

PN-AAT-848

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Quantitative Data Collection and Analysis  
in USAID/Mali

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June, 1983

Prepared under contract number GTR-0091-0-00-2314-02 for PFC/FDPR/RD

## Executive Summary

This report concerns USAID/Mali's current support for the collection and analysis of quantitative data to 1) meet program and project information needs and 2) to develop the capacities of GRM ministries to use quantitative data for administrative and planning purposes. Information for this report was obtained in part from interviews with sixteen USAID/Mali and Sahel Development Project Team staff, three consultants and two GRM ministry officials. This report is one in a series of six which will be used to develop a typology of USAID mission capacity for in-house data use and for facilitating data use in host country ministries. The main findings of the report are:

- 1) The Government of Mali lacks the financial and human resources necessary to produce relatively reliable data about key economic and social conditions. The data it does collect is generally considered to be so unreliable that it is unusable. Because of the GRM's very limited resources, efforts to improve data related activities must avoid creating additional recurrent costs for the government.
- 2) USAID/Mali's project planning has been adversely affected by the lack of adequate data - i.e., data which are sufficiently detailed, accurate or comprehensive. The most notable examples of this are OHV and OMVS/IDP.
- 3) The mission is currently re-designing OMVS/IDP and OHV and has identified the types of data required to plan more effective interventions for these projects.

- 4) The Mali Livestock Sector Project II has the potential to generate much useful data about livestock production particularly through the Smallholders Livestock Systems Research Component. Other activities funded by the project, such as on-farm feeding and integrated livestock - crop production, could also provide important data.
- 5) The mission has successfully supported data collection and analysis in the areas of livestock production, renewable energy, reforestation and population/demography. It has also contributed to establishing AGRHYMET and developing a land use inventory for Mali.
- 6) The report makes a number of recommendations for improving international donor support for data related activities. Most important are: better coordination of data related activities among donors; improved sharing of information; provision of necessary funds and/or technical assistance to obtain requested data from the GRM; and division of responsibility among donors for improving data bases in specific sectors and assisting GRM ministries according to the concentration of their programs.
- 7) Each of the above points also applies to USAID/Mali. In addition, the mission should avoid when possible elaborate designs which will generate large amounts of data. Limited, focused data collection efforts will be easier to manage, better suited to GRM capacities and generally more appropriate for the Malian context.

## Table of Contents

Overview	1 - 7
1. Agriculture	7 - 28
1.1 Mali Livestock Sector Project II	8 - 13
1.2 OMVS/IDP	13 - 18
1.3 OHV	18 - 21
1.4 Other Agricultural Data Collection Activities	21 - 28
1.4.1 Land Use Inventory	22 - 23
1.4.2 An Agricultural Survey in the <u>Dire Cercle</u>	23 - 25
1.4.3 Farming Systems Research	26 - 28
2. General Development Office	28 - 33
2.1 Renewable Energy	28 - 31
2.2 Village Reforestation	31 - 33
3. Regional Projects	33 - 39
3.1 The Sahel Demographic Data Collection and Analysis Project	33 - 35
3.2 AGRHYMET	35 - 37
3.3 Social Indicators	37 - 39
4. Program Level Issues Pertaining to Data Related Activities	39 - 49
4.1 The Problem of Adequate Data for USAID/Mali	39 - 43
4.2 Mali's Need for Data	44 - 46
4.3 Improving Donor Assistance for Data Related Activities	46 - 48
4.4 Improving USAID/Mali's Data Related Activities	48 - 49

## Overview

This report is one in a series which examines the capacity of USAID missions to use quantitative data for program and project information needs and to support the development of comparable capabilities in host country ministries. USAID/Mali is one of six missions selected to cover the range of varying USAID mission capabilities for such work. In terms of the availability of fairly reliable data; the use of pertinent data for project planning, monitoring and evaluation; and successful attempts at improving existing data bases and the host country's capabilities for data related activities, USAID/Mali represents missions at the poorer end of the spectrum. The difficulties USAID/Mali confronts in this area reflect the fact that the economically poorest countries, and especially governments like Mali's which have extremely limited financial and human resources available to them, are also the most data poor. The purpose, therefore, of selecting USAID/Mali was to obtain <sup>an</sup> example of data related activities supported by a USAID mission working under such constraints.

In comparison to other African missions, USAID/Mali is an intermediate sized mission with a U.S. direct hire staff of twenty-seven, a limited number of professional level foreign nationals and an annual budget of approximately \$10 million. Though USAID/Mali's present funding level makes it one of the smaller donors in Mali, the mission's current funding is comparable to that of other Sahelian missions. ~~But in terms~~ of a budget to staff size ratio, USAID/Mali has a relatively

large number of direct hire staff. This situation will probably soon change; the mission's funding and staffing have been reduced and further cutbacks are anticipated. The mission also plans to reduce its staff size by re-directing its program away from its previous multi-sectoral strategy to concentrate its resources on agricultural development.

At present, however, the relatively large number of USAID/Mali staffers is offset by the extremely limited capability of the Malian government to design, implement, monitor and evaluate development projects. By any socio-economic measure, Mali is among the poorest countries in the world. In recent years, Mali economy has been adversely affected by conditions over which the government has no control (e.g., drought, falling international commodity prices, high transportation costs for export goods). Exacerbating these factors have been a number of well-intended but economically injudicious policies followed by the GRM throughout the 1960's and 1970's. These policies have led to extending government control over major portions of the economy. Rather than facilitate development, this situation has slowed or impeded economic growth. By 1980, the government and many of its parastatal agencies were in effect bankrupt. The extremely limited financial resources of the GRM, therefore, makes the issue of recurrent costs of paramount importance. The GRM's capacity to undertake development projects is further restricted by insufficient numbers of adequately

trained staff. Like other very poor countries, the government of Mali cannot afford to attract and retain skilled personnel or provide staff training to meet current needs. It is in this context - an extremely poor, underdeveloped country with a government lacking adequate financial and human resources to properly manage donor-funded projects - that USAID/Mali tries to support data collection and analysis activities to meet information needs.

In comparison to the other five missions selected for this project, USAID/Mali represents the worst case in terms of the availability of reasonable accurate quantitative data for program and project needs.<sup>1</sup> There is a veritable dearth of reliable data (at an appropriate level of disaggregation, with representative coverage, with adequate detail, etc.) about economic and social conditions essential for effective planning of development activities. Consequently, the mission and regional AID units (i.e., REDSC and SEPT) must use whatever estimates are at hand. Mission staff readily admit that inadequate information has contributed to poor project design which in turn has led to serious implementation problems.

If an example were needed to justify the expense of data collection and analysis to assist project design, one would have to look no further than USAID/Mali. The core of the mission's program is agricultural development, yet one major agricultural project (Operation

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1. The other five missions are USAID/Nepal, USAID/Egypt, USAID/Honduras, USAID/Panama and USAID/Zimbabwe.

Mils Mopti) has been terminated and two other active projects (OHV and OMVS) are currently being re-designed after encountering serious problems. In each case, inadequate information about the very constraints these projects were to address was an important contributing factor. Assuming the mission had the time to wait until necessary data were collected, the cost of this effort would have been minimal when compared to the millions of dollars spent on these projects with the likelihood that only marginal improvements will be obtained at best.

The problems USAID/Mali confronts concerning the availability of adequate information are certainly not unique to the mission. Other Sahel and other African missions confront similar or identical circumstances. It is not that the problems of insufficient financial and human resources for data collection and analysis are unique to Mali. Rather, it is the degree or severity of these problems which distinguishes Mali and other countries like/it from those which can better afford to generate and maintain key information bases. In this regard, USAID/Mali should be commended for the progress, albeit limited, it has made and will probably make in the next few years by supporting data collection and analysis in the areas of livestock production, renewable energy, reforestation, and population/demography. The mission has also contributed to the development of a climatological and agronomic monitoring system (AGRHYMET) and a land use inventory,

both of which have the potential for providing important data. Through the Demographic Data project, USAID/Mali has helped develop the analytic capacity of the Sahel Institute which will ultimately be able to provide technical assistance to government ministries of Sahelian countries. Perhaps most important is the recognition by USAID/Mali staff of the importance of improving information bases needed by the mission and the Malian government.

USAID/Mali might consider the following suggestions to assist it develop an information strategy for the mission:

- 1) The mission should avoid data collection designs which will generate a great deal of raw data or which are inappropriate for Mali (e.g., complex longitudinal, multi-round surveys). When simpler, more straightforward approaches would be sufficient for project needs. In general, greater emphasis should be placed on data collection for project design and monitoring than for quantitative evaluations.
- 2) Given the regional and sectoral focus of the mission's program (primarily agricultural development in Regions 1 and 2), USAID/Mali should consider establishing a regional information system which would monitor socio-economic conditions over time and provide a basis for evaluating program effectiveness. All future data collection and analysis funded by the mission should, if possible, feed into the system. This might require a strategy of

using similar sampling designs and comparable units of analysis for future survey work.

- 3) USAID/Mali should be prepared to fund and/or provide technical assistance to help obtain information from the GRM which the mission requests. Under no circumstances should the mission contribute to the excessive demands placed on GRM ministries by various international donors for data or special studies. Similarly, the mission should remain cognizant of recurrent costs for data collection and analysis USAID projects create and develop an appropriate funding mechanism to cover those costs for the GRM where necessary.
- 4) USAID/Mali should encourage better coordination of data related activities among the various donors active in Mali. For example, each donor might be willing to take primary responsibility for developing in conjunction with the appropriate GRM ministries data bases for those sectors and geographic areas where their programs are most heavily concentrated. These data should be made readily available (via computerization) to the GRM and the international donor community. Better access to studies completed by donor agencies should also be improved.
- 5) USAID/Mali should consider assisting the GRM with developing a plan for an information system which will meet existing and future needs. This would include the provision and maintenance of

U.S. manufactured microcomputers to GRM offices where the greatest need and potential for use exists.

### 1. Agriculture

USAID/Mail's program places major importance on agricultural development. As the FY85 CDSS states, the mission plans to:

"...concentrate investments in the agricultural sector (especially food crops), in specific agro-ecological zones, focus on a limited number of fundamental problems and reduce its management support requirements." (1983:34)

The primary objective of the program is, of course, to increase rural household productivity and income. To achieve these results, USAID/Mail's current agricultural projects support the development of irrigated and rainfed agriculture and increased livestock production.

Of the two main components of the mission's agriculture program, livestock production (now funded through Livestock Sector II) has apparently obtained greater success and encountered fewer or less serious problems than have the integrated rural development/ food crops projects (i.e., OMM, OHV and OMVS/IDP). Evaluations and audits of the integrated rural development projects requested by the mission identified the lack of adequate financial management and administrative capability on the part of the GRM as the principal underlying

problem. The mission is currently developing plans for tighter financial controls (for Livestock II as well) and better targetted interventions which are to get OHV and OMVS back on track (OMM was terminated). Of primary concern here is 1) how inadequate information about the project areas - e.g., the local economy, the farming practices of small holders, etc. - contributed to the problems OHV and OMVS encountered, and 2) what the current information needs are as defined by the mission as necessary for re-designing the projects. This section also briefly discusses <sup>the</sup> Land Use Inventory, a small agricultural production survey in the Dire Cercle and plans for a farming systems research project.

### 1.1 Mali Livestock Sector Project II

\$17.6 million has been obligated for the Livestock Sector Project II. The mission views the project as part of a twenty year effort to increase livestock production in Mali. Sector II follows a preceding livestock project in which USAID/Mali invested approximately \$26 million. These projects accurately reflect the economic importance of livestock production in Mali. Livestock production is central to both rural and urban Malians. It constitutes a vital food supply, generates government revenue and provides an important source of foreign exchange.

Under Sector II, funding will be used to support improvements in the following areas:

- 1) continued development of the Central Veterinary Laboratory's capacity to diagnosis diseases, determine their causes and develop vaccines to combat their spread;
- 2) expand and upgrade veterinary extension services;
- 3) support forage production research;
- 4) promote on-farm cattle feeding systems appropriate for small farmers; and
- 5) expand and upgrade management capabilities of the Ministry of Livestock.

The GRM implementing agencies include the National Livestock Office (DNA), the Central Veterinary Laboratory (CVL), the National Institute for Livestock, Forest and Water Research (INRZFH), the National Office for Livestock Credit and Marketing (ECIBEV) and the Malian Livestock and Meat Board (OMBEVI). In short, a number of Malian departments involved with the management and promotion of livestock production will participate and receive assistance from Livestock Sector II. In regard to the beneficiaries of the project, the overall goal is to increase production and productivity thereby increasing the income and well-being of some 275,000 livestock producers in Mali.

The Smallholders Livestock Systems Research component of Sector II will involve data collection and analysis on both cattle and small ruminants herds. An important research goal is to identify and develop

cost effective forage production systems. Consultants currently working on the project are particularly interested in developing integrated livestock - crop production systems for improved on-farm feeding. More animals on the farm increases the available supplies of food, power and fertilizer. Increased use of animal traction (e.g., for plowing and water lifting) and manure will in turn lead to greater crop production. Part of this production can then be used for on-farm feeding which will allow maintaining even larger herds. Some work has already been done in this area by one of the consultants. An analysis was made of on-farm feeding results examining weight gain per day by geographic location, market value, economic viability of increased production and the potential contribution of increased livestock production to farmers' income. Project staff plan to continue periodic monitoring of such variables during the course of Sector II.

USDA/DPMC will provide technical assistance for parts of the project and will work with the International Livestock Center for Africa (ILCA), which has primary responsibility for conducting livestock systems research. According to the project paper, ILCA will conduct demographic studies of herd composition. Variables such as age, sex, species, reproduction rates, death rates and offtake age by sex of animal. This data will be used to monitor changes in herd composition and condition. It is anticipated that some of the data

might be obtained from reconnaissance surveys using aerial photography. However, one consultant on the project stated that though it might be useful to track migration patterns of transhumant herds, at this stage and given the extremely limited capacity of GRM offices, data collection and research in general will focus/ on sedentary herders, primarily. In addition to conducting these studies, the project will also try to upgrade the capacity of INRZFH for farming systems research pertaining to livestock production.

Project management of Livestock Sector II will benefit from the experience gained from the preceding livestock project. This experience also includes data related activities. In the preceding livestock project, a small ruminants survey was attempted. Apparently, adequate technical assistance was not obtained for all stages of the survey. Assistance was provided for the initial planning and design stage, but thereafter, GRM staff proceeded unassisted. Extension agents received some training on administering the questionnaire formulated for the survey. However, it was later discovered that all agents were not interpreting each question identically. In effect this meant that different versions of the questionnaire were being administered with the result that those interviewed were responding to different sets of questions. In other words, it was impossible to determine precisely what the data actually represented. Tufts University will now provide technical assistance for the survey. A study of small ruminants

production and the role they play in herder operations is planned. The results could be used for designing a pilot project on improving the management and feeding of small ruminants.

According to the project manager, a very important improvement in Livestock Sector II is the appointment of an expatriate as a liaison officer. This person's primary responsibility is supervising the financial management of project funds. Very strict monitoring of financial activities is anticipated largely to compensate for the limited administrative capacity of the GRM. For example, to improve control over expenditures, the liaison officer will have to sign off on all disbursements before they can be made. The consultant hired for this position is developing a microcomputer based management information system to track expenditures and project outputs. If successful, this individual believes that the system could serve as a model for other project monitoring systems. In any case, a major objective for providing the GRM with this assistance is to help build their administrative and financial management capabilities for future development projects.

The project officer and the two consultants currently working on the project were optimistic about the future course of Livestock Sector II. It was apparent from interviews with them that they recognize the necessity of improved information systems for project monitoring and the utility of data collection for research and other

focused studies. For example, project staff noted that herders' associations could be instrumental in reducing government involvement and increasing production. It is possible that the associations could also be a useful source of data. At some future time, the associations might be able to provide estimates of membership, herd sizes, vaccine demand and use, and perhaps even livestock management practices. Such information could help monitor herd conditions or indicate how extension services could be improved. One of the contractors noted that the increasing number of cattle dealers reflected the shift from a traditional to a more market-oriented system. This person thought it would be useful to determine how further commercialization and market expansion could be promoted under the objectives of the current project. This is another area which could possibly benefit from a limited but systematic data collection effort. In short, Livestock Sector II has the potential for generating much useful data about a key component of Mali's economy. Such data could lay the groundwork for developing an information system on livestock production in Mali.

## 1.2 OMVS/IDP

OMVS/IDP is a large complex integrated rural development project which was developed at least in part to respond to the needs of those who will be affected by the construction of the Manantali Dam in Mali. The project combines a regional focus - i.e., development throughout

the Upper Valley of the Senegal River Basin - with national components designed specifically for Senegal, Mauritania and Mali. The goal of the project is to increase agricultural production and promote policy reforms by each of the three participating governments to remove constraints to increased production. \$63 million obligated for the project were distributed as follows: \$21.7 million for Mauritania, \$21 million for Senegal, \$11 million for Mali, and \$9.3 million for financial support and institutional development of OMVS. Funds will provide technical assistance, training, commodities and credit during the course of the project. Project management by USAID involves the missions located in each of the participating countries and the River Basin Development Office (RBDO).

The project is to upgrade existing irrigated perimeters and expand irrigation to thousands of hectares of suitable farmland. Agricultural extension services will be improved and rural credit systems developed. More effective systems of delivering agricultural inputs are planned and where necessary, feeder roads to increase access to markets will be built. In anticipation of adverse health effects due to expanded irrigation, the project had planned to assist the national health services of each country develop their capacities to monitor health conditions in the project areas.

The information requirements for the project would have been substantial. Numerous specialized studies on the following topics

were planned: agricultural production; the feasibility of expanding irrigation systems; current pricing and marketing systems; export trade; land tenure and fishing and grazing rights; economic, social and climatological factors affecting agricultural production; project impact on vegetation and wildlife; project effects on fishermen, pastoralists and women; and the need for improved transportation and telecommunications. Baseline and follow-up surveys and farm household surveys to obtain data for farming systems research were planned. The project was even supposed to include analyses of regional output data to measure progress and the impact of policy changes made by the three participating governments.

According to the project paper, "...a model project management information system that provides reliable data to monitor project impact and evaluate results..."(p.4) would be established in OMVS' Unit of Permanent Evaluation and Planning. The system would monitor the time of completion and costs of project inputs, outputs and project impact on agricultural production as well as general social, economic and health changes occurring in the project area. Much of the data needed for these activities would be obtained from rural development field agents who would complete a set of standardized forms developed by OMVS. The above cited studies would augment this reporting system. Short, rather elaborate and detailed plans existed for creating this model project management information system.

Unfortunately for USAID/Mali, the Malian component of OMVS/IDP has encountered such serious problems that the mission is currently considering how the project can be re-designed. According to mission staff, plans to expand irrigated perimeters in the Kayes Sector (the project area in Mali) appear questionable in light of the following:

- 1) the low percentage of existing perimeters now farmed suggests such farms are only marginally profitable at best;
- 2) the small size of existing farms suggests a critical labor shortage;
- 3) the high costs of irrigation projects in the Sahel relative to rainfed agriculture needs further consideration;
- 4) the project area residents are a mobile population many of whom engage in long distance trade, others are seasonal migrants who/ in neighboring countries and some travel to France for extended periods of work.

Plans for resettlement of farmers who will be displaced by the floodwaters created by the Manantali Dam further indicate the types of problems the project has encountered in Mali. According to one staffer assigned to the Sahel Development Project Team(SDPT), farmers in the project area have actually increased their production recently in response to greater market demand created by the influx of laborers and engineering staff working on the dam. Consequently, they are not interested in relocating at this time. The project appears to have

jumped the gun in this regard; it will not be until the dam is near completion before farmers in the area will give serious thought to relocating. Moreover, only fifteen perimeters with approximately twenty farmers per perimeter are involved. According to an SDPT economist, this would have amounted to roughly \$10,000 per farmer for relocation.

Inadequate and inappropriate information has been a contributing factor to the difficulties the mission has had with OMVS/IDP. The current project manager very accurately pointed out that given the relatively small number of farmers involved, the numerous surveys and studies planned in the original project paper would have been massive overkill. In fact the Keyes Sector has been the location for repeated (and in some cases repetitious) studies funded by the World Bank, UNDP and the development agencies of the French and German governments. Instead of more high cost USAID funded surveys, the project officer thought that a few, highly focused studies to identify suitable project interventions conducted by PVO staff assisted by a professional researcher would be all that is necessary at this time. Present thinking among mission staff involved with the project tends to favor a phased approach where the first stage would generate information necessary for planning subsequent action. In any case, a recent review of OMVS/IDP indicates the mission needs better information on the following topics:

- 1) the economic viability of alternative crops given market demand and production and transportation costs;
- 2) farm management pertaining to the division of capital and labor among irrigated and rainfed agriculture, livestock production and off-farm employment;
- 3) how to reduce capital costs and labor requirements of production through better agronomic practices which also increase yields;
- 4) the provision of agricultural inputs through private sector suppliers; and
- 5) organizing farming communities for their own mutual benefit give social, cultural and political factors.

### 1.3 OHV

OHV is another integrated rural development project which is currently undergoing mid-course re-design. An evaluation of the project was made in September, 1981; an audit followed one year later. The mission anticipates completing re-design activities in 1983. The major objective of the project is to increase food crops production though it was clearly recognized that cash crops of cotton and tobacco are integral to the welfare of the farmers in the project area. The project was therefore designed to support improved extension services, rural credit, increased agricultural inputs and the introduction of animal traction. The primary GRM implementing agency was OHV, a semi-autonomous body linked to the Ministry of Agriculture

OHV's source of revenue came from the marketing of cotton and tobacco and sales of agricultural supplies and equipment. Credit was extended to farmers and repayment was to be made at harvest time. Under this system, corruption at the expense of the small holder was rife. This situation / only worsened the effects of financial mismanagement which led to the re-designing of the project.

In a cable reporting on the present status of the project (#241120, 1/24/83), the mission stated that:

"(W)hat resulted during the project implementation is a litany of problems common to complex integrated rural development projects built on incomplete and faulty information."

The cable continues on to list fifteen points which contributed to the project's difficulties. A major study was completed which included key variables such as level of farm technology, agricultural activities, sources of income, household expenditures, family size and structure, animal use, mechanization and fertilizer use. However, the mission concluded in the cable that:

"(T)he paucity of baseline information on farmers of the region did not provide a data base for planning or benchmarks for measuring progress.

In addition, the baseline study produced was of such poor quality that it could not be used."

The current project manager reported that the project has been designed without adequately detailed information on such essential factors as farm management practices, land tenure, soil types and quality, level of mechanization, sources of credit, crop patterns and rotation, and fertilizer use. Though the GRM places considerable emphasis on cash crop production for export, it was unclear whether farmers in the project area shared this view in light of the fact that cotton and tobacco production is labor intensive and gives only a marginal return under current prices. The inadequate information base and the flawed baseline data collection effort that followed is consistent with several other key factors cited in the cable:

- 1) OHV was essentially <sup>cf</sup> **incapable** / meeting the administrative and financial management demands placed upon it by the project;
- 2) the mission lacked experienced staff to manage the project and relied on interns with limited experience who provided little guidance for project monitoring and implementation;
- 3) GRM staff were equally inexperienced and did not make adequate use of technical assistance; and
- 4) host country contracting was used despite the fact that GRM agencies lacked the administrative experience to utilize such an arrangement. This led to poor choices of consultants and a high turnover rate of contract staff.

USAID/Mali has of course taken action to rectify OHV's problems. The mission suspended funding until adequate financial controls were established. A more experienced project officer was assigned to the project. Certification was made a prerequisite for disbursements. Some components of the project were eliminated and others suspended until improvements are made. Technical assistance to the project has been improved; a new rural credit system for farmers has been developed and more re-design changes are anticipated soon. As for the GRM agencies involved with OHV, remaining problems must be resolved if funding is to continue. In the cables status report the mission cited "...gathering the baseline data needed for planning, monitoring and evaluation of operations" as an important indicator of GRM resolve to improve its project management. At present, however, USAID/Mali still needs basic agricultural and socio-economic data about the project area to design effective interventions which will benefit small farmers.

#### 1.4 Other Agricultural Data Collection Activities

In addition to the mission's three major agriculture projects, USAID/Mali has also supported data collection activities pertinent to agricultural development. Three of these - the Land Use Inventory, a small agricultural survey conducted in the Dire Cercle and a forthcoming farming systems research project - will be briefly discussed in this section.

#### 1.4.1 Land Use Inventory

USAID/Mali provided approximately \$5 million for the development of a natural resource inventory. The inventory will serve as an agricultural planning tool for various GRM ministries and international donors. The inventory consists of agronomic and land use potential data including range productivity estimates, soil type and potential productivity, current land use, present vegetation and water resources. The inventory covers the western, southern and south-central (approximately from Tombouctou and south) portions of the country. The contractor, TAMS, was to have produced a series of maps displaying basic data as well as estimates of agricultural potential as determined by the availability of water.

As of May, 1983, data collection had been completed and final <sup>their</sup> reports and/presentation to GRM ministries are expected from TAMS shortly. The current project manager points out, however, that at this time, it remains to be seen how much use will actually be made of the inventory. For example, it is extremely doubtful that the Malians are capable at this point of maintaining and effectively using the data contained in the inventory. In fact, TAMS has suggested a follow-on project to institutionalize the Malian's capacity for resource planning using the inventory. TAMS has indicated that the Malians need further assistance in this area and that a natural resource planning institute be created. The institute would develop a pilot plan for natural resource utilization in a selected area.

Institute staff would work with other GRM ministries, international donors and the private sector in developing such plans and thereby gain the experience which <sup>they</sup> currently lack.

Unquestionably the inventory has considerable potential utility if it is properly managed, maintained and used. Less clear is how the GRM is to bear the recurrent costs of this inventory let alone a national resource planning institute. Such expenses probably would have to be met by USAID/Mali and other international donors. Therefore, it would be important before moving ahead with any follow-on action for the mission to consider what its long term commitment to the inventory will or can be for the next four or five years based on probable funding levels and on actual use made of the inventory in the short term.

#### 1.4.2 An Agricultural Survey in the Dire Cercle

USAID/Mali recently sponsored a very small scale agricultural survey in the Dire Cercle to obtain rough but timely estimates of crop production and use of motor pumps to irrigate wheat and other crops. A local Malian consulting firm was used to conduct a survey of some seventy-five farmers. Data on farm size, household composition, crop rotation, inputs for wheat cultivation (e.g., labor, animal traction, seed and fertilizer), credit, motor pump operation (repairs, fuel consumption, spare parts supplies) and use, wheat crop yield and historical effects of introduction of motor pumps on crop mix,

labor use and agricultural inputs. Because farmers were beginning to harvest wheat, the mission felt that the entire activity - collection, tabulation and the final report - had to be completed within a period of three weeks.

Given the contrasting views expressed by two mission staffers, it seems that the survey achieved mixed success. On the one hand, one person involved with the design of the activity thought that the survey had been more or less successful in that rough estimates were obtained quickly. The fact that a local consulting firm was used and as a result, obtained more experience at collecting agricultural data was also considered a positive factor. On the other hand, another staffer who assisted with the field work expressed serious reservations about the quality of the data particularly because of the lack of proper sampling procedures.

I think that both views of the survey are instructive. The most sensible approach to take on data quality is to view it as a matter of degree rather than absolutes. No data are error free no matter how pristine and textbook perfect the method used to collect it. The question is whether the accuracy of the data is sufficient for the purpose at hand or whether the data are so poor as to be unusable for that task. Admittedly, this is not a position most statisticians would advocate. But it is probably one which is most realistic for most USAID missions, especially those confronting a near vacuum of

reasonably valid, reliable data.

Regarding this survey, the mission estimated that a total of some 250 farmers used motor pumps for irrigation in the Dire Cercle. Barring other problems (which might be assuming too much), if the contractor actually conducted seventy-five interviews, even though the sample was non-random, the data would constitute thirty percent of the population under study. If the non-randomness were the only major problem, the information obtained is probably better than the alternative - no information. But the mission would be well advised to remain cognizant of the the data's questionable accuracy (particularly non-representativeness) and use it and other data like it very conservatively. For example, the estimates of the survey should be viewed as indicative of only farmers using motor pumps in the Dire Cercle and nothing more. At the same time, it is commendable that the mission is trying to develop local expertise for data collection and analysis. In the future, the mission might give more lead time if possible to at least field test the questionnaire before beginning the actual data collection. Knowing the weaknesses of the local consulting firm, the mission should also try to use available in-house expertise to give more assistance and avoid serious problems which affect data quality.

### 1.4.3 Farming Systems Research

USAID/Mali is currently developing a farming systems research project. The mission has only recently reviewed the FID for the project. Preliminary documentation indicates that studies be made of existing systems of crop production to determine productivity, farmer incomes, level of technology and other related elements. This might be followed by an examination of the suitability of new technologies which will increase productivity in the context of existing farm management practices, use of animal traction, cropping patterns, etc. Technologies that appear promising and appropriate for southern Malian farmers but need further refinement and adaptation before introduction might then be developed at a local research station. These are to be sure very tentative plans at this point.

A pilot study is currently being developed as a first stage of the project. The project officer was quite rightly concerned about the design and scope of this study. The Ministry of Agriculture is proposing to purposively select two villages as study sites. After the survey, additional longitudinal data will be collected by extension agents. Of concern is which two villages will be selected because this will greatly affect the utility of the data and the study. For example, if it were thought that cultural systems strongly influenced farming practices and productivity, it would be important

to pick two villages which allowed making comparisons between major cultural groups in the area. Alternatively, family structure is often a determinant of farming management practices. Again one would want to select villages which allowed making comparisons between traditional extended family structures and households which have only one generation of adults, for example.

The project officer also expressed concern about the amount of data to be collected. For a pilot survey, a small scale effort within the current capabilities of the GRM would seem most appropriate. General patterns and easily measurable variables should be the rule. Detailed observations and elaborate questionnaires should be avoided at least at this stage. Perhaps a useful guideline would be to try to hold the survey to a time limit - e.g., no more than thirty minutes to complete the questionnaire and only a couple of pages for other types of data collection instruments if they are to be used.

The plan to coordinate the survey with forms extension agents will periodically complete is a very sound and cost effective route for monitoring farm conditions. If this can be done, the survey will serve as a baseline and extension agents' records will track change over time. With such a system, the need for a follow-up survey could be postponed or even eliminated. An important consideration will be designing the survey in such a way that extension agents will be able to collect many of the same indicators used in the survey on their

own. This would lend further support to arguments for simplicity in the pilot survey.

## 2. General Development Office

The General Development Office of USAID/Mali manages the mission's non-agricultural projects. Two of these projects - Renewable Energy and Village Reforestation - involve data collection and analysis for planning and evaluation purposes. As a pair, these two projects illustrate the importance of avoiding excessive data collection and the utility that focused small scale surveys can have in Mali.

### 2.1 Renewable Energy

USAID/Mali obligated \$4.1 million for the Renewable Energy project, the primary objective of which is to identify and then introduce mechanisms which reduce household energy costs and fossil fuel consumption. Such devices are expected to reduce the amount of labor required to meet household energy needs. For example, the project is testing the feasibility of photovoltaic cells to provide power for water pumps, lighting, refrigeration and food grinders. Other devices being tested by the project include improved wood burning stoves; solar cookers and sterilizers; solar dryers for meat, vegetables and fish; solar heaters; and biogas generators for cooking. The project will determine:

- 1) which technologies are best suited to local operation and maintenance, and how local control and use of these devices should be

organized;

- 2) determine who in the community benefits most or least from the devices;
- 3) which devices are able to perform adequately and endure the conditions of a rural setting;
- 4) estimate the cost per unit of operation for alternative devices and sources of energy; and
- 5) determine which devices are socially and culturally acceptable.

Using meteorological and socio-economic data as criteria, twenty villages were selected for the project. The suitability of the village for specific devices was determined and villagers were asked to which tasks they would prefer to have devices applied. Ten households in each of the twenty villages were selected for a detailed study of energy consumption (in other words, a sample of two hundred households were selected). For approximately six hours per day, once a week an observer recorded all energy consumption that occurred during that period. The observation periods were rotated throughout the day to obtain a complete record of daily energy consumption. A retrospective survey on energy use during the past three days was conducted once a week. Data were collected for one year in this fashion. The data will assist in determining which devices are most appropriate for village use and what social and economic effects introduction of the devices might have.

The project manager reported that to provide training for GRM staff, the data were to have been analyzed in Mali. However, the costs of processing the amount of data collected for the project had not been properly estimated. The GRM of course has extremely limited capacity for such work. Given insufficient project funds, the data are now being analyzed in the U.S. by the social anthropologist who oversaw the data collection activity. It is hoped that the analysis will focus precisely on the needs of the project.

There are several points that should be made about the data collection component of this project. First, the amount of data collected is excessive. According to the project manager's account, four hundred schedules were completed each week for one year. This person was also candid enough to admit that he had not had previous experience with the mechanics of data collection. Nonetheless, he shared the opinion that entirely too much data had been collected. The amount of data collected sounds more appropriate for a careful, academic research effort than for the more applied and limited needs of the project. Moreover, the amount of detail and frequency of observations suggests an unnecessary degree of precision for an AID project which typically does lead to collecting too much data. The source of the problem lies outside of the project. Neither the project manager nor others involved with the planning of the project apparently had the necessary experience to determine how much information was

needed and estimate the costs of collection and processing. Nor can the anthropologist be faulted when specific directions about the amount of data to be collected are not provided. This situation is certainly not unique to this project. The Agency needs to recognize that AID staff need specialized assistance on planning data collection components of projects just as they do for other technical areas. How the Agency should try to address this need goes beyond the scope of this report, but it will be discussed later in a summary paper. For the time being, USAID/Mali might use REDSO or SDPT staff who have such skills if they cannot be found among mission staff.

## 2.2 Village Reforestation

\$495,000 was obligated for an experimental, small scale village reforestation project. The project has two principal objectives. First, the project will promote village reforestation activities by establishing two small tree nurseries to supply trees to the villagers. Demonstration plots and communal woodlots will also be established in selected villages. The second objective of the project is to expand the capacity of the regional Water and Forestry Service to encourage rural forestry activities in the villages. A component of this goal is to create a capacity in the Forestry Service to collect and analyze data to evaluate this and future projects.

The Village Reforestation project is particularly interesting because it is a rare example of intelligent use of survey data to meet project information needs. Prior to the planting season, a small

survey is conducted in fifteen to twenty villages in the Mopti and Bandiagara area. Basic data on social organization (e.g., family structure, communal activities), land tenure, soil quality and labor availability are collected. These data are used to select the most promising villages from the set surveyed. The project officer pointed out that from the surveys, it was determined that two alternative implementation strategies were needed. There are two principal cultural groups in the project area - the Dogon and the Fulani. The Dogon are a communally oriented group with a strong sense of social solidarity. The Fulani, in contrast, are highly individualistic. They also tend to be herder-farmers with a higher standard of living than the Dogon. In Dogon villages, communal woodlots have proven successful because it is a group activity. In Fulani villages, individual farmers must be found who are willing to undertake or manage reforestation activities. As simple as this use of data seems, the mission and particularly the project officer should take satisfaction in finding such a workable approach to meeting project information needs.

A key feature of the data collection done for this project is that the surveys are limited to a small number of villages each season and are focused exclusively on the specific needs of the project. I think that when this approach is contrasted with the data collection component of the Renewable Energy project, for example, it is apparent that a limited, focused design is preferable. It is cheaper and

quicker; the data can be analyzed in-country (especially with the proliferation of microcomputers); and the approach is more attuned to the human and financial resources of the Malian government. Granted some projects require an effort on a larger scale, but if anything, AID tends to err in the direction of too large rather than too small.

### 3. Regional Projects

In addition to the mission's projects, several Sahel regional projects which include Mali are underway. Two of these projects - the Sahel Demographic Data Collection and Analysis project and AGRHYMET - will improve existing data bases and develop the analytic capacity of Sahelian government agencies and regional institutes. Discussions have also been held concerning USAID's possible participation with CILSS and Club du Sahel in a social indicators project for the Sahel. Though plans are still very tentative, this project could provide some very useful data which the GRM could not otherwise afford to collect. This section will briefly discuss the current status of these three regional activities in regard to the data and analysis each has or will produce.

#### 3.1 The Sahel Demographic Data Collection and Analysis Project

\$6.9 million were obligated for the Demographic Data Collection and Analysis project. The objectives of the project include:

- 1) provide assistance to the Sahel Institute to upgrade its data collection and analysis capabilities and for a) an infant mortality survey, b) the analysis of existing demographic data, c) migration studies, d) health statistics collection and e) an examination of the population effects of development projects; and
- 2) strengthen national demographic institutions through technical assistance, graduate level training in the U.S., and special short courses.

A recent evaluation of the project found that it has generally been successful in accomplishing these objectives. The evaluation team reported that the Socio-Economic/ Demographic Unit (SEDU) of the Sahel Institute is now recognized as a competent resource able to provide technical assistance throughout the Sahel. EXADD - the exploration and analysis of demographic data - has made good progress. It should be added that this is also a wise investment. Apparently a considerable amount of demographic data existed which was un- or under-analyzed. The project has helped correct this situation. The evaluation also recommended that 1) technical assistance to INSA be continued; 2) INSA's documentation and dissemination activities increase; c) the health statistics component be dropped; 4) migration studies be continued and that more focused studies are needed for the population - development impact work.

The most problematic part of the project has been the infant mortality survey. In secondary urban centers in Upper Volta, Senegal and Mali (including Bamako), a sample of non-sterile women of reproductive age who had recently had a live birth was constructed. Fertility histories for these women were developed. The health of both mother and child was then tracked for a three year period regardless of whether one or the other died. Follow-up interviews were conducted at <sup>one</sup> month after birth, the fourth month after birth, and then every fourth month thereafter through the thirty-sixth month. The evaluation noted the high expense of this method. Other USAID staff in Bamako questioned the quality of the data since the survey apparently had considerable difficulty in tracking the original sample of women and children over time. It was reported that a substantial number of cases were lost which, if large enough, would jeopardize the validity of the study. The data are as yet unanalyzed and it is hoped that the utility of the survey justifies the expense of such a data-intensive methodology.

### 3.2 AGRHYMET

USAID is one of the donors supporting AGRHYMET - a monitoring system which reports on hydrological and meteorological conditions throughout the Sahel. USAID has thus far provided \$1.3 million in funding. A grid-like pattern is used to divide each country into a network of reporting units. Data on weather conditions, surface water

availability and at some future date, crop conditions is radioed in to a central microcomputer based data bank in each country. These data are then transmitted to the major AGRHYMET center in Niamey, Niger where they are stored on a mini-computer. Some of AGRHYMET's data, such as weather conditions, are to be collected on a daily basis. In part AGRHYMET is envisioned as an early warning system to alert Sahelian governments and international agencies to adverse climatic trends which will affect crop production and food supplies. It is also hoped that the system will assist farmers directly by using meteorological and hydrological data to suggest the best crop calendar (e.g., planting times) for each section of the country. If AGRHYMET can obtain the necessary time-series data on climatic trends affecting agriculture, the system could prove to be an extremely useful tool for predicting and planning for forthcoming food shortages.

There is some concern about whether AGRHYMET will actually fulfill its potential utility. One SDFT staffer noted that AGRHYMET was designed with little consideration for how the system will be made available to Sahelian governments. A very technical, scientific perspective guides the development of AGRHYMET and perhaps as a result, it appears that the purposes for which the data can be used are assumed to be self-evident and within the institutional capacity of each government. An alternative approach would be to begin with specifying which information needs of Sahelian countries can be met

by meteorological, climatological, etc. data and then AGRHYMET would collect and analyze the data so that government decision makers could use the information provided. In effect this would make AGRHYMET a more service oriented facility. If that is not the ultimate goal of AGRHYMET, then perhaps USAID should consider how the system could be re-directed along such lines.

### 3.3 Social Indicators

CILSS and Club du Sahel requested the Overseas Development Council to provide advice on a means of monitoring the well-being of Sahelian people. ODC contracted with Morris D. Morris to examine the possible application of social indicators to the problem. ODC and Morris produced a report entitled "Appropriate Indicators of Social Progress in the Sahel". The report reviews the availability, accuracy and activities necessary to improve the collection of alternative social and economic indicators. The major recommendations were:

- 1) statistical activities in the Sahel should be better coordinated;
- 2) the mortality rate of children from birth to the age of five is the most appropriate indicator of social well-being for Sahelian societies;
- 3) only limited (i.e., less than nationwide) census operations should be undertaken; and
- 4) the Sahel Institute should take a major lead in coordinating data collection activities.

Seminars bringing together interested parties for discussions about sponsoring a social indicators project for the Sahel were held in June, 1981 and April, 1982.

From the ODC report and the seminars some agreement on the general direction for future action has been reached: 1) priorities need to be established for data requirements; 2) the current availability of data should be more fully assessed; 3) new and on-going quantitative research activities need to be better coordinated; and 4) data sources which are effective and affordable over time should be utilized fully. All of this is sound advice, but it is still uncertain whether the project will be undertaken and whether USAID will contribute to it. From USAID's perspective, it might be useful to consider whether a social indicators project would be of use in meeting some of the information needs of current USAID programs in the Sahel. Another consideration is what decisions or actions are likely to be made in the short and medium term as a result of having such data. It might be the case that USAID would benefit more from investing in data collection and analysis which has more immediate relevancy in meeting mission information needs.

According to one SDPT staffer who attended the seminars, it was recommended that Sahelian governments increase their spending for data collection and analysis at all levels and that central statistical offices be given responsibility for conducting or coordinating such

work. Both of these points should be considered carefully. First, increased government spending for data collection is unrealistic for countries like Mali. Much of the demand for more or better data originates from the international development agencies; therefore, they should be prepared to meet the costs of obtaining it. Second, developing a highly centralized information system (i.e., a dominant central statistics office) might not be the best solution for every country. It might be preferable to encourage decentralized systems where each principal ministry has its own internal, limited analytic section involved with meeting the specific needs of the ministry. A central statistical office would act as a coordinating body, monitoring the statistical activities of each ministry and providing assistance when needed. In any case, the alternatives should be carefully weighed before final decisions are made.

#### 4. Program Level Issues Pertaining to Data Related Activities

##### 4.1 The Problem of Adequate Data for USAID/Mali

USAID missions ordinarily have access to a variety of fairly reliable data sources to meet program information needs. These include macro-economic data released by the host country; World Bank, IMF and UN statistical publications; special studies, sector analyses; and various types of data generated by the mission's own projects. At present, USAID/Mali essentially has only one reliable source of data for program needs - the publications of international agencies,

and in particular, the World Bank and IMF. These sources primarily offer only macro-economic data on trade, balance of payments, currency reserves and national aggregate statistics. As vital as these data are, the mission also has need of more detailed, disaggregated data. But as USAID/Mali's FY85 OESS notes repeatedly, there is a veritable dearth of such information in every sector; for example:

no  
 "There is/ authoritative study on nutrition levels  
 in Mali." (p 11)

"Although data are imprecise, by all accounts the  
 health situation is grim...it is however not likely  
 that Mali's health statistics will improve quickly." (p 12).

" Statistics on livestock production are too  
 unreliable..." (p 17)

The lack of agricultural data is most critical for the mission since its program will increasingly concentrate on agricultural development. No sector assessment has been undertaken because it was believed that the major constraints to agricultural development were generally well understood. As discussed earlier, inadequate information about small farmer behavior, crop production, markets, etc. is an important problem OHV and CMVS/IDP now confront. This lack of essential data, in turn, adversely affects program level activities. For example, data which demonstrate that price incentives stimulate small holder production would assist the mission in its dialogue

with the GRM concerning the need for price policy revision. In other words, the mission needs to supply GRM officials with information supporting an economically sound but politically unpopular action - increasing crop prices. Ideally such data would have been obtained from at least one of the mission's integrated rural development projects, but unfortunately for USAID/Mali, such was not the case.

There is no doubt that the absence of key information directly reflects the extremely limited financial and human resources of the GRM. The severity of this problem cannot be stressed enough. The government is hard pressed to meet its own payroll on time. Needless to say, how to avoid creating new recurrent costs for the GRM as a result of development activities must be a constant consideration for all development agencies in Mali. This certainly includes efforts to increase the institutional capacities of GRM ministries for improved or expanded data collection and analysis. For the most part, institutional building will have to be restricted to improving existing GRM activities within current budget constraints.

In terms of human resources, the GRM does not have sufficient numbers of adequately trained staff with the skills required for data collection, analysis and interpretation of results for non-technicians. Furthermore, the government cannot afford to train or hire additional staff without donor assistance. The Statistics Division of the Ministry of Planning exemplifies this. The office is responsible for Mali's

national accounts. Five professionals with varying levels of education staff the office. For assistants, the office has use of the ministry's non-professional staff, most of whom have only a high school diploma. The professional staff think that they themselves need additional training in economic and statistics to improve their performance. According to one individual working in the office, they recognize the need for additional qualified staff if only to meet the demands of donors for more information, special analyses, etc. which presently exceeds the capacity of the office. However, it is equally well understood that the government cannot afford more staff.

The GRM's ability to process data it does collect is also woefully inadequate. The operations of the Statistics Division could benefit from a microcomputer. They do have access to a Honeywell 62 taffers report that payroll, agricultural statistics and other administrative activities consumes much of the system's capacity. But the costs of acquiring a microcomputer - the equipment, software, training and maintenance - rule out the possibility of the government providing one to the office without donor assistance.

The need for such automation in the GRM is genuine. For example, the Ministry of Education employs about forty percent of all civil servants. The Planning Division of the MOE alone is responsible for the planning and monitoring of school construction, the assignment and replacement of teachers and tracking the progress of some 300,000

students so that they can be assigned to various fields of study. All of this work is done by hand - a paper and pencil operation which has all the speed and efficiency of something from the nineteenth century. Work of course is far behind schedule. For example, annually the thirty school districts of the country report basic information about enrollments, the number of teachers, expenses, etc. Simply to collate and summarize this information consumes a considerable number of working months. As of May, 1983, the Planning Division had yet to finish processing the 1981/1982 school year data. The chief of the division stated that he has only one well trained (MA level) statistical person. He also noted that donor demands for information far exceeds the division's capacity. To improve the division's operations, this person described how he would like to decentralize activities and do part of the statistical work at the regional office level. All of this points to a justifiable need for automated equipment, such as microcomputers, but the Ministry simply cannot afford it.

The problems USAID/Mali confronts in meeting program and project information needs and the extremely limited capability of the GRM to meet its own information requirements (let alone donor demands) suggests that a more concerted effort on the part of international development agencies including USAID is needed to improve the availability of basic data.

#### 4.2 Mali's Need for Data

One view of the need for data is that the quality, comprehensiveness and detail of information increases as the level of national development rises. There is much to support such a position. As a country develops and the major, most obvious impediments are overcome, problems affecting further growth might be more intricate, less easy to discern and more difficult to fully understand. Similarly, with development the national economy becomes more complex. Consequently, the need for more systematic, detailed information becomes greater and so too does the country's capacity to afford data collection activities.

Though this perspective might be an apt description of the information requirements of certain countries at a given level of development, it also implies that the least developed countries have the least need for accurate and timely data. In large part their need for data depends on the problem at hand. For example, one of the consultants working on the Livestock Sector II project reported that when he first arrived at cattle feed lots, he found broken machinery that no one knew how to fix, government appointed managers who did not want to leave their air-conditioned offices, and in general a poorly run operation. In such a situation, data on the condition of Malian feedlots, supplies, staff, etc. is really not needed. Rather, the project had fortunately obtained a consultant who had

years of experience in the business of feeding and marketing cattle. The problems of improving cattle feeding at those lots were perfectly apparent to this person; data were more or less superfluous at that point. However, as described earlier, thought is now being given to collecting some of that basic data on animal feeding as Sector II activities progress.

The "level of development" argument would suggest that Mali has little need for better data. In fact, the country has little capacity to obtain it while its need for data is critical. One way to describe the GRM's present situation is that Mali's government has made as many bad decisions as the country can afford. As the FY85 CDSS points out, by the end of 1980, government deficits equalled one-third of revenues; the losses of public enterprises approximated twenty percent of sales; and Mali's balance of payments deficit equalled nineteen percent of its GDP. Very poor countries like Mali which for various reasons - limited natural resources, adverse market conditions, or injudicious government policies - are in a precarious situation and cannot afford to continue to make unsound decisions which impede national development. Their need for data to guide such decisions is not commensurate with their level of development; rather their ability to afford this data is. The obvious conclusion to be drawn is that the international agencies will have to take the lead to improve the availability of basic data for Mali. This does not neces-

sarily mean a substantial increase in spending. Instead better coordination of donor activities would lead to significant improvements in this area.

#### 4.3 Improving Donor Assistance for Data Related Activities

The following set of actions would contribute to improving donor assistance for data collection and analysis:

- 1) Establish priorities of data requirements based on current and anticipated need and demand.
- 2) Establish a working plan for developing an appropriate information system for the GRM. All GRM ministries should participate. These plans should include a) a discussion of the pros and cons of centralized versus decentralized statistical systems; b) a clear statement of responsibilities for collecting, analyzing and disseminating data; and c) hardware, software and training requirements with attention to compatibility between systems.
- 3) Divide funding responsibilities for data related activities among the various donor agencies according to the concentration of their programs. USAID/Mali, for example, would support data collection and analysis in the areas of crop and livestock production and assist the appropriate GRM ministries with such work. Other sectors and corresponding ministries would be the responsibility of other donors.
- 4) Demands for additional data and analysis made by international agencies should be supported by funds and technical assistance re-

quired for the task. Meeting donor demands for information has become a major activity for the GRM and in some cases, exceeds the capacity of ministries to comply. Since donor agencies are creating the increased demand for information, they should be prepared to support the GRM in providing it.

- 5) The individual data collection activities of donors should be better coordinated so as to allowing for pooling of data from related activities. For example, combining data from AGRHYMET and the Land Use Inventory would provide a more powerful planning tool than either individually constitutes.
- 6) Large scale data collection activities, such as household surveys, should be made known to other donors to facilitate coordination and if possible, joint funding of combined efforts.
- 7) Better dissemination and sharing of information among donor agencies is needed. A number of USAID/Mali and SDFT staff repeated the point that they are too often ill-informed about information other donors have on a specific topic. Some stated that they learn of a study only after it has been completed and then find it difficult to obtain a copy of the findings. Though USAID maintains a liaison officer in Paris whose responsibilities include obtaining documents and reports about the Sahel from CILSS and other sources, it appears that some formal mechanism is needed in Bamako to expedite the process.

8) A committee of all international agencies active in Mali which would be responsible for coordinating data collection efforts and disseminating research results among the donors might be useful. The agenda of the committee would include the above points as well as additional related tasks as they arise.

#### 4.4 Improving USAID/Mali's Data Related Activities

Of the nine international development agencies active in Mali, USAID ranks sixth in terms of funding. It is unrealistic, therefore, to expect USAID/Mali to take the lead in improving all data bases, particularly given the agricultural development focus of its program. However, there are limited actions the mission could consider which could improve its support for and use of data collection and analysis:

- 1) The mission should consider the preceding suggestions made for improving coordination of data related activities among donors and determine what level of involvement would be possible for the mission and EDPT. A more concerted effort to keep channels of communication open with other donors could be made to improve access to data, which studies, etc./ pertain to mission activities. The mission could encourage this exchange of information by alerting donors of studies and data collection efforts it plans or has completed.
- 2) In general the mission should avoid whenever possible methods or designs which are data-intensive, such as those used for the Infant Mortality Survey component of the Demographic Data project and

the Renewable Energy project. Instead, the scale of operations used in the Village Reforestation project represents a more appropriate model.

3) Data collection conducted in conjunction with USAID projects should if possible be for the purpose of improving project design and monitoring which combines financial and output data. Less attention should be given to trying to quantify project impact.

4) As cited earlier, the mission plans to "...concentrate investments in the agricultural sector (especially food crops), in specific agro-ecological zones, (and) focus on a limited number of fundamental problems..." As these plans are put into action, the importance of agricultural data bases will increase. Moreover, the mission's plans clearly open up the possibility of establishing a regional information system focusing on agricultural and rural development in the specific agro-ecological zones mentioned above. With adequate planning data from projects implemented in these areas could be fed into such a system. Periodic surveys (e.g., three to five years) in these zones using the village as the unit of analysis and concentrating on the social and economic well-being of rural communities could provide the basic framework for such a system. It could also serve as the basis for empirically evaluating the effectiveness of USAID/Mali's program over time.