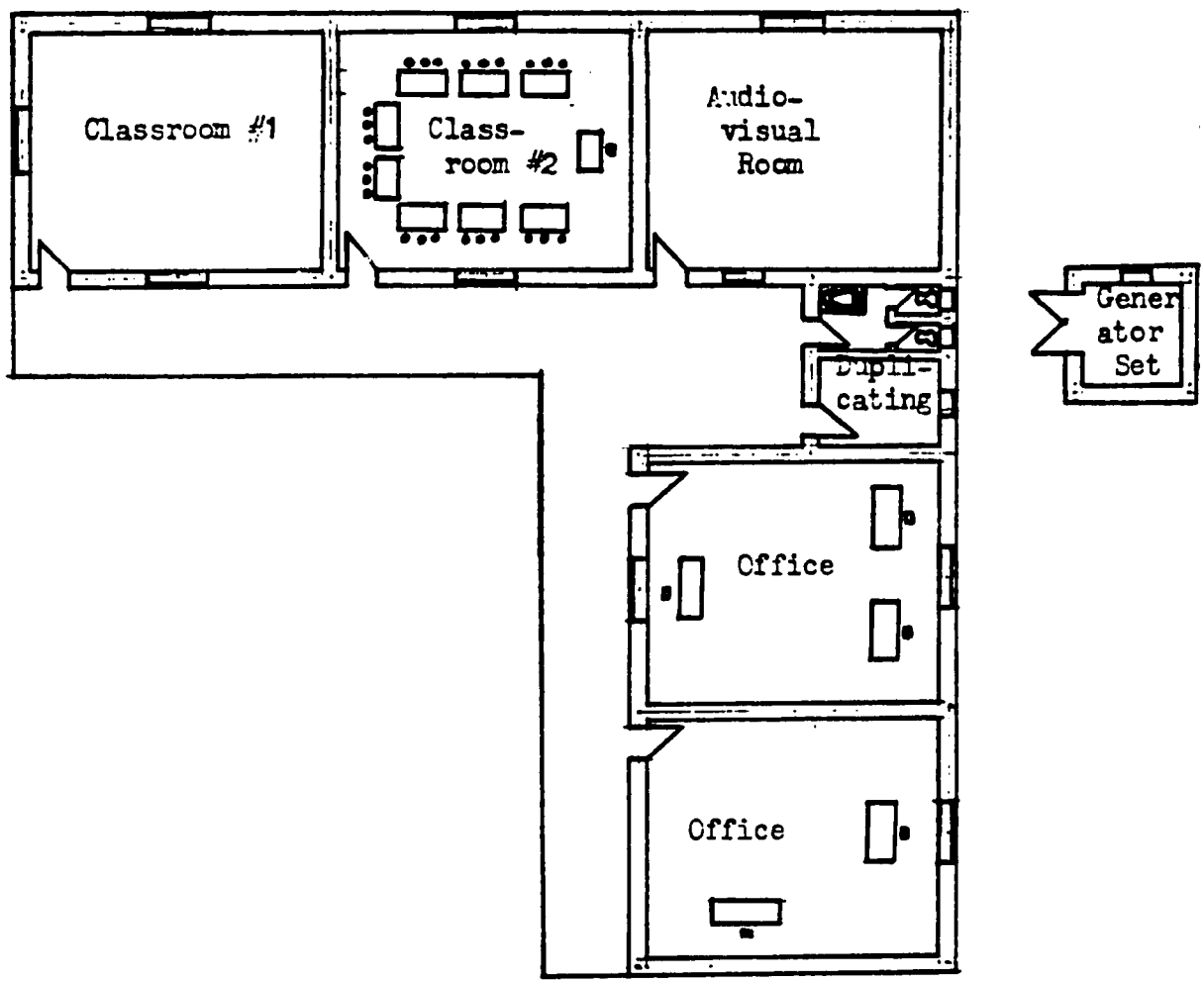
Appendix III (cont.)

MODEL TRAINING CENTER



1. No provision is made for dormitories; trainees would be paid allowance for boarding in the village of Sevare.
2. Electric connections are required (plug points, ceiling fans...).
3. Cattle shed using local materials would be constructed by first batch of trainees (encadreurs).
4. Well with a hand pump to be installed.
5. Two W.C.s, Turkish type, and wash basin.

APPENDIX IV

A. Local Seed Varieties

Millet:	Toroniou	70-80 days	Precoce
	Tolobe-je	90 days	Semi-precoce
Sorghum:	Eme-ya	90 days	Precoce
	Eme-poulono	80 days	Precoce
	Eme-ban	60-70 days	Precoce
	Eme-dola	120 days	Tardive
	Eme-doumou	130 days	Tardive

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APPENDIX IV (ctd.)

B. Agroclimatic Zones (OMM) / Soil Types / Crops

1. Zone Inondée: (Water-logged)	SDR-Mopti	ZER-Mandio Sofora	Sandy soils (Millet)
	SDR-Mopti & Djenne	ZER-Konna Sofara Kono	Clay soils (Sorghum/Millet)
2. Plateau	SDR-Bandiagara	ZER-Central Goundaka Wo Sangha Dourou	Laterite soils, rocky, shallow (Millet/Sorghum/ Vegetables)
	SDR-Douentza	ZER-Central	Sandy clay (Millet)
	SDR-Koro	ZER-Diankabou	
3. Zone Lacustre	SDR-Mopti	ZER-Korientza Sendegue	Clay
	SDR-Douentza	ZER-N'Gouma	Clay
4. Seno Plain	SDR-Koro	ZER-Central Madougou Toroli Dianangorou Koporo-Kenie Na	Sandy (Millet) Sandy (Millet) Sandy (Millet) Sandy (Millet) Sandy (Millet)
	SDR-Bankass	ZER-Dialla Sagou Wenkoro Sokoura Segue Baye	Sandy (Millet) Sandy (Millet) Sandy (Millet) Clay (Millet/Sorghum) Heavy water-logged (Sorghum) (650-750 mm)

APPENDIX V

Notes on Farmers Opinions and Attitudes about some Practices Recommended by OMM

Following are the opinions / attitudes expressed by farmers during our field visits. They are produced below in summary form.

Fertilizer:

- Unfertilized fields did not give full and mature heads of millet.
- Reduced fallow period from 5 to 3 years.
- Helped increase yields in fields considered formerly as old and tired.
- Good yields in years of good rainfall.
- Apply only if there is humidity.
- Good but expensive.

Advantages of Plowing:

- Able to cultivate more land.
- Seeding direct.
- Also used by some farmers to weed and intercultivate.
- Reducing the number of people and time needed to cultivate the land.
- Observed better yields from plowed fields.
- Rent plows for additional income.

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APPENDIX V (ctd.)

Seed Treatment:

- Getting better germination.
- Fields are free from diseases.

Carts:

- Used for transporting manure and harvest; firewood and water.
- Benefiting women by reducing the lavor involved in collecting firewood (men now bring the firewood).
- Women carry the harvest from fields to homes. Now harvest is carried in carts.
- Women and children travel to market.
- Helps to transport sick people to hospital.
- Helps in transporting sick animals.
- Source of additional income for some people. (Rent at 5,000 MF per day for getting firewood from the countryside; 100 MF to transport one cartload of bricks within the village; 1/10th of produce transported is collected as rent.)

Line Sowing:

- Makes it easy to apply fertilizers.
- Helps obtain better density.
- Easy to intercultivate.

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APPENDIX V (ctd.)

Multiculteur:

- Useful but expensive.

Seeding Equipment:

- Not very useful for millet, because the disc is not adapted to millets.
- It is useful for peanuts.

Compost:

- Useful, but difficult to prepare it because of lack of water during most of the year.

Impact of Project:

- Has created awareness of new practices.
- It is only recently that the impact is visible (carts, plows, demonstrations, etc.).
- Teaching farmers how to use plows.
- Not able to supply enough credit.
- Fertilizers arrive late.

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APPENDIX VI

Observations on the Availability of Agricultural and Economic Data at the OMM

1. One of the limitations in evaluating the impact of interventions (in terms of yields and incomes) on farmers has been the lack of sufficient data of dependable quality. Hence we have to resort to studies conducted in the area by agencies and individuals outside the organization. The limited data available is sketchy and is not in an easily useable form.

2. The data gathering analytical and reporting abilities of OMM are not well developed, even though the socio-economic division (DEES) has a sufficient staff assisted by extension agents. A large number of data of doubtful quality is gathered. There are eight interviewers supervising data collection from over 2500 farmers (10 - 20 farmers in each SB and 252 SBs). The actual dialy gathering of information from farmers is currently done by the Chef SB, who has no training in this activity and is already overworked. Furthermore, interviewers are not at present regular employees of OMM, which affects the efficiency of data collection process and thus the quality of data.

   OMM needs to conduct its data collection using a relatively small but well defined and stratified sample of farmers in order to accurately assess the impact of new interventions and technologies. Such studies should be continued over several seasons, inasfar as possible,

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APPENDIX VI (ctd.)

using the same sample of farmers. Relatively well trained interviewers should be collecting data by direct interview with farmers, rather than in supervising capacities as done now.

3. Units of data to be gathered should be specified. Data which would help assess the impact of technology and its effectiveness must be given priority. The intensity of land and labor use and inputs used and returns to these factors under different technologies and cropping patterns is the required information.

4. From the Mission's side, perhaps some guideance needs to be given to OMM as to the data requirements of the Mission to assess the progress of the project and its impact. Some mechanism should be established to ensure that needed data is collected with reasonable accuracy.

5. The ongoing agricultural economic research whould be distinguished from the annual SB level estimation of production, yields and marketable surplus. The latter activities require relatively little time during the course of the year and should probably remain the responsibility of Chef SB. The samples for these two activities may overlap to the extent that it expedites the collection of accurate data.

VI. PROJECT ENGINEERING

A. Road Construction

1. History and Current Status

With the objective of facilitating the movement of farm products grown in the project area, the original project agreement called for improvement or new construction of 460 km of roads. Subsequently, the length of this network was reduced to 307 km. The name given to these roads in French "pistes" is somewhat misleading, incorporating as they do elements of the national highway system as well as local roads. Only 45 km is entirely new road construction (Items 7 and 8, below).

As revised, the list of the project roads is as follows:

	Length (km)	Observation
1. Somadougou - Bankass	70	found to be 75 km
2. Bankass - Koro	50	found to be 52 km
3. Koporokemana - Madougou	45	
4. Madougou - Kiankabou	20	
5. Dimbal - Diallassagou	32	
6. Diallassagou - Ouenkoro	45	
7. Bankass - Korlogou	20	new feeder road
8. Koro - Toroli	25	new feeder road
T O T A L	307 km	

In addition to construction of these roads, the Project Paper also called for their regular maintenance.

The type of facility to be provided was originally conceived as a 5.0 m wide graded dirt road without surfacing or drainage structures. At a certain juncture (not documented), this was changed to a 6.0 m wide roadway, surfaced

by 10 cm (changed to 15 cm) of laterite. This innovation required a completely new set of equipment essential to the digging, transporting and spreading of the surfacing material.

The time schedule of the revised P P called for 169 km of roads to be completed by April 1, 1981, and an additional 77 km completed one year later. At the date of this writing (March 1, 1982), the following roads have actually been completed:

Somadougou - Bankass	75 km
Bankass - Tenndeli	12 km
Bankass - Koro	10 km
T O T A L	97 km

The last two items represent the first and the last sections respectively of the Bankass - Koro road. Between them, there is a stretch of 30 km of so far unimproved road.

This discrepancy of 97 vs 246 km means that currently the work is 60% behind schedule.

This delay is a result of the lateness in receiving the road building equipment needed for the operations in question, delays in the construction of the facilities for their repair and maintenance, and in the late arrival of construction materials such as corrugated metal pipe and gabion netting.

After the end of the Third Construction Season ("Campaign") by April 1, 1981, construction was not resumed again in June 1981 as scheduled, and has come to a slow start only at the time of this writing (on February 22, 1982). Even so, activities are limited to repair of the first 10 km of the Somadougou - Bankass road, which is showing heavy deterioration. In this connection, it should be mentioned that during the intervening hiatus, the chief of the work group in charge of the operation (Chef de Brigade des Pistes Rurales) has been replaced.

The current operations will probably come to a halt in an estimated ten days when the Brigade's current allocation of POL (20,000 litres of diesel) is exhausted.

2. Problems and Recommendations

Appendix A represents the findings of an inspection report of the improvements on the Somadougou-Koro road. The resulting issues and problems are the following:

a. Cross Drainage:

No culverts are provided, evidently due to the fact that corrugated metal pipe material (CMP s) arrived too late for it to be incorporated in the road. This will cause the road to become washed out at critical points during the rainy season. On the other hand, future installation of the culverts will require raising of the roadway grade at their approaches, involving considerable earthwork. This work, due to its labor-intensive characteristics, could be carried out by the same squads who install the culverts proper, which may offer an opportunity of employing local manual labor to a greater extent than has been done on the project road until now.

Recommendation

Install CMP culverts of 0.80 or 1.00 m diameter on an average of 1 per km, providing reinforced concrete or stone masonry headwalls depending on the availability of materials in the neighborhood of the structure. Carry out necessary ramps of the roadway by excavating material from adjoining borrow areas by manual labor, which can also do the necessary compaction using manual tools.

b. Rock Excavation

The work in the mountainous area of the Samadougou-Bankass section was executed solely with pneumatic jackhammers without the use of explosives. This type of operation should not be countenanced in the future, as it

results in excessive deterioration of the equipment as well as in higher construction cost. On the other hand, it was suggested that the GRM would not release the smallest quantity of explosive for use on road construction.

Recommendation

In case future road sections warrant the use of explosives, the GRM should be prevailed upon to permit the use of gelignite or a similar explosive for rock excavation.

c. Bridge Construction

The Nomono bridge at km 34 - 500 shows several shortcomings. The individual span lengths are wastefully short, the clearance is insufficient and the width of the roadway is inadequate. It is understood that the design of this structure was done by the same small contractor who also carried out the construction, which is a highly undesirable situation.

Recommendation

In the absence of standard bridge plans and specification, the design of highway bridges should be carried out by qualified personnel either pertaining to the Ministry of Public Works or to the Genie Rural. As an alternative, a consulting engineer could be given a contract for the design and construction supervision of bridges and other major structures.

d. Highway Improvement Operations

In Appendix B, a description is given of road maintenance operations at the beginning of the Somadougou-Bankass section. While certain minor problems in connection with the equipment were noted, the activity overall gave a favorable, workmanlike impression, with exceptions noted below. Progress amounts to 1.5 to 2.0 km per day (in terms of the amount of laterite placed).

Major problems connected with this operation are the following:

Watering should be an integral element of the earthwork and surfacing operations. However, no water truck or cistern was in evidence, the Chief of Brigade indicated that there was no water available for this purpose, except perhaps if hauled from Mopti at a distance of almost 50 km, which would mean prohibitive hauling costs. Without water, much of the benefit of the current repair operations is lost and the work, as carried out, is largely illusory.

Recommendation

Arrangements should be made for the securing of adequate sources of water at not too distant locations. Thus, e.g., water from the Solar Pump in Bankass in conjunction with an elevated tank should be considered for this purpose.

No compaction equipment is available on the job. On the other hand, compaction, like water, is a vitally needed element in the maintenance and repair operations currently underway. I was informed that a new vibrator-compactor had been received, but that it cannot be moved from Bamako to the site. The project's lowboy assembly in Sevare is immobilized due to a ruined heavy tire of a type which cannot be found this side of Europe or the USA.

Recommendation

Arrangements should be made for the early transfer from Bamako to the work-site of the new compactor, possibly in a rented lowboy. Simultaneously, replacement tires should be procured expeditiously for the project's lowboy trailer.

e. Construction and Hauling Equipment

A list of all mobile and stationary mechanical equipment is included in Appendix C, which also gives the condition and usability of each item, together with observed defects, missing parts, etc. Evidently an

abnormally high percentage of the items in question are "down." This is due to a series of circumstances, the most important of which are described in the following:

There are four different makes of motor vehicles in use, a fact which militates against the generally accepted principles of standardization. Due to the resulting lack of interchangeability, a much larger stock of spare parts is required than if all vehicles were of the same make and, to the extent possible, of the same model and capacity. An illustration of this situation is furnished by the two TDC bulldozers on the job, one of which has hydraulic controls while the other one's controls are mechanical, an evident case of unwarranted diversity of models by the same manufacturer.

In view of the fact that the bulk of equipment and vehicles for the Rural Roads Program has been delivered, and there appears to exist no need for a substantial infusion of new items, not much can be done to remedy this situation. For the possibility, however, that some new or replacement items will be ordered in the future, the following should apply.

Recommendation

In ordering additional items of heavy equipment in the future, those makes and models shall be selected which are already represented within the equipment and vehicle park of the Rural Roads Brigade.

f. Spare Parts

An adequate spare parts inventory is not maintained at the Brigade. Many down vehicles could be put back into service fairly quickly if parts were available. On the other hand, spare parts storage and control is a problem. An inventory of spare parts is maintained by OMM at Sevare. Some parts are available in Mopti, others only in Bamako. Some have to be ordered through the dealers who do not themselves maintain complete inventories. We were advised that, in some cases, vehicles arrive missing essential integral

items such as batteries, belting and spare tires. The problems of the Road Brigade plague the Operation as well. Hence, our recommendation, which we will repeat below.

Recommendation

The contract engineer should, as soon as possible, prepare a vehicle disposal, replacement, repair maintenance and use program to be approved by OMM and USAID. This program should include recommendations for a spare parts policy and a purchasing, control, issuance system.

g. Buildings and Equipment

Under Phase I of the Project, the following buildings for use by the Rural Roads Brigade were constructed:

- Office building,
- Residence of Chief of Brigade,
- Small storage building.

These structures are acceptable according to local levels of quality and serve their immediate purpose. There are, however, no facilities for the maintenance and repair of the vehicles and highway equipment in existence. Repair of the various units is currently done in the unpaved yard, and there are no facilities for housing permanent workers and employees.

Recommendation

The construction program of Phase II should be revised to include within the compound of the Rural Roads Brigade a suitable repair workshop with at least two bays, equipped with concrete-lined maintenance pits.

The administrative and engineering offices are austere but adequate. Some topographical equipment has newly arrived and consists of the following Swiss-made items:

1 Level with tripod	Wild Model NK-05
1 Theodolite with tripod	Wild Model T-1

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as well as leveling rods and other related items. There were no range poles in evidence, and I was told that they have been lent to the engineering company which is doing the highway from Mopti to Gao. In view of past experience with equipment lent to other entities, this practice should be discontinued. The same prohibition is, of course, applicable with even more force to all vehicles and construction equipment.

Recommendation

USAID should advise OMM that NONE of the Rural Roads Brigade's equipment (both engineering and construction) can be lent to other entities except in cases of urgency and not without authorization of the Director of OMM.

The topographic instruments are so far unused. While the level is of a kind suitable for the purpose on hand, the theodolite is far too elaborate and costly and a simple transit should have been procured instead.

h. Engineering Features of the Program

A visit to the Engineering Office of the Brigade showed that there exist no engineering standards for the road such as grades and alignment, roadway width, thickness of surfacing and drainage details. Also, apart from some rather generalized indications in the Phase II Project Paper, there appears to exist no clearcut guidance in regard to these features.

The only standard drawings I was shown relate to two different types of roadway cross sections, with no indication as to where they are to be applied, and showing no sign of approval by USAID.

Evidently, elaborate topographic instruments are of not much value, if there exist no plans or standards on which their use could be based.

There is no question that a low-class road can be built without the benefit of engineering plans and standards, and also without the use of topographic instruments. However, the objectives of the road program, as defined in

the project documentation, point toward a facility of a higher category. Thus, while the results so far achieved are not unsatisfactory, a better product will result from applying a certain engineering input to future road planning and construction.

Recommendation

A stateside-hired engineer should be contracted for by OMM under the project to supervise all engineering matters relating to the program. This includes construction monitoring as well as topographic work, elaboration of standards for grades and curves, establishment of standard road cross sections in function of traffic load and subsoil conditions, as well as standard drawings for drainages, culverts and other structures.

B. Prosect Buildings

1. History and Current Status

The Project Paper for Phase II of Operation Mils Mopti calls for a number of building constructions to serve various purposes and to be erected at several locations, as shown in Table I, below, which also shows the sizes of the proposed buildings (in square meters of floor space).

During 1980, the Engineering Office of the National Direction of the "Genie Rural" developed preliminary plans as well as detailed specifications for the buildings under this program. The Genie Rural designers increased the program: thus, the total number of buildings was increased from 44 to 50, and the total floor area from 5,575 to 7,849 square meters. (See Table I, below.)

On December 15, 1980, USAID Bamako, evidently after having received the plans and specifications, asked Genie Rural in a letter signed by Mr. Eaton to postpone the bidding procedure so as to give USAID personnel a chance to review the bid documents.

Subsequently, early in 1981, GR published Invitations for Bids and after receipt of fifteen proposals, they were opened on March 2, 1981. On the Award

Commission, USAID/Bamako was represented by its two engineers, Messrs. George Thompson and Amassire N'Dao. Others present were Messrs. Aliou Bamba and Mohamed Keita of Genie Rural and Seydou Diawara, Director of Customs.

As a result of discussions which took place on this occasion, the following requests were made to the USAID representatives:

a. To get from AID/W a waiver permitting non-Malian foreign firms to participate in the bidding.

b. To formulate USAID's opinion on the bid package so that it may be reflected in the making of the award.

c. To specify the amount available for the financing of the program.

d. To establish a list of priorities in case it were necessary to reduce the scope of work.

On April 15, 1981, in a letter signed by Mission Director David Wilson, USAID/Bamako asked the Genie Rural to annul the bidding, as the necessary funds were not available at the time.

In conversations with Mr. Kurt Fuller, Project Manager, it was understood that in addition to lack of funds, the buildings shown on Genie Rural's plans were too elaborate and costly for the purpose on hand. Hence, the cancelation of the bidding.

More recently, by letter of January 19, 1982, USAID authorized Genie Rural to go ahead with the contract preparations for seven ZER warehouses of 200 square meters each, and advised that a sum of $400,000 had been earmarked for this purpose. Furthermore, Mr. N'Dao indicated that AID is intended to spend $301,000 for the workshops-garage in Sevare and the laboratory building in Koporo-pen, the latter not included in the Project Paper listing of buildings. This construction to start soon.

The following shows a comparison between the buildings envisioned by USAID in the Project Paper for Phase II and those figuring in the Genie Rural's call for bids which were opened on March 2, 1981. This comparison extends to the type and number of buildings, as well as to their individual, and the resulting total, floor areas.

2. Cost Analysis

The following is a cost analysis of the bid prices included in the March 1981, bids compared with the cost figures included in the Phase II Project Paper.

In its Invitation for Bids, the Genie Rural broke down the construction program into bid packages (a total of six) which were based on geographic areas rather than on certain types of buildings. (This is true of packages 1, 3, 4, 5, 6, while package Number 2 consists of site preparation, water and sewage piping connection to existing utilities, and similar.)

For the reason given, a comparison with the estimated cost figures from the Project Paper, where the cost figures are for given types of buildings, will be difficult. A ready basis for comparison will be provided only by the average cost per square meter of the combined groups (functional in the case of the Project Paper, and geographic in the case of the IFB).

From Table I, we find the total area proposed in the Project Paper to be 5,575 square meters and, from page 91 of the Project Paper, the total estimated cost of this program (after correction of a mathematical error) to be $1,249,625. To account for inflation between the time the Project Paper was prepared and the preparation of bids, a figure of 12% (about 1% per month) should be added, bringing this figure to $1,437,069.

The total number of bidders is 15 and the range of their bids for individual packages ranges from a minimum to a maximum up to twice the amount. Due to the fact that the lowest bidder is not always acceptable (for reasons other than his low bids), while the highest bidder is normally disregarded, an average of these two values has been taken for each package so as to provide as fair a basis as possible for comparison with the Engineer's Estimate.

In the following calculations, the value of the Malian Franc is taken to be 600 to one U.S. dollar.

For the sake of comparison, this figure will be applied to both the construction program according to the Project Paper and to the Genie Rural's planning.

In both cases, a figure corresponding to the average cost of Package Number 2 (ground preparation, utilities) and another one for inflation between March 1981 and June 1982 (the expected date of commencement of construction) will be added.

The first of these figures will be taken as the average from bids, as before. It amounts to FM 21,565,710, or $U.S. 35,943. The second increment will be in the form of an increment of 15% (about 1% per month.)

Total Construction Cost

1. PP Program . . . 5,575 sq. meter x 262,45	1,463,108
add f. ground preparation, utilities	35,943
subtotal	1,499,051
add 15% for inflation	224,858
Grand Total	1,723,090
2. GR Program . . . 7,849 sq. meter x 262,45	2,059,908
add f. ground preparation, utilities	35,943
subtotal	2,095,851
add 15% for inflation	314,378
Grand Total	2,410,229

In order to reduce the cost figures, one of two things can be done:

a) Reduce the volume of construction.
b) Reduce the quality of some of the construction.

Regarding point a): the Genie Rural scope is considerably higher than the one proposed in the Project Paper. It amounts to 7,849 sq.m. as against 5,575, an increase of 41%. A discussion of the merits of either figure falls outside the scope of this study. It should be noted, however, that the ZER residences appear to be too spacious (136 vs 80 sq.m.) and that the area of the workshop-garage in Sevare has been increased from 200 to 442 sq. meters). In the first

TABLE 18

	Type of Building	Units USAID	Units GR	Individual Areas USAID	Individual Areas GR	Locations	Total Areas (sq.m.) USAID	Total Areas (sq.m.) GR
1	Workshop-garage	1	1	200	442	Sevare	200	442
2	Housing at HQ	2	2	140	157	Sevare	280	314
3	Offices - Sector Chiefs	5	3	95	123	Bankass Douentza Bandiagara	475	369
4	Housing - Sector Chiefs	4	4	140	137	Mopti Koro (office only)	560	548
5	Housing - ZER Chiefs	17	20	80	136	various locations	1360	2720
6	Guest House (6 rooms)	-	1	-	268	Koporo-pen	-	268
7	Warehouses	15	15	180	200	various locations	2700	3000
8	Watchman quarters	-	1	-	37	Sevare	-	37
9	Housing - Generator	-	2	-	16	Koporo-pen Sevare	-	32
10	Laboratory Bldg	-	1	-	119	Koporo-pen	-	119
	Total	44	50				5575	7849

case, it is recommended to reduce the area of the individual ZER residence to 100 sq. meters). As to the workshop-garage, it is recommended to adhere to the area of 442 sq. meters which will be necessary if the vehicles and equipment of the Road Brigade, which has no facility of this nature, will also be maintained in this area.

In regard to point b): a review of the plans and specifications reveals no possibility of downgrading the quality of construction without deflating the purpose of having a durable and useful facility.

3. Recommendation

The above referenced to contract engineer should review the building construction program with OMM, USAID and, as necessary, Genie Rural to establish priorities, standards, needs, construction schedules and a construction budget.

Despite the conclusion reached above, the engineer should take another and more profound look at the use of indigenous materials and methods. Depending on the intended use of the building, he may find that some savings can be made without threatening the adequacy or durability of facility.

In establishing a program within fund limitations, the team recommends that staff housing be given first consideration for elimination. The research station guest house can probably be more modest in size and plan.

No construction contracts should be let until the new construction program is prepared, agreed upon and approved.

TABLE 19

Cost per unit Floor Area

from GR bids

Group N°	Lowest Bid FM	Highest Bid FM	average FM	average US $	floor area sq.m.	over cost per sq.m. ($)
1	160,348,042	234,068,091	197,208,070	328.680	1,069	307.46
3	160,454,849	259,004,940	209,729,894	349,550	1,617	216.17
4	206,376,175	476,268,274	341,322,224	568,870	2,614	217.62
5	187,245,541	344,015,969	265,630,750	442,718	1,402	315.78
6	146,692,877	340,610,692	243,651,785	406,086	1,144	354.97
Totals				2,095,904	7,846	267.13

On the basis of the bids, the average cost per square meter thus becomes $267.13, while based on the Project Paper, the corresponding figure is $1,437,069 : 5,575 = $257.77.

The overall average cost of construction in March, 1981 can be assumed to be the average of these two figures, or $262.45.

C. Motor Pool Operations

The OMM has a very substantial pool of vehicles. The Road Construction Brigade also has, as described above, vehicles and construction equipment acquired at considerable cost to the project. Vehicle life and construction equipment acquired at considerable cost to the project. Vehicle life has been short; the percentage of vehicles down for repairs is high. The spare parts inventory is inappropriate and at times inadequate. Vehicle suppliers do not seem to have provided adequate post-sales service. Inappropriate vehicles have been procured, unsuited to local conditions, with inadequate local dealer support systems and using expensive fuel in excessive quantity. We found no evidence in Mission files of an engineering input to the development either of vehicle specifications or in the determination of vehicle requirements. We have found little evidence of any contribution from engineering toward solving motor pool problems other than some review of a proposed maintenance facility.

Recognizing the joint responsibilities of project management and financial management of engineering, we here reinforce our recommendation made above under the rubric of Project Management.

Recommendation

An early task of the contract engineer should be to review all aspects of the vehicle support function with OMM and USAID (project officer, controller, administrative office) to establish a vehicle procurement, operations, maintenance and replacement plan. He should review the existing maintenance facility plans and assist in developing plans and specifications for a modest facility within a reasonable cost limitation.

MOTOR TRANSPORT LIST

Vehicles

Brand and Type	Immatri-culation No.	Office of Assignment	Date of Purchase	Observations
Land Rover	5RMD 0660	SDR Djenné,	1978	Not too bad
Land Rover	5RMD 0661	SDR Tenoukou	1978	Not too bad
Scout Int'l	5RMD 0605	Director's	1978	Down, for repair in Bamako
Scout Int'l	5RMD 0606	Director's	1978	Down, for repair in Bamako
Scout Int'l	5RMD 0607	Director's	1978	Down, for repair in Bamako
Land Rover	5RMD 0768	SDR Koro	1979	Good
Land Rover	5RMD 0769	SDR Bankass	1979	Good
Truck HINO KB	5RMD 0573	Director, Commercial Office	1978	Good
Truck HINO KB	5RMD 0574	Director, Commercial Office	1978	Good
Truck 10 ton, I.H.	5RMD 0651	Management, Commercial Div.	1978	Good

Vehicles (ctd.)

Brand and Type	Immatri-culation No.	Office of Assignment	Date of Purchase	Observations
Truck 10 ton, I.H.	5RMD 0652	Management, Commercial Div.	1978	Down
Truck 10 ton, I.H.	5RMD 0653	Management, Commercial Div.	1978	Good
Truck 10 ton, I.H.	5RMD 0654	Management Commercial Div.	1978	Good
Truck 10 ton, I.H.	5RMD 0655	Management, Commercial Div.	1978	Down
Truck 10 ton, I.H.	5RMD 0656	Management, Commercial Div.	1978	Down
Truck 10 ton, I.H.	5RMD 0657	Management, Commercial Div.	1978	Down
Peugeot 504 Break	5RMD 0726	Deputy Director	1979	Good
Peugeot 504 Fam.	5RMD 0728	Chief of Financial Division	1979	Good
Toyota Land Cruiser	5RMD 0745	Chief of Agricul-cultural Exten-sion Division	1979	Down
Toyota Land Cruiser	5RMD 0746	Chief of Alphabet. Division	1979	Good
Renault 12	5RMD 0750	Div. Studies	1979	Good

Vehicles (ctd.)

Brand and Type	Immatri-culation No.	Office of Assignment	Date of Purchase	Observations
Renault 12	5RMD 0751	Administration	1979	Good
Toyota Corona	2RME 8561	Alphabet. Div.	1979	Good
Scout Int'l (petrol)	5RMD 0981	Training Div.	1980	Good
Scout Int'l (petrol)	5RMD 0982	Financial and Administrative Division	1980	Down
Scout Int'l (petrol)	5RMD 0983	Division for agricultural extension	1980	Down
Scout Int'l (petrol)	5RMD 0984	Management Liaison	1980	Good
Peugeot 504 Berline	5RMD 1020	Director's	1980	Good
Scout Int'l (diesel)	5RMD 1081	SDR Mopti	1981	Had an accident
Scout Int'l (diesel)	5RMD 1082	SDR Bandiagara	1981	Good
Scout Int'l (diesel)	5RMD 1084	SDR Douentza	1981	Down
Toyota Pick-up	2RMF 1518	P.A.R. Seno	1980	Good

SUMMARY

Official Cars

Peugeot 504 Break	1
Peugeot 504 Familiy	1
Peugeot 504 Berline	1
Toyota Land Cruiser	3
Scout Int'l petrol	7
Scout Int'l diesel	3
Land Rover	4
Truck Int'l	7
Toyota Corona	1
Jeep pick-up	1
Renault 12	2
Hino KB	2
Total	33 cars

APPENDICES - CHAPTER VI

Appendix I: Inspection of Somadougou - Koro Road

Appendix II: Description of Road Maintenance Operations

Appendix III: Equipment List

APPENDIX I

Inspection of Somadougou - Koro Road

On February 21, this writer accompanied by the USAID local hire Engineer and the Chief of Brigade, undertook an inspection of subject facility which represents the entire effort so far deployed under the program for Rural Roads. This road, of a total length of 127 km pre-existed in the form of a winding, entirely unimproved track, as is evidenced by its middle section of 30 km that so far has not undergone any change.

The improved sections incorporate a crowned roadway, about 6 m wide, faced by a layer of laterite of 10-20 cm thickness. The first 10 km, evidently the oldest improved section, shows heavy deterioration, mainly in the form of persistent washboard formation. Further to the East, at about km 18 + 000, the road enters the foothills of an elongated plateau called the Cliffs of Bandiagara. At km 21 + 000 the road passes through a défilé, showing signs of considerable excavation in light to medium heavy rock. There are several switchbacks, and the grades are considerable.

At km 34 + 500 a 4 m wide bridge has been constructed consisting of reinforced concrete spans of about 2.5 m length each. This structure has insufficient clearance for the passing of even a moderate flow during the rainy season. Other drainage structure on the road consist in the occasional provision of gabions to protect it from being washed out by water flowing in lateral ditches. There also exists one paved ford near the beginning of the road. The laterite used in surfacing comes from various borrow areas requiring a haul from 2 up to 25 km.

After km 42 + 500 the road starts its descent toward Bankass,

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and shortly after passing this town, the improvement ends and a stretch of 30 km unimproved track begins. The difference in traveling comfort between the two types of roads is considerable and is an indication of the degree of improvement actually achieved. The last 10 km of the road, before reaching Koro, the terminal point, is again improved.

Of a total length of 127 km, 97 km are improved, representing the total construction effort of the Brigade since its formation.

APPENDIX II

Description of Road Maintenance Operations

In the morning hours of February 22nd, I made an inspection of the equipment and of the grading (maintenance) operations on the Somadougou-Bankass road. It is planned to cover by this activity the first ten kilometers of the road which are in particularly poor condition. This was the first day of operations, for which 20,000 litres of diesel fuel had been allocated.

The activity consisted in mining laterite at a site off the main highway near km 0 of the new road by means of a bulldozer (the second dozer was on its way to the worksite from the Sevaré equipment yard). The material was scooped by an Allis-Fiat wheeled front end loader into several dump trucks (2 HINO 6 m^3, 1 Berliet 12 m^3, 1 IH 6 m^3. In addition there was at the site one small Berliet truck for liaison and personnel transport.) The material was windrowed and distributed by a GR 120 motor grader which operated on the road.

I was accompanied by the Chief of the Brigade, Engineer El Hadj Cissé. At the worksite I was introduced to the Equipment Chief and the Operations Manager. Both men, as well as the equipment operators, seemed competent, and work progressed smoothly.

During a subsequent visit to the site, it was established that the daily progress in surfacing was of the order of 1.5 to 2.0 km per day. At that time work had advanced to about km 5.0.

APPENDIX III

Equipment List

The following is an inventory of highway construction equipment pertaining to the "Brigade de Pistes Rurales". Inspection was made on February 19 and 21. Location was at the equipment yard at Sevaré except as indicated. Explanations were furnished where necessary by Engineer El Hadj Cissé, Chief of Brigade, and Baba Diallo, Chief Mechanic.

Number	Item	Mark	Capacity or Model	Condition and History
1	dump truck	HINO	6 m^3	Severely damaged in accident
1	dump truck	HINO	6 m^3	In operation near Km 0 of Bankass road
1	dump truck	HINO	6 m^3	In operation near Km 0 of Bankass road
1	dump truck	HINO	6 m^3	Down, requires new alternator to be purchased in France or USA
1	water truck	HINO	10 m^3	After having been purloined by the Director of CMM, was returned minus starter and alternator - inoperative
1	fuel tank	HINO	12 m^3	In working condition
1	dump truck	Berliet	12 m^3	In working condition
1	dump truck	Berliet	12 m^3	Hydraulic tilting mechanism of van not functioning - has to be ordered from France
1	dump truck	Berliet	L 64	In working condition

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(Equipment List cont.)

Number	Item	Mark	Capacity or Model	Condition and History
1	dump truck	Berliet	L 64	After having been borrowed by authorities, was returned with broken connecting rod. Will be repaired.
1	water truck	Int'l Harvester	8 m^3	In working condition
1	tank truck	Int'l Harvester		With dealer in Bamako - not yet transfered
1	tank truck	Int'l Harvester		Down, with broken universal joint
1	dump truck	Int'l Harvester		With dealer in Bamako - not yet transfered
1	dump truck	Int'l Harvester		Tilting mechanism not working
1	lowboy assembly	Int'l Harvester		1 trailer tire needs replacement - Must be ordered from Europe or USA
1	personnel carrier	Int'l Harvester	Scout	Was cannibalized by Direction OMM
1	maintenance truck (oiler)	SAVIEM		Needs new battery, regulator, canvas roof, transmission belt, etc.
1	motor grader	CAT	120 G (hydraulic controls)	In operating condition - at Km 0 of road to Bankass
1	motor grader	CAT	120 G (hydraulic controls)	Hydraulic pump trouble - in Bankass yard
1	roller-compactor	Gallion		New, in Bamako. Needs lowboy for transport

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(Equipment List cont.)

Number	Item	Mark	Capacity or Model	Condition and History
1	wheeled loader	Fiat-Allis		In operating condition, at Km 0
1	wheeled loader	Fiat-Allis		Down, needs repairs. All needed parts received - in Bankass yard
1	personnel carrier	Land Rover		Needs general overhaul
1	personnel carrier	Land Rover		Needs general overhaul
1	Jeep	American Motors	C-5J	Needs tires and other equipment
1	concrete mixer	Richier		In working condition
1	compressor	Richier	125 cu ft	In working condition, but all 4 jackhammers out of commission
1	power unit	Onan	8 KVA	Injector needs replacement
2	motor pumps			On loan to Areco (highway construction Sevaré-Gao)
1	welding machine			No masks for operators

OPERATION MILS-MOPTI
MAPS AND ANNEXES

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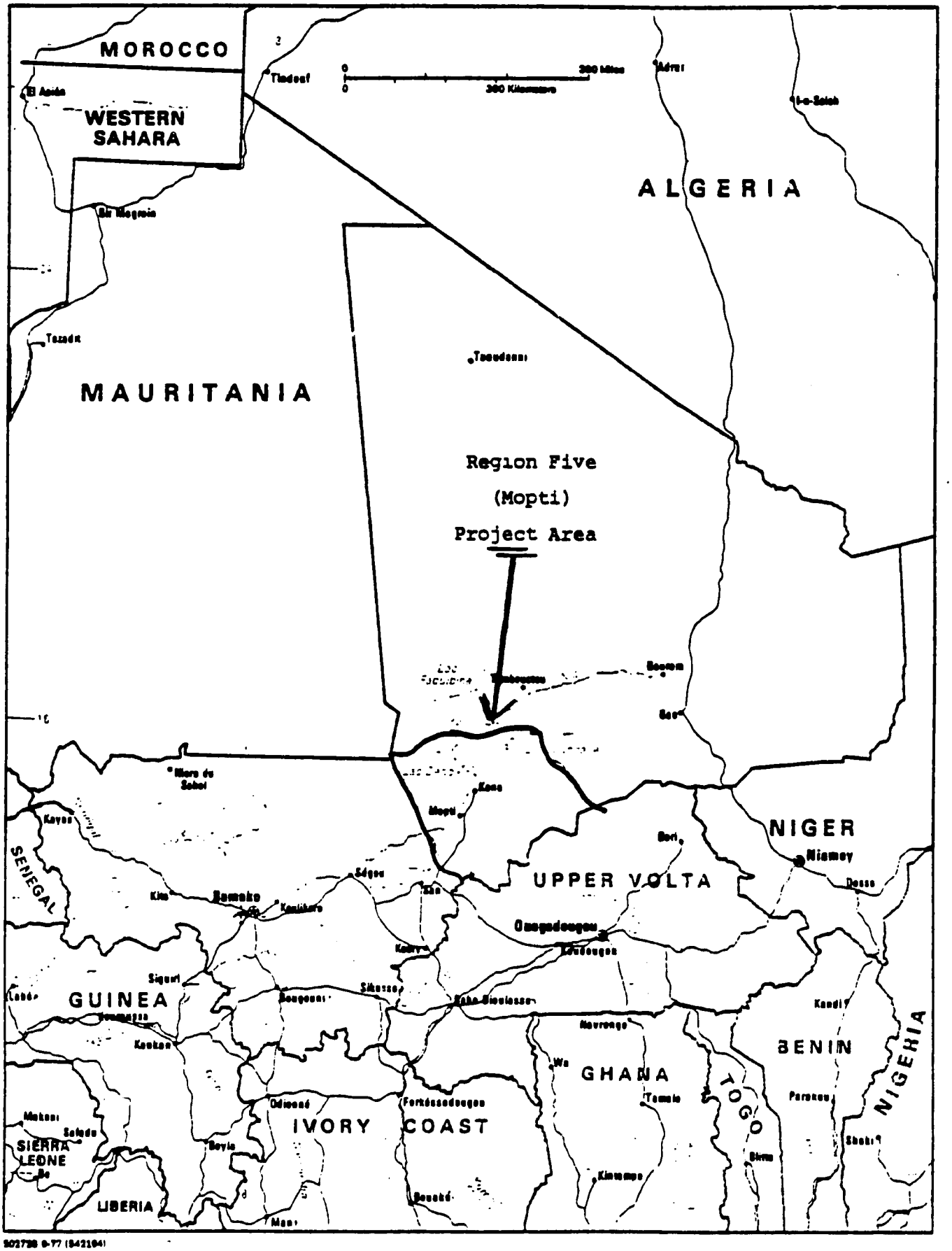
MAPS

Map I: Mali

Map II: Central Area of Fifth Region

Mali

MAP I



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Lambert Conformal Projection
Standard parallels 8° and 32°
Scale 1:11,000,000
Boundary representation is not necessarily authoritative

Railroad
Road
Airport

ANNEX II

FINANCIAL ACCOUNTABILITY MANAGEMENT RECOMMENDATIONS

I. Budgetary Management

A. Study the possibility of establishing an independent unit for budgetary management.

B. Regulate and standardize discrepancies between budgetary and accounting years: OMM; Board of Directors; GRM; USAID.

C. Establish a budgetary plan in agreement with USAID and the Ministry of Agriculture.

D. Establish useful and standardized line items between OMM and USAID with precise definitions and in accordance with the Grant Agreement (GA). Not split up into small sub-line items.

E. Establish a journal (or records) by line item (and sub-line item if needed) with columns for debits and credits.

F. Write a budgetary manual establishing:
   1. Previous commitment for all expenditures.
   2. Exceeding allotments not allowed.
   3. Limitation of allotment transfer authorizations from one line item to the other and only with approval of the D-G.

II. Accountability

A. Try to simplify the accounting
For example: Eliminate depreciations and the excess number of sub-accounts.

B. Improve the accounts
Exemple: Replace multiple journals with a tranfer system.

C. Establish the position of controller (ordonnateur) who will have sole and absolute control over all payments.

D. Keep the accountability up-to-date, prepare balances and situations regularly.

E. Improve accounting discipline.

III. Purchases and payments

A. Centralize all purchases in a sole administrative unit.

B. Demand that all orders be made on a purchase order form with previous commitment.

C. No payment without an order to pay, with supporting documentation and previous checking of commitment.

Purchase order
Consignment note
Receipt note
Bill

Filing of supporting documentation in a way that will facilitate checking. It would be advisable to find a method that will satisfy both OMM and USAID needs.

IV. Material accountability

A. Establish and keep up-to-date a centralized inventory for all material with information taken from consignment notes, receipt notes and bills (when needed).

V. Maintenance of vehicles and purchase of spare parts

A. Establish a central authority responsible for all vehicles, repairs, preparation of purchase orders for spare parts. The orders should go through the Material Accountability.

VI. Bank accounts

A. Respect individual accounts as requested by USAID and also limit activities of each account.

B. Stop any transfer from an account to another except in exceptional emergency cases and with USAID's approval.

C. Demand statements of accounts in a reasonable time (2 weeks) or make reconciliation at the bank itself.

D. Fund the account of Brigade des Pistes (267-13) directly from account 45 or even directly from transfer from AID.

VII. Accounts Personnel

A. Give them instructions and help them continuously, according to their capacities to perform their work.

B. Supervise them and encourage them continously.

C. Do not assign them work beyond their competencies.

D. Provide them with furniture, lights and equipment that they need.

VIII. Policy and Regulation

A. Write and keep up-to-date an instruction manual regarding budgets, accounting, storage, agricultural credit, "mobylette", etc., as well as all important conditions in the Grant Agreement.

XI. Technical Assistance

A. Demand and insist that USAID provide a financial technical assistance for a length of time not inferior to 12 months, preferably twenty-four months, that is to say a specialist in public finances who would be responsible only to the D-G of OMM and who would have the same authority as the D-G on all accounting and budgetary operations.

X. Immediate actions

Some of the recommendations will have to be adopted without awaiting the financial specialist. It would be desirable that OMM conduct a study of recommendations for this choice. We call your attention to the following measures that should be adopted within the shortest period of time possible.

A. Establish a journal, always up-to-date, for reimbursable expenses, - file supporting documentation, - stop the journal each month and send the list with documentation to USAID in the first week of the following month.

B. Establish with USAID precise criteria on reimbursable expenses.

C. Avoid all other expense.

D. Establish a journal or records for budgetary allotments, by line item and demand a previous commitment for all expenses.

E. Prepare a monthly situation of allotments, commitments and available allotments.

F. Insist that all payments be made in an orderly fashion and only upon supporting documentation, well classified.

Charles Wilding-White
Evaluation Team.

ANNEX III

EVALUATION DU SYSTÈME DE CRÉDIT AGRICOLE DE L'OPÉRATION MILS-MOPTI (OMM)

SOMMAIRE:

L. Introduction

2. Le crédit agricole à l'OMM

   b) Buts et objectifs

   b) L'ancien système de crédit

   c) Le noueveau système de crédit

3. Les résultats obtenus et les obstacles identifiés dans la réalisation du programme de crédit pendant la phase II

4. La viabilité du système de crédit

   a) Le personnel du crédit

   b) La capacité du programme de couvrir les besoins des paysans.

   c) Les taux d'intérêt

5. La gestion du système de crédit

   a) Approvisionnement en matériel et intrants

   b) Les dossiers des prêts

   c) Le système de remboursement

   d) Le système logistique

6. Conclusions

7. Recommandations

INTRODUCTION

Le pésent rapport est consacré à l'évaluation du système de crédit agricole de l'Opération Mils-Mopti. Dans l'introduction à l'étude de la commercialisation, la méthodologie suivie pour cette étude a été décrite.

2. Le crédit agricole à l'OMM:

a) Buts et objectifs : La politique du crédit, selon les termes de la Convention du projet, consiste à financer la gamme complète des facteurs de production qui doivent être incorporés dans l'ensemble des apports technologiques en vue de permettre l'augmentation de la productivité du travail et du bien-être social des paysans. Pour cela l'octroi du crédit doit être étendu à un nombre plus élevé d'agriculteurs.

b) Ancien système de crédit : Depuis sa création, l'OMM avait pour principal fournisseur la SCAER (monopole d'Etat pour l'approvisionnement des ODR en matériels et intrants agricoles). L'OMM payait à la SCAER le matériel au comptant avec une remise de 5% et plaçait ce matériel au niveau des paysans par l'intermédiaire des agents sur le terrain. Les fournisseurs de la SCAER étaient la SISCOMA, la SIES (deux sociétés sénégalaises), des sociétés en Côte d'Ivoire et à partir de 1975 la SMECMA (société malienne de construction du matériel agricole). Compte tenu de la politique des prix du GRM, il était impossible à l'OMM de vendre plus que les prix fixés par la SCAER même si ces prix ne couvraient pas

les charges directes à l'activité de crédit. Ainsi l'OMM vendait souvent à perte. Vu la hausse continue des prix de campagne en campagne, l'OMM au cas où il lui restait des stocks, tirait un avantage de la vente de ces stocks aux nouveaux prix.

c) Nouveau système : A partir de 1979, l'activité de crédit fut rattachée à la Division financière de l'Opération. Depuis juin 1979, la SCAER est en voie de liquidation. L'OMM a commencé à se ravitailler directement à la SMECMA. Les modalités d'achat sont les suivantes: au moment de la commande en janvier 50% du montant total doivent être versés; trois mois après,c'est l'enlèvement au cours duquel il faut payer 25%; les 25% restant doivent être remboursés trois mois après l'enlèvement. Il semble que les commandes avec la SMECMA sont toujours stisfaites. Pour les commandes d'intrants, l'OMM passe par le canal de la CMDT.

Les engrais, semences, produits de traitement sont vendu à crédit court terme ou crédit de campagne (moins d'un an). Les matériels agricoles tels que les charrues, multiculteurs, semoirs, et les charrettes sont vendus à crédit moyen terme (2-3 ans) à 6% d'intérêt sur paiement d'un acompte égal au tiers du prix au comptant.

Le crédit bétail a démarré pendant la Phase II du projet. Son but est de faciliter l'acquisition d'animaux de trait aux paysans. Il est octroyé pour un terme de cinq (5) ans, la garantie est individuelle ou collective, et est basée sur l'honnêtété des l'emprunteur. Ce crédit est en phase d'expérimentation dans deux villages "pilotes" (Mandio et Paré) du secteur de Mopti.

Dans la zone OMM, certains équipements tels que les charrettes et les arrosoirs sont fournis par des commerçants privés.

3. Les résultat obtenus et les obstacles identifés dans la réalisation du programme du crédit pendant la phase II

Théoriquement le crédit est accordé à tout paysan qui le sollicite. Il semble que tel n'est pas le cas depuis que l'opération est confrontée à des problèmes de fonds. Une politique de crédit, qu'on pourrait qualifier de non officielle existe en ce moment et consiste à vendre le matériel et les produits en priorité à ceux qui peuvent le payer au comptant ou le rembourser avant terme. La majorité des paysans se trouve confrontée à ce problème. Le tableau No. 1 nous permet de voir quà partir de 1980, le placement de matériel et des produits dimunit sensiblement. Le placement des houes azines et des charrettes qui sont beaucoup demandé au Séno (Koro, Bankass) a diminué. Le placement des fongicides qui servent dans cette même zone à traiter non seulement les semences mais aussi les greniers, a été le suivant 92,982 sachet en 81/82 contre 160.483 en 1980-81.

Il était prévu de construire pendant la phase II du projet 15 entrepôts et des magasins de détail. Aucune construction dans ce sens n'a été faite.

Comme prévu, le projet a été élargi au crédit bétail. A Mandio 20 boeufs ont été placés et à Paré 39. Le crédit bétail est assorti d'un taux d'intérêt de 15% par an du principal non remboursé (13% sur principal du prêt et 2% pour l'assurance vie).

Le remplacement des animaux (assurance) est effectué si les conditions suivantes sont remplies par le paysan: 1) présentation du morceau de la peau de l'animal partant la marque "OMM";

2) certificat d'un vétérinaire ayant consulté l'animal (ce vétérinaire donne l'autorisation d'abattre l'animal ou constate simplement sa mort pour ensuite donner le certificat). Il nous a été signalé trois cas de morts, mais les animaux n'étaient pas encore remplacés. Les paysans se plaignent de la deuxième condition de remplacement qui est difficile à remplir à cause de la transhumana dans la zone. Certains jugent que les animaux sont placés trop jeune (à l'âge de 4 ans) et que le prix de 120,000 FM est trop pour un boeuf de 4 ans. Le terme de cinq(5) ans est cependant jugé suffisant par la grande majorité. Il existe un Comité directeur de crédit bétail dans chacun des deux villages.

Dans la zone d'intervention de l'opération, il n'existe pas d'associations villageoises de paysans en ce moment. Les paysans interviewés ont répondus à ce sujet qu'ils seraient prêts à s'organiser si cela devrait leur faciliter l'obtention du crédit.

Cinq agents crédit ont été placés au niveau des secteurs comme prévu, mais l'assistance technique demeure inexistante.

4. Viabilité du système de crédit.

Pour qu'un système de crédit soit viable, il faudrait qu'il satisfasse certaines conditions. Nous retiendrons ici la qualité du personnel de crédit, la capacité du programme de couvrier les besoins des paysans, le niveau des taux d'intérêts.

a) - Le personnel du cédit. Comme nous l'avons souligné dans le premier chapitre, la gestion du crédit est confiée à la Division financière de l'OMM.

La section Crédit est dirigée par un comptable. Les agents crédit sur le terrain sont recrutés au niveau CTA (conducteurs d'agriculture). Ces agents de terrain n'ont pas reçu de formation en crédit. Aussi à l'OMM il n'existe pas de document définissant la politique globale de crédit. La circulation de l'information n'est pas toujours effective. Les procès verbaux de réunion où sont prises souvent les décisions sont la diffusion de certains textes, réglementant le crédit s'arrête au niveau des chefs secteurs et les décisions sont transmises oralement à l'agent de base. Cette situation entraîne des déformations dans l'exécution des procédures de crédit.

b) La capacité du programme de couvrir les besoins des paysans

L'OMM encadre actuellement une population de 4.180.165 habitans, dont 639.664 actif. L'évolution de la population du nombre d'exploitations est donnée dans le tableau suivant:

OMM	1979-80	1980-81	1981-82
Population totale	879.858	947.291	1.180.165
Nombre d'actifs	533.053	565.073	639.664
Nombre d'exploitation	73.800	75.000	75.200
Exploitations - pilotes	1.765	2.490	2.520
Villages - pilotes	-	12	12

(Tableau No. 2)

Dans le cadre de la vulgarisation des techniques modernes une attention particulière est accordée aux charrues TM et Bourguignonnes, aux multiculteurs, semoir, charrettes (TRP 1000 kg), aux semences sélectionnées et produits tels que urée, fongicides, phosphate d'ammoniaque.

Le tableau no. 3 donne la situation des placements de matériels et intrants agricoles effectués depuis la création de l'OM-M jusqu'à la campagne 1980-1981 par le nombre d'actifs et le nombre d'exploitations de l'OM-M pendant cette même campagne.

De ce tableau, il ressort les conclusions suivantes:

- Charrue T.M.: pour 100 actifs, il y a 1 charrue
  pour 100 exploitations il y a 8.
- Charrue Bourguignonne: il n'y en a que 3 pour 1.000 actifs
  et 30 pour 1.000 exploitations.
- Houe azine: utilisée en général dans les secteurs de Koro et Bankass. Il n'y en a que 4 pour 10.000 actifs et 30 pour 1.000 exploitations. Telle est la situation pour le multiculteur.
- Phosphate d'ammoniaque: en moyenne il a été placé 0,25 kg par actif et 1,86 kg par exploitation.
- Urée: en moyenne 0,24 per actif et 1,79 kg par exploitation.
- Fongicide: en moyenne 1,21 sachets par actif et 9,1 sachets par exploitation.

En considérant ces résultats et les superficies des exploitations à l'OM-M, nous pouvons conclure que le crédit ne couvre pas les besoins des paysans. Les très faibles proportions nous permettent de douter de la viabilité du système en matière de couverture des besoins. Les opinions des paysans interviewés confirment nos résultats.

c) Les taux d'intérêt. Sans taux d'intérêt suffisant, il n'ya pas de système de crédit viable. Mais ce taux d'intérêt doit tenir compte de la capacité de remboursement des paysans. La quasi totalité des paysans encadrés par l'OM-M ont des revenus faibles à cause des faibles prix au producteur des céréales. Les paysans sont obligés de faire recours au crédit

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parce que ça leur facilite l'acquisition de l'équipement agricole et des intrants. Certains ont affirmé cependant qu'ils préféraient ne pas y avoir recours car le remboursement à terme leur sera difficile. C'est ainsi que dans les villages tels que Kendié, Tendeli, Toroli, des paysans ont jugé que le terme pour l'équipement agricole doit être prolongé (jusqu'à 4 ans) et que soit placé plus de charrettes. Les charrettes suscitent un très vif intérêt, puisqu'elles sont source de revenus non agricoles. Le terme des intrants, sauf quelques exceptions, a été jugé suffisant.

L'ancien système de crédit n'était pas viable à cause des taux d'intérêt bas fixés par le Gouvernement. Le taux d'intérêt a augmenté pendant la phase II (6,4 % pour la charrue TM, et la charrette TRP et 15-16 % pour les houes azines).

Une autre condition de viabilité du système de crédit est sa gestion.

5. La gestion du système

a) Approvisionnement en matériels et intrants

Dans l'ancien système de crédit, entre la commande et le placement il s'écoulait une année. Dans le nouveau système seulement il s'écoule une période de trois mois.

En pratique, pendant les deux dernières campagnes (80/81 et 81/82), les fournitures d'intrants n'ont pas été toujours faites à temps voulu. Souvent, elles ont été faites en très faible quantité. Dans le secteur de base de Kopro-Na, il n'a été placé que 18 sacs d'engrais alors que ce S.B. compte déjà 45 villages. Il semble que cette situation est due en grande partie au fait que le budget OM-M de crédit n'avait pas été approuvé par l'USAID. L'OM-M manquait de fonds pour payer le matériel et les intrants à temps et en quantité suffisante. Sur demande de l'US-AID, l'OM-M a fait

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un document sur le crédit. De la part de l'USAID il n'a été reçu jusqu'aujourd'hui ni remarques, ni suggestions à l'OM-M.

Nous avons remarqué aussi des stocks importants de certains types de matériels dans certains secteurs, alors que ces matériels manquent dans d'autres.

A Bandiagara, un stock important d'arrosoirs existe à cause de son prix très élevé (16.000 FM par arrosoir contre environ 4.500 FM sur le marché local).

Il faudrait que les matériels placés correspondent au goût et au désir effectif des agriculteurs. L'achat des boeufs qui consiste à les payer par l'intermédiaire des agents de l'ODEM (l'Opération de Développement de l'Elevage) a suscité des plaintes comme nous l'avons déjà dit. De même, la qualité des animaux a été citée parmi les contraintes (boeufs jeunes de 4 ans).

b) Les dossiers des prêts

Au niveau de chaque S.B., chaque ZER, et chaque secteur, il doit exister un enregistrement correct de l'argent au titre des prêts. En pratique, cet enregistrement est fait. Il existe un livre de créances, des carnets de vente à court terme, moyen terme. Si un paysan paie sa dette à court terme, il retourne son exemplaire vert du reçu de vente à crédit et on lui donne l'exemplaire blanc que le chef S.B. avait conservé. Dans le cas d'un prêt à moyen terme, il y a trois souches de telle sorte qu'une souche peut être donnée à chaque fois qu'un paiement est effectué. Ce système a été suivi dans l'ensemble. Seulement, il a été remarqué que certains placements se sont effectués sans versement préalable d'un acompte ou que l'acompte n'a pas été versé dans la proportion fixée selon le texte. Il n'existe pas d'enregistrement séparé des arriérés.

c) Le système de remboursement

Les remboursements s'effectuent généralement en fin de campagne de commercialisation. La presque totalité des paysans préfèrent un remboursement en espèce. Ceci est dû au fait que le paiement en nature se fait sur l'évaluation des quantités de céréales offertes au prix officiel au producteur. Or, ces prix sont jugés trop bas. Les paysans affirment aussi que les charrettes constituent une importante source de revenus non agricoles leur facilitant de s'acquitter de leur dette.

Les tableaux no. 4 et donnent la situation des recouvrements. Le taux de recouvrement diminue d'année en année. (86 % pendant les campagnes antérieures à 1978/79; 63 % en 1978/79; 58 % en 1979/80 et 60,9 % en 1980/81).

A cause des taux de recouvrement faibles, pendant la campagne 1981/82, le crédit n'a été accordé à priori qu'à ceux qui peuvent le payer au comptant ou le rembourser avant terme.

d) Système logistique. Il existe un magasin au niveau de Sévaré à partir duquel le ravitaillement des magasins de secteurs ZER et S.B. s'effectue en ce qui concerne certains matériels et produits. Cependant, il est à noter que ni l'état, ni la capacité de ces magasins ne convient pour un bon système d'entreposage. C'est au niveau de la ZER que les paysans viennent se ravitailler. Lors de nos visites sur le terrain, nous avons vu des magasins tombés ou abandonnés, des magasins aux murs percés. Il est absolument nécessaire en ce moment de reconstituer le système en entier.

6. Conclusions

1) D'une manière générale, l'utilité du crédit est bien connue dans la zone. Toutefois, des paysans hésitent encore d'y faire recours vu leur capacité de remboursement.

2) La demande de crédit est particulièrement forte pour les charrettes (sources de revenus non agricoles), les houes azines et les fongicides dans le Séno.

   Le problème d'animaux de trait (crédit bétail) a été soulevé partout où nous avons passé.

3) Le système de crédit ne couvre qu'une faible partie des paysans. A l'heure actuelle, seuls les paysans à revenus élevés ont accès au crédit. L'objectif principal du crédit, à savoir la couverture d'un nombre plus élevé des paysans nécessiteux se trouve dévié.

4) Il n'existe pas de document définissant la politique de crédit (seulement des procès-verbaux). La formation des agents s'occupant du crédit n'est pas celle appropriée. Les stages prévus n'ont pas eu lieu, l'assistance technique n'a pas été fournie.

5) Le système d'information des agents de terrain et des paysans doit être plus amélioré.

6) Il n'existe pas jusqu'à présent un grand magasin central d'entreposage. Plusieurs des magasins de secteurs sont en mauvais état. Certains se sont même écroulés.

7) Il n'y a pas d'associations villageoises dans la zone d'intervention de l'Opération Mils. Il y a deux comités directeurs de crédit bétail par l'intermédiaire desquels s'effectue le recouvrement des prêts.

7. <u>Recommandations</u>

1) L'OM-M et l'US-AID doivent définir dans un document une politique globale en matière de crédit.

2) La construction d'un grand magasin central d'entreposage s'avère nécessaire.

3) Un assistant technique doit être fourni dans les meilleurs délais pour la formation des agents de terrain et une bonne gestion du système.

4) Des dispositions urgentes doivent être prises en ce qui concerne l'approvisionnement en quantité suffisante et en temps opportun, le recouvrement des prêts.

5) Pour la bonne marche du système, un suivi régulier du programme est indispensable.

TABLEAU NO. 1

PLACEMENT MATERIEL AGRICOLE ET PRODUITS

	Avant 1978-79	78-79	79-80	80-81	81-82
Charrue T.M.	899	464	741	317	338
Bourguignon	217	0	183	356	119
Houe azine	-	-	-	201	194
Multiculteur	58	45	34	77	1
Semoir	40	35	17	12	1
Charette TPR (1.000 kg)	2.449	1.025	1.101	1.204	478
Phosphate d'ammoniaque (T)	22.251	27.732	46.050	43.380	39.100
Urée (T)	35.725	18.473	36.475	43.450	8.100
Fongicides (sachets)	325.687	112.595	84.636	160.483	92.982

Sources: Données techniques (Décembre 1981) et données de la Section Crédit OM-M.

TABLEAU NO. 3

PLACEMENT DE MATERIELS ET D'INTRANTS AGRICOLES PAR ACTIF ET PAR EXPLOITATIONS A LA CAMPAGNE 1980-1981

Matériels et produits	Campagne 1980-1981	
	Placement	
	Par actif	Par exploitations
T.M.	0,01	0,08
Bourguignon	0,003	0,03
Houe azine	0,0004	0,003
Multiculteur	0,0004	0,003
Charette	0,01	0,09
Phosphate d'ammoniaque (kg)	0,25	1,86
Urée (kg)	0,24	1,79
Fongicide (sachets)	1,21	9,1

Sources: Données Section Crédit "Inventaire du matériel de culture attelée" 1980-81.

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TABLEAU NO. 4

SITUATION DES RECOUVREMENTS AU 30/9/1981

Campagne / S.D.R.	Antérieurs à 78/79			78/79			79/80			80/81			81/82		
	Crédit	Remboursement	Taux	Crédit	Remboursement	Taux	Crédit	Remboursement	Taux	Crédit	Remboursement	Taux	Crédit	Remboursement	Taux
Bwentza	38.737,8	35.554,9	91,8	19.892,1	15.925,4	80,1	17.626,3	9.966,2	56,5	8.792,9	4.394,9	50,0	97.452,0		
Koro	61.148,9	50.811,5	83,1	13.542,3	7.201,0	53,2	17.134,9	13.447,4	78,5	28.033,1	20.170,5	71,9	131.821		
Bankass	47.280,2	42.612,7	90,1	18.240,6	15.691,9	86,0	11.561,8	2.576,1	22,3	17,227,5	7.993,6	46,4	95.233		
Hopti	*	*		*	*	-	41.679,8	20.812,6	49,9	19.025,9	13.726,4	72,1	20.661		
Djenné	23.958,0	18.117,1	75,6	33,079,4	14.619,1	44,2	*	*	-	5.167,3	2.163,9	41,9	109.721		
Bandiagara	5.303,1	5.303,1	100,0	982,8	982,8	100,0	6.719,8	4.449,7	66,2	3.754,8	1.980,8	52,7	22.098		
Ténenkou	-	-	-	-	-	-	12.454,1	10.442,0	83,8	10.903,0	6.170,0	56,6	26.642		
Total	176.428,1	152.399,3	86,0	85.737,2	54.420,3	63,0	107.176,6	61.694,0	58,0	92.904,6	56.600,3	60,9	502.628		

En milliers de F.M.

*Hopti et Djenné formaient un seul secteur (SDR) pendant ce temps.

Sources: Données de la Section Crédit O.N.M.

ANNEX IV

LA COMMERCIALISATION DES CÉRÉALES À L'OPÉRATION MILS MOPTI

O M M

S O M M A I R E:

1. Introduction

2. La fixation des prix au producteur

3. Critères d'intervention de l'OMM dans la commercialisation

4. Les prévisions et la fixation des quotas

5. Mise au point des quotas au niveau du village

6. Le financement

7. L'achat et le transport des céréales

8. Les réalisations de commercialisation

9. La campagne de commercialisation 1981 - 1982

10. L'impact des activités de commercialisation

11. Conclusions et recommandations

1. INTRODUCTION

La présente etude est effectuée dans le cadre de l'évaluation de la Phase II du project "Opération Mils - Mopti (OMM).

L'Opération Mils - Mopti a été créée le 26 mai 1972 par décret gouvernemental no. 62/PG-RM. Sa création se situe dans le cadre de la réalisation de l'objectif prioritaire que le Mali s'est fixé, à savoir l'auto-suffisance alimentaire. Les fonctions de l'Opération sont pour l'essentiel:

L'encadrement technique des producteurs de sa zone d'intervention par la diffusion du matériel agricole et la vulgarisation des thèmes techniques de productivité,

- la commercialisation des surplus de production,
- le suivi et le recouvrement des prêts dans le cadre du crédit,
- et toutes autres actions de développement contribuant à relever la productivité ou à rendre les infrastructures de la zone viables (actions forgeron, pistes, hydraulique villageoise, etc...)

La Phase II du projet s'étend sur une période de 4 ans (d'octobre 1979 à septembre 1983). Le présent rapport se consacre à l'étude de la commercialisation et du système de crédit agricole de l'OMM pendant cette Phase II

et constitue une partie du rapport général de la mission d'évaluation.

Les enquêtes qui ont été effectuées dans ce cadre ont consisté en des entretiens avec des exploitants, l'encadrement de base, le personnel de la Direction, certains responsables de l'OPAM et de la Coopération. Ces entretiens ont porté notamment sur les aspects spécifiques suivants: le matériel agricole, les modes de payement, la production, la vente des surplus, etc...

2. La fixation des prix au producteur

Le Comité National de la Recherche Agronomique, au cours de sa session annuelle de mai 1975 a recommandé "l'étude des coûts de production des principaux produits agricoles, en vue d'une plus juste rémunération du producteur." Depuis lors une réunion des coûts de production se tient chaque année à Bamako. Le but de ses réunions est de fournir aux instances gouvernementales, chargées de la fixation des prix, les éléments de référence utiles à l'orientation de leurs travaux et décisions. Les prix sont fixés en réunion interministérielle regroupant : le Gouvernement, les Ministères des Finances et du Commerce, de l'Agriculture l'Office de régularisation et de stabilisation des prix (ORSP), l'OPAM, les ODR. Cette situation met les paysans en position de faiblesse. Aussi la rémunération quotidienne du travail dans les coûts de production varie beaucoup selon les zones et les

différentes phases de culture, alors que le prix est unique pour toutes les zones de culture et pour toutes les céréales (à l'exception du riz) et cela pendant toute la campagne de commercialisation. Les prix privés varient quant à eux suivant tous ces facteurs. La qualité des céréales est aussi un facteur d'appréciation qui mérite une attention particulière. Ceci permettra facilement l'introduction de semences sélectionnées. Néanmoins on note une évolution remarquable des prix. Ils ont presque doublés depuis la mise en place du projet. (Voir tableau 1) Ce qui est un facteur encourageant. La majorité des paysans interviewés affirme ne pas connaître le prix officiel avant le semis bien que sur le plan national il soit diffusé à la radio. Il revient donc à la direction de l'CMM d'organiser un système d'information des paysans sur les prix à temps opportun car les paysans peuvent être amenés à augmenter les superficies de mil si les prix sont encourageants. C'est ce qu'ils affirment en tout cas. La détermination des prix s'effectue à travers un barème. La base de fixation des barèmes est le prix au producteur. Chaque intermédiaire entre le producteur et le consommateur a une rémunération pour ses services. Et comme on ne veut pas que le prix au consommateur soit trop élevé, on est amené ainsi à fixer des prix bas au producteur. C'est ainsi qu'il n'existe pas une bonne proportion entre les prix au producteur et les coûts de production. Ce qui réduit les revenus des agriculteurs et constitue un frein à des investissements susceptibles d'augmenter la production et la productivité.

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Jusqu'en 1979 c'était l'OPAM qui fixait les barêmes.

A partir de 1979, l'OMM a commencé à élarborer son propre barême. Le barême mil/sorgho de l'OMM comporte 7 à 9 postes (voir annexe).

3. Critères d'intervention de l'OMM dans la commercialisation

L'OPAM (Office des produits agricoles du Mali) fut créé en 1965. Il a le monopole de la commercialisation des céréales, de leur transfert des zones de production aux zones déficitaires et vers les centres urbains. Cette tâche, il l'accomplissait au niveau local par les fédérations des coopératives (FGR) et les agents locaux de la coopération.

Le gouvernement du Mali (GRM) depuis le début des années 1970 a opté pour la politique d'action par les opérations de développement rural (ODR). L'objectif principal de cette politique était et reste la promotion des cultures pour atteindre tout d'abord l'autosuffisance alimentaire et ensuite la commercialisation des surplus de production. Dans la convention du projet "OMM" une place importante est accordée à la commercialisation des exédents de céréales de la 5e Région.

Les critères d'intervention de l'OMM dans la commercialisation sont précisés par rapport à:

a) l'objectif d'autosuffisance alimentaire: après couverture des besoins des producteurs de la zone, l'opération doit les assurer un marché d'écoulement de leur surplus de production.

b) par rapport aux autres partenaires intervenant dans la commercialisati

- l'administration: l'OMM doit l'assister sur le plan technique

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(estimation de la production, calcul des coûts de production) dans la fixation des quotas et du prix au producteur.

- l'OPAM pour le financement de la campagne de commercialisation. L'OMM lui facilite la constitution d'un stock céréalier devant être transféré vers les zones déficitaires.
- la Coopération: Avec ce service il s'agit de se répartir les zones d'action pendant la campagne de commercialisation.

Outre ces critères, l'OMM tire un certain profit des activités de commercialisation, Jusqu'à 1980, elle a assuré le transport des céréales des points de collecte aux magasins OPAM au niveau des arrondissements et des cercles moyennant une commission de 5 FM/kg que lui payait l'OPAM. Elle est de nos jours rémunérée pour tous les services rendus dans le cadre de la commercialisation.

4. Les prévisions et la fixation des quotas

Les prévisions de commercialisation sont essentiellement fixées en fonction du résultat de la campagne de production, quoique l'autoconsommation, les stocks de sécurité et de semences et le marché parallèle soient des paramètres pris en considération. Une attention particulière est prêtée aussi au nombre croissant des consommateurs non producteurs.

L'estimation des prévisions de commercialisation est un travail

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technique exécuté par les agents d'encadrement, d'abord au niveau du secteur de base (SB) par les encadreurs et ensuite aux niveaux ZER, SDR et régional.

A l'OMM les procédures suivies pour arrêter les prévisions sont basées sur la méthode proposée par la Division des études (DEES) avec quelques différences près dans l'application dues à la formation des encadreurs de base.

- Estimation de la production totale. Elle consiste à évaluer les superficies et les rendements. Dans chaque S.B. on choisit dix paysans-pilotes et dix paysans ordinaires. La méthode consiste à placer un carré de rendement ($25m^2$) dans chacun des champs de ces 20 exploitants. Une moyenne des superficies semées est calculée par exploitant de même que le rendement moyen. Connaissant le nombre total d'exploitants, la superficie et le rendement moyen, on calcule la production totale par S.B. Au niveau de la ZER et du SDR on procède par extrapolation au calcul de la production totale (moyenne superficie x moyenne rendement). On ne peut, par une telle estimation qu'aboutir à des résultats très approximatifs.
- Estimation de l'autoconsommation: L'agent de base ignore souvent toute procédure dans ce domaine. Au niveau ZER et SDR on est réduit à utiliser des normes nutritionnelles. Une telle estimation ne peut être aussi que très approximative dans la mesure où les normes varient selon les groupes ethniques et en fonction du type d'activité. Généralement ce sont les normes de la FAO qui sont utilisées avec

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majoration ou réduction. L'unité de consommation FAO est de 1900 calories par jour et compte tenu des composantes ceci équivaut à 192 kg de céréale par habitant et par an. A l'OMM la norme retenue est de 200 kg. L'utilisation des normes doit tenir compte des conditions écologiques et socio-économiques de la zone et être basée sur des enquêtes budget/consommation qui permettront de rapprocher la réalité.

- Estimation du stock de sécurité: Le stock de sécurité a pour but de couvrir les besoins en semences, les dons en nature, et pour prévenir les cas de pénuries. Selon la DEES, 1/10 de l'autoconsommation suffirait pour tous ces besoins. Notons cependant qu'une des considérations importantes dans cette évaluation doit être le taux d'accroissement annuel de la population, l'entretien du cheptel. Le surplus commercialisable est la différence entre la production totale et la quantité représentant la somme de l'autoconsommation et du stock de sécurité.

D'après nos analyses, c'est seulement 1/5 de ce surplus qui est retenu comme prévision de commercialisation. Et comme vous le verrez dans les points suivants, ces prévisions ne sont jamais atteintes.

La fixation des quotas se passe de la manière suivante:

a) La réunion de la ZER regroupant le chef ZER et les chefs de S.B. arrête les prévisions par village, par S.B. et propose les prévisions de la ZER. La commission céréalière de l'arrondissement discute de ces prévisions en faisant des propositions.

b) Au niveau du cercle, sous la présidence du Commandant de cercle et en collaboration avec les membres de la commission céréalière du

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cercle (responsables politiques, chefs d'arrondissement, chefs SDR, chefs ZER, Directeur CAC, controleur OPAM, commandant de Brigade gendarmerie), une prévision de chaque cercle est arrêtée et soumise à la région.

c) Au niveau de la région, sous la présidence du Gouverneur de région et en collaboration avec les membres de la commission céréalière de la région dont figure la Direction de l'OMM la prévision régionale est arrêtée et soumise aux instances gouvernementales. Les prévisons sont arrêtées au niveau gouvernemental sous forme de quotas et reviennent à la base pour être communiqué aux populations. Une certaine dose d'obligation existait dans la fixation des quotas aux collectivités villageoises. Ceci était liée à la levée des impôts de capitation, de la taxe sur le bétail etc... Cette situation se trouve très atténuée actuellement grâce aux campagnes de sensibilisation.

Au niveau des villages, la répartition des quotas entre les familles (ou exploitations) revient au chef de village et à ses conseillers. C'est de ce problème que parle le point suivant.

5. Mise au point des quotas au niveau du village

Une fois la sacherie et les fonds placés au niveau des villages, les chefs de villages et leurs conseillers décident de la manière à les distribuer entre les familles (exploitations). Notons qu'au niveau de chaque village, on peut distinguer trois groupes de paysans.

- paysans dont la production ne suffit pas à leur autoconsommation

ou arrive à la satisfaire tout juste. Ces paysans forment le groupe des sinistrés (ils ne commercialisent rien).

- paysans dont la production suffit pour l'autoconsommation et le stock de sécurité;
- paysans qui ont du surplus de graines en plus de l'autoconsommation et du stock de sécurité.

Seulement en année de pluviométrie normale la presque totalité des paysans arrive à se suffir et même à avoir du surplus commercialisable.

C'est après avoir fait cette délimitation que le conseil de village procède au placement de la sacherie et des fonds par exploitation. Dans plusieurs villages des SDR de Koro et Bankass le partage se fait par actif. Le nombre d'actifs par exploitation est égal au nombre d'imposables. La norme est de un sac minimum par actif.

Dans d'autres villages on distribue les sacs équitablement entre les familles sans critères de base. Dans de tels cas, on retrouve des paysans qui sont obligés de payer les graines sur le marché libre afin de pouvoir s'acquitter de leur quota. Toutefois, il est à retenir que selon les propos des paysans eux-mêmes, que les méthodes coercitives utilisées il y a quelques années ont laissé la place aux campagnes de sensibilisation organisées, conjointement par l'OMM, l'administration publique et les organisations politiques. Ainsi est né un climat serein de confiance entre encadreurs techniques et paysans.

Une certaine volonté existe chez les paysans en ce qui concerne la formation d'association villageoises de type CMDT devant

à la longue s'occuper de fixer la prévision de commercialisation, de la collecte des céréales.

6. <u>Le financement:</u> Il s'effectue entre la Direction de l'OMM et l'OPAM.

- L'OPAM place par tranches les fonds et la sacherie au niveau du SDR. Le Chef S.D.R. en informe le Commandant de cercle. Ensuite on procède à la distribution de ce fond entre les différentes commissions céréalières de l'arrondissement. Le chef d'arrondissemnent est le premier responsable. C'est sous sa présidence que les chefs de villages sont convoqués, pour recevoir les fonds de village. Les chefs de villages et leurs conseillers constituent les membres du conseil d'administration des groupements ruraux. C'est après avoir placé les fonds et la sacherie au niveau de chaque village que commence les campagnes de sensibilisation. Il nous a été signalé partout où nous avons passé des cas de rupture de fonds: Le placement en retard des fonds, la rupture de fonds sont unes des principales causes des taux faibles de réalisation. A cause de ces facteurs négatifs, l'influence du marché parallèle se fait de plus en plus grande. En début de campagne de commercialisation 1981-82, à cause du retard accusé dans le placement des fonds et de la sacherie, les commerçants privés étaient intervenus à Bankass en proposant le prix de 60 F.M. / kg contre 85 F.M. officiellement.

7. Achats et transport des céréales

L'OPAM dépose la sacherie et les fonds au niveau des SDR comme nous l'avons dit ci-dessus et ensuite ces fonds sont remis aux chefs de village.

Le transport du mil se fait en deux phases:

- de chez le producteur au point de collecte;
- du point de collecte au chef lieu d'arrondissement.

Dans la première phase, le transport est assuré par les collectivités villageoises. Quelques fois les camions de l'OPM y participent. Le transport du mil pendant la deuxième phase est exclusivement assuré par les camions de l'opération. Si dans un chef lieu d'arrondissement il n'existe pas de magasin OPAM, le mil est drainé jusqu'au chef lieu de cercle.

Les points de collecte correspondent généralement aux chefs-lieux de secteur de base. Il nous a été confié et nous l'avons constaté que plusieurs villages sont inaccessibles aux camions. Les marchés ruraux sont souvent éloignés les uns des autres. Une telle situation créera des problèmes d'écoulement des excédents de production. C'est dans ce cadre que le volet "Pistes" doit être encouragé et plus doté de moyens matériels et financiers.

8. Les réalisations de commercialisation

Après avoir remis les fonds et les sacs aux chefs de village, commence, comme nous l'avons déjà dit les tournées d'informations,

de sensibilisation et de motivation des paysans. Grâce à ces campagnes, on arrive dans certains secteurs à des résultats très encourageants. Les paysans se réjouissent de la nette diminution, voire la disparition totale de l'application des méthodes coercitives pour faire admettre les quotas. Mais toutefois, les prix restant peu rémunérateurs, le marché parallèle florissant, les ruptures de fonds persistant, les prévisions restent non atteintes dans l'ensemble.

L'analyse du tableau no. 2 témoigne du fait que pendant la Phase II du project,les réalisations ont baissées, passant de 75,8% des prévisions en 1979-80 à 66,1% en 1980-81. Pendant les cinq dernières années (1976-77 à 1980-81) la production totale de mil a diminué bien que les emblavures aient augmentés. Ceci s'explique par la diminution des rendements due aux mauvaises conditions pluviométriques de ces campagnes. En 1980-81, sur 320,000 ha emblavées, seulement 246.370 ha ont été récolté, soit près de 80%.

9. La campagne de commercialisation 1981-1982

La campagne 1981-82 qui devrait débuter officiellement le 1er novembre 1981, n'a en réalité démarré que vers fin décembre-début janvier 1982.

Cette situation a été causée en grande partie par le retard accusé dans le placement de la sacherie et des fonds de commercialisation. A la date du 15 mars 1982, environ 50% seulement du financement avait été acquis.

Avec le décret gouvernemental portant libéralisation du commerce céréalier, plusieurs incompréhensions étaient apparues au sujet des modalités d'application dudit décret. Cependant aucune différence fondamentale n'a été remarquée. L'encadrement technique a continué à faire des prévisions de commercialisation discutées aux différents niveaux et des quotas on été fixés. Le changement que l'on peut noter est l'intervention simultanée de l'OMM, l'OPAM, le CAC et les commerçants agrées dans les mêmes secteurs. L'OPAM jusqu'à cette campagne n'intervenait dans la commercialisation que pour placer la sacherie et les fonds à l'OMM ou au CAC et pour assurer le transport des céréales des magasins OPAM au niveau des cercles vers les zones déficitaires et les grands centres urbains.

10. Impact des activités de commercialisation

Bien que la commercialisation soit de nature obligatoire, elle n'a eu jusqu'à présent qu'un impact assez faible, voire négatif sur les revenus ces paysans.

La situation actuelle des paysans est caractérisée par de gros efforts d'investissement dans les techniques avancées (charrues, multiculteurs, semoirs, etc...) et les intrants agricoles qui sont placés soit au comptant ou à crédit. Cette intensification de la culture n'est pas suivie pour le moment d'une augmentation des rendements et de la production de manière susceptible à couvrir les

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frais. La majorité des paysans grâce à cette intensification n'a pu que s'autosuffir en céréales. Ceux qui arrivent à avoir des surplus commercialisable vendent la grande partie sur le marché parallèle où les prix sont plus élevés pour rentabiliser leurs investissements.

Tant que les prix au producteur ne seront pas assez rémunérateurs pour les paysans, les réalisations de commercialisations, les revenus des paysans demeureront faibles. Les agriculteurs risquent de se tourner vers des cultures plus rentables que le mil. C'est le cas de la culture de l'arachide dans la zone de l'opération (tableau no. 3). Le taux d'accroissement des superficies d'arachide est plus élevé que celui des superficies de mil. Le faible revenu des paysans explique souvent leur réticence aux matériels modernes de cultures et les faibles taux de recouvrement des créances comme nous le verrons dans l'étude du crédit agricole.

Quant à la profitabilité des opérations de commercialisation de l'OMM, on peut dire que la situation commence à se redresser. Le tableau no. 4 dont les chiffres proviennent du Chef de la Division des Etudes de l'opération, nous permet à titre indicatif de voir cette progression. Les charges de l'opération ont progressivement diminuées depuis l'adoption de barêmes OMM à partir de la campagne 1979-80. Particulièrement les frais de carburant ont diminués de même que les frais de manutention. Les véhicules n'ont pas été assurés pendant les deux dernières campagnes. Les primes et indemnités qui étaient accordées aux agents pendant la commercialisation ont

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été supprimés. Cependant le brusque accroissement du solde créditeur de Francs maliens 656,310 en 1979-80 à 34,065,835 FM en 1980-81 nous paraît un peu trop exagéré. Nous retiendrons en gros que l'opération peut tirer des profits des activités de commercialisation.

VI. Conclusions et recommandations

Dans la commercialisation des céréales des changements sont intervenus au cours de la phase II du projet. A la suite des entretiens avec le personnel d'encadrement, on note qu'il y a une certaine souplesse dans la fixation des quotas. Les prévisions sont estimées par des techniciens qui ont une bonne connaissance des conditions dans lesquelles s'est passée la production: conditions climatiques de l'année. Toutefois ces prévisions sont majorées dans la plupart des cas par l'administration. Le souci pour l'administration d'augmenter les prévisions est lié à l'accroissement de la demande urbaine, du nombre de consommateurs non producteurs en général.

Les taux de réalisations de commercialisation ont baissés de campagne en campagne pendant la phase II du projet: le phénomène n'est pas lié uniquement à une dégradation des conditions pluviométriques, mais aussi au système de placement par tranches de la sacherie et des fonds, et au prix faible au producteur. Le prix faibe au producteur est le principal handicap pour atteindre des réalisations élevées. On note néanmoins que les prix sont aujourd'hui deux fois plus supérieurs qu'en 1974. De 1979 à 1982, le prix au

producteur de mil est passé de 50 F.M. à 85 F.M. le kg, soit une augmentation de 70%. Bien que les prix au producteur fassent l'objet d'un communiqué radiodiffusé avant les semis, la majorité des paysans affirment ne les connaître qu'à l'approche de la campagne de commercialisation, tout juste avant les récoltes.

RECOMMANDATIONS:

1) Pour que la commercialisation exerce pleinement son influence stimulante sur la production il faudrait:

a) instaurer des prix agricoles raisonnablement stables et rémunérateurs. Si les prix ne sont pas proportionnés aux coûts, les agriculteurs hésiteront ou ne feront pas l'effort ou la dépense qu'exige une amélioration quantitative au qualitative de la production. Il faudrait donc qu'au préalable le calcul des coûts de production se fasse d'une manière juste scientifiquement.

b) Mettre sur place des moyens de commercialisation adéquats. Les paysans doivent pouvoir tirer des avantages dans l'accroissement de la demande urbaine, de la stabilisation des prix et des primes à la qualité des produits (céréales). Avec le nouveau décret portant libéralisation du marché céréalier, il serait bon d'établir un prix plafond au producteur, d'en informer à temps opportun les paysans (avant les semis) et de prendre les dispositions nécessaires à la bonne marche d'un tel système (stabilisation des prix

avec stock céréalier qui sera constitué au niveau de l'OPAM).

2) Bannir une fois pour toutes les méthodes coercitives pour faire admettre les quotas au profit des campagnes de sensibilisation des paysans.

3) Remplacer le système de placement par tranches des fonds et de la sacherie par le placement unique au moment de la récolte.

4) Améliorer l'état des magasins de stockage. Traiter les céréales avant le stockage pour diminuer les pertes.

5) La Division des études de l'OMM doit être plus étoffée en personnel et dotée de matériel de travail adéquats.

6) Le volet "Brigade Pistes Rurales" doit être plus opérationnel dans la zone OMM. Pour cela, il lui faudrait des moyens matériels et financiers plus importants.

TABLEAU NO. 1

EVOLUTION DU PRIX AUX PRODUCTEURS, DE 1974 A 1982 DES PRINCIPAUX PRODUITS AGRICOLES

PRODUIT	PRIX D'ACHAT PRODUCTEUR FM/KG							
	1974/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82
Mil-Sorgho-Maïs	32,0	32,0	32,0	36	40	85	70	50
Paddy blanc	40,0	40,0	40,0	45,0	50,0	62,5	75,0	100
Arachide coque	40,0	40,0	40,0	50,0	60,0	80,0	80,0	90
Coton	75,0	75,0	75,0	90,0	95,0	115,0	115,0	130

Sources: Note méthodologique IER sur les "Coûts de production", Novembre 1981

TABLEAU NO. 2

PRODUCTION ET COMMERCIALISATION DES MILS

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Emblavures (ha.)	259.700	262.280	262.100	259.900	320.000	329.388
Superficies récoltées (ha)	-	-	-	-	246.370	-
Rendement (kg/ha)	630	625	620	530	435	436
Production (t)	164.490	164.105	162.300	137.400	139.350	143.690
Commercialisation:						
- Prévisions (t)	9.400	11.852	9.150	8.285	8.015	7.555
- Realisations (t)	8.415	8.106	7.848	6.278	5.294	en cours
- Taux de réalisation (%)	89,5	68,4	85,8	75,8	66,1	-

Sources: Données techniques OM-M (Déc. 1981); Rapports annuels des campagnes 1979-80 et 1980-81

TABLEAU NO. 1

SUPERFICIES EMBLAVEES, RENDEMENTS ET PRODUCTION DES CULTURES SECONDAIRES

	Superficies (ha.)				Rendements (kg/ha)				Production (tonnes)			
	1978/79	1979/80	1980/81	1981/82	1978/79	1979/80	1980/81	1981/82	1978/79	1979/80	1980/81	1981/82
Arachide	12.720	17.960	18.180*	-	510	480	625	-	6.490	8.620,8	11.362,5	-
Niébé	870	460	1.390	-	420	270	425	-	280	124,2	590,7	-
Fonio	12.750	14.790	17.240	-	410	370	370	-	5.230	5.472,3	6.378,8	-

*Augmentation de 43 % des superficies emblavées d'arachide.

Sources: Données techniques ON-M (Déc. 1981) et rapports annuels des campagnes agricoles 1979-80 et 1980-81.

COMPTE D'EXPLOITATION "COMMERCIALISATION"

	1978-1979	1979-1980	1981-1982
CHARGES: (Débit)			
Carburant	14.072.805	11.860.835	8.774.345
Gardiennage	465.300	772.500	621.600
Manutention	3.422.835	2.065.200	1.984.400
Salaire personnel roulant	933.475	1.396.855	927.685
Pertes sur transport et manutention	1.991.680	-	-
Primes et indemnités personnel	15.547.000	-	-
Entretien et réparations camions	1.219.770	906.500	818.900
Amortissement véhicules	7.757.700	2.782.645	2.782.645
Assurance véhicules	12.661.950	-	-
Frais de gestion	28.800	-	-
Total (charges)	58.101.315	19.784.535	15.909.575
RECETTES: (Crédit)			
Commission	42.898.880	20.440.845	23.619.328
Ramassage			12.816.503
Soutien ORSP (3.292 F.M./t)			13.537.750
Total (recettes)	42.898.880	20.440.845	49.973.581
SOLDE:	- 15.202.435	656.310	34.064.006

Sources: Ce tableau est seulement à titre indicatif. Les données qui proviennent du Chef de la DEES n'ont pas été vérifiées.

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BAREME MIL-MOPTI

1981 / 1982

N°	POSTES	VALEURS
1.	Prix au producteur	85 000
2.	Frais de collecte	3 278
3.	Pertes sur stockage 0,50 %.....	425
4.	Frais de ramassage	P.M.
5.	Pertes sur transport-manutention 0,50 %	425
6.	Frais d'encadrement	6 165
7.	Participation entretien pistes agricoles.....	P.M.
8.	Soutien O S R P	P.M.
9.	Taxe O S R P	3 712
10.	Prix de cession O P A M chef-lieu Arrondissement//////...	99 005

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CAMPAGNE 1980 / 81

O.P.V.P. BAREME PI

N°	POSTES	VALEURS
1.	Prix au Producteur	70 000
2.	Frais de collecte.....	2 964
3.	Frais de Ramassage.....	P.M.
4.	Pertes sur transport-Manutention 0,50 %.....	350
5.	Frais d'encadrement.....	572 2
6.	Participation entretien pistes agricoles.....	P. M.
7.	Soutien O S R P à S O M M	3 292
8	Prix de cession OPAM Chef-lieu Arrondissement.....	75 744

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DIRECTION OPERATION MILS

MOPTI

CAMPAGNE 1979 / 80

OPERATION MILS MOPTI

BAREME MIL - ORGHO

N°	COUTS	VALEURS
1.	Prix au Producteur	50 000
2.	Frais de Collecte	2 404
3.	Frais de Ramassage	P. M.
4.	Perte s/Transport-Manutention 0,50 %	250
5.	Frais d'encadrement	P. M.
6.	Participation entretien pistes agricoles	P. M.
7.	Taxe O S R P	502
8	Prix de cession /OPAM chef-lieu Arrondissement	53 156

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ANNEX V

FIELD VISITS

List of Places Visited and Persons Contacted: OMM officials and farmers.

	Place	Persons Contacted	Date
1.	SDR: Mopti	M. Djibé (IA) M. Maiga, chef SDR, Adjoint	2/24
	Pilot Village: Paré	M. Hamadou Landare, chef village M. David Dolo (MA) 12 farmers	2/24
	Pilot Village: Mandio	M. Bandiougou Keita (MA)	3/07
2.	SDR: Bandiagara	M. Flatie Sanogo (ISA), chef SDR M. Adama Kourouma (MA), chef ZER M. Akousso Bamadio (MA) M. Hamma Fofana (ISA) M. John Hayden, PCV	2/27
	ZER: Goundaka (non-pilot village)	M. Alamounta Sissoko (MA), chef ZER M. Ambakanou Djiguiba (Enc)	2/25
	Ourobine	M. Moussa Samasekou, forgeron	3/03
	Dourou (pilot village)	M. Amadou Sanogo (MA), chef ZER M. Amakai Sagara (MA), chef SB M. Makan Danfaga (Enc)	2/27
	Bakoro	M. Aliou Bailil Konare, forgeron	3/03
3.	SDR: Douentza		
	Boré: Training center	M. Zoumana Sinayoko (CTA) chef de centre M. Amaga Tembele (MA), formateur M. Mamadou Bagayoko (ISA), formateur	3/01
	Falembougou	M. Moussa David Traoré (Enc) Al Hadji Amadou Boré, chef village 15 farmers	
	Kiro (SB)	M. Amadou Karambe (enc) M. Amadou Omar Traoré, chef village 18 farmers	
	Douentza	Kibarouba Bagayoko (IA), chef SDR	3/02

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Place	Persons Contacted	Date
(SDR: Douentza cont)		3/02
Deberé (pilot village)	chef SDR - Douentza Amadou Ali Tamboura, chef village 1 encadreur 2 farmers	
Dianueli Maounde (SB)	N'tomary Diarra (ITA), chef ZER, central Ousmane Bagayoko, (Enc) Brema Ongoiba, chef village 13 farmers	
4. SDR: Koro		
Tendeli (non-pilot village)	Issa Diarra (MA), chef SB Mamadou Roger Keita (ITA), chef ZER, Koporokeniena Nangali Togo, chef village 14 farmers	3/04
Pomorododiou (pilot village)	Yakouba Tamboura (IA), chef SDR Sekou Diarra (MA), ZER central Ogobara Ongoiba, chef village Djougal Guindo, (Enc) 18 farmers	3/05
Koro	Yakouba Tamboura (IA), chef SDR Zakaria Konaté, Adj. chef SDR Mohamed Diaby (IA), Section Research-Prevulgarisation D. Sidibé, Agent DEES	
Toroli (non-pilot village)	Madi Baba Keita (MA), chef SB S. Diakité (ITA), chef ZER 10 farmers Gaoussou Doumbia, formateur forgerons Garibou Guindo, forgeron Amadou Zorome, forgeron	
Dongolé	Soulaymane Dia, forgeron	
5. SDR: Bankass		
Bankass	Mouktar Ibrahim Bah (IA), chef SDR Balla Sissoko (ITA), chef ZER Karim Sogoré (MA), chef SB, central Souleymane Niangali (Enc), agent SE	

	Place	Persons Contacted	Date
	(Bankass cont)	Bassi Baba Diarra (MA), Magazin Seydou Koné, agent Conditionnement - Mil Jacques Diarra, formateur forgerons Amadou Waigalo, agent commercial, OPAM	3/06
	Kende (pilot village)	Jean Diallo (Enc) Oumar Iguire, chef village 40 farmers	3/06
	Sagaremba	Amadou Djibo, forgeron	3/06
6.	SDR: Tenenkou	Cheick Hamalla Dicko (ITA), chef SDR	3/06

Commandants of the Cercles of Bandiagara, Koro, Bankass

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List of Persons Contacted

I. Operation Mils -- Mopti:

1. Samballa Diallo, Directeur General
2. Tenenko Diabaté, Deputy Directeur
3. Tiémalo Bouare, Chef, Extension Division
4. Siné Konate, Chef, Economics and Statistics Division
5. Amadou Baba Traoré, Chef, Training Division
6. Aissita Diakité, Secretariat
7. Paul Gumao, Chef, Literacy Division

II. USAID:

8. David Wilson, Mission Director
9. George Eaton, Deputy Director
10. Rollo Erich, Agricultural Officer
11. Robert Shoemaker, DEO
12. Kurt Fuller, Project Officer
13. Lee Hall, Economist
14. Pat Jacobs, Financial Analyst
15. George Jenkins, Controller (acting)

III. Other Organizations:

16. Phil Serafini, Agronomist, ICRISAT
17. Jerry Johnson, Agronomist, SAFGRAD
18. Tony Johnson, Field Trials Agronomist/OMM-AID
19. Mokono Tangara, Field Trials Agronomist/OMM
20. Bourama Togola, Director Riz Mopti
21. Amadou Deme, Chef Accountant, Operation Riz Mopti
22. Stephen Koli, Acting Director, West African Rice Devel. Assoc.
23. Jean Terrace, CIBA-Geigy, Bamako, Mali
24. Richard Dalrymple, World Food Program, Sevaré
25. Michael Furst, Representative, IBRD, Bamako
26. M. Najim, Director, Malian Development Bank, Mopti
27. M. Guindo, Controller, Malian Development Bank, Mopti

IV. Financial Management Contacts:

28. Billy Kourouma, Chef Payroll Sect., OMM
29. Bocar N'Diaye, Chef, Purchasing Sect., OMM
30. Adama Konate, Chef, Inventory Acctg., OMM
31. Ibrahima Sangare, Chef, Ag. Credit Sect., OMM
32. Moussa Traore, Chef Cashier, OMM
33. Sekou Samake, Chef, Budget Sect., OMM
34. Seydou Fofana, Chef Warehouseman, OMM
35. Noumoutie Diakite, Volets Intégrés, OMM
36. Moussa Traore, Bookkeeper
37. Birama Togola, D.G. Operation Riz - Mopti

List of Persons Contacted (cont.)

V. Road Construction Contacts - Bamako:

38. M. Cisse, Chef of Road Brigade
39. M. Doumbia, Director, Travaux Neufs
40. M. Traore, Deputy Director, Travaux Neufs
41. M. Amadou Traore, Chef Accountant, Travaux Neufs

ANNEX VI

LIST OF DOCUMENTS AND PUBLICATIONS CONSULTED

1. Project Paper - Phase I
2. Project Agreement - Phase I
3. Evaluation - Phase I, 1979
4. Project Paper - Phase II
5. Project Grant Agreement and Amendments 1-4
6. Letters and Implementation, Phase I and Phase II
7. "Données Techniques - OMM" 1981
8. "Rapport Annuel Campagne Agricole 1978-79" OMM
9. "Rapport Annuel Campagne Agricole 1979-80" OMM
10. "Etude Agro-démographique dans les Zones d'Intervention et d'Extension de l'Opération Mils-Mopti" 1978 - Institut d'Economie Rurale
11. "Rapport Annuel Campagne Agricole, 1977-78" OMM
12. "Etude sur la Production et la Commercialisation des Cultures Légumineuses dans la Zone d'Intervention de l'Opération Mils-Mopti, Rapport Final" 1981, SNED
13. "Le Système de Crédit/Approvisionnement, Opération Mils-Mopti, Rapport Economique", BARA 1979
14. "Rapport Agronomique", 1980, BARA
15. "Rapport sur la Formation", 1980, BARA
16. "Annexes - Statistiques de Base", 1980, BARA
17. "Administration - Gestion et Formation", 1979, BARA
18. "Rapport Economique Provisoire", 1979, BARA
19. "Rapport Infrastructures OMM", 1979, BARA
20. "Rapport Agronomique Provisoire", 1979, BARA
21. "Chapitre I Les Grands Ensembles Ecologiques - Sols et Aptitudes Culturales, Chapitre II, III, et IV", 1979, BARA
22. "Résultats - Propositions", 1978, BARA
23. "Ecologie", 1978, BARA
24. "Infrastructures", 1978, BARA
25. "Economie - Financement", 1978, BARA
26. 1) Les Grands Ensembles Ecologiques et leurs Aptitudes Culturales, 2) Les Principales Cultures Pratiqées", 1978, BARA
27. "Administration - Gestion - Formation", 1978, BARA
28. "Agronomie - Action Forgeron", 1978, BARA

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29. "Socio-Economique", 1978, BARA

30. "Rapport de Fin de Campagne, 1980-81", SAFGRAD

31. "Remington Report 1980-81 - a supplement to Rapport de Fin de Campagne 1980-81, SAFGRAD"

32. "A Micro-economic Analysis of Annual Income and Expenditures for Typical Farm Families in the Opération Mils-Mopti Zone of the Fifth Region of the Republic of Mali", 1979, Diana B. Putman

33. "Phosphate Rock Price Analysis", 1980, Lee Hall

34. "Observations and Recommendations Concerning Insect Pests of Millet/ Sorghum in the Cercle of Koro, Republic of Mali", 1979, William Settle

35. "Report on Community Development for Operation Millet - Bankass and Koro", 1977, Barbara Skapa

36. "Etude de Factibilité - Magasins de Detail Dans la Cinquième Région, Mali, Afrique", no date, Stanley J. Bednarczyk, Chemonics

37. "Mèmoire de Fin d'Etude - Thème: 'Problèmes Socio-economiques et Agronomiques entravant la Vulgarisation des Thèmes Techniques en Général dans la Zone du Seno'", 1979, Modibo Samaké, Stagiaire 4ème Année Ingénieur d'Agriculture

38. Projet SAFGRAD au Mali: Rapport de la Campagne, 1981

39. " " " " " " " " , 1980

40. " " " " " " " " , 1979

41. Program Cooperatif ICRISAT-Mali: Rapport de Synthese Campagne, 1980-81

42. Report Cooperatif ICRISAT-Mali: Report of the 1979 season

43. Future Manpower needs for CAA graduates and an Evaluation of the Present Training Program by employers of CAA graduates. (Glenn Howze, Tuskegee Inst., May 1980)

44. African Rural Economy Program, Working Paper, "Assessment of Animal Tracking in West Africa (Sargent et al., March 1981), Michigan State University

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48. An Assessment of Animal Traction in Francophone West Africa, AREP Working Paper No. 34, Dept. Ag. Econ., Michigan St. Univ., March 1981, Sargent, M.W., Lichte, J.A., Matlon, P.J., and Bloom, R.

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50. Social, Anthropological and Rural Economic Studies in Mali: the Bandiagara Plateau, SUNY, Binghampton, August, 1979, Estelinen, R., Grayzel, J.A., Lewis, J.U.D., and Sidibé, H.

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53. Propositions d'avant-projet, "Restructuration du Marché Céréalier", no author, N.D.

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55. Etude Commercialisation des Céréales dans la Zone Nord du Mali, Rapport d'Etape No.1, N.D., BECIS.

56. Etude Agro-Socio-Economique de l'OMM - Statistique de Base, BARA, Feb.-March, 1980.

57. OMM: "Proces-Verbal de Reunion: Vers une Nouvelle Strategie de Vulgarisation Agricole: Experimentation de Villages Pilotes", Feb. 9, 1980.

58. "Rapport sur le Systeme de Credit a l'Opération Mils-Mopti", 1980. OMM.

59. "Etude Préliminaire pour la Conception d'un Systeme de Credit a l'OMM", May 29, 1980. OMM.

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61. OMM: "Note sur l'Enquete 'Suivi des Exploitations Agricoles dans la Zone d'Intervention OMM'", DEES, July, 1981.

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63. OMM: "Rapports Mensuel": Nov. and Dec., 1981.

64. OMM: "Proces Verbal de la Réunion Annuelle de la Campagne Agricole 1980-81", Aug. 1981.

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66. Millet Production in Two Dogon Villages, Cohen, Stan A. M.S. thesis, Purdue Univ., Aug. 1981.

67. Determination des Couts Moyens de Production des Principaux Produits Agricoles pour la Fixation des Prix au Producteurs de la Campagne 1981-82, April, 1981.

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TELEGRAM

FROM: AMEMBASSY BAMAKO

CLASSIFICATION: UNCLASSIFIED

E.O. 11652:
TAGS:
SUBJECT:

ACTION: SECSTATE WASHDC

UNCLASSIFIED BAMAKO 7744

ACTION: AIDAC

AMB

DCM

CHRON

USAID 5

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E.O. 12065: N/A

SUBJECT: Opération Mils Mopti Project (688-0202) Evaluation Terms of Reference

1. USAID/Mali is seeking assistance in conducting a mid-course evaluatic of the subject integrated rural development project beginning the last week in January 1982. The objective of the project is to increase agriculture production and the well-being of families in Mali's Fifth Region. The project began in late 1976 and includes support for such diverse activities as research aimed at improving millet and sorghum production technologies, extension of those technologies to the farmers, formation of village associations, agriculture credit, rural road construction and maintenance, blacksmith training, provision of grain grinding machines, and a well construction program. In 1980 the project entered its second phase based in part on the results of a comprehensive evaluation carried out in 1978. The second phase is scheduled to end in 1984.

DRAFTED BY: DEO: RVShoemaker:bac

DRAFTING DATE: 12/21/81

TEL. EXT.

CONTENTS AND CLASSIFICATION APPROVED BY: DIR: DMWilson

CLEARANCES:

Crops: RFuller (draft)
A/A/ADO/Crops: MFleming (draft)
CONT: GJenkins
MGT: CRMoore (Info)

PROG: MDwyre

DD: GTEaton

UNCLASSIFIED
CLASSIFICATION

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2. The primary objectives of the OMM Evaluation are to assess implementation progress and to provide those responsible for implementing the project with specific guidance for making decisions regarding the future of the ~~MM~~ project. To accomplish this it will be necessary to measure actual progress against planned progress and to isolate causality. In assessing causality, it will be ~~MM~~ especially important to differentiate between quality of implementation performance by all parties concerned as opposed to the feasibility of the project design.

In addition, there are programmatic and policy issues that warrant particular attention as part of the evaluation. Primary among these are:

(a) that the size and complexity of projects are commensurate with the management and budgetary capabilities of the GRM and USAID;

(b) that minimum acceptable financial accountability standards are met;

(c) that the project is economically and financially feasible without long-term subsidies;

(d) that the GRM and/or other management entities will be able to absorb the long-term recurrent costs associated with the project when USAID funding is scheduled to be terminated;

(e) that the role of the private sector in the planning, management and financing of project activities is adequately emphasized in the design and implementation.

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3. Scope of Work

(a) Review all relevant documents, including

(1) Phase I and II Project Paper

(2) Phase I and II Project Grant Agreements and Implementation Letters

(3) Phase I Evaluation Report

(4) Studies performed by BARA/BECIS and SNED

(5) Mission Controller's Financial Management Report

(b) Based on review of project documents as well as initial interviews in AID/W and the field, by the end of the first week, each team member will prepare a detailed work plan covering his activities during the evaluation and the major issues upon which s/he will be focusing as the evaluation proceeds.

(c) Assess project implementation progress and performances

(1) The evaluation team will compare actual vs. planned progress under each project component. In so doing the team will focus inter alia on the following:

(a) The extent to which the project, as opposed to external factors (e.g., GRM policy changes, weather, etc.) was responsible for progress or lack thereof.

(b) The extent to which the level of human and financial resources were adequate with respect to the requirements of objectives stated.

(c) The extent to which the time allowed for achievement of objectives was realistic.

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(d) The adequacy of information with which to measure progress.

(2) The team will assess the performance of the major parties responsible for project implementation (USAID, GRM, consultants, AID/W) taking into consideration the following:

(a) The quality of implementation planning in terms of:

(1) The quality of the planning process--timing, who was involved, how they were involved, etc.;

(2) The quality of plans developed (overall plans and by project activity plans) as measured by the:

- Clarity and soundness of objectives, strategies and priorities. (Are these adequately understood/agreed upon at all levels?)
- Adequacy of resource needs identification. (Are ends and means adequately correlated?)
- Clarity of responsibility and authority assignments (Are they ~~XXXXXXXXXX~~ commensurate and understood/agreed upon at all levels?)
- Adequacy of implementation schedules, are agreed upon?
- Adequacy of the system for monitoring progress?

(b) The quality of implementation management as measured by:

(1) The extent to which plans are adhered to or formally updated and revised;

(2) The extent to which management decisions made in a

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timely fashion;

(3) The extent to which resources in the quality and quantity needed are procured/delivered on a timely basis;

(4) The adequacy of resource monitoring;

(5) The quality of data collection, analysis, reporting and use; (Particular attention should be given to the [redacted] adequacy and management information flows.)

(6) The quality of [redacted] performance monitoring;

(7) The effectiveness of management training and the efficiency with which unqualified staff are removed or their skills improved;

(8) The adequacy of technical assistance utilization;

(9) The adequacy of financial accounting--are back-up documents readily available? Are financial records being correlated with an inventory control system?

(c) The quality of implementation [redacted] monitoring (USAID/GRM) as measured by:

(1) The adequacy of monitoring systems both formal (e.g., CPI/PERT/CPM) and informal (discussions with opinion leaders, farmers, etc.);

(2) The adequacy of site visits being made in terms of number and quality;

(3) The adequacy of management information flows to senior USAID/GRM management;

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(4) The adequacy of resources being allotted to monitoring;

(5) The adequacy and timeliness of project evaluations.

(d) Assess the continuing feasibility of each component of the project from the technical, socio-economic, financial and institutional points of view.

(1) Agricultural research/extension--A basic measure of the success of the CIMMYT project will be its ability to develop and extend improved technologies that result in both expanded productivity (yields per hectare) and production (yields times hectares planted). The technologies must be compatible with small farmers' risk minimization strategy and the farming systems they employ in different ecological zones to satisfy this strategy. In this context, the evaluation team should assess the feasibility of project strategy and plan for developing, testing and extending improved technologies focusing on:

(a) the soundness of research and extension objectives in light of the capacity responsible institutions and the research base upon which the program rests.

(b) the adequacy of the system for carrying out applied research as measured by:

(1) the extent to which research/extension activities are carried out within a farming systems context;

(2) the extent to which research activities are appropriately integrated with field testing and

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extension activities; and

(3) progress made to date in developing improved technologies.

(c) The capacity of the Operation, or preferably the private sector, to deliver inputs necessary for adopting improved technologies;

(d) The capacity of the extension service in terms of extension personnel attitudes toward the relationships with small farmers, the technical capacity of extension agents as seen by small farmers, as determined through informal testing of a sample of agents and based on the adequacy of the support services available to the agents including training, transportation, etc.

(2) Infrastructure Development

(a) road rehabilitation--one of the most effective interventions for bringing about rapid increases in agriculture production is through the development of transportation infrastructure. However, in order to bring about a sustained increase in production, the roads must be properly located and maintained to a reasonable standard. Thus, an important focus of the evaluation of this component must be on the rehabilitation priorities and the capacity of the GRM to maintain the roads that have been and are yet to be rehabilitated. In addition, the evaluation team will:

(1) Assess the adequacy of construction/engineering plans;

(2) Determine the extent to which work performed conforms with initial work plans/priorities and if deviations are justified;

(3) Examine financial records and compare actual costs with those projected. Assess financial and economic viability of road program outlined in the PP given actual cost figures;

(4) Assess the management and support capabilities of the agencies responsible for engineering and construction, including procurement/delivery of inputs, construction support facilities and construction management.

(b) Well Program—Assess the soundness of the well development program in terms of:

- its objectives and priorities;
- the adequacy of the ~~[illegible]~~ construction plans, including sight selection;
- the extent to which plans were adhered to or formally changed;
- the extent of village participation in planning and construction;
- the adequacy of the management/technical/financial/

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logistical support capabilities of the [redacted] responsible agency(s); and

- the actual vs. planned cost per well;

(c) Grain Milling Machines--Assess the soundness of this activity in terms of:

- the efficacy of the process for selecting recipients;
- the efficacy of the system of ownership;
- the use which has been made of the mills which have been made available;
- the adequacy of data made available for assessing progress;
- the efficacy of the maintenance system;
- the use rate, i.e., percent of [redacted] capacity at which mills are being used;
- the financial and economic returns to the owners of the mills (identify any subsidies);
- the social implications of the program.

3. Credit Delivery and Recovery--A basic premise of the project is that credit is necessary to enable farmers to adopt improved technologies being developed. The evaluation team should assess the continuing validity of this assumption. In [redacted] addition, the team should assess the efficacy of the credit program focusing on:

[redacted] (a) Adequacy of credit [redacted] program's [redacted] [redacted] administrative staff in terms of training and

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experience, their understanding of the objectives and procedures of the loan program and their ability to carry them out;

(b) Efficacy of the practice of providing loans through farmer associations;

(c) Adequacy of the programs coverage of individual farmer needs in terms of amount available and items covered;

(d) Appropriateness of interest rates in terms of farmer's ability to pay, opportunity cost of capital, actual returns from investment and coverage of administrative costs;

(e) Appropriateness of charges to farmers for inputs (e.g., do they reflect real costs for goods and services such as transport costs for fuel?);

(f) Adequacy of the ~~XXX~~ system for processing loans, in terms of decisions regarding who gets loans, for what purpose, in what time frame;

(g) ~~APPROPRIATEN~~ Appropriateness of the system for distinguishing between short-term credit (fertilizer, seeds, pesticides, etc.) and long-term credit (traction animals, equipment, etc.)

(h) Appropriateness of the repayment system in terms of time frame and method (money vs. grain) as demonstrated by recovery rates;

(i) Adequacy of logistical system for procurement, distribution, collection and proper recording of credit at all ~~XXXXXX~~ administrative levels and the potential for procurement through farmer associations or private sector suppliers;

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(d) Adequacy of the account mechanism; i.e., have funds been appropriately insulated through the establishment of blocked credit account.

4. Village Blacksmiths--The feasibility of extending improved technologies depends in an important way on the ability of participant farmers to repair and maintain the equipment procured. Thus, the success of this activity appears to be firmly tied to the viability of the program for developing the capacity of village blacksmiths to perform these functions. The evaluation team will assess the validity of this relationship and the feasibility of achieving the objectives of the village blacksmith program as it is being implemented. Toward these ends, the evaluation team will:

(a) Review and discuss with farmers and CMM staff the findings of the BARA baseline survey on the need for a blacksmith program;

(b) Assess the strategy and plan for developing the blacksmiths' capacity in terms of the extent to which they are consistent with farmers' needs, their clarity and consistency with respect to responsibilities and authorities, the adequacy of resources planned, and the time allowed for accomplishment of the objectives foreseen;

(c) Determine the extent to which the program conforms with that planned or has otherwise been systematically changed;

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(d) Assess the effectiveness of the training program;

(e) Assess the effectiveness of the shop construction and equipment procurement/installation program;

(f) Assess the efficacy of services being provided by blacksmiths from the farmers' perspective in terms of cost, quality of work and time required to complete the work;

(g) Assess the economic and financial feasibility of the activity from the point of view of the project and the blacksmiths.

5. Marketing--Because of the compulsory nature of OMM's marketing activities and the perceived negative impact those operations have on farmer income, the project includes only a marketing support component (except the indirect support resulting from the road rehabilitation component). Nevertheless, it is important to understand the impact of OMM marketing activities on farmer decision-making re what and how much to produce. Therefore, the evaluation team will assess the OMM marketing program in terms of:

(a) The soundness of OMM policies on marketing focusing on:

- OMM's rationale for being involved in marketing;
- the reasons for the imposition of enforced quotas;
- the rationale/process used in setting quotas; and
- the prices set at the farm gate.

(b) The quality of program planning and management in terms of:

- the clarity of marketing priorities, objectives, schedules;

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- the effectiveness of OMM extension agents as buyers;
- the level of success achieved toward meeting project objectives (number of tons);
- the profitability of OMM's marketing operations.

(c) The impact of OMM's marketing activities in terms of:

- the attitude of farmers in the project area toward OM generally and their willingness to participate in OMM program;
- the attitude of farmers toward extension personnel and its impact on their effectiveness;
- overall production levels achieved.

6. Village Farmer Associations. The PP indicates that in order OMM's extension system to reach a large number of farmers, its agents must work with groups of farmers. To the extent this is t the achievement of project production objectives is directly tied the success of farmer association formation activities. Because of their importance, the evaluation team will assess the feasibility of developing viable farmer associations capable of acting liaisons with OMM extension agents. Toward this end, the evaluation team will:

(a) Assess the soundness of OMM policies, objectives and

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priorities related to the formation of farmer associations;

(b) Assess the extent to which these are consistent ~~[illegible]~~ with the objectives and priorities of the farmers ~~[illegible]~~ is trying to convince ~~[illegible]~~ to form associations;

(c) Assess the efficacy of the ~~[illegible]~~ activities aimed at developing farmer associations in terms of the number of FAs formed and their capacity with respect to the delivery of inputs, the delivery of credit, the provision of extension services, the marketing of ~~[illegible]~~ production, etc;

(d) Assess the ~~[illegible]~~ attitude of farmers with respect to the OMM FA development program;

(e) Assess the actual/potential impact of farmer associations in terms of increasing production.

E. Assess the continuing feasibility of the overall project design giving special attention to the following program and policy issues:

1. GRM/OMM and USAID capacity to manage and monitor respectively the Opération Mils Mopti IRD program given its current size and complexity.

(a) In this context, assess the advantages and disadvantages of focusing project activities on specific geographic locations within the ~~[illegible]~~ project area which show ~~[illegible]~~ greatest promise.

(b) Assess the advantages and disadvantages of postponing particular components or activities.

(c) Assess the advantages and disadvantages of including full-time technical assistance ~~[illegible]~~ in management.

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2. Address the need for improved financial planning and accountability on the part of OMM. Assuming improvement is needed, address the need for and advantages and disadvantages of including the services of a full-time financial management specialist to train OMM personnel in the use of financial planning and management procedures which are acceptable to USAID.

3. Assess the economic and financial feasibility of the project focusing on the following:

(a) The internal rate of return of the project given various assumptions regarding the size of the project in terms of geographic coverage and number of components;

(b) The capacity of OMM to become self-financing in the near or distant future and the various possibilities for increasing OMM revenues;

(c) Assess the potential for reducing OMM financial (and management) problems through broader participation of the private sector.

4. Reports--The Evaluation Team will provide two types of reports:

(a) Progress Reports--The team need not submit detailed reports on routine activities. Rather, the team will keep USAID Director or his designee verbally informed of general progress and informed in writing if any significant problems arise which would seriously hinder the team's ability to complete the evaluation.

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b. Final Report--Prior to the evaluation team's leaving Bamako, a final report shall be submitted to the Director, USAID/Bamako. The evaluation report will be prepared in a form acceptable to USAID.

5. Personnel Requirements and Evaluation Schedule

(a) The Evaluation Team will consist of 7-8 persons with the following qualifications:

(1) A Management/Information specialist (10 weeks) with extensive experience in project management including operations, planning and information systems development. Should have work experience in the third world, preferably in Africa and background in developing management skills. Must have French conversation and reading skills at the FSI S3-R3 level or equivalent. Will be responsible for coordinating the preparation of reports by other team members and, based on those reports plus his own management report, for the preparation of the overall evaluation report.

(2) An Agriculture Economist (8 weeks) with experience in the planning/development of rural agriculture credit systems and conducting marketing analyses, preferably in Africa. He will work closely in these tasks with the Accountant and Agronomist. He must also conduct internal rate of return analysis. Must have good conversational and reading skills in French.

(3) An Agronomist/Extension Specialist (8 weeks) with extensive experience in the planning and management of integrated cereal research/extension programs. Must be completely familiar with and

preferably have experience in developing farming systems research efforts. He will work closely with the Agriculture Economist in his analysis of the current research program. Must have good conversational and reading skills in French.

(4) An Accountant (5 weeks) with extensive experience in designing/developing project cost accounting/budgeting/reporting systems (preferably including projects involving ag credit systems) and inventory recordkeeping and control systems. Should be acquainted with AID accounting requirements and Francophone accounting systems. Must work closely with Ag Economist in analysis of existing agriculture credit system. Must have good conversational and reading skills in French.

(5) A Civil Engineer (4 weeks) with extensive experience in rural road rehabilitation/construction/maintenance and small facility construction in African rural areas. Must have good working knowledge of French for both speaking and reading.

(6) The above team members (to be provided under an IQC) will be joined by the Mission Anthropologist who will provide his perspective to their efforts. Also the Ministry of Agriculture through its Economic Research Institute (IER) will provide one or two persons including an agronomist and possibly an economist to work with the team. Mission willing to consider contractor suggestions for modification of team make-up within the content of evaluation scope of work.

(b) Tentative evaluation schedule:

(1) Washington Orientation of Evaluation Team	January 11-22
(2) Team arrives in Bamako	January 25
(3) Mission Orientation of Evaluation Team and Documentation Review	January 26-30
(4) Field Reconnaissance Effort	February 1-20
(5) Team Presents Findings/Recommendations Verbally to USAID/GRM in Mopti	February 22
(6) Preparation/translation/reproduction of draft evaluation reports	February 23-March 12
(7) Review of draft reports by USAID/GRM	March 8-9
(8) Preparation of Final Evaluation Report	March 31

6. Relationships and Responsibilities--During its operations in Mali, the team will be directly responsible to the Mission Director or his designee. Contacts with Malian officials shall be with the full and prior approval of the Mission Director or his designee.

7. Request AID/W submit names and qualifications of candidates for Mission approval and that AID/W draft PIO/T and negotiate contract (with a single IQC) using following fiscal data:

Appropriation Number: 72-11X1012

Allotment Number: [illegible] 10
[illegible] 202

FUNDING [illegible] NOW [illegible] $120,000.00
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TABLEAU NO. 5

CREDIT ALLOUE PAR AN (EN MILLIERS DE F.M.) ET POURCENTAGE D'ARRIERE A LA DATE DU 30 SEPTEMBRE 1981

	Avant 1978-79		78/79		79/80		80/81		81/82		Total	
	Crédit	arriéré, %	Crédit	arriéré, %	Crédit	arriéré, %	Crédit	arriéré, %	Crédit	arriéré, %	Crédit	arriéré, %
Douentza	38,738	8,2	19,892	13,5	17,626	14,3	8,793		12,403		97,452	
Koro	61,149	16,9	13,542	46,8	17,135	21,5	28,033		11,962		131,821	
Bankass	47,280	9,9	18,241	7,5	11,562	26,6	17,227		0,923		95,233	
Mopti	*	*	*	*	*	*	19,026		1,635		20,661	
Djenné	23,958	24,4	33,079	34,1	41,680	20,3	5,167		4,836		109,721	
Bandiagara	5,303	0,0	0,982	0,0	6,720	18,9	3,755		5,338		22,098	
Ténenkou**	-	-	-	-	12,454	2,0	10,902		3,285		26,642	
Total	176,428	13,6%	85.737	25,3%	107,177	18,0%	92,905		40,381		502,628	

* Mopti et Djenné faisaient un seul SDR

**Création du SDR de Ténenkou

Sources: Données de la Section Crédit O.M.M.