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The South-East Consortium for International Development

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Recommendations for the Extension of the Agricultural Human Resources Development Project

Project No. 686-0221
Work Order #13
December, 1985

Submitted by:

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RECOMENDATIONS FOR THE EXTENSION OF THE AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

by

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South-East Consortium for International Development

December 20, 1985

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December 21, 1985

I. MEMORANDUM

To: Herbert M. Miller, Director
USAID/Burkina

From: Glenn Howze and Robert M. Reeser
South-East Consortium for International Development

Subject: Recommendations for extension of AgHRD Project

The SECID team was in Ouagadougou November 28, to December 22, 1985 for the purpose of reviewing the AgHRD project and making recommendations about the future development of ISP/IDR. After reviewing project documentation, the team held extensive meetings with USAID/Burkina officials, the Rector of the University of Ouagadougou, and faculty and administrators at ISP/IDR. Several site visits were made to the Campela farm. The team has written a report which provides a comprehensive presentation of its findings and recommendations. This memorandum represents the first section of that report. A oral summary of these was made during a debriefing with you and your staff Thursday, December 19th. Six copies of a draft version of the report are being left with Roger Bloor, the Acting ADO. The purpose of this memo is to provide a brief written summary of major points.

The team concurs with the Mission's decisions to extend the AgHRD Project for two years and to follow that with with a second phase. The proposed new PACD is March 30, 1988. As indicated in the SECID report, there are many compelling reasons for continuing the USAID involvement at ISP/IDR, including the continuing need of ISP/IDR for donor assistance and the comparative strengths of the American system of agricultural education. Although it has encountered the usual array of problems confronted by most development projects in the Sahel, the AgHRD project has been largely successful in its efforts to upgrade the quality and quantity of university-level of agricultural education in Burkina Faso. The SECID team's report summarizes the project's many accomplishments.

The SECID team carefully reviewed the current situation at ISP/IDR to determine its needs for the future. The team translated these needs into a program of activities for the project extension. A budget was prepared attempting to provide reasonable estimates of level of funding that would be required to accomplish the activities proposed for the extension. The total budget is $2,464,000. It is recommended that the Mission seek a reobligation of funds in that amount. Below is a summary of the major components of the proposed extension and a discussion of the problems associated with their implementation.

Future Development of the Gampela Farm.

Substantial progress has been made in the development of the Gampela farm into an integral component of the teaching/research program of ISP/IDR. ISP/IDR appreciates the importance of the Gampela farm and has developed plans for transferring its entire campus to the farm site. This represents a deliberate decision of the ISP/IDR faculty to structure its entire academic program to provide students with practical hands-on training in agriculture. This is an acceptance of an American approach to education.

Before such a move can be made, it will be necessary to greatly expand the facilities at the Gampela farm. Because of the cost and the time needed for the construction, most of the additional buildings and other items needed at the farm cannot be funded under the project extension. Rather, they must wait for a Phase II project. However, the SECID team did identify a number of construction activities which seems appropriate for the project extension. These include the installation of an electric line providing municipal power and the construction of a dam and reservoir to be used for irrigation, both of which are essential preconditions for a move. Other construction suggested for the project extension include livestock shelters, storage buildings and fish ponds. The recommended budget for construction is $1,100,000. The major problem anticipated with the construction activity is time. Can the construction activities be completed during the two year period? This question is especially appropriate when considering the dam and reservoir. It will require a feasibility study with a topographic survey. If the dam is to be successfully completed before the PACD, USAID/Burkina and ISP/IDR must develop a precise schedule and require the contractor to abide by it.

Commodities.

Working with ISP/IDR, the SECID team identified equipment and supplies needed to support the AgHRD project during the extension. The budget amount is $473,000. ISP/IDR needs additional vehicles--buses, trucks, minibuses, pickups and a tractor. A waiver is needed for these purchases. U.S. procurement would include farm equipment, laboratory supplies, computers and books and journals. The major problem to be

anticipated is the amount of time needed to procure the needed items. In order to successfully complete the procurement activity prior to the PACD, the PIO/Cs and the purchases orders should be executed during the early months of the extension.

Participant Training.

While additional long-term training for ISP/IDR faculty is needed at both the Ph.D and Masters levels, the SECID team concluded that only short-term training is feasible during the extension. The recommended budget for this activity is $152,000. This will allow 20 faculty members, administrators and VIPs to spend six weeks in the United States attending short courses and participating in tours of Land-Grant universities. The funds will also allow eight persons to visit successful USAID-funded agricultural education projects elsewhere in West Africa. The major problem to be anticipated with the training component is the timely selection of participants. Placement of participants usually takes several months which means that the participants should be nominated during the early Spring for each of the two years of the extension.

Operational Costs for the Gampela Farm.

Operating costs for the Gampela farm, which have been paid by the AgHRD project, is currently averaging about $2,900 per month. This is far below the level of two years ago. However, increased activity at the farm is anticipated as ISP/IDR begins to transfer its campus there. The SECID team recommends a budget of $251,000. Of this amount, $105,000 will be provided by PL-480, Section II, 206 funds. The major problem associated with this activity is, of course, how GOB will handle recurrent costs once the project terminates. The answer is not easy. To some extent, use of farm products to replace purchased animal feed and the use of others in the University's kitchens can reduce recurrent costs. Also, income generated by the use of the farm for research and demonstration activities by outside organizations can also be put back into the operation of the farm.

Technical Assistance.

Regarding technical assistance during the extension, the SECID team recommends one long-term technician for two years to serve as serve as Project Leader and 10 person-months of short-term consultants to serve as advisors to the ISP/IDR academic departments and the farm manager, to provide training in the use of microcomputers and to conduct specials studies needed before the design of a Phase II for the project. The recommended budget is $340,000. The major problem to be encountered is the timely recruitment of the Project Leader. This position is crucial to the successful completion of project activities prior to the PACD.

Evaluation and Phase II Design.

During the project extension, another evaluation should be completed and a Phase II project designed. The focus of the design activity should be the integration of agricultural education, extension and research in Burkina Faso and the relocation of IDR to the Gampela farm. This activity will require one design officer for one year and four short-term consultants. The estimated cost for this activity is $253,000. The major problem to be anticipated is securing the agreement of GOB to make the structural changes necessary to achieve a true integration of agricultural education, extension and research.

Conclusion,

The SECID team requests that the Mission carefully consider its recommendations. The team feels that ISP/IDR merits further funding by the Mission.

Finally, the team wishes to thank both Mission and ISP/IDR personnel for the excellent support and cooperation it received during its stay in Ouagadougou.

II. EXTENSION RATIONALE.

The request to extend the AgHRD Project is limited to the ISP component. The CAP-Matourkou component has been terminated since 1983 and it would be extremely difficult to extend a component of the project that has already been terminated. The reasons for the termination of this component are discussed in a later segment of this paper.

On the other hand, the ISP component of the project is still operational. Participant training continues and the project still supports operational costs at the ISP teaching/research farm at Gampela. There are compelling reasons to extend the AgHRD project for another two years with a new PACD of March 31, 1988.

A. The AgHRD Project is consistent with the Mission's Strategy for the development of Burkina Faso.

The focus of USAID/Burkina's assistance program to GOB has been in the agricultural sector. The Mission's development strategy has been to improve the quality of life of the rural population while conserving the resource base. The long-term program has about a 60 - 70 percent focus on agriculture. The Mission continues to place a high priority on improving the human resources in agriculture as a critical step in improving agricultural production and the various institutions serving the agricultural sector. The focus has been on training intermediate and senior-level agricultural research and extension technicians. The AgHRD Project is designed to produce professional level agricultural technicians needed to staff agricultural development programs in Burkina Faso.

B. The Continuing Need for Trained Manpower in the Agricultural Sector.

ISP/IDR is currently graduating about twenty Ingenieur Agronome (about the same level as a B.S. in agriculture) per year, about equally divided among agronomy, animal science, and forestry. Nevertheless, there is still a major deficiency in trained personnel in the country to staff agricultural development programs. There is a continuing need to increase the capacity to train personnel at ISP/IDR. The alternative to increased capacity at ISP/IDR is to send Burkinabe to foreign countries for training. This would be expensive and the educa-

tion would not be in the context of the development problems facing Burkina Faso.

C. The AgHRD Project has been successful and merits an extension.

There is general agreement that the the ISP/IDR component the AgHRD Project has been successful. The project has been evaluated twice and the general findings of these evaluations have been that the project has made substantial progress toward the achievement of its project objectives. The Final Evaluation recommended an extension of the project indicating that funds already allocated for the project should be used to further the objectives outlined in the PP. While there were major problems and delays in the early years of the project, good progress was made in the latter years. There is good reason to believe that additional funds provided to the project would be well-spent and result in benefit to the agricultural education in the country. An extension will provide time for ISP/IDR to consolidate the gains made to date in the areas of participant training, curriculum development and the teaching/research farm at Gampela. This is especially important because many of the long-term participan trainees are just returning and assuming posts at ISP/IDR. An extension would provide support for them as they establish their teaching/research programs.

D. ISP/IDR needs additional donor assistance to foster its continued development as an institution of higher education in agriculture.

While substantial progress has been made in strengthening the capacity of ISP/IDR to provide quality training in agronomy, animal science and forestry, ISP/IDR still has major weaknesses which could be effectively addressed by an extension of the major activities of the project--technical assistance, participant training, commodity procurement and support of operational costs of the Gampela farm. ISP/IDR is still a young institution, having operated for less than ten years. It is still undergoing major changes in organization, curriculum development and its institutional orientation. Its faculty is still young and relatively inexperienced and lacking sufficient training. The institution still needs the support of international donors for its successful development.

E. An extension would serve as a bridge to a Phase II for the AgHRD Project.

The Mission is currently anticipating that a Phase II for the AgHRD Project will be designed and operational prior to the new PACD. An extension of the current project will allow for continuity in the USAID effort at ISP. Much would be lost if there were a two year period in between the two projects without

continued American input. An extension will allow for the support of activities which will be supportive of those envisioned for the Phase II project. It will also allow for the establishment of additional infrastructure at the Gampela farm which will facilitate an easy start-up for Phase II. Special studies dealing with agricultural manpower needs and the problems to be anticipated in integrating agricultural research, education and extension during Phase II can be conducted. Additional ISP/IDR administrators and professors can be sent to the United States for short-term training, allowing them to see first hand the American system of agricultural education. With an extension directed toward gearing up for a Phase II activity, there will be little time lost waiting for vehicles, farm equipment, construction, etc. when Phase II starts.

F. The United States has a comparative advantage in higher education in the field of agriculture.

Since the available American development efforts in Burkina Faso are limited, the Mission must be economic in its choice of development activities to fund. Certainly, Burkina Faso has need of donor support in virtually every sector. Why support agricultural education rather than some other activity? The United States Land-Grant model of higher education in agriculture has proved to be particularly successful, both in the American context and when it has been utilized in developing countries. With its integration of agricultural research, education and extension it provides an effective model for dealing with the problems of technology transfer which confront most developing countries. This approach is unique to American education. Presently in Burkina Faso, there is little or no articulation between agricultural research, extension and education. The AgHRD project has made the initial efforts. Burkinabe administrators and professors have seen the American system first hand, and there is currently a receptivity to the adoption of the model by ISP/IDR. The transformation of a French type system of agricultural education into one more resembling the Land-Grant type will require years. However, the result--an integrated system of agricultural research, education and extension--will certainly be more responsive to the country's agricultural development efforts. An extension of the AgHRD project will continue this transformation. A Phase II project will focus specifically on achieving this transformation.

III. Project Background

A. Pre-Project Situation

The Agricultural Human Resources Development Project (AgHRD) was designed to respond to the need to upgrade intermediate and university-level agricultural education in Burkina Faso. Prior to the project, agricultural extension training at Centre Agricole Polyvalent at Matourkou (CAP-Matourkou) was characterized by

a classroom-based curriculum which lacked significant hands-on practical training, a lack of textbooks and library materials, a shortage of trained instructors, and insufficient physical facilities such as classrooms, a library, dormitories, a dining hall and faculty housing. There was also a lack of vehicles needed for transport to off-campus practical training. The teaching scientific laboratories lacked even the basic materials and equipment needed for meaningful instruction. There was also a lack of coordination between agencies conducting agricultural extension, research and education. The GOB asked USAID to assist it in remedying this situation.

The Institut Superieur Polytechnique (ISP) was in its first year of its operation at the time that the project was being designed. It was established at the University of Ouagadougou in order to provide in-country professional-level training. Prior to its establishment, Burkinabe students were sent to other African or European countries for university-level training in agriculture, animal science or forestry. When ISP was started, not a single Burkinabe on its faculty had training in applied agriculture, animal science or forestry; rather, they were trained in the basic sciences. There was no farm or other facility to be used for practical training. ISP lacked laboratory facilities, classrooms, and a library. GOB turned to USAID for assistance in the development of ISP.

B. Agricultural Human Resources Development Project

The Agricultural Human Resources Development (AgHRD) Project Agreement (ProAg), which was signed with the Government of Burkina Faso (GOB) in 1978, had three major objectives:

1. To improve the Institut Superieur Polytechnique (ISP) at the University of Ouagadougou. ISP is the unit in the University which provides agricultural training at the undergraduate university level. At the beginning of the project, ISP had been in existence only two years and had not yet produced a graduating class. The project was designed to assist GOB in the establishment of a viable agricultural college, incorporating useful elements from the American Land-Grant college model. The project provided: (1) technical assistance in the form of American professors who could teach at ISP and aid in the establishment of a teaching/research farm and several sub-stations, (2) long-term and short-term participant training, (3) construction at the teaching/research farm, and (4) the procurement of commodities for ISP and the teaching/research farm.

2. To improve the Centre Agricole Polyvalent (CAP) at Matourkou. CAP-Matourkou is the school near Bobo-Dioulasso which trains the junior-level technicians and extension agents in Burkina Faso. In the past, the school had received substantial support from other interna-

tional donors. AgHRD was to provide one long-term technical assistant and funds for the construction of additional buildings, commodities and short-term training.

3. To establish a second CAP at Boganda to serve the North East region of the country. The purpose for creating the school was to increase the numbers of trained extension workers and to provide training at a location ecologically more representative of the conditions existing in most of the country.

The South-East Consortium for International Development (SECID) was selected as the contractor for the technical assistance and technicians began arriving early in 1979. The project was fully staffed by the end of the year.

The original PACD for the project was March 31, 1983. However, the technical assistance portion of the project was extended to September 30, 1983; the participant training until September 30, 1985 and the local currency support for the Gampela farm until March 31, 1986.

C. Project Achievements

The project has undergone major changes during its life. The ProAg had a condition precedent requiring GOB to pass a personnel statute which would insure that a qualified staff for CAP-Matourkou, and eventually CAP-Boganda could be recruited and retained. The statute was needed to guarantee that salaries, fringe benefits and tenure policies at the CAPs were comparable to other divisions in the Ministry of Rural Development. Unfortunately, GOB failed to enact the required statute and the Mission terminated the CAP portion of the project on December 31, 1983. For the remaining period of the project, AgHRD focused on its involvement with ISP/University of Ouagadougou, the first of its stated objectives.

Since the PPS focuses on an extension of project activities for the ISP component of the project, this summary of project accomplishments excludes a detailed discussion of the CAP components. The status of these components of the projects has been thoroughly reviewed in Mid-term and Final Evaluations of the project. Suffice it to say that all of the construction, vehicles, and laboratory equipment called for in the ProAg were in place at the time the project was terminated. Much of the short-term training had been completed and three years of technical assistance had been provided. Furthermore, the output of graduates from CAP-Matourkou increased rapidly during the period. Thus, in spite of the fact that the CAP portion of the project was cancelled at mid-point, substantial progress was made. CAP-Matourkou is certainly a stronger institution at the present time than it was at the start of the project. Furthermore, CAP-

Matourkou is graduating increasing numbers of persons trained to be middle level agricultural professionals and extension agents.

However, it was with the ISP component of the project that most of the objectives of the project were achieved.

1. Technical Assistance. The South-East Consortium for International Development (SECID) provided over 14 person years of long-term and 12 person months of short-term technical assistance. (The PP had called for 10 person years of long-term technical assistance and 36 person months of short-term technical assistance.) SECID technicians taught courses at ISP, developed course curricula, provided the leadership in the establishment of a school farm, and served as advisors to ISP in their subject matter specialties. A major goal of the technical team was to introduce key components of the American system of agricultural education. This goal was largely met. During the four and a half years of technical assistance, the curriculum at ISP was slowly changed from the "theoretical" approach found in most French universities to the more practical hands-on approach which characterizes agricultural education in the United States.

2. The Teaching/Research Farm at Gampela. Probably, the most visible output to date from the AgHRD Project is the farm at Gampela. From the very beginning, a major objective of the project was to introduce practical training in the curriculum at ISP. The development of a school farm to be routinely used for teaching and research was the mechanism. The PP called for the development of a central farm and three sub-stations. Early in the execution of the project it was determined that it would be impossible for ISP to adequately staff both the central farm and the sub-stations. It was decided to developed only the central farm. It was also decided that project funds should be used to fund major construction activities at the farm.

During the course of the project, the central school farm at Gampela has been transformed from totally undeveloped bush to a functioning school farm which is routinely used for instruction and research. AgHRD funded an all-weather road, wells and water towers, a variety of farm equipment, poultry houses, a rabbit house, a barn for large animals, a stable for small ruminants, a swine unit, dormitories and housing for the farm manager. It also funded the development of an irrigated perimeter, fields and pastures, and an irrigated perimeter allowing for teaching and research activities in the long dry season. The project also paid for most of the operational costs for the farm which has included fuel, labor, standard agricultural inputs and transportation.

The most important thing to note about the Gampela farm is that increasingly it is the focal point for the ISP courses in agronomy, animal science and forestry. As ISP professors make use of the farm for teaching and research, the practical training

aspect of American agricultural education is institutionalized. This process is accelerating as long-term participants, who received their graduate training in the United States, return to the ISP faculty.

3. Long-term Participant Training. Another major component of the project involved participant training. As noted above, at the time that AgHRD started there were no Burkinabe faculty trained in applied agriculture. The PP called for twenty ISP graduates to be sent to the United States for Masters level training in selected specialities in agronomy, animal science and forestry. To date, 13 ISP graduates have been sent to the United States for Masters degrees. Eleven have completed their degrees and returned to ISP as faculty members. The two additional students failed to complete their degrees; they returned to Burkina Faso and are now employed by the Ministry of Environment and Tourism. Since ISP was unable to provide additional candidates for the remaining slots, seven additional Burkinabe, employed by the Ministry of Rural Development, were selected and sent to the U.S. for training.

After some initial problems regarding the question of degree equivalency, the returned participants received faculty appointments at ISP and are actively involved in teaching and research. Currently, they are providing much of the leadership for the development of the Gampela farm.

In 1985, three of the returned participants received scholarships for Ph.Ds from USAID's Sahel Manpower Development Project. They are currently in the U.S. pursuing degrees in agronomy, forestry and animal science. When they return to ISP they will be able to assume senior-level positions.

4. Short-term Participant Training. Twenty-two ISP professors, administrators and staff members were sent to the United States for short-term training. Eight administrators toured U.S. Land-Grant universities to learn about American agricultural education. These tours have been useful in gaining the needed support of key administrators for proposed curriculum changes at ISP.

Eleven professors attended short-courses in specific fields. The short courses were especially useful in providing ISP professors, trained in the basic sciences, with a working knowledge of specific agricultural subjects. They were also useful in allowing French-trained professors a chance to see, at first hand, American agricultural education.

Three staff members received short-term training in library science, farm management and farm mechanics. Their skills were needed at ISP.

5. Commodities. There was a major commodity in the ISP component of the AgHRD Project. Equipment was purchased to establish an animal nutrition and a soils laboratory. Additional laboratory equipment and supplies where purchased to upgrade the teaching laboratories at ISP and the Gampela farm. Major pieces of farm equipment, including plows, a wagon, feed mixer, harvesting equipment, etc., were bought by the project. Several vehicles, mostly American made, were purchased for use by ISP and at the farm. The American made vehicles proved unsatisfactory because of a lack of spare parts and difficulty in getting repairs done. Finally, the project purchased two microcomputer system to be used in teaching/research and project accounting. The equipment has been put to good use by the project.

6. Project Evaluations. There have been two project evaluations--a Mid-term and Final. While the evaluation pointed to certain shortcomings in the design and implementation of some activities, the conclusions were that the project was basically on target. The Final Evaluation recommended that USAID, using funds remaining under the original authorization, should continue its assistance to ISP in order to consolidate the gains achieved during project implementation.

D. Present Status of AgHRD Project and ISP.

The current PACD is March 31, 1986. At the present time, the only project activity which is being funded is the operation of the Gampela farm. Technical Assistance ended in 1983. The last commodities were purchased in 1985. Participant training ended in 1985.

Recently, there has been a reorganization of ISP. The faculty has been divided into basic sciences and agricultural sciences. The agricultural sciences are in the Institut du Developpment Rurale (IDR). The AgHRD project is currently working with IDR.

IDR has requested an extension of the AgHRD project for two years. The proposed PACD would be March 31, 1988. USAID/Burkina has reviewed this request. Given the substantial progress made to date and the need for additional donor support, the Mission concurs with this request.

There is also a request from GOB for a Phase II for this project. This request is under study by the Mission. Given USAID/Burkina's commitment to the long-term development of human resources, a second phase is certainly consistent with its current strategy for the development of Burkina Faso.

E. Current Needs to Achieve Project Objectives

As indicated above, substantial progress has been made in achieving the objectives of the AgHRD Project. This is especially true regarding the ISP/IDR component. Nevertheless, ISP/IDR is far from being an established institution no longer needing assistance. The faculty, while much superior to what it was before the project, is still relatively young, undertrained and inexperienced. The laboratories are still in need of equipment. The library is still in need of books. The teaching/research farm at Gampela still needs donor support for equipment, supplies, additional buildings and other infrastructure, and funds for operational costs. Annex A contains a proposal for the use of the Gampela farm in 1991 and Annex B provides a description of the land use for the farm.

In addition, ISP/IDR has its own long range plan for transferring its campus from the main campus of the University of Ougadougou to the Gampela farm. (See Annex C.) This will call for the building of an entire new campus. ISP/IDR will certainly be looking for donor support for this activity. USAID has been instrumental in ISP/IDR's success to date. There is a need for it to continue to play a role. Increasingly, ISP/IDR is taking on characteristics of an American Land-Grant college characterized by developing linkages between ISP/IDR and the Burkinabe national research and extension programs. To be successful in its attempt to adopt the American model, it will need assistance from American agricultural universities.

IV. EXTENSION OF THE AgHRD PROJECT.

The thrust of the activities for the proposed project extension will be to consolidate the gains made by AgHRD Project to date and to prepare for a transition into a Phase II for the project. The proposed activities are continuations and extension of activities already supported by the project. The estimated cost for the extension is $2,464,000. See Table 1 for a summary of expenditures. A discussion of technical assistance needs for ISP/IDR is found in Annex G.

Graph 1 provides a pictorial of the total planned cummulative monthly expenditures for the project extension. The extension has been designed so that most of the activities are scheduled for the first year. About 50 percent of the expenditures should have occured by January 1987 and 90 percent by July of that year.

A. Technical Assistance.

Both long-term and short-term technical assistance are proposed for the project extension. The basic rationale for providing additional technical assistance for the extension is to continue to provide American advisors to assist ISP/IDR in its

TABLE 1

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

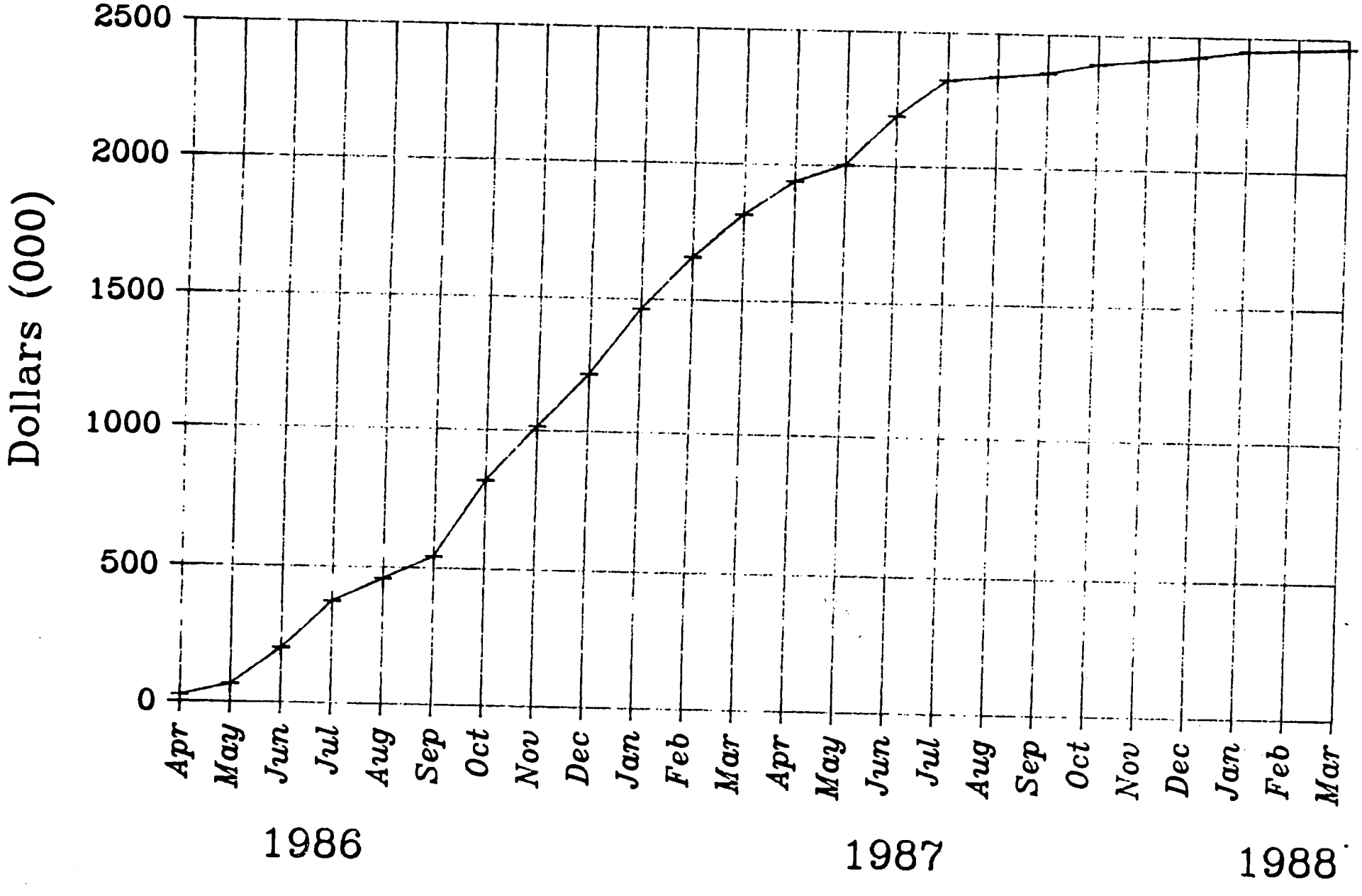
PROPOSED BUDGET FOR AgHRD PROJECT EXTENSION
April 1, 1986 - March 31, 1988

Item	Proposed Budget
1. Long-term Technical Assistance	164,000
2. Short-term Technical Assistance	176,000
3. Participant Training	152,000
4. Construction	1,100,000
5. Operational Costs for Gampela Farm	146,000
6. Commodities	473,000
7. Evaluation and Phase II PP	253,000
TOTAL	2,464,000

Graph 1

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Total Budget



efforts to incorporate additional components of the American system of agricultural education.

1. Project Leader.

Two-person years of long-term technical assistance will be used during the extension. The long-term technician will serve as Project Leader. The basic responsibility of the Project Leader will be to organize and monitor the implementation of the activities funded during the extension. The activities are varied and complex and will require a Project Leader will substantial management training and experience. He/She will report to the ISP/IDR Director and the USAID Project Manager. The specific duties of the Project Leader are:

a. Serve as liaison between ISP/IDR and USAID/Burkina on matters related to the AgHRD Project.

b. In collaboration with the USAID/Burkina Project Manager, initiate the implementation of all activities related to local commodity purchases in accordance with AID regulations and procedures as specified by AID Handbooks 14 and15;

c. In collaboration with the USAID/Burkina Project Manager initiate the implementation of all activities related to construction activities and monitor construction according to the guidelines provided by Handbook 11;

d. Assist ISP/IDR Director in the development of a Scope of Work for the project extension and in the selection of short-term participants for training in US and third countries;

e. Assist academic departments at ISP/IDR in the selection of short-term American consultants;

f. Advise the Project accountant;

i. Assist the USAID/Burkina Project Manager in the scheduling and monitoring of project;

j. Assist the Phase II design and evaluation teams in its work.

Qualifications for the Project Leader/Curriculum/Farm Management Adivsor are:

a. Masters degree in business management or a related field.

b. Experience working in USAID-sponsored agricultural programs in West Africa with substantial knowledge of USAID

project management procedures in commodity procurement and construction. On farm experience desired;

c. FSI 3S-3R in French;

The estimated budget for this activity is $164,000. A detailed breakdown of expected expenditures is found in Table 2. The mechanism for employing the long-term technician is a Personal Services Contract or the use of an IQC or TSM.

The schedule for the long-term technician is found in Chart 1. The technician is due at post April 1, 1986 and will complete his/her tour March 31, 1988.

Graph 2 contains a visual presentation of the planned cummulative monlthly expenditures for long-term technical assistance. It is anticipated that approximately $7,000 will be spent each month.

2. Short-term Technical Assistance

The short-term technical assistance is designed to provide continuing American input into the program at ISP/IDR. This will allow for substantial input by American professors at ISP/IDR during the transition period between Phase I and Phase II. This is important since the Phase II project will focus on establishing major components of the American Land-Grant system at ISP/IDR. Ten consultants will be used for a total of ten person months. The following types of consultants will be utilized:

a. Microcomputer Specialist. A microcomputer specialist with experience in agricultural and statistical research will be employed to provide in-country short-term training for ISP/IDR faculty and staff. The consultant will be used one-month each year for a total effort of 2 person months. FSI S3, R3 in French required.

b. Advisor to Animal Science Department. A livestock specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Animal Science professors on research and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Animal Science component of the farm. Total effort will be 2 person months. FSI S3, R3 in French required.

c. Advisor to Forestry and Water Management Department. A forestry/fisheries specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Forestry and Water Management professors on re-

TABLE 2

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1987

DETAILED BUDGET FOR LONG-TERM TECHNICAL ASSISTANCE

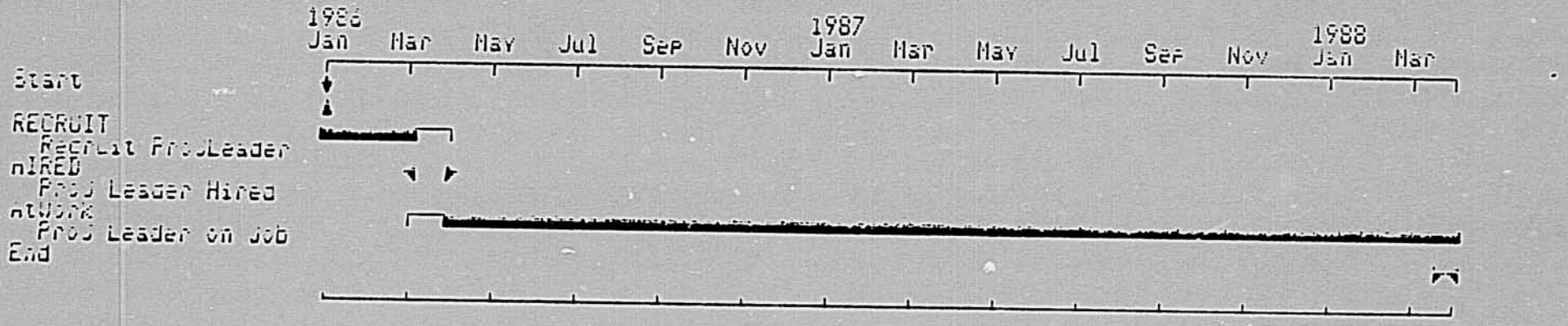
Item	Estimated Budget
a. Salary 2 years @ $30,000 per year plus 7.05% FICA	64,500
b. Post Differential 25% of Salary	15,000
c. COLA 7.5% of Salary	4,500
d. Housing, Utilities and Guard 24 months @ $1,500	36,000
e. International Travel Travel to Post and RandR	10,000
f. Project vehicle to be used by Project Leader	15,000
g. Microcomputer, Printer, software, etc	12,000
h. Operational and maintenance cost for vehicle	5,000
i. Miscellaneous	2,000
SUB-TOTAL	164,000

Chart 1

AaHRD Project, 686-0221--Long-Term Technical Assistance

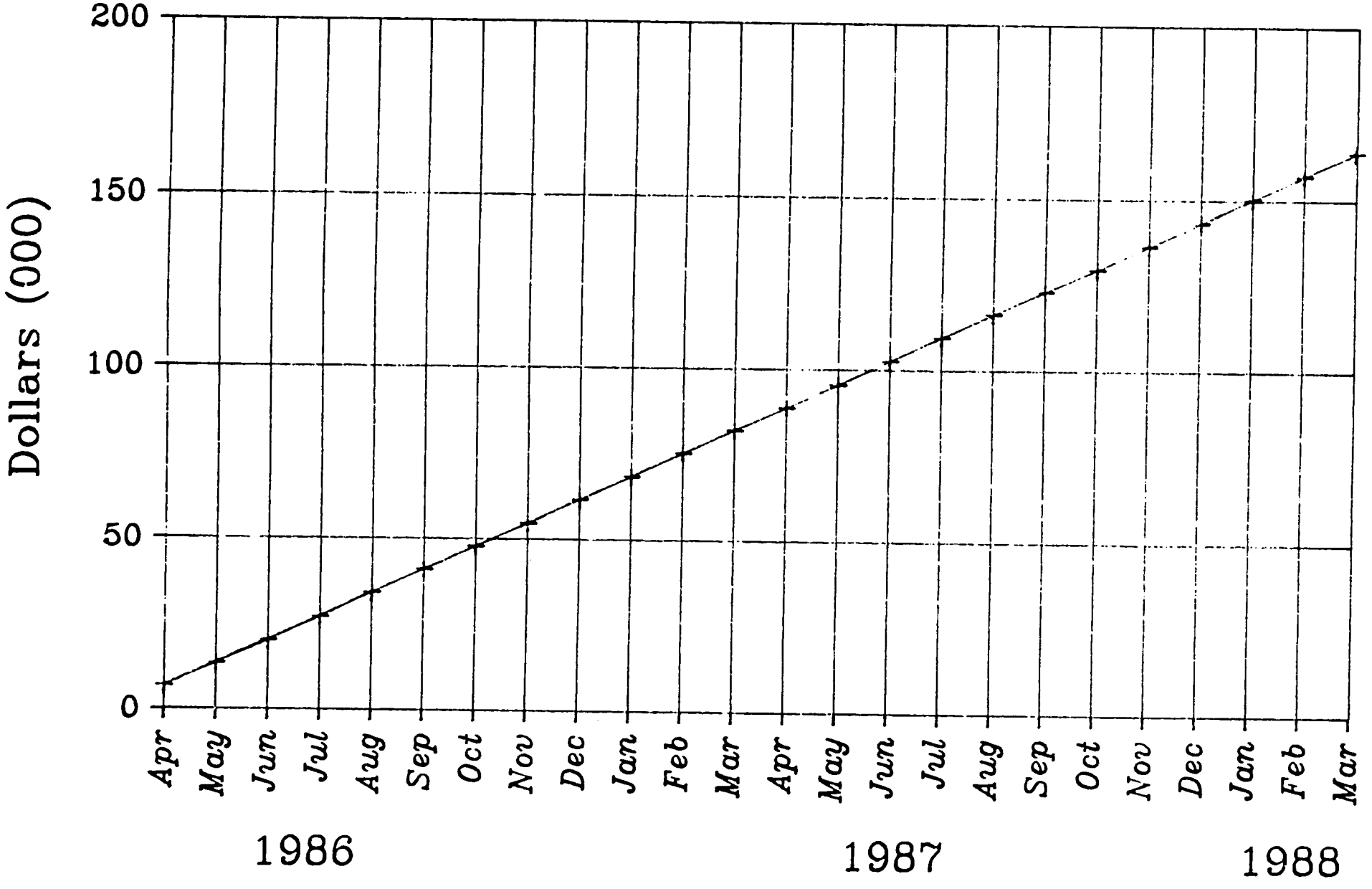
Project: LONGTTA

8-Jan-1986



PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Long-Term TA



search and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Forestry/Water Management component of the farm. Total effort will be 2 person months. FSI S3,R3 in French required.

d. Advisor to Agronomy Department. A agronomy specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Agronomy professors in research and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Agronomy component of the farm. Total effort will be 2 person months. FSI S3, R3 in French required.

e. Agricultural Manpower Consultant. A specialist in agricultural manpower will be employed to conduct a brief survey of professional-level agricultural manpower needs in Burkina Faso. The consultant will have French-speaking capability and experience working in West Africa. The consultant's report will outline the projected 10 year supply and demand for university-trained agricultural professionals. Total effort will be 1 month. FSI S3, R3 in French required.

f. Specialist in Land-Grant college system. Will conduct an institutional analysis of the existing linkages between agricultural research, extension and education. Report will recommend approaches to establishing unified system. FSI S3, R3 in French required.

The estimated budget for this activity is $176,000. A detailed breakdown of expected expenditures is found in Table 3. The mechanism for supplying needed consultants will be an IQC or TSM.

The schedule for the short-term consultants is found in Chart 2. The activity is due to start April 1, 1986 and be completed by October 31, 1987.

Graph 3 contains a picture of the planned cummulative monlthly expenditures for short-term technical assistance. Most of the expected expenditures should occur during the summer months of each year when the short-term consultants are expected in country. It is anticipated that all expenditures for this category will be completed by July 1987.

B. Participant Training.

The two year extension of the project will not be long enough to support new starts of long-term participant training. However, substantial short-term training will be carried out. An outline of planned short-term training is outlined below. A

TABLE 3

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR SHORT-TERM
TECHNICAL ASSISTANCE

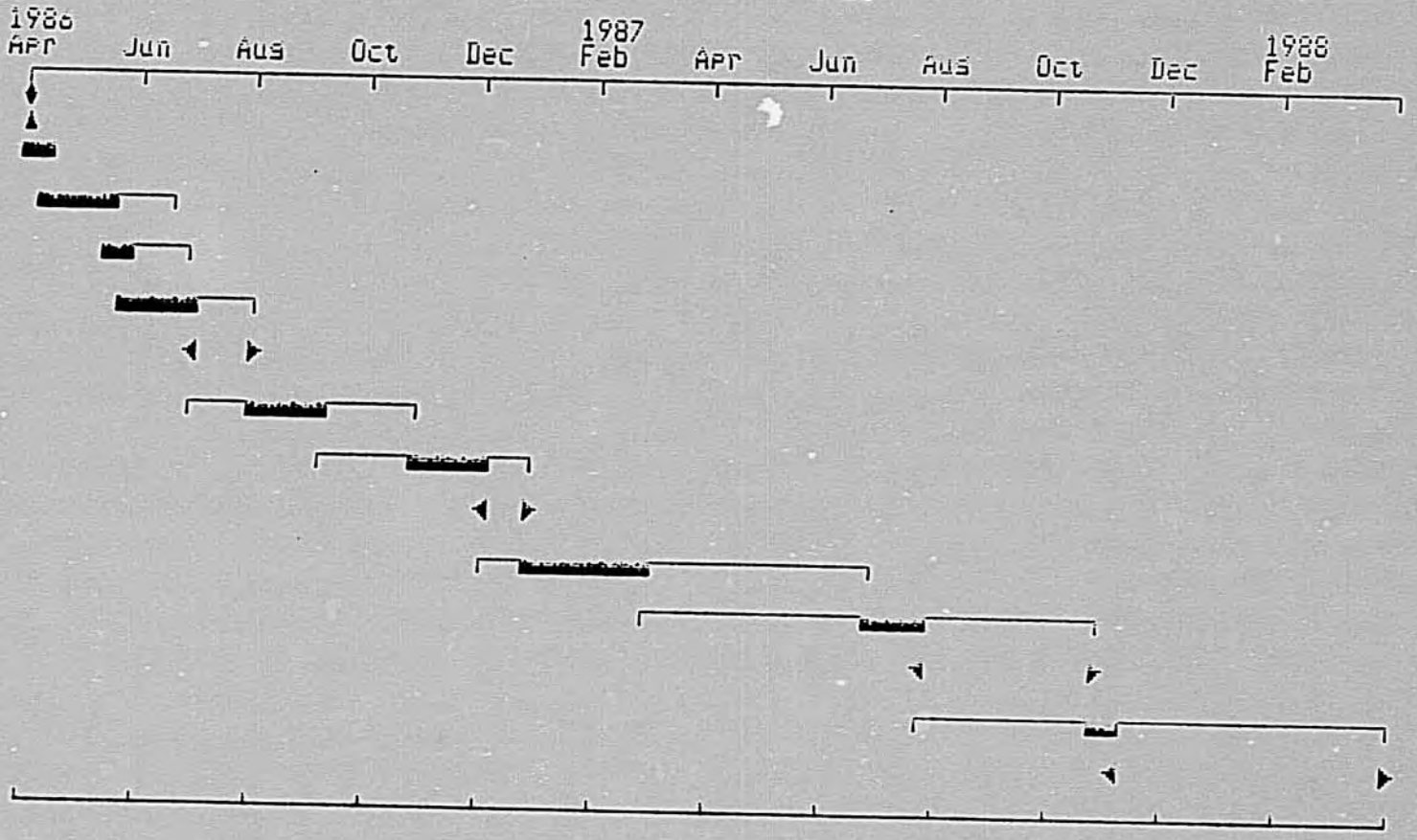
Item	Estimated Budget
a. Consultant Costs 10 Consultants for 26 work days and 4 travel days @ $370	111,000
b. Consultant Travel 10 roundtrips @ $2,500	25,000
c. Consultant per diem 10 consultants for 30 days @ $80	30,000
d. Car Rental for Consultants 90 days @ $50	4,500
e. Miscellaneous	5,500
SUB-TOTAL	176,000

Chart 2

Project: ShortTA

AgHRD Project, 686-0221--Short-Term Technical Assistance

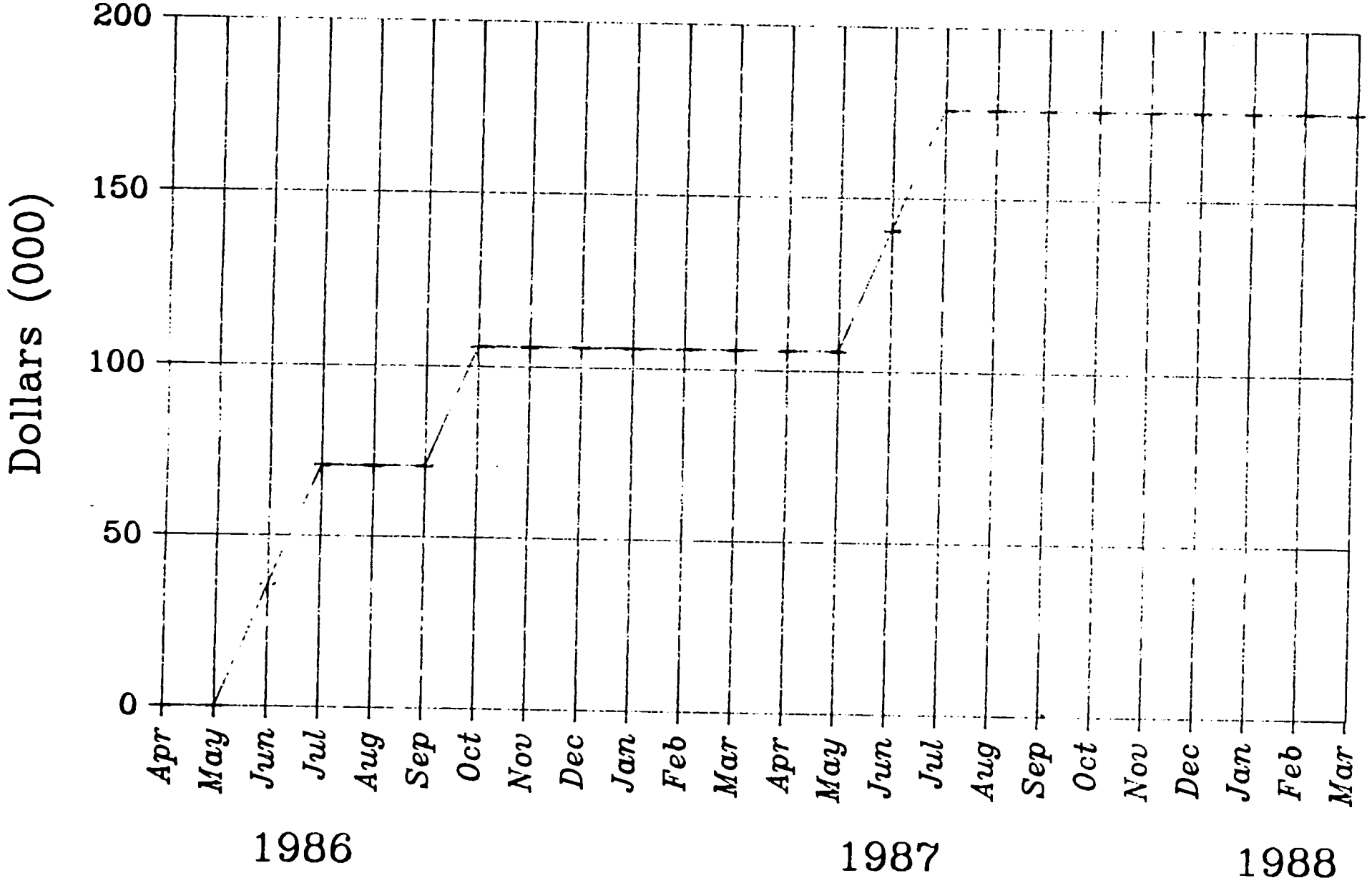
8-Jan-1986



Graph 3

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Short-Term TA



discussion of participant training needs for ISP/IDR is found in Annex E.

1. U.S. Short-Training for ISP/IDR Professors.

Nine ISP/IDR Professors will be selected for short-term training in the United States. Five will be sent in 1986 and four in 1987. The participants will attend short courses such as those conducted by USDA for foreign scientists. The training will take place during the summer months when the professors are free from teaching responsibilities. The Office of International Training (OIT), AID/W will be utilized for placement services. Each training activity will last for about 45 days.

2. U.S. Training for Farm Manager.

ISP/IDR has recently appointed a new Burkinabe farm manager. He would benefit greatly from experience working with a manager at a small school farm in the United States which has teaching and research activities. The farm manager will be sent to the United States each year for 45 days. OIT,AID/W will be utilized for placement services.

3. VIP Tours of U.S. Land-Grant Universities.

Six high level Burkinabe officials responsible for agricultural education, research and extension will be sent to the United States for a tour of Land-Grant universities. The purpose of the visit will be to acquaint the officials with the integrated approach to agricultural extension, education and research which characterized the United States. This is in preparation for a Phase II project centered around this concept. The visits will be for about 45 days.

4. Visit to AID Project utilizing the Land-Grant Approach in West Africa.

The Mission plans to follow the project extension with a Phase II project utilizing the Land-Grant model. AID currently have projects in West Africa employing this model. Eight Burkinabe, ISP Professors and government officials involved in agricultural education, research and extension will tour an appropriate project in another West African country. The visit will list for eight days.

The estimated costs for the Short-term Participant Training activity is $152,000. A detailed breakdown for estimated expenditures for this activity is found in Table 4. The Office of International Training, AID/W will place the participants in U.S. training programs. The Training Office, USAID/Burkina will

handle local arrangements and arrangements for tour of West African project.

The budget for short-term participant training is found in Table 4. The estimated amount is $152,000. Chart 3 contains the schedule for participant training. The activity is scheduled to begin April 1, 1986 and conclude September 15, 1987.

Graph 4 provides a pictorial of the planned cummulative monthly expenditures for short-term training. As can be seen, the expenditures are planned for the summer months of each year. All expenditures for short-term training should be completed by July 1987.

C. Construction

ISP/IDR, working with USAID/Burkina, has developed a long-term plan for the development of the Gampela Teaching/Research farm. (See Annex D.) The plan calls for transferring the location of ISP/IDR to the Gampela farm. This, of course, will require the building of an entire campus--classroom buildings, laboratories, dormitories, faculty housing, etc. Such construction activities are not possible during the project extension. Both time and money are lacking. A Phase II project, working with other international donors, can contribute to the development of the Gampela farm as a campus for ISP/IDR.

Within the context of the project extension, there are several construction activities which are limited enough in scope to be supported. The construction activities identified will contribute to the long range goal of transferring the entire ISP/IDR program to Gampela and in the interim provide expanded teaching and research facilities to students and faculty. A list of the construction activities to be funded during the project extension is found in Table 5. These are items which are financially feasible during the extension and can be completed during the two year period. The total construction budget is $1,100,000. Table 5 also provides a cost estimates for each of the construction activities. An assessment of the long-term construction needs for ISP/IDR is found in Annex C.

Graph 5 provides a view of the planned cummulative monthly expenditures for construction. Given the magnitude and complexity of the construction activities, they have been scheduled for completion early in the project. Most of the expenditures should occur between September 1986 and March 1987. All expenditures should be completed by August 1987.

1. Installation of Electric Line from Ouagadougou to Gampela Farm

At the present time, the Gampela farm uses diesel generators to provide the electrical power needed for the various opera-

Table 4

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR SHORT-TERM TECHNICAL TRAINING

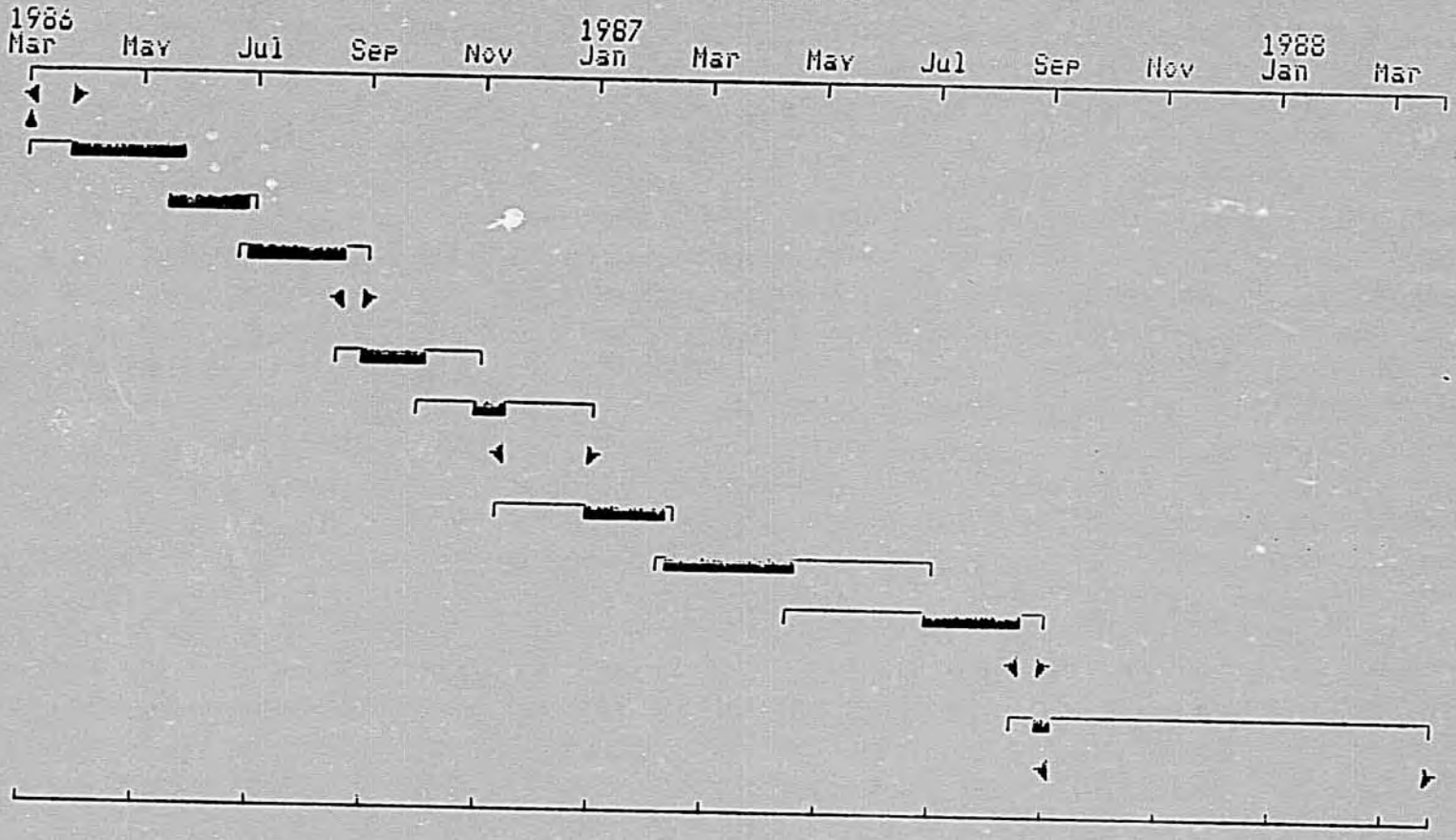
Item	Estimated Budget
I. Short Term Training in United States	
a. Travel 17 roundtrips to the United States @ $2,500 per trip	42,500
b. Per Diem for Short-term Participants 17 participants for 45 days at $75	57,375
c. Tuition for Short Courses 11 participants @ $2,500 per course	27,500
d. Miscelleous Costs	5,000
II. Site Visits to USAID Agricultural Education, Extension and Research Projects in West Africa.	
a. Travel 8 roundtrip tickets @ $1,500.	12,000
b. Per Diem for 8 participants 8 participants for 8 days @ $100	6,400
c. Miscelleous Costs	1,225
SUB-TOTAL	152,000

Chart 3

AsHRD Project, 686-0221--Short-Term Participant Training

Project: Training

8-Jan-1986



Graph 4

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Short-Term Training

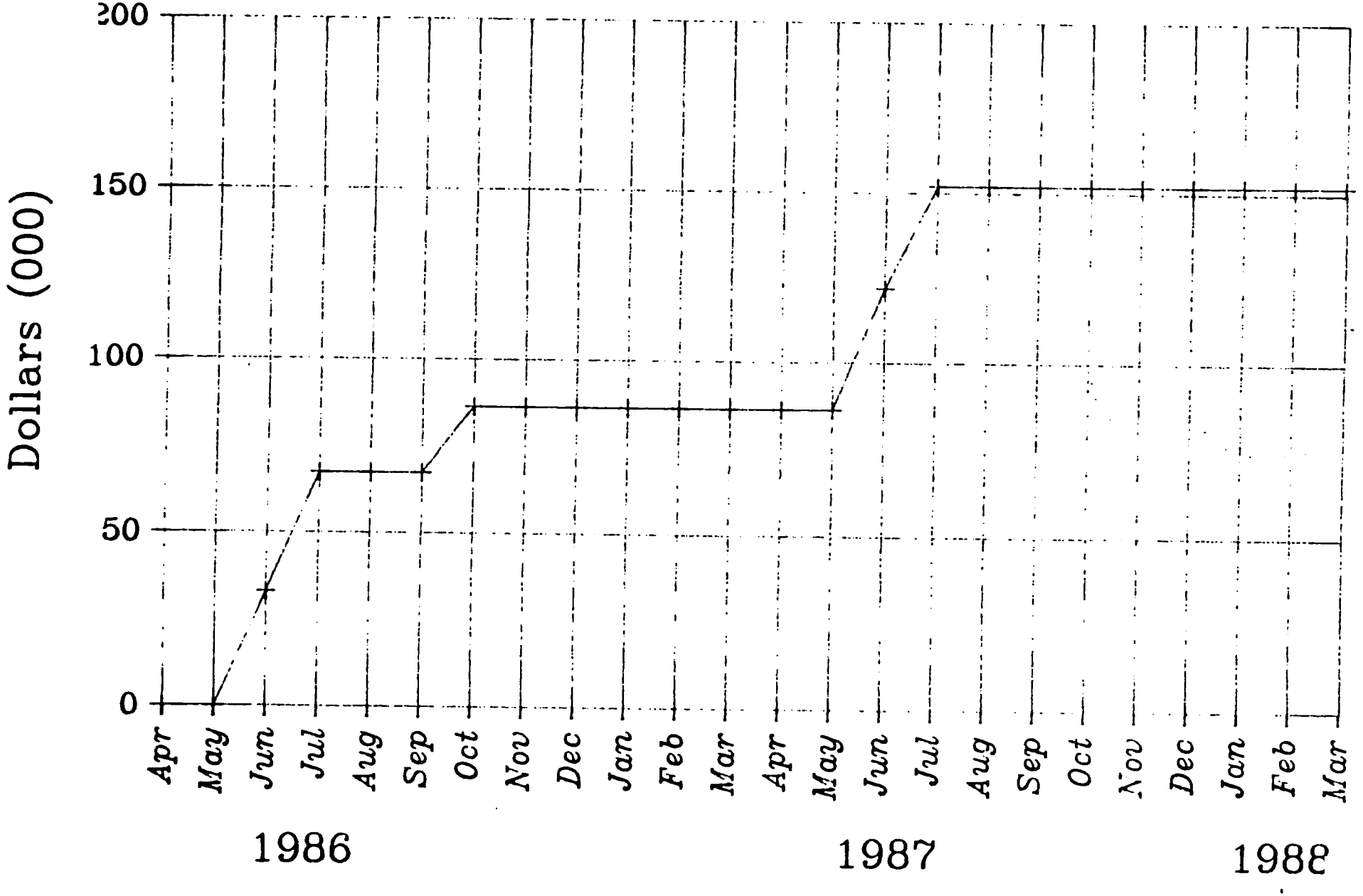


Table 5

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

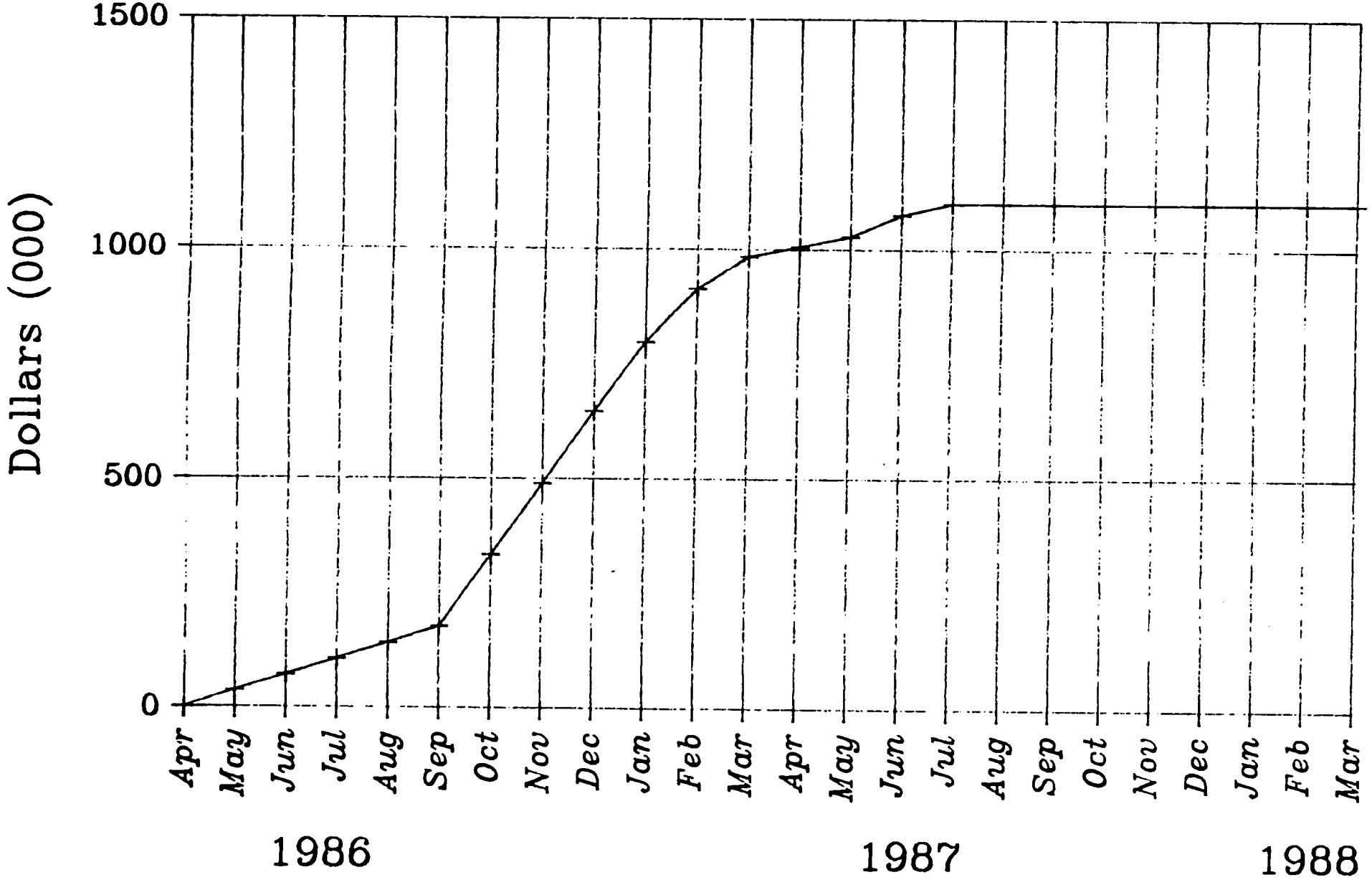
DETAILED BUDGET FOR CONSTRUCTION

Item	Estimated Budget
a. Installation of Electric Line between Ouagadougou and Gampela Farm	320,000
b. Construction of Dam for Dry Season Reservoir	525,000
c. Construction of Fish Ponds for Teaching/Research	55,000
d. Construction of a storage shed for equipment	19,000
e. Consturction of a storage shed for seeds and harvested crops	25,000
f. Construction of Swine Unit	22,000
g. Consturction of rabbit unit	13,000
h. Contruction of poultry unit	31,000
i. Construction of Goat unit	13,000
h. Remodelling of Sheep unit	19,000
i. Remodelling of barn	14,000
j. Construction of shed for hay	20,000
k. Construction of shed for digestion trials	24,000
SUB-TOTAL	1,100,000

Graph 6

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Construction



tions of the farm. This has proven to be unsatisfactory. Only a limited amount of power is available and machines have experienced breakdowns routinely. An electrical line is essential to the further development of the farm. This is certainly the case if ISP/IDR transfers its operations to the farm. It should be noted that the original PP called for installation of such a line, but it was decided not to fund the activity because in the early years of the farm there were not sufficient use of the farm to justify the expenditure. This situation has changed and one can expect increased usage of the farm in the future. This is an important item to have in place before a Phase II project begins. The estimated cost of this activity is $320,000. The work will done by SONABEL, the national electric company. As indicated in Chart 4, the activity will be completed during the first year of the extension.

2. A Reservoir to provide sufficient water for irrigation and livestock needs.

Since its beginning, the Gampela farm has faced a chronic shortage of water. This problem was recognized in the PP and the proposed solution was the development of a reservoir to provide water necessary for crop production during the long dry season. Early project management decided to provide wells instead. This has proven unsatisfactory because the wells developed have not supplied the quantities of water needed. Presently, there is only enough water for relatively small animal herds and a small irrigated perimeter.

A reservoir is a feasible alternative. There is a small river which which borders the farm. It flows during the rainy season and for some time afterwards. Several possible sites for a dam have been located. A feasibility study is planned which will determine the best site. Preliminary findings indicate that a suitable site can be found which will provide sufficient water during the dry season to meet the requirements expanded irrigation of crops and larger herds of livestock.

The projected cost of the dam is $525,000. The construction of the dam will be completed by the end of March, 1987. A schedule for the dam construction and reservoir development is found in Chart 5. The feasibility study and plan for construction will be carried out by the GOB agency which is responsible for dam development. The same agency will supervise construction. The actual construction will be done by a local firm.

3. Other Construction.

The faculty at ISP/IDR, working with USAID/Burkina, has identified other construction activities for the Gampela farm. These include storage sheds, small buildings to be used for various animals, and ponds for teaching fisheries and doing research. A list of these other construction activities is found

Chart 4

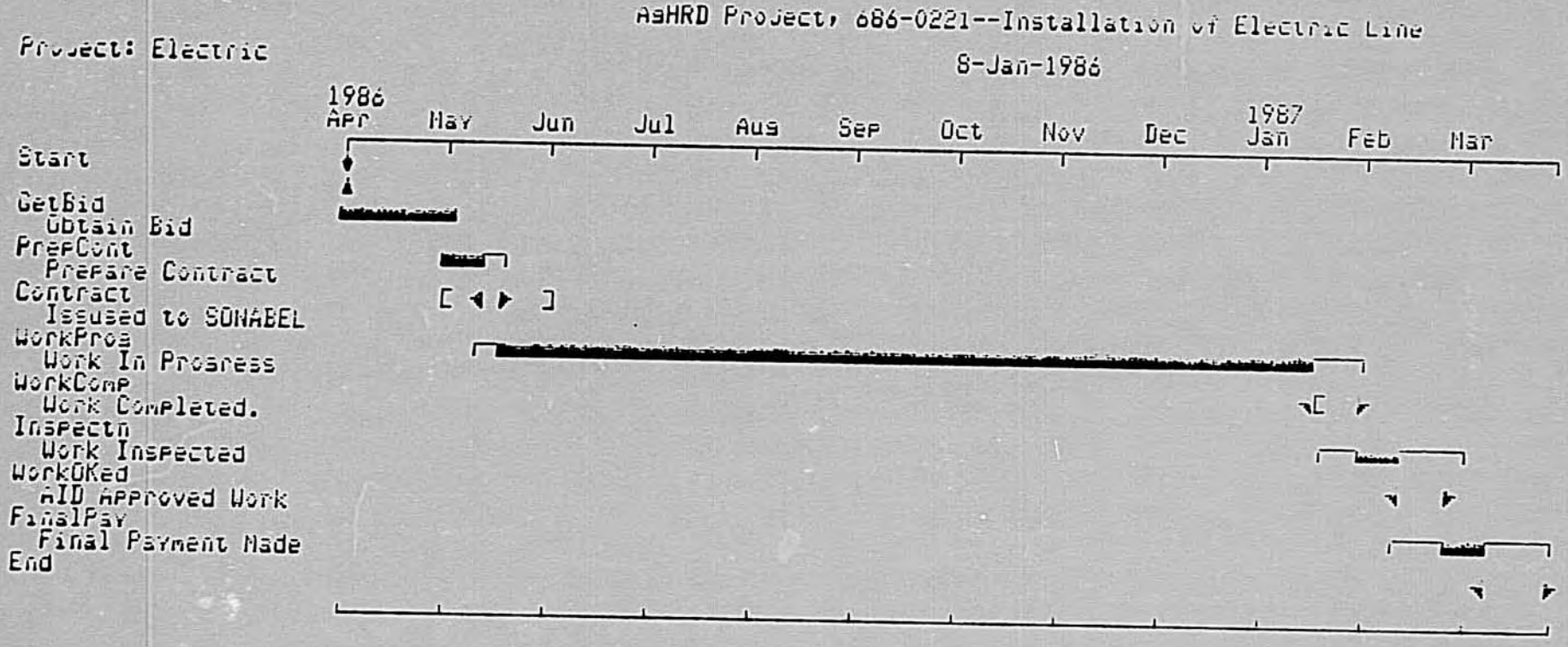

AsHRD Project, 686-0221--Installation of Electric Line
Project: Electric
8-Jan-1986
1986
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
1987
Jan
Feb
Mar
Start
GetBid
Obtain Bid
PrepCont
Prepare Contract
Contract
Issused to SONABEL
WorkProg
Work In Progress
WorkComp
Work Completed.
Inspectn
Work Inspected
WorkOKed
AID Approved Work
FinalPay
Final Payment Made
End

Chart 5

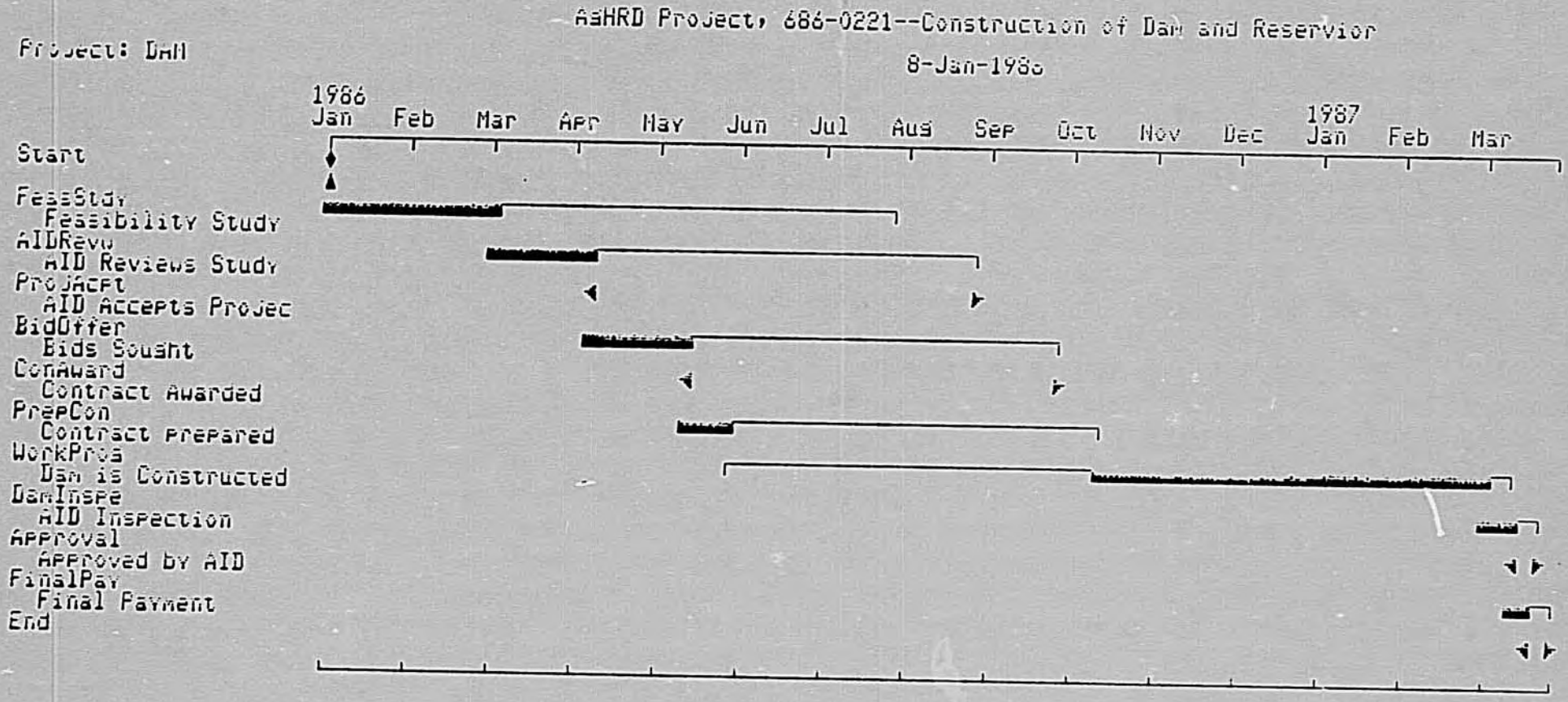

AsHRD Project, 686-0221--Construction of Dam and Reservior
8-Jan-1986
Project: DAM
1986
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
1987
Jan
Feb
Mar
Start
FeasStdy
Feasibility Study
AIDRevu
AID Reviews Study
ProjAcpt
AID Accepts Projec
BidOffer
Bids Sought
ConAward
Contract Awarded
PrepCon
Contract Prepared
WorkPrgs
Dam is Constructed
DamInspe
AID Inspection
Approval
Approved by AID
FinalPay
Final Payment
End

Table 5. The estimated costs of each item is found in the same Table. The total estimated cost for the other construction item is $225,000. Chart 6 contains a schedule for the construction. It is anticipated that the construction will be completed by the end of July, 1987.

D. Operational Costs for the Gampela Farm.

The AgHRD project has supported operational costs at the Gampela farm from the beginning. The project will continue to fund these costs during the extension. Currently, the operational costs at the Gampela farm are averaging about $3,500 per month. This is down from about $5,000 two years ago. However, it is anticipated that activities at the farm will increase dramatically during the next two years. ISP/IDR is making a renewed effort to increase its use of the farm for teaching and research. This effort should accelerate as ISP/IDR begins to transfer its entire program from the main campus of the University of Ouagadougou to the Gampela farm. The budget for the two years of the extension is found in Table 6. The total amount budgeted is $251,000. $105,000 will be available out of PL-480, Section II, 206 funds. It is anticipated that $146,000 of AgHRD funds will be spent during the period. Chart 7 contains the schedule for money advances to ISP for operational costs and the schedule for financial reporting.

Graph 6 provides a pictorial of planned cummulative monthly expenditures for farm costs during the project extension. An advance of about $18,000 of AgHRD project funds will be given to ISP/IDR every three months. At the end of the period, ISP/IDR will provide the AID Controller with a financial report.

There is a problem associated with the operational expenses for the Gampela farm. How will these costs be covered after the termination of the project? Annex F contains a discussion of recurrent costs.

E. Commodities.

During the project extension, additional commodities will be purchased. Additional commodities are needed for two reasons. The first is that most of the commodities purchased by the project are old and are now reaching the end of their usefulness. This is especially true of the vehicles purchased by the project. It is increasingly difficult to maintain them. Spare parts are difficult to find and the vehicles are at a point where it is no longer economical to repair them when they break down.

The second reason that additonal commodities are needed is that ISP/IDR continues to increase in size and additional commodities are needed to support additional faculty and students.

Chart 6

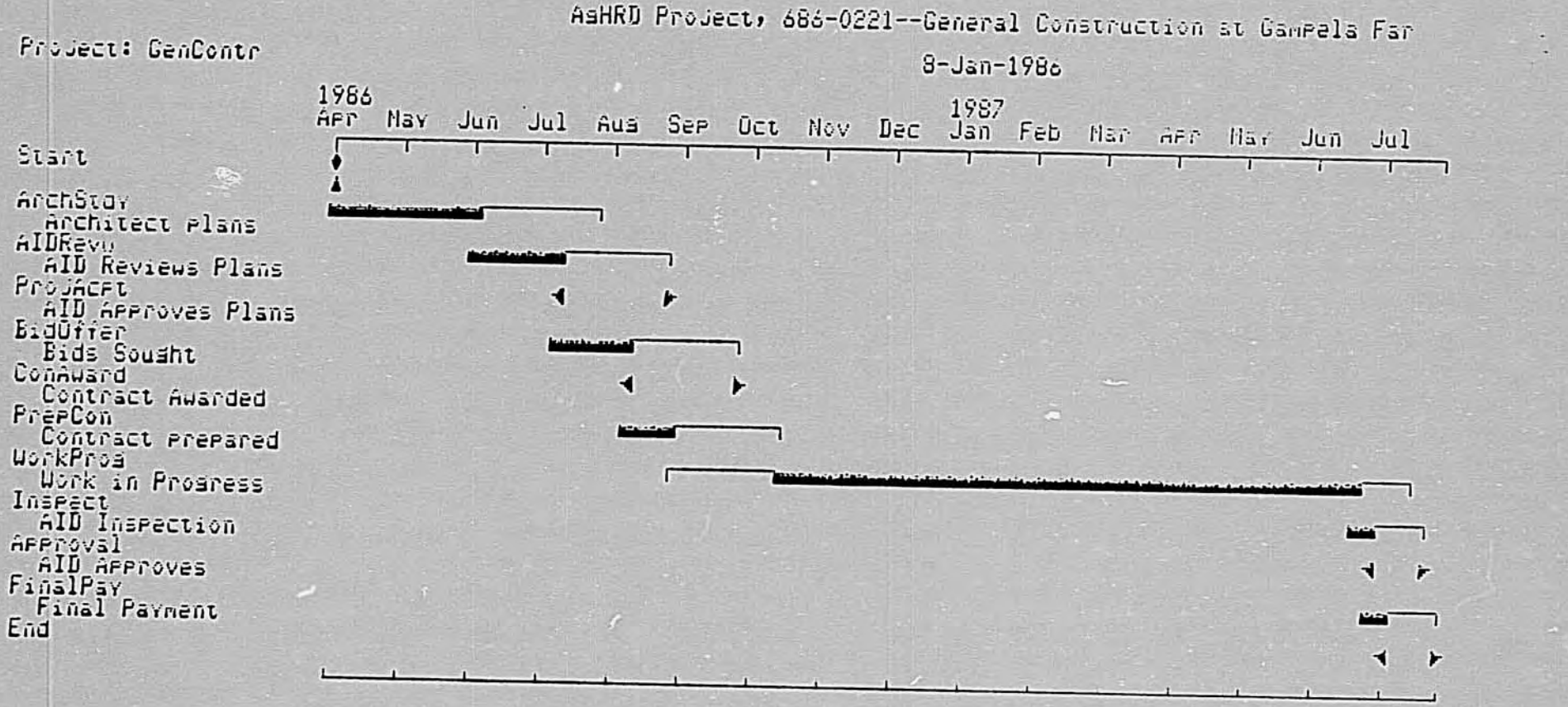

AsHRD Project, 686-0221--General Construction at Gampela Far
Project: GenContr
8-Jan-1986
1986
1987
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul
Start
ArchStdy
Architect Plans
AIDRevu
AID Reviews Plans
ProjAcpt
AID Approves Plans
BidOffer
Bids Sought
ConAward
Contract Awarded
PrepCon
Contract Prepared
WorkProg
Work in Progress
Inspect
AID Inspection
Approval
AID Approves
FinalPay
Final Payment
End

Table 6

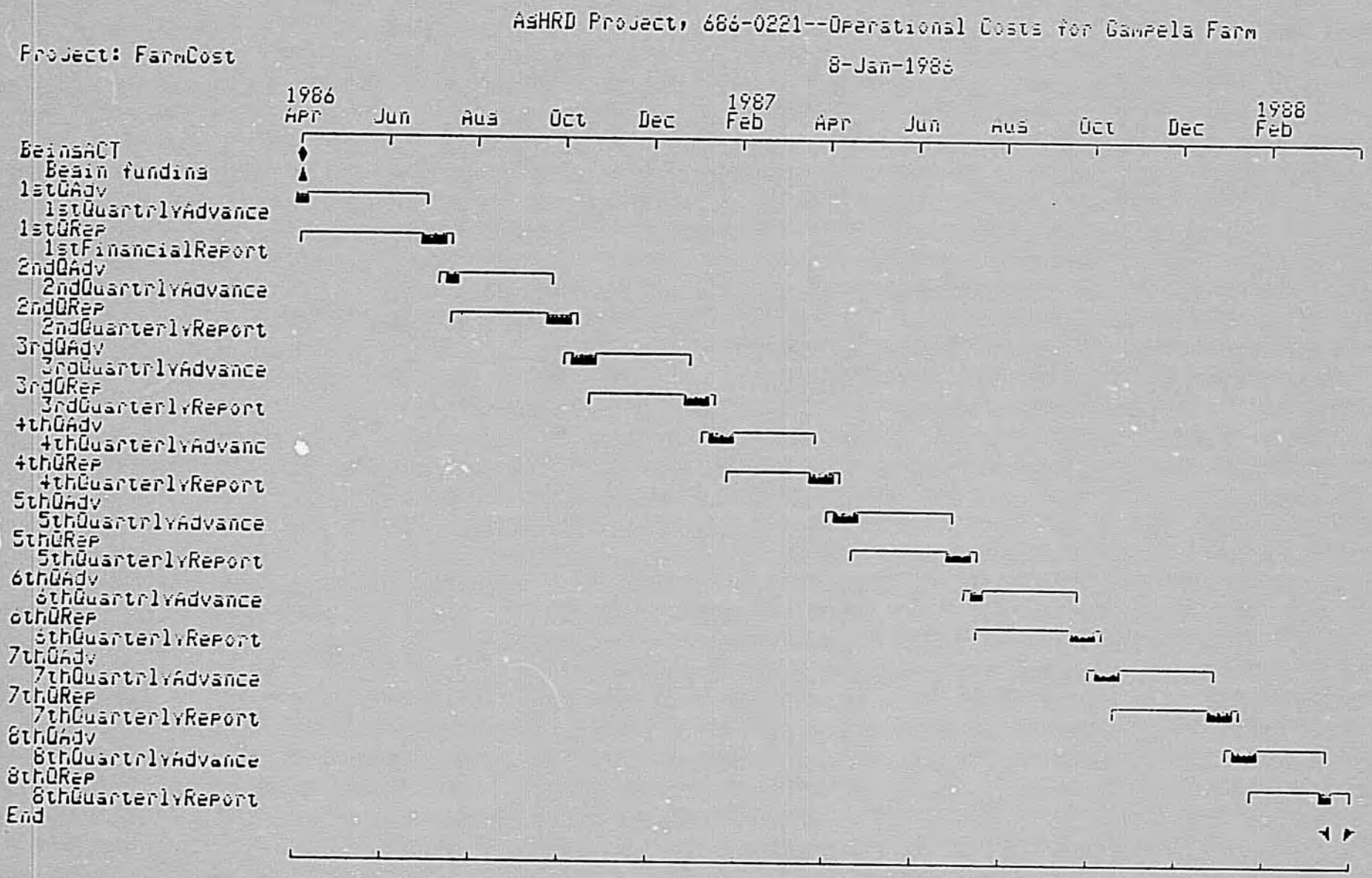
AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR OPERATIONAL COST FOR
GAMPELA FARM AND ISP TRANSPORATION

Item	Estimated Budget
a. Fuel Cost Fuel for farm and operation of ISP vehicles	48,000
b. Maintenance and Repair of Equipment and vehicles	24,000
c. Utilities	24,000
d. Farm Labor	72,000
e. Animal Feed/Seeds/Fertilizer	48,000
f. Farm Improvements--small constructio trees, purchase of animals,etc.	25,000
g. Miscellaneous	10,000
SUB-TOTAL	251,000
LESS PL-480, SECTION II, 206 Funds	105,000
	146,000

Chart 7


AsHRD Project, 686-0221--Operational Costs for Gampela Farm
Project: FarmCost
8-Jan-1988
1986
Apr
Jun
Aug
Oct
Dec
1987
Feb
Apr
Jun
Aug
Oct
Dec
1988
Feb
BeinsACT
Begin funding
1stQAdv
1stQuartrlyAdvance
1stQRep
1stFinancialReport
2ndQAdv
2ndQuartrlyAdvance
2ndQRep
2ndQuarterlyReport
3rdQAdv
3roQuartrlyAdvance
3rdQRep
3rdQuarterlyReport
4thQAdv
4thQuarterlyAdvanc
4thQRep
4thQuarterlyReport
5thQAdv
5thQuartrlyAdvance
5thQRep
5thQuarterlyReport
6thQAdv
6thQuartrlyAdvance
6thQRep
6thQuarterlyReport
7thQAdv
7thQuartrlyAdvance
7thQRep
7thQuarterlyReport
8thQAdv
8thQuartrlyAdvance
8thQRep
8thQuarterlyReport
End

Graph 6

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Farm Costs

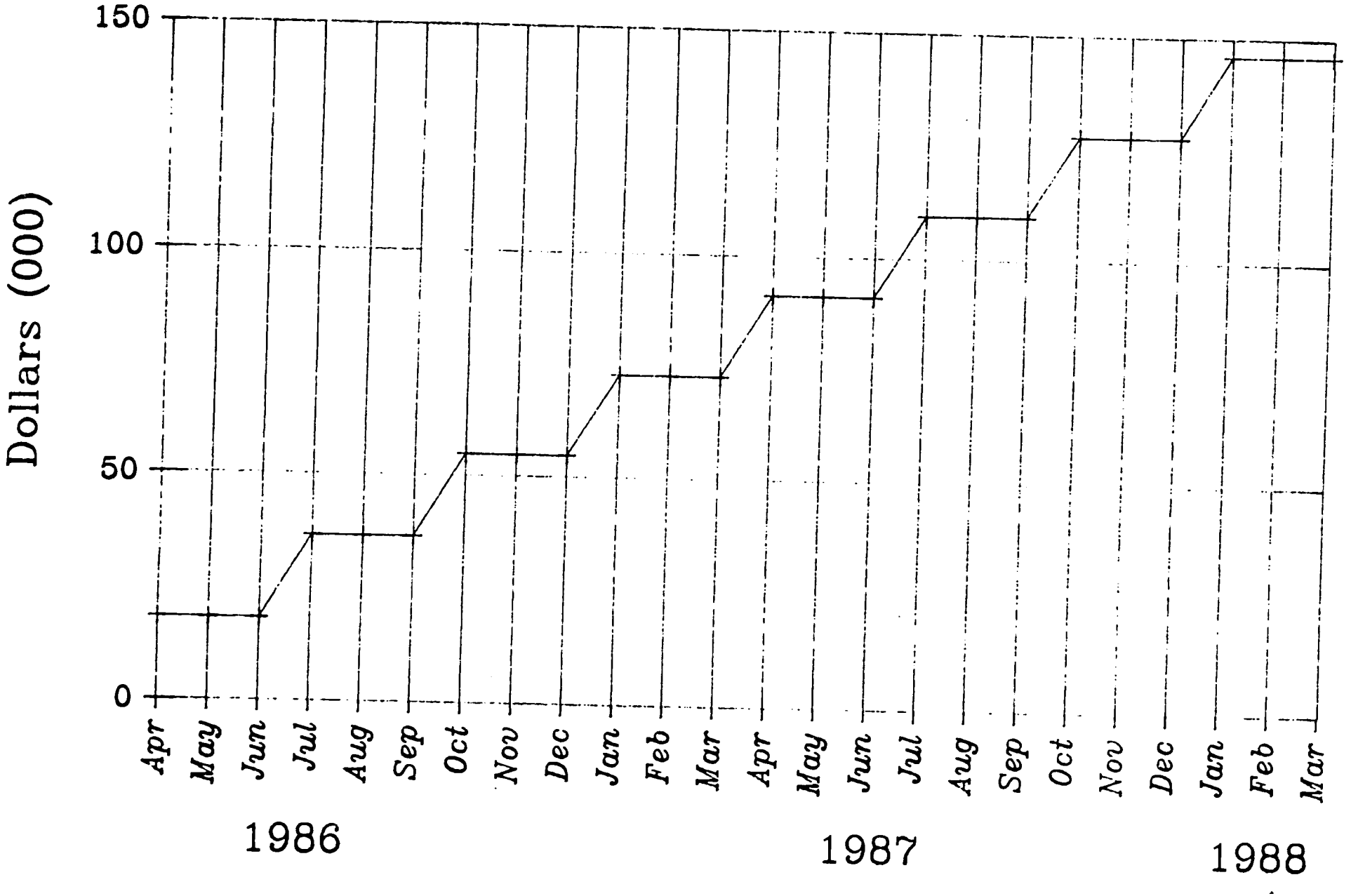


Table 7 contains a list of the commodities to be purchased. The estimated cost of the proposed commodities is $473,000. The commodities are divided into two groups--those to be purchased locally with use of a waiver and those to be purchased in the United States.

Graph 7 provides a graphic presentation of the planned cummulative monthly expenditures for commodities. It is anticipated that all commodities will be ordered during the early months of the extension and should be in place during the first year. Expenditures are expected to start in June 1986 and be completed by July 1987.

1. Locally purchased commodites.

The Mission is requesting a waiver to allow the purchase of vehicles locally. This request is made because of the difficulty which the various USAID projects have experienced in recent years with the use of American-made vehicles. The vehicles have proven to be unsuitable for West African conditions. The projects have experienced great difficulty maintaining the vehicles because of a lack of spare parts and a lack of mechanics familiar with American vehicles. In addition to vehicles, a farm tractor and two electric pumps for wells at the Gampela farm will be purchased locally.

a. School buses. During the extension, the project will purchase 2 school buses to be used to transport students to and from the Gampela farm. The estimated costs of 2 buses with spare parts is $150,000. Presently, access to the farm by students and professors is severely limited because of a lack of sufficient transporation. Currently, ISP/IDR plans greatly expanded usage of the farm. Buses will facilitate this increased activity.

b. Farm trucks. Two farm trucks with spare parts will be purchased for an estimated price of $70,400. These trucks will be used to transport equipment and supplies to the farm and to transport the produce of the farm to market.

c. Minibuses. The project will purchase two minibuses with spare parts for an estimated $44,000. These minibuses will be used to transport small groups of students and faculty when the larger buses are not required. Early in the project, a minibus was purchased that has been used for this purpose. It now needs replacement.

d. Pick-up trucks. The project will purchase two small pickup trucks and spare parts for an estimated cost of $33,000. These trucks will be used by the farm manager as transportation and to transport small quantities of equipment and supplies.

Table 7

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

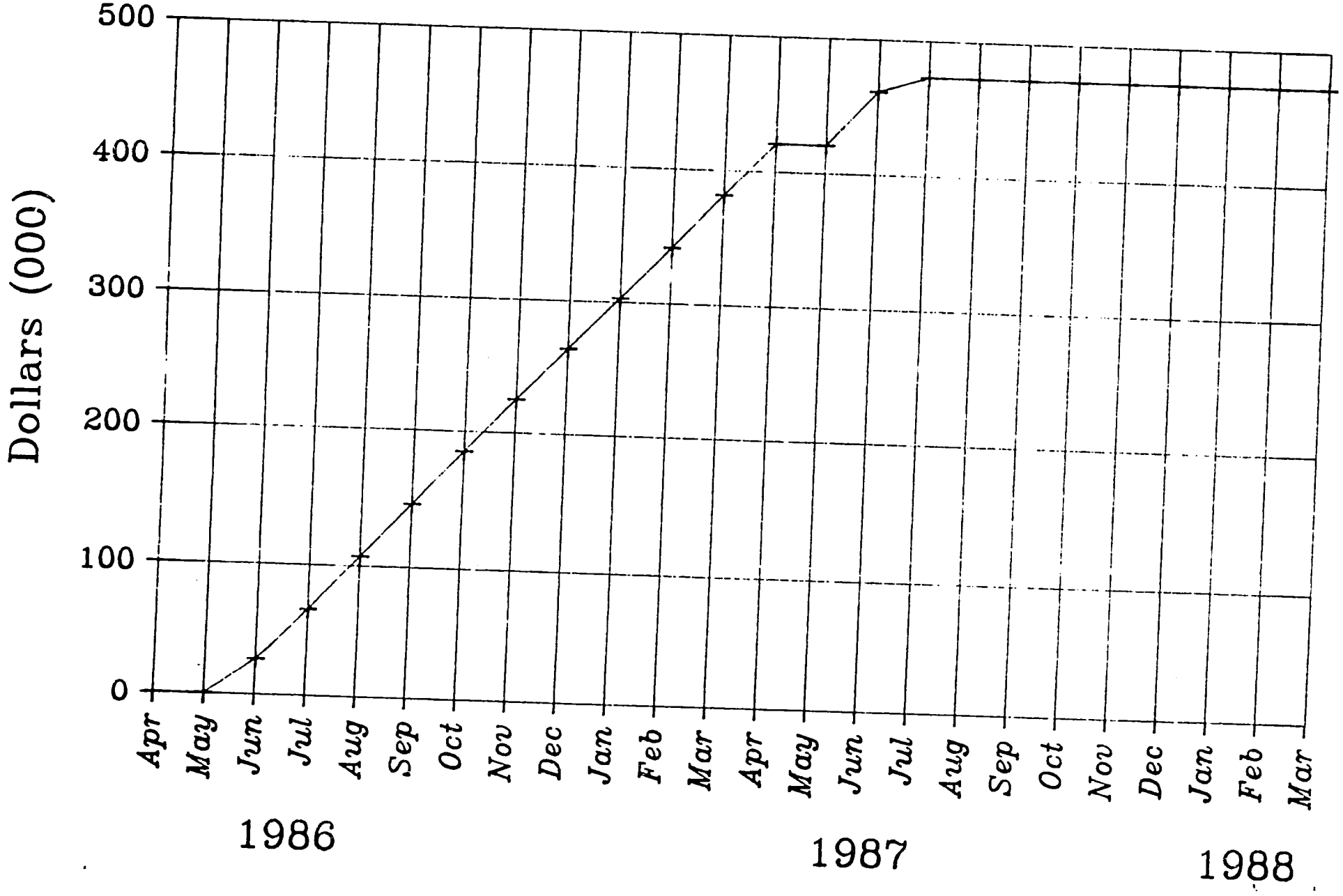
DETAILED BUDGET FOR COMMODITIES

Item	Estimated Budget
TO BE PURCHASED LOCALLY WITH WAIVER	
a. School Buses for the transport of students plus spare parts. 2 52-seat buses @ $70,000 plus $10,000 spare parts.	150,000
b. Farm Trucks plus spare parts 2 7-ton trucks $32,000 plus $6,000 spare parts.	70,000
c. Minibuses plus spare parts 2 @ $20,000 plus $4,000 spare parts.	44,000
d. Pick-up trucks for farm 2 @ $15,000 plus $3,000 spare parts.	33,000
e. Farm Tractor plus $3,000 spare parts.	38,000
f. Pumps for wells 2 @ $4,500	3,000
TO BE PURCHASED IN U.S. THROUGH IQC	
g. Microcomputer systems 3 microcomputers @ $6,000, 3 printers @ $1,500, Software @ $5,000, 3 UPS at $2,500	35,000
h. Farm equipment See list in Appendix D	30,000
i. Laboratory Equipment See list in Appendix D	50,000
j. Library Books and Journals	10,000
k. Miscellaneous	10,000
SUB-TOTAL	473,000

Graph 7

PLANNED CUMMULATIVE MONTHLY EXPENDITURE

Extension of AgHRD Project--Commodities



e. Farm tractor. An additional farm tractor will be purchased for the farm. The present tractors are old. An additional tractor is needed in anticipation of increased activities at the farm. An American made tractor will be purchased locally. The estimated cost of the tractor with spare parts is $38,000.

f. Pumps for wells. Two pumps for new wells to be developed at the Gampela farm will be bought. These wells will be developed in anticipation of the transfer of ISP/IDR to the Gampela farm. The estimated cost of these pumps is $3,000.

Bids for the vehicles and the pumps will be obtained from local vendors and suppliers which offers the lowest bids and are able to provide the items in a timely fashion will be chosen. USAID/Burkina will issue a purchase order for the items. The total budget for the items to be purchased locally is $342,900. The Project Leader and the Project Manager will share responsibility for handling the paper work associated with local purchases. The total estimated expenditures for local purchases will be $338,000. All local purchases will be made during the first year of the extension. Chart 8 contains the schedule for local purchase of commodities.

2. U.S. Commodity Purchases.

The remaining commodity purchases will be made in the United States. These purchases include microcomputers, farm equipment, laboratory equipment, and library books and journals.

a. Microcomputers. To date, the project has purchased two IBM-PC microcomputers. These are used for project accounting and research. During the extension, three additional IBM-PC microcomputers will be purchased. Printers, uninterupted power supplies and software will also be purchased. A detailed list of the computer supplies to be purchased is found in Annex D. The estimated cost for computers and equipment is $35,000. Training in the use of microcomputers will be provided by short-term consultants.

b. Farm Equipment. Additional farm equipment will be ordered from the United States. This equipment will support existing and planned activities at the farm. A list of farm equipment to be purchased can be found in Annex D. The estimated amount of expenditures is $30,000.

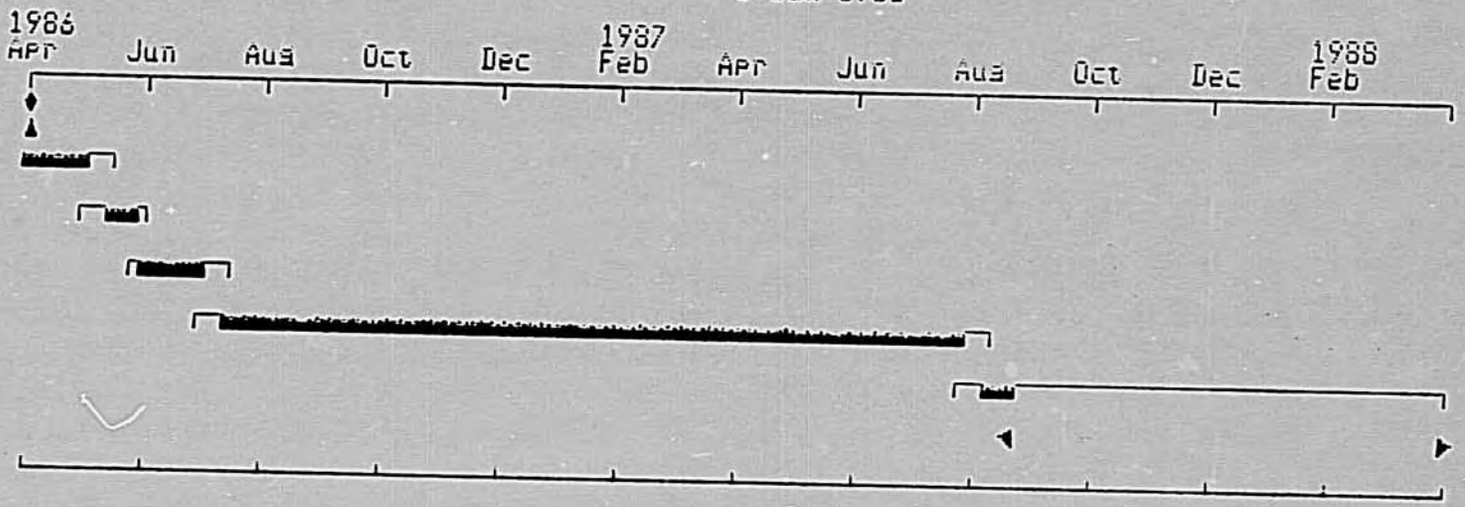
c. Laboratory Equipment. An estimated $50,000 of laboratory equipment will be purchased during the project extension.

Chart 8

Project: COMMDYLP

AsHRD Project, 686-0221--Commodities, Local Purchase

8-Jan-1986



Each department at ISP/IDR was asked to prepare lists of their needs for laboratory equipment and supplies. These are found in Annex D.

Library Books and Journals.

During the early stages of the AgHRD project, funds were used to establish a library at ISP/IDR. During the project extension, $10,000 will be used to purchase additional books and journals for the library. The faculty at IDR is in the process of developing lists of books and journals needed for the library These will be procured during the first year of the extension.

The USIAD/Burkina will select an approved IQC to purchase the needed items. The schedule for U.S. the commodity purchases is found in Chart 9. All U.S. commodity purchases will be made during the first year of the extension. Chart 9 contains a schedule for U.S. commodity purchases.

F. Evaluation and Phase II Project Design.

A project evaluation will be conducted toward the end of the first year of the extension. A design of a Phase II project will be accomplished in conjunction with the evaluation. The estimated cost of the evaluation and and design is $177,150. A detailed budget is found in Table 8.

Chart 10 contains a schedule for the evaluation and design activity. An IQC or TSM will be selected to provide the needed short-term consultants. The activity is scheduled for completion June, 1987, nine months before the PACD for the project extension. Five consultants will be needed during for the evaluation and design activity.

Graph 8 contains a pictorial of planned cummulative monthly expenditures for the design and evaluation activities. Expenditures are planned to start in January 1987 and continue for a year. They should be completed by January 1988.

1. Project Design Specialist. The person will have overall responsibility for the evaluation and design activities. A senior-level person with experience in the design and evaluation of agricultural education projects in West Africa will be selected. The consultant should also have experience working in a Land-Grant university in the United States, preferably in an administrative position. The Project Design Specialist will also serve an an advisor to ISP/IDR in matters related for curriculum development, faculty training and the development of the Gampela farm. FSI S3, R3 is required. The position calls for six person months of activity. He/she will arrive at post in January, 1987.

Chart 9

Project: COMMDYUS

AaHRD Project, 686-0221--Commodities, US Purchase

8-Jan-1986

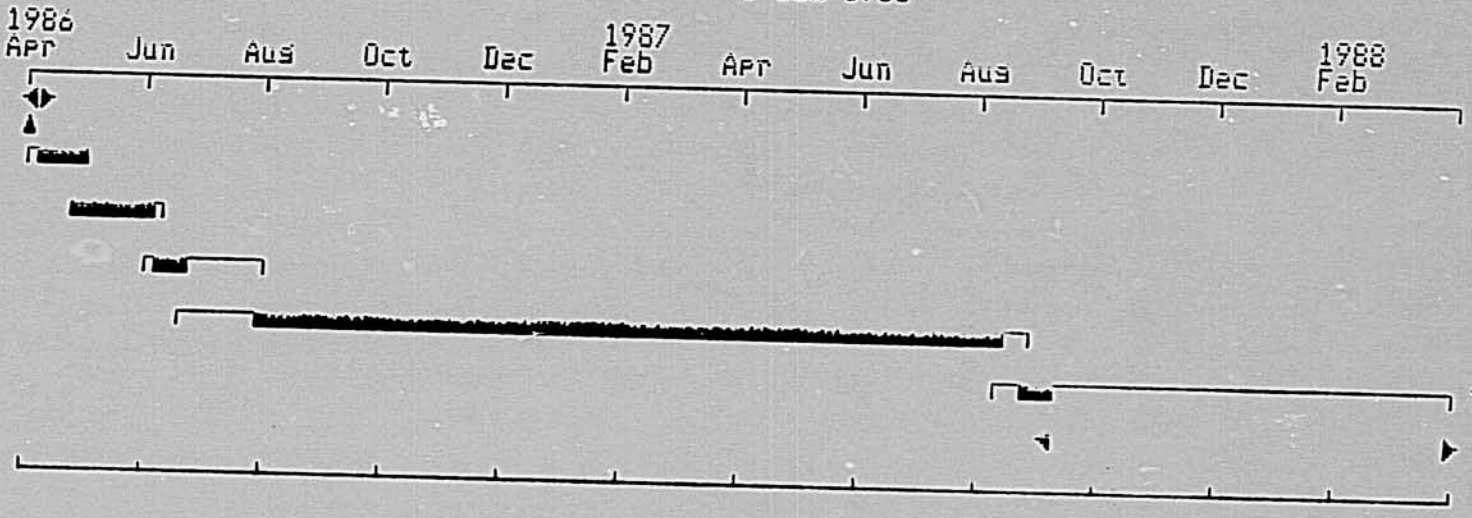


Table 8

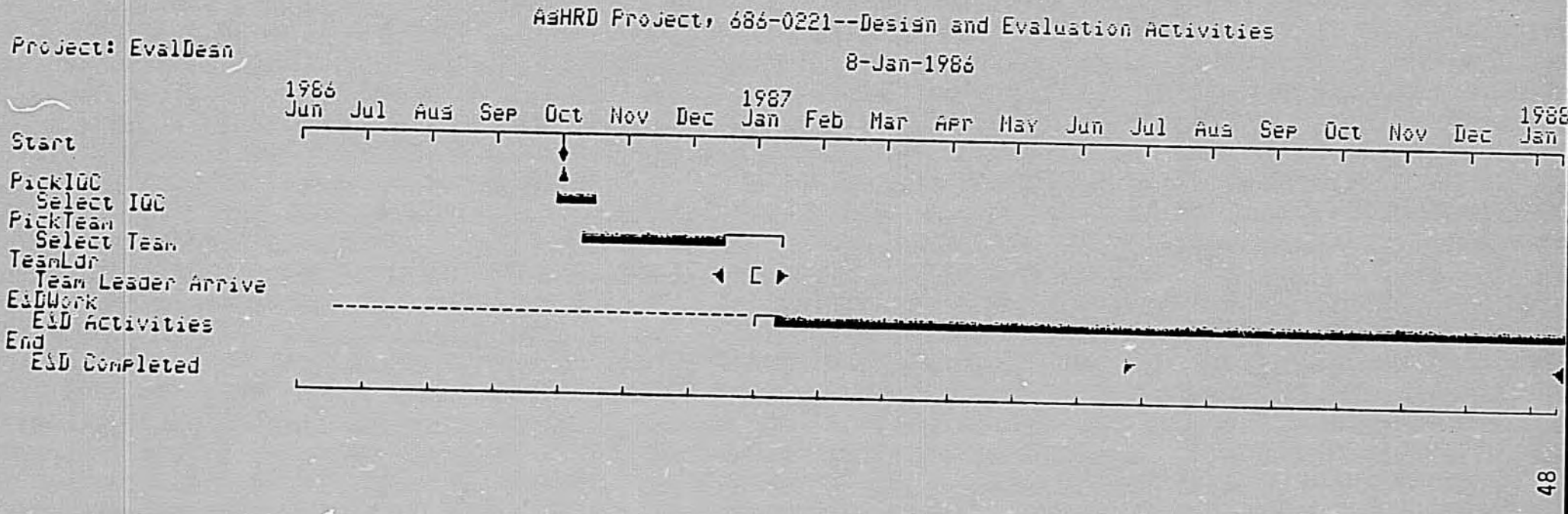
AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR EVALUATION AND PHASE II
PROJECT PAPER DEVELOPMENT

Item	Estimated Budget
a. Consultant Costs 1 Consultant--Design Leader 300 work days @ $370 4 Consultants for 45 work days and 4 travel days @ $370	183,520
b. Consultant Travel 5 roundtrips @ $2,500	12,500
c. Consultant per diem 1 Consultant for 180 days @$80 4 consultants for 49 days @ $80	44,480
d. Car Rental for Consultants 150 days @ $50	7,500
e. Miscellaneous	5,000
SUB-TOTAL	253,000

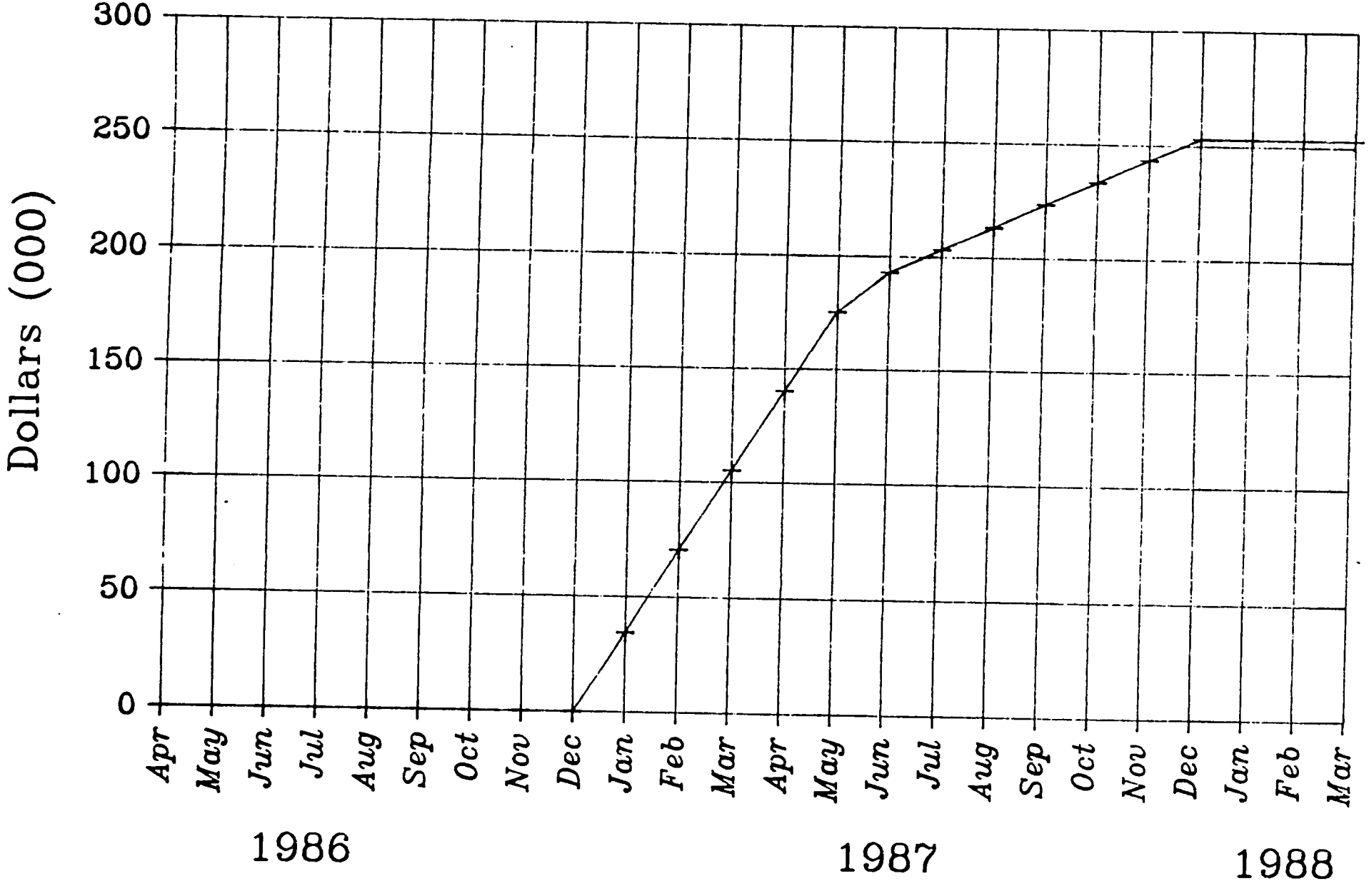
Chart 10


AsHRD Project, 686-0221--Design and Evaluation Activities
8-Jan-1986
Project: EvalDesn
1986
Jun Jul Aug Sep Oct Nov Dec
1987
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1988
Jan
Start
PickIQC
Select IQC
PickTeam
Select Team
TeamLdr
Team Leader Arrive
E&DWork
E&D Activities
End
E&D Completed

Graph 8

PLANNED CUMMULATIVE MONTHLY EXPENDITURES

Extension of AgHRD Project--Evaluation and Design



The specific duties of the design specialist are:

a. Serve as Chief of the evaluation and design teams;

b. Working with the ADO, schedule all evaluation and design activities and the use of consultants;

c. Prepare and submit an evaluation report.

d. Prepare and submit an PP for a Phase II project;

e. Advise academic departments on curriculum development;

f. Advise the Gampela farm manager;

2. Agricultural Extension Specialist. The technician will have responsibility for the design of the extension component for the new project. The consultant is required to have West African experience in agricultural extension. FSI S3, R3 is required. The consultant will be at post for one month.

3. Agricultural Research Specialist. The technician will have responsibility for the design of the agricultural research component for the new project. The consultant is required to have had West African experience in agricultural research and experience in research administration and planning. FSI S3, R3 is required. The consultant will be at post for one month.

4. Farm Management Specialist. The farm management specialist will have responsibility for the section of the project design dealing with the future development of the Gampela farm. He/she will also serve as a member of the evaluation team. The technicians will be required to have had experience working in the area of farm management in West Africa. FSI S3, R3 is required.

5. Curriculum Specialist. The curriculum specialist will have responsibility will have responsibility for the design of the component of the new project dealing with curriculum development and modification at ISP/IDR. He/she will also serve as a member of the evaluation team. University-level teaching experience at a West African college required for position. FSI S3, R3 is required. The technician will be at post for one month.

In addition to the five consultants, the design effort will have participation from USAID/Burkina, REDSO/Abidjan, ISP/IDR, and officials representing Burkinabe agricultural research and extension organizations.

V. IMPLEMENTING ORGANIZATION.

The implementing organization for the project extension will be the Institut du Developpment Rural (IDR) which is a division of the Institut Superieur Polytechnique (ISP), Universitie de Ouagadougou. Until recently, ISP was the implementing agency, but there has recently been a reorganization and IDR was made the division responsible for senior-level agricultural education at the university.

To date, ISP/IDR has proven to be competent in the role of implementing organization. The financial reporting system of the university has been reviewed by the Mission Controller and found to be adequate. Project funds are kept in a separate bank account and there is a separate accountant for the project.

The Project Leader will assist ISP/IDR in the implementation of the project. He will be responsible to the Director of IDR and the USAID/Burkina Project Manager.

The Project Manager will be responsible to USAID/Burkina ADO. The Project Manager, assisted by the Project Leader, will implement all actions necessary for technical assistance, participant training, commodity procurement, construction and the operational costs of the Gampela farm. The implementation will be in accordance with the appropriate regulations found in the AID Handbooks.

VI. FINANICAL PLAN.

Table 9 contains a revised financial plan for the project which includes the both the extension of the PACD and the increase in funding. An increase of $2,464,000 is required to fund the activities planned under the extension. The total LOP Aid grant funding will be $8,464,000.

TABLE 9

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

Project Expenditures to Date and Proposed Extension Funding

Item	Expenditures to Date		Proposed Extension Funding		Total	
	Foreign Exchange	Local Currency	Foreign Exchange	Local Currency	Foreign Exchange	Local Currency
1. Technical Assistance	3,341,617		340,000		3,681,617	
a. Long-term						
b. Short-term						
2. Participant Training	943,086		152,000		1,095,086	
a. Long-term						
b. Short-term						
3. Commodities	317,721		135,000	338,000	452,721	338,000
4. Construction		517,722		1,100,000		1,617,722
4. Support for ISP/Gampela		682,005		146,000		828,005
5. Evaluations/Phase II Desig	96,421		253,000		349,421	
6. Unearmarked/contingency	101,428				101,428	
TOTAL	4,800,272	1,199,728	880,000	1,584,000	5,680,272	2,783,728

ANNEXES

A. The Gampela Farm in 1991: A Preview

B. Facility Use at the Gampela Farm

C. Construction

D. Commodities

E. Training

F. Recurrent Costs

G. Technical Assistance

Annex A

The Gampela Farm in 1991: A Preview

ANNEX A

Gampela Farm in 1991: A preview

The statement of work for the consultants included assignment to undertake the following activity, among others:

> "Draw up a plan for the long-term role of the Gampela farm indicating what the farm should look like in five years and the general steps necessary to reach that point".

The following section attempts to carry out that portion of the assignment.

By 1991 the Gampela farm will be an institution that is at the very forefront of development of Burkina Faso. It will be the site of the Institute of Rural Development (IDR), one of the components of the ISP, and will be actively involved in teaching, research, extension work and commercial production.

The 500-hectare farm will be surrounded not only by a fence to keep out unwanted animals but also by a "living fence" of trees, and by a road permitting quick inspection of the perimeter. The entrance road will also be graced by a row of trees on each side.

A major colony of buildings will house the IDR. These buildings will include administrative offices, classrooms and laboratories, offices for faculty members and the farm manager, a dormitory for 250 students complete with kitchen and dining facilities, residences for upper level administrators and for the farm manager, and facilities for student sports. These buildings will be served by a water supply system, sanitary disposal system and electricity from the public electricity network.

The farm's primary function will be to serve as a classroom and laboratory for the instruction of students. An arboretum, plant museum, and various animals will be maintained for their teaching value. Crops and animals will be produced to provide materials for instruction. Students will participate in the care of animals and the production of crops to give them first-land knowledge and experience. Facilities that support these functions and activities will include various livestock shelters as well as feed processing and storage facilities, a workshop and shelters for machinery and equipment, and fish ponds. In principale, a rather limited area of crops and only a few animals are needed to touch principles of production. But the essence of a classroom fam is tha it provides the examples in the context of real-life, field-scale operation. Therefore, some commercial production of crops and animals can be justified for its teaching value.

A secondary function of the farm will be for research. Faculty of IDR will carry out research in various aspects of crops, livestock, forestry, and fisheries and related fields such as agricultural economics, water management, pest and disease control, etc. Gampela farm land and facilities will also be used for research purposes by INRAZ and by international agencies such as ICRISAT and ILCA. In these cases protocols or agreements will provide for payment to IDR for the use of the resources, thereby making a contribution to the recurrent costs of operating the farm.

A certain amount of extension work will also be done on the farm. This will be mostly through multiple use of research and teaching plots, trials and exhibits, as demonstrations to be viewed by extension workers and local farmers during field days.

A fourth use of and activity on the farm will be production of vegetables, fruits and other crops and of animals and animal products for commercial sale or for use in the kitchens for the dormitory. While this activity may generate significant revenue (or reduction of outlay by the kitchen), it should be kept clearly in mind that production for sale is a lower priority activity than the support of teaching and research.

The chronic problem of insufficient water will have been resolved by the construction of a reservoir permitting impoundment and long-term storage of water of the stream that flows (in wet weather) through the farm. Also, wells at various locations will supplement the water supply and reduce the need for piped distribution. However, the climate of this geographic area precludes availability of water supplies of a size to irrigate more than a small fraction of the land area of the farm.

The foregoing description of "what the farm should look like" should not be interpreted as an End of Project Status (EOPS) for the project extension. In fact, full development of an IDR Campus at the farm may not be possible within even five years, because a full-fledged beginning on that task is likely to be deferred for two years and to be seriously undertaken only in the context of a follow-on project. However, aside from the campus buildings described, the farm should have achieved the status and the role described for it by 1991.

Steps necessary to achievement of the status described are already being taken: the faculties of IDR are using the Gampela farm in their teaching, and are doing research there, to a commendable extent. This use is continuing to increase. Major additional steps necessary to progress include provision of "city" electricity by construction of a power line to the farm; provision of additional water supplies by construction of a dam, reservoir, and water distribution system; construction of fish ponds and additional buildings; provision of needed items of equipment including laboratory and classroom materials, equipment for farm operation, and vehicles including buses for transporting students back and forth.

Provision of technical assistance in the form of a long-term adviser is highly desirable, to coordinate and expedite the activities and acquisitions during the extension. Several short-term consultants should also be provided, to advise the manager of the Gampela farm, to assist IDR professors in integrating the farm into their teaching and research, and to provide training in micro-computer use.

Training of IDR staff will also contribute to the achievement of the described status and role of the farm. Outstanding in this regard is training for the farm manager.

Annex B

Facility Use at the Gampela Farm

ANNEX B

Facilities Use at Gampela Farm:

Present situation

The farm at Gampela is about 500 hectares (1235 acres) in gross area. It lies in a rough rectangle, having a maximum length of about 3700 metres and has a maximum width of about 1500 metres, with the long axis Northeast - southwest (see map). Access to the farm from the paved road to Fada is provided by an all weather road extending into the farm from the West.

The farm is bordered on the northeast by the convoluted path of the Massili River. This river flows only during the rainy season. An unnamed tributary to the river arises within the farm. Several possible sites exist for the construction of the proposed dam and reservoir, both on the river itself and on the tributary.

The farm headquarters and all of the buildings except the livestock shelters have been built on a small square of land - about 4 hectares (10 [illegible]) - which was originally allocated in error, but that land is now considered to be a part of IDR's Gampela Farm.

The surrounding land is all government property. Some of it is cropped on an intinerant basis by local farmers who hold cropping rights but do not own the land.

The Map shows the layout of the farm, its present and potential land use, and the location of various developments. Locations and areas are necessarily approximate .

Some mapping of the soils of the farm is being done by IDR faculty members and students, but no complete inventory of soil types exists at present. A relatively complete spectrum of land capabilities - desirable for purposes of both teaching and research - exists on the farm. The land that is suitable for development, as indicated on the map, has generally suitable soils and topography. Land unsuitable for development has problems of soil quality or topography, or else it appears excessively difficult to clear. The area beyond the river, in the east corner of the farm, cannot be developed because it has been designated a wildlife preserve.

About 25 hectares of developed area near the livestock shelters is generally under the control of the Livestock Department

GAMPE

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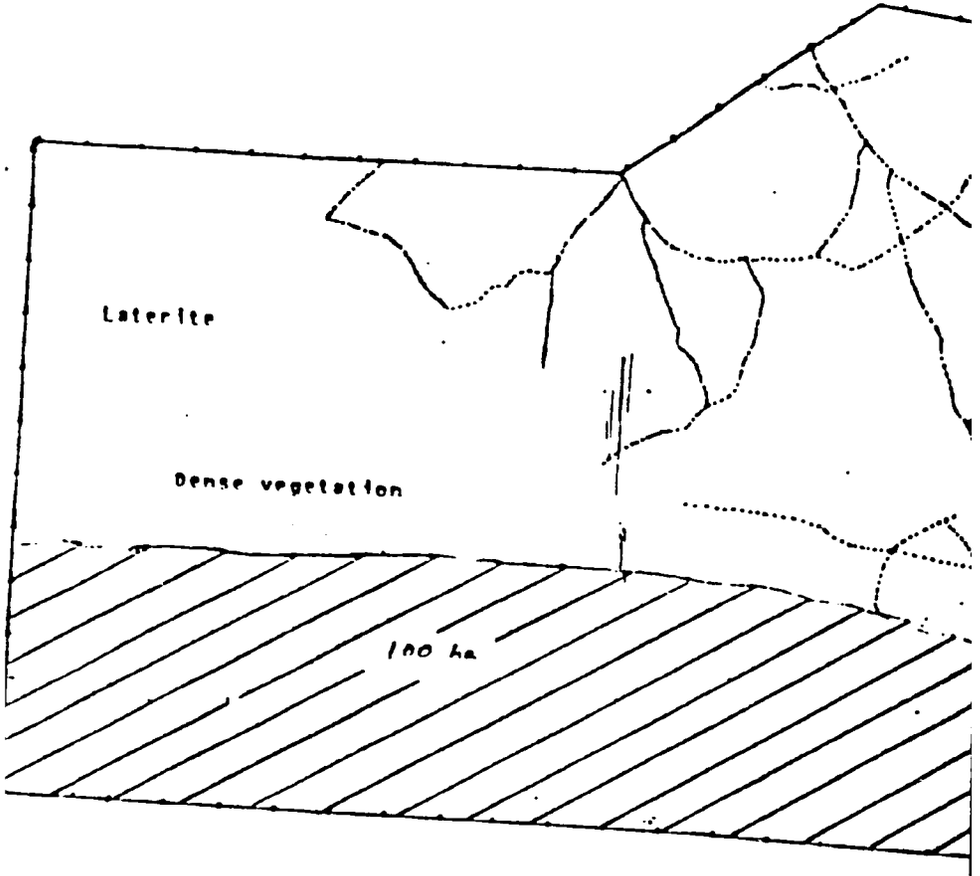


LEGE

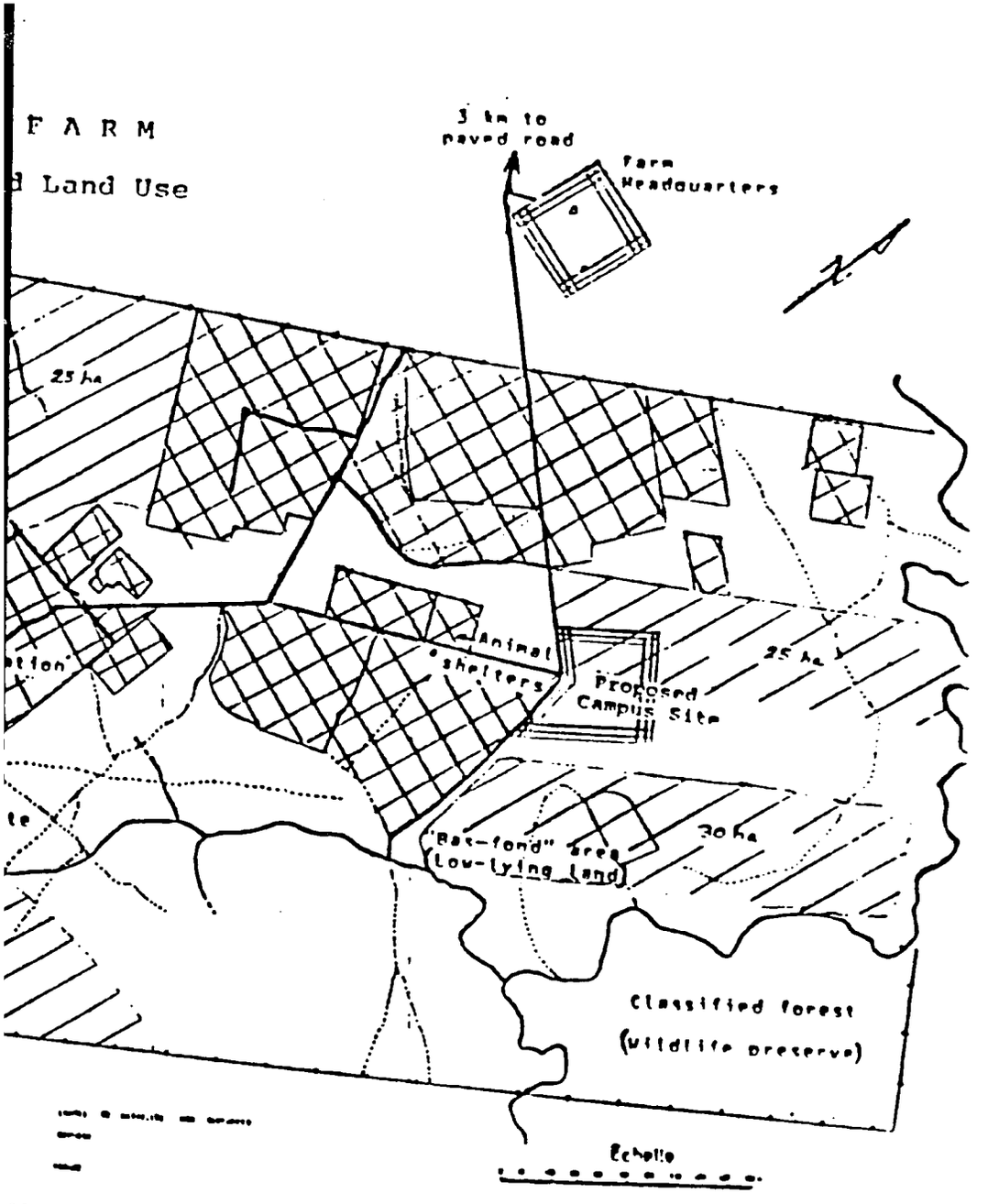
In use or re

Suitable for

Not suitable

FARM

d Land Use



se as cropland

ment as cropland

elopment as cropland

(Elevage). The remaining developed (cropland) area is used for agronomic work, including about 40 hectares of research plots allocated to collaborating research organizations. The use of undeveloped land is guided by the Forestry Department (Eaux et Forets).

Research

Agronomic Research done at the Gampela farm in 1985 involved at least seven staff members of ISP and the following agencies or organizations: ICRISAT, IITA, CEEMAT, IRAT, IRHO, SAFGRAD, IRCT and CRSP. Some 30 hectares of land was used in this research, and the studies focussed on sorghum, millet, cowpeas, peanuts, maize, cotton, sesame, voandzoo, beans (haricot riz), and castor bean. Research in livestock and forestry was also done.

While the research activity at Gampela farm is commendable, the potential is far from being realized.

Additional research is needed in production of irrigated and rainfed crops, in forestry and range (grazing land) management, and in various aspects of animal production including nutrition and disease control. Research emphasis should and no doubt will broaden in the future. A diversified research program should consider such problems as technical and management practices for increasing production of forage, browse and woody vegetation on grazing land and woodland; soil erosion by wind and water and its control; increasing the permeability of soil and the resulting infiltration of rain so as to enhance water storage and to increase the recharge of groundwater acquifers, and economic matters such as the choice between alternative crops or alternative methods of production.

Selection of Crops

The production of crops at the IDR farm should focus on those crops that are of current or potential of importance to Burkina Faso. To permit comparison of the focus of research and the emphasis of Burkinabe farmers, the table following presents crop areas in Kadiogo (formerly called Centre) district in 1983-84 and Gampela research plot areas by crops. Grossly different patterns are evident. Local farmers raise mostly sorghum and millet, and all else totals only 8 percent of the area. Local research is much more broadly focussed, including significant emphasis (as indicated by area) on six crops. Only rice, for which no facilities exist, and millet are short-changed. Maize emphasis is out of proportion to the present importance of the crop, but maize has potential for high yields, that justify attention being given to it.

Pending availability of enough water to support rice production, the only recommendation that seems appropriate regarding emphasis in agronomic research is that maize research might be deemphasized (perhaps reduced by 25 percent) in favor of millet.

Commercial-scale crop production is discussed and evaluated elsewhere in this report. The general conclusion is that such production is justifiable to meet internal needs of Gampela farm. Observation indicates that considerable quantities of processed feeds are fed to livestock. This processed feed could be partially or entirely replaced by homegrown grains and forages and purchased feed ingredients: oil meals, mineral supplements, vitamin concentrates, etc. In a program of using homegrown feedstuffs, maize and sorghum should dominate as suppliers of energy, and cowpeas or other appropriate legumes should be raised to provide high-protein forages. The stalks of maize and sorghum -- by-products of grain production -- will also supply forage.

A preliminary suggestion is that whatever area is available for commercial farming be devoted 1/4 or 1/3 to cowpeas or other leguminous crops for hay, and the balance be divided between maize and sorghum.

Students and farm activities

Students involvement in the farm is, as it should be, primarily in the traditional student role of observer. Final year students also participate in research for the "Memoire". In the future, when student dormitories on the farm facilitate spending of more time on the farm, students should take up practical farm works. In projects such as gardening or livestock rearing, they can apply with their own hands what they have learned in the classroom, and remain in contact with the project long enough to see the consequences.

Perhaps, as additional cropland is developed on the farm and as capability expands to provide more tractor and animal-powered tillage, farming of some of the fields can be done by students under the direction of the farm manager. These students might be summer employees of IRD, for this purpose. Such a hands-on introduction to real agriculture would be of inestimable benefit to the students receiving this on-the-job training.

Farmers' Emphasis and Research Emphasis
in Selection of Crops:
Comparison of Kadiogo cropland and Gampela research areas

Crop	Farmers Emphasis Area (ha)	%	Rank	Research Emphasis Area (m2)	%	Rank
Sorghum	181472	47.9	1	59415	20	2
Millet	167012	44.1	2	10344	4	7
Maize	9289	2.4	4	80904	27	1
Rice	1768	0.5	5	0	0	8
Peanuts	18487	4.9	3	39927	13	4
Cotton	885	0.2	6	37118	12	5
Cowpeas	-	-	-	45855	15	3
Other	-	-	-	25457	9	6
Total	367550	100.0		299010	100	

Source: Bulletin de Statistiques Agricoles; ISP records
Note: Cowpeas (niebe) is not shown as a crop in any table in the source volume.

Training for Extension

At the present time, ISP and IDR do not have official responsibility for training extension workers. However, there should be some training in extension methods given to students at IDR. Some of the graduates will become teachers at CAP's where extension workers are trained. Some of the graduates will eventually have ministerial or other administrative positions related to farmer programs, food production or dissemination of new ideas and methods. It is not inconceivable that IDR's evolving role in Burkina Faso's agriculture will, in the future, include training of extension workers. In addition, the feedback from farmers through an extension program is not only gratifying but directly beneficial to teaching and research program, and this alone is enough to justify a modicum of extension work at Gampela.

The extension work that seems to fit best includes two types of activity: on-farm demonstrations and visitations by students. In the former, "field days" are organized when the general public (and especially farmers) are invited to visit the farm to view research and demonstration plots that show the effects of practices such as weed control, fertilizer use, line sowing, proper plant population, etc. The other extension activity is to send students out to work with farmers in neighboring villages, promoting the adoption and use of simple innovations. This kind of work might, in the future, supplement the research work that final year students are required to do.

Continuous agriculture

One of the lessons for local agriculture that the Gampela farm will teach by demonstration is the long-term effects of proper soil management.

Sahelian farmers have for generations practiced itinerant cropping, sometimes called slash-and-burn farming. In this method, a field is cleared of small trees and bushes; these and any other vegetation is burned. Sorghum and millet are then raised year after year, with minimal tillage and no fertilization except whatever animal manure is available. Within a few years, the denuded and impoverished soil loses its tilth, and yields decline. The field is then abandoned, to revegetate naturally and to regain at least a part of its initial productivity. The period of fallow at one time was a generation, but the pressure of expanding population has reduced the time "en jachere" to as little as 10-15 years, which is insufficient fully to restore productivity.

Rotation of crops is a tested and proven principle that can help to maintain soil productivity. The very long "rotation" of several years in cultivated crops and twice or three times that long in fallow is an inefficient rotation. An alternation of cereal or vegetable crops with leguminous crops such as cowpeas and peanuts, in conjunction with appropriate use of chemical fertilizers, produces higher yields of crops, and increases rather than reduces the productivity of the land over time.

If the land is handled properly, with the right crop sequence, the right tillage and the right supplementation with fertilizer, itinerant agriculture is not needed. You can keep on raising crops in the same field indefinitely, and the yields will get better and better.... if you do it right. Gampela farm will demonstrate the truth of this statement, and will teach farmers and its students how to do it right.

Annex C

Construction

Construction

The SECID team reviewed the construction needs for ISP/IDR and the Gampela farm. Currently, ISP/IDR is planning to move its entire teaching/research operation to the Gampela farm. The SECID team agrees with this decision. This, of course, will require the construction of a whole new campus. This is outside the realm of possibilities for the proposed extension. For the period of the extension, the SECID team, working with ISP/IDR personnel, has identified $1,100,000 worth of construction which can be completed during the twoyear project extension, and which will contribute to the overall development of ISP/IDR and the Gampela farm. The construction list, which was presented in Table 5 and is reproduced in this Annex, is composed of activities which will contribute to the longrange goal of transfering the ISP/IDR campus to the Gampela farm. These activities include the construction of a dam and reservoir needed to supply additional water to the farm and the installation of an electric line between the farm and Ouagadougou.

ISP/IDR has prepared a plan for tranfering the campus to the Gampela farm. It is titled: Projet de transfert de l'Institut du Developpement Rural a Gampela. It provides a list of needed construction. This document is included in this Annex. ISP/IDR will need major donor funding to accomplish the proposed construction. USAID/Burkina should consider funding at least a portion of the needed construction during a second phase of the AgHRD Project.

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR CONSTRUCTION

Item	Estimated Budget
a. Installation of Electric Line between Ouagadougou and Gampela Farm	320,000
b. Construction of Dam for Dry Season Reservoir	525,000
c. Construction of Fish Ponds for Teaching/Research	55,000
d. Construction of a storage shed for equipment	19,000
e. Consturction of a storage shed for seeds and harvested crops	25,000
f. Construction of Swine Unit	22,000
g. Consturction of rabbit unit	13,000
h. Contruction of poultry unit	31,000
i. Construction of Goat unit	13,000
h. Remodelling of Sheep unit	19,000
i. Remodelling of barn	14,000
j. Construction of shed for hay	20,000
k. Construction of shed for digestion trials	24,000
SUB-TOTAL	1,100,000

PROJET DE TRANSFERT DE L'INSTITUT DU DEVELOPPEMENT RURAL A GAMPELA

Le Burkina Faso est un pays agricole arriéré dont 92 % de la population vivent d'activités agro-pastorales dans les zones rurales. L'on comprend aisément qu'aucun plan de développement ne peut réunir s'il ne prend pour axes les activités agro-pastorales de l'immense majorité que constituent les paysans. Le mot d'ordre juste du C.N.R. d'auto-suffisance alimetaire fixe le monde rural comme priorité de nos activités de développement. Pour atteindre cet objectif il faut que la paysannerie Burkinabè non seulement rompt définitivement avec les pratiques culturales ancestrales, la destruction de la faune et de la flore et les modes d'organisation sociale archaïques, mais aussi accède des méthodes et techniques culturales modernes, des conceptions et gestions rationnelles de l'environnement (faune, flore etc...) et des formes organisationnelles modernes basées sur des critères scientifiques et non de lignage et autres.

La nécessité de former des cadres techniques capables de promouvoir ces transformations au niveau du monde rural s'impose.

Cette mission a été confiée à l'ISP qui, depuis 1973, devait former deux centaines d'ingénieurs dans les 10 années à venir. Depuis 1978 l'ISP a injecté dans le monde rural 150 ingénieurs du développement rural et 107 ingénieurs des techniques du développement rural.

Mais certaines conditions socio-économiques et politiques n'ont pas permis de connaître l'essor escompté. Ainsi à partir de 1981 l'ISP devait en plus de sa première mission se charger de la formation des cadres destinés à l'enseignement secondaire, à la recherche dans les domaines des sciences biologiques et géologiques.

Les équipements de l'ISP dès lors sont devenus insuffisants malgré les extensions nouvelles.

C'est dans cette situation qu'est intervenue une restructuration de l'Université avec la division de l'ISP en deux instituts :

- Institut du Développement Rural (I.D.R.) qui regroupe les étudiants de 2ème et 3ème cycles de l'ISP.

- Institut des Sciences de la Nature (I.S.N.) qui s'occupe de tous les enseignements des sciences biologiques et géologiques y compris le 1er cycle de l'ISP.

1°/ Pour rendre l'IDR très opérationnels

2°/ Pour minimiser son coût de fonctionnement ultérieur.

3°/ Pour que la Station de Gampèla puisse s'auto-financier en partie, il est nécessaire de mettre en place des structures de productions dans les 3 options : Agronomie, Elevage et Eaux et Forêts

4°/ Pour favoriser la recherche des professeurs

5°/ Pour résoudre le problème de locaux qui se pose en ce moment,

le transfert de l'IDR à Gampèla permettrait d'apporter une solution globale à tous ces problèmes.

MOYENS NECESSAIRES

PERSONNEL ENSEIGNANT PERMANENT

L'IDR fonctionne avec un personnel enseignants national et coopérant. L'objectif futur à atteindre est de remplacer progressivement les coopérants par des nationaux dont on pourra bénéficier de l'expérience acquise grâce à leur stabilité.

PERSONNEL ENSEIGNANT VACATAIRE

L'Etablissement continuera dans certains domaines spécifiques où les volumes horaires annuels ne peuvent justifier le recrutement de personnel permanent à bénéficier des apports de quelques spécialistes sous forme de cours, et de conférences. On y prévoit 300 heures par an.

Batiments

	Superficie (m^2)
- Batiments administratifs	
. 1 bureau de diretion	20
. 1 bureau de directeur des Etudes2	20
. 1 bureau de chef de pproduction machiniste	20
. 1 bureau de hchef de service	20
. 1 bureau de secrétariat	20
. 1 salle de reprographie	16
S/TOTAL	116
- Batiments d'enseignement	
. 3 salles de travaux pratiques de 50 m2 chacune	150
. 8 salles de cours de 50 m^2 chacune	400
. 2 salles de cours de 100m^2chacune	200
. 1 salle de rangement de produits	60
. 1 laboratoire photo	10
. 1 salle des techniques d'expression et de production audio-visuelles de vulgarisation	100
. 10 bureaux d'enseignants de 16 m^2	160
S/TOTAL	1080
- Logements	
. 1 résidence	2 500
. 1 batiment de 250 chambres à 3 niveaux	80
. 1 Foyer	80
. 1 service de santé	
S/TOTAL	2 820
. 1 villa 5 pièces pour directeur	120
. 1 villa 5 pièces pour directeur des Etudes	120
. 1 villa 4 pièces pour directeur de production et machinisme	100
. 1 Villa 4 pièces pour directeur des services administratifs et financier	100
S/TOTA	440 m^2

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Restauration

. 1 restaurant	200 m^2
. 1 cuisine attenante	150 m^2
. 1 magasin pour les vivres	50 m^2
. 1 chambre froide	10 m^2

Sport

. 1 terrain de foot-ball

. 1 terrain mixte (Basket-ball, volley-ball et hand-ball)

Batiments d'exploitation

. 1 hangar de matériel agrico	100 m^2
. 1 hangar de fourrage	100
. 1 magasin de stockage de pr	50
. 1 bergerie (petits ruminant	100
. 1 étable	50
. 1 écurie	100
. 1 poulailler	100
. 1 clapier	100
. 1 porcherie	100
S/TOTAL	800 m^2

Equipement d'enseignement fondamental et recherche

Equipements techniques

. 4 tracteurs équipés	44.000.000
. Matériel de laboratoire et livres	2.000.000
. 2 Camions 7 tonnes	22.000.000.
. 2 voitures utilitaires (camionnette	10.000.000
. 2 cars de 52 places chacun	48.920.000
. 1 barrage + équipement complet	
. 1 alimentation en électricité (Ouaga-Gampèla)	100.000.000
. . 1 Téléphone	

Equipement restaurants (cuisinières, marmites, couverts tables, chaises) 20.000.000

Equipement salle de cours 18.000.000

Equipement labo-photo

Des animaux

- 50 Vaches
- 5 taureaux
- 50 Chèvres
- 50 moutons
- 500 poules
- 100 lapins
- 5 chevaux
- 2 couveuses

Alimentation en eau

. 3 forages de 5 m^3/h chacun	5.000 000
. 2 Pompes	3.000.000
. 1 système de canalisation	4.000.000
. 1 chateau d'eau de 50 m^2	3.000.000

Remarques 1

Il convient de noter ici que si la fiche technique évalue l'ensemble de l'extension il existe déjà sur place des équipements acquis grâce à l'effort national et à l'aide de nombreux pays et organismes étrangers. Ces équipement sont fonctionnels dans une optique bien sûr pédagogique et expérimental.

On peut les intégrer pour atteindre les objectifs visés par le transfert.

Les couts

- Batiments administratifs, logements et batiments d'enseignement
  4456 m^2 x 175.000 F/m^2 = = 779.000.000
- Batiments d'exploitation = 800 x 75. 000 F/m^2 = 56.000.000
- Equipement de laboratoire pour enseignement et recherche = 2.000.000
- Equipements techniques = 124.000.000
- Alimentation en eau = 15.000.000
- Alimentation en électricité = 105.000.000
- Téléphone
- Construction du barrage
- Animaux
- Equipements sportifs
- Equipements srestaurant 20.000.000

Equipement existants

- Batiments d'enseignements, administration et logements

  346 m^2 x 175.000 = 60.550.000

- Batiments d'exploitation = 180 m^2 x 175.000 = 13.500.00
- Equipement alimentation en eau (utilisable) 4.000.00

Animaux 30.000.00

Equipements techniques 55.000.00

TOTAL

Financement recherche

Appendix C.)

Supplemental Report on Dam and Reservoir

On 18 December 1985 a visit to Gampela farm was made b Augustin Ouattara, USAID engineer, accompanied by Dr. Robert M. Reeser, SECID Farm Management consultant and Albert Ouedraogo, USAI project manager. The purpose of the visit was to view the locale where it is hoped to construct a dam, and to make initial observations of the nature and difficulty of the task. At the conclusion of the visit, the members of the party agreed on the following points.

A. The dam and reservoir should be viewed as a part of a water supply project. The combined needs for water for irrigation, livestock and institutional use should be determined, because the volume of water required is an input into design of the supply system. The areas to be irrigated, the water needs of the crops and the loss in transmission and application must all be computed.

B. A topographic survey of the area must be made. An "eyeball survey" of the forested area is simply not sufficient basi for even preliminary site selection.

C. A soils study will also be needed to determine permeability of the soil, its suitability as construction material, etc.

D. The generally near-flat terrain suggests that the reservoir created by impoundment of water behind a dam is likely to be of insufficient depth to provide long-term storage of water, considering the locally high rate of evaportation. In order to store water from one rainy season until the next, it may be necessary to construct a second reservoir by erecting an earthen wal around a low-lying flat area. Such a reservoir, having a depth of several meters, would be filled by pumping from the shallow reservoir created by the dam.

The Dam Management consultant adds this commentary on the problem of meeting the needs for water:

Faculty members of Agronomy Department have indicated their desire to apply irrigation water to 70 hectares: 12 ha rice, produced year-round; 28 ha. dry season crops; 30 ha. rainy-season crops (supplemented irrigation only); 10 ha arboriculture. Calculations of water needed for this, using rules of thumb and approximations, indicate more than half a million cubic meters per year. Considering that application efficiency may be no more than 50 percent and that comparable losses are usually observed in water storage and conveyance to the field, inpoundment of two million m3 will be needed ---- enough to cover 100 hectares to a depth of two meters!

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The importance of these figures is on their stock value. We are considering not a routine little stock-water pond, but a real lake. It is essential, if the project is to have a chance of successful completion within the time frame of the AgHRD project extension, that action be taken without delay on the studies mentioned earlier: realistic water needs, topographic surveys, and soils studies.

Actual construction work is likely to be the easiest part of this undertaking. Preparatory studies will be followed by design, and then bids must be taken and constracts let before the balldozers start moving earth. Construction per se hshould not require more than a few months, but ofcourse it must be done during the dry season.

The essence of the project extension that proposes to finance the dam construction is that it will last for only two years, and the work must be finished within that time. Prompt action is imperative.

Annex D

Commodities

Commodities

The SECID team worked directly with each of the ISP/IDR departments to produce a list of needed commodities for the Gampela farm and the IDR laboratories. A summary of of the needed commodities with estimated costs was presented in Table 7 of the text and is reproduced on the following page. The total estimated cost of the commodities during the project extension is $473,000.

The proposed budget erecommends $30,000 for new farm equipment, excluding vehicles and a tractor, and $40,000 for laboratory equipment excluding microcomputer equipment. Detailed lists of the proposed equipment are presented in this Annex. The estimated cost, excluding shipping costs, exceeds the budgeted amount by about $14,000. The lists were compiled rapidly and need review by the departments. ISP/IDR should be requested to submit a final list which should be in the $50,000 range. This will allow for shipping costs.

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED BUDGET FOR PROJECT EXTENSION
April 1, 1986 - March 31, 1988

DETAILED BUDGET FOR COMMODITIES

Item	Estimated Budget
TO BE PURCHASED LOCALLY WITH WAIVER	
a. School Buses for the transport of students plus spare parts. 2 52-seat buses @ $70,000 plus $10,000 spare parts.	150,000
b. Farm Trucks plus spare parts 2 7-ton trucks $32,000 plus $6,000 spare parts.	70,000
c. Minibuses plus spare parts 2 @ $20,000 plus $4,000 spare parts.	44,000
d. Pick-up trucks for farm 2 @ $15,000 plus $3,000 spare parts.	33,000
e. Farm Tractor plus $3,000 spare parts.	38,000
f. Pumps for wells 2 @ $4,500	3,000
TO BE PURCHASED IN U.S. THROUGH IQC	
g. Microcomputer systems 3 microcomputers @ $6,000, 3 printers @ $1,500, Software @ $5,000, 3 UPS at $2,500	35,000
h. Farm equipment See list in Appendix D	30,000
i. Laboratory Equipment See list in Appendix D	50,000
j. Library Books and Journals	10,000
k. Miscellaneous	10,000
SUB-TOTAL	473,000

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

COMPUTER EQUIPMENT AND SOFTWARE

From Computerland or other Vendor

Quanity	Catalog #	Item	Estimated UnitPrice	Total
3		IBM PC-XT Microcomputers with 640K, Hard Disk, 1-360K Floppy Disk, Graphics Board, Monochrome monitor, French Keyboards, 1 parallel port, 1 serial port PC-DOS 3+, 220V, 50hz	5,500.00	16,500.00
3		UPS 220V, 50hz	2,500.00	7,500.00
3		Epson QX-1500 printers--French Character	1,500.00	4,500.00
3		Printer Cables (parallel)	50.00	150.00
50		Ribbons for Expon QX-1500 printer	6.00	300.00
5		Boxes of 9 1/2 x 11" Computer Paper	40.00	200.00
5		Boxes of 14 x 11" Computer Paper	60.00	300.00
20		Boxes (10 per box) 5 1/4" Diskettes DSDD	30.00	600.00
2		WordPerfect--French Version	400.00	800.00
2		Lotus 123--French Version	500.00	1,000.00
2		dBase II or III--French Version	700.00	1,400.00
2		SPSS-PC or Wolinick StatPac	700.00	1,400.00
1		Norton's Utilities	60.00	60.00
1		Borland's SideKick	60.00	60.00
1		COPYIIPC	40.00	40.00
		Miscelleaous		190.00
		SUB-TOTAL		35,000.00

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AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF ANIMAL SCIENCE

NASCO Agricultural Sciences, 1983

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	C2562N	Jumbo Rototag, size 500, yellow	189.50	189.50
2	C2563N	Jumbo Rototag Pliers	17.40	34.80
2	C1634N	Standard Rototag pliers	15.00	30.00
3	C1635N	Standard Rototags	82.00	246.00
2	C7530N	SuperMark Felt tip pens	4.25	8.50
3	C7810N	Black permanent marking paint	2.60	7.80
3	C7811N	Red permanent marking paint	2.60	7.80
2	C2309N	Five Digit tatoo marker	26.95	53.90
4	C2096N	Set of digit (0-9), 5/16"	8.45	33.80
3	C2097N	Alphabet AtoZ 5/16"	21.95	65.85
1	C2292N	Small Animal tatto outfit	66.95	66.95
2	C8266N	Set of digit 0-9	13.00	26.00
1	C8267N	Complete alphabet	33.00	33.00
1	C4551N	Stainless Steel branding irons	92.00	92.00
1	C7792N	Small notchers	8.62	8.62
1	C24N	Medium notchers with u shape	10.95	10.95
1	C7154N	Medium notcher with inverted U-shaped di	15.80	15.80
1	C7155N	Medium notche with square die	15.80	15.80
1	C23N	Large notcher	17.00	17.00
2	C113N	Long distance cow bell	4.70	9.40
2	C7078N	Long distance cow bell	3.30	6.60
3	C978N	Long distance sheep bell	1.65	4.95
3	C7086N	Long distance sheep bell	2.00	6.00
2	C9939N	Ranch chime	16.95	33.90
4	C136N	Cow bell strap	6.95	27.80
12	C808N	Cow bell strap	3.00	36.00
3	C810N	Cow bell staps	7.20	21.60
3	C9902N	Nylon cow neck strap	4.95	14.85
3	C5308N	Dee and neck straps, cow size, russet	9.50	28.50
3	C9944N	Dee and neck straps, cow size, blk	9.35	28.05
4	C5309N	Dee and neck straps, calf size, russet	4.40	17.60
4	C9945N	Dee and neck straps, calf size, blk	5.85	23.40
5	C2393N	Yearling neck strap	4.85	24.25
1	C7540N	-K-48 Cattle collar, cow size	5.25	5.25
1	C7541	K-30, Cattle collar, Heifer Size	4.25	4.25
1	C7542N	-30, Cattle collar, calf size	3.50	3.50
2	C2630N	-101 Jensen adjustable chain halter	24.95	49.90
1	C1619N	White nylon tie halters, calf size	8.50	8.50
1	C1620N	White nylon tie halters, cow size	8.50	8.50
4	C68N	-H-1424 Heavy duty rope halter	2.95	11.80
2	C2157N	Bronze lead	8.10	16.20

Quanity	Catalog #	Item	Estimated UnitPrice	Total
2	C2159N	Aluminun lead oily	4.10	8.20
2	C98N	-161 Medium Rice root brush	7.25	14.50
1	WA2619N	-467Y2, Trimming sissors	8.90	8.90
1	C2112N	-142, Hand hoof trimmer and dehorner	42.00	42.00
6	C5706N	Quart bottle with spray head	2.95	11.60
4	C7664N	Pint bottle with spray head	2.50	10.00
9	C5707N	Spray Head	1.95	17.55
7	Z8785N	Kan glas	29.50	206.50
3	C7060N	1850, Iowa hog holder	21.80	65.40
3	C769N	D212, ring-o-matic hog catcher	10.75	32.25
2	C8086N	2100, E-2 Cath	31.45	62.90
2	C751N	22515, Pig castrating kit	2.25	4.50
2	C7048N	315, Beavier surgical knives	13.90	27.80
3	C7049N	316/28, Large Surgical blades	8.40	25.20
3	C7050N	316/27, Medium Surgical blades	8.40	25.20
3	C7051N	316/37, Small Surgical blades	8.40	25.20
3	C7053N	316/36 Curved point blades	8.40	25.20
3	C595N	Pig castrating holder	10.25	30.75
2	C5162N	-15-4001, Pig holder	19.25	38.50
2	C8084N	-UI-12420ne man pig holder	29.70	59.40
2	C114515N	Vet Tray	14.95	29.90
1	Z8771N	505, Hog hunter holding crate	476.65	476.65
1	C10914N	Barrel waterer kit	95.50	95.50
2	C7538N	Tail and navel severing instrument	42.50	85.50
2	C2272N	58, Electic tail docker	93.60	187.20
4	C10698N	Needle teeth clippers	5.00	20.00
3	C255N	-V-362, Dig tooth nipper	8.25	24.75
4	C2275N	-V-368, KMF Dig tooth nipper	7.65	30.60
2	C7148N	-J-22, Pig obstertrical forcepts	21.50	43.00
1	Z7338N	731A Scanoprobe	1,395.00	1,395.00
1	Z8210N	cpp-01, Beef cattle attachment for scano	315.00	315.00
3	C452N	2105, Teth'R Kollar	30.25	90.74
5	C5125N	3120, Replacement chin strap	8.90	44.50
10	C8331N	Tether Collar	14.50	145.00
15	C8333N	Tether Collar, medium size	14.50	217.50
10	C8335N	Tether Collar, Large size	16.00	160.00
10	C8332N	Replacement latches, small	5.50	55.00
10	C8334N	Replacement latches, medium	5.50	55.00
10	C8336N	Replacement latches, large	5.50	55.00
4	C10711N	Harness for back leg	6.00	24.00
4	C7537N	Harness for back leg	6.00	24.00
10	C7437N	Hormel Judging computer	5.95	59.50
50	C2615N	-65, USDA preliminary cutability grade r	1.05	52.50
60	C155N	Swine back fat probes	.75	45.00
12	C6889N	1532, Dixon indelible marking crayon	.93	11.16
2	Z8455N	Lever locking carcass tatto	60.00	120.00
2	Z8457N	Six digit lever locking hog tatto	62.00	124.00
3	C5583N	72DL, Sow Feeder	58.00	174.00
6	C4486N	84103, Baby pig feeder and waterer	14.95	89.70
6	C2325N	-71C, Small size creep feeder	13.45	80.70
3	C740N	785P, Pig Creep feeder	40.00	120.00
6	C11414N	Creep Feeder	8.75	52.50

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Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	C4890LS1	Lamb saver	91.40	91.40
1	C4891PS1	Pig saver	91.40	91.40
20	C5010N	Replacement nipples for lamb saver	.60	12.00
50	C5011N	Replacement nipples for pig saver	.55	27.50
40	C11429N	Replacement nipple for udder mother	2.55	102.00
2	C10697N	Udder mother	84.00	169.00
20	C10706N	Piglet drinker	20.60	412.00
20	C7900N	E79, Baby pig waterer	6.95	139.00
2	C1868N	HO-2, Hog oiler	48.25	96.50
1	C9657N	Swine Science by Ensminger	26.00	26.00
1	C7938N	TV Vet Book for pig farmers	16.95	16.95
1	C7930N	Pig farmers veterinary book	16.95	16.95
1	C7933N	Practical pig production by Thornton	16.95	16.95
1	C8255N	Raising the homestead hog by Belanger	11.95	11.95
1	C8348N	Tee II= for order control, lgal	25.45	25.45
4	C7869N	Silak Pig iron	5.75	23.00
3	C7479N	33303, Knee-Kote	6.50	19.50
1	C8256N	Uterine flush	61.50	61.50
1	C1420N	Wash chain	15.50	15.50
2	C1419N	Wash aprons	10.95	21.90
1	C10678N	Sheep work	15.95	15.95
1	C5585N	Sheep work	9.60	9.60
3	C7817N	Bearing retainer	6.00	18.00
1	C2606N111	Lambing instrument	7.35	7.35
1	C10795N	Leg snare	2.85	2.85
2	C2215N	Ewe marking harness	14.25	28.50
2	C2218N	Summer red	2.80	5.60
2	C1034N	6225, farm desinfectant	24.60	49.20
5	C1560N	Lamb nursing bottle	1.85	9.25
10	C1557N	-9-402-04, lamb nipple	1.40	14.00
1	C166N	Victor 2 oz ball drench gun	91.75	91.75
3	C166FN9	Dose pin	1.20	3.60
3	C166QN23	Inlet Valve	1.10	3.30
2	C166WN29A	Bottle adapter and filter	5.50	11.00
3	C166RN24	Non drip noggle value	1.10	3.30
2	C166ZN32	Bottle straps	4.60	9.20
1	C166AAN33	Replacementplastic reservoir bag	6.00	6.00
1	C166ADN36	Cattle extension noggle complete	15.00	15.00
1	C2194N	Burdizzo Foot Rot Shear	19.75	19.75
1	C7015	Rigged Sheep Shears	19.50	19.50
2	C10744N	Sheep Shear Holder	3.50	7.00
1	C10685N75	Deluxe Hose and Reel System	32.50	32.50
1	C8181N	Techniques of Judging Dairy Cattle	3.45	3.45
6	C8083N-202	Gallon Hog pens	3.75	22.50
6	C7623N	-3808, Web Sheep halters, small size	8.25	49.50
3	C7449N550	Sanitary strainer	6.00	18.00
3	C7450N	D550, Extra Strainer dise	1.40	4.20
2	C7303N	-1009, 9 quart stainless stell pail	32.20	64.40
1	C8054N	Cheese press	47.50	47.50
1	C9360N21C	Hoof Trimmer	10.95	10.95
1	C7946N	All about goats by Hetherington	17.95	17.95
1	C144N223	Leather punch	5.95	5.95

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	C2184N	Rex Riveting machine	19.30	19.30
1	C2185N	Assorted tubular rivets	1.25	1.25
1	C2186N	Coppered tubular rivets	1.25	1.25
1	C2877N	F295, Strap leather	6.10	6.10
1	C7214N	Hand setting tool	4.95	4.95
4	C7216N	Blade	.40	1.60
3	C8855N	352209, Quick-tite hose coupler	2.80	8.40
1	C8849NR	Lonn water saver-Modelr	10.50	10.50
2	C8850N	Replacement Hose noggle	3.85	7.70
1	C8851NM	Lonn water saver model M	10.15	10.15
2	C8852N	Replacement hose noggle	3.75	7.50
1	C8853N	C125, Tri-con spray gun	9.25	9.25
2	C8854N	Replacement reversible noggle	2.50	5.00
2	C9435N	222, 1/8" Diameter noggle	1.90	3.80
1	C5253N	NASCO J-Mac oiler, 4 gal	32.95	32.95
1	C5256N	Nasco J Mac Face fly oiler	14.20	14.20
1	Z1237AN	Teco Squeeze stock trailer type with right hand control, export boxing and crating	3,695.00	3,695.00
1	Z8778N	CAF-cart	215.00	215.00
2	Z7416N	Portable corral panels 5' x10'	67.50	135.00
1	Z7417N	Portable corral lift gate	77.95	77.95
1	Z8992N	Livestock/Bale Mover	435.00	435.00
1	Z8993N	Portable loading chute	1,955.00	1,955.00
4	C7427N	9-4012-12, Salt blockholder	2.88	11.52
2	C8096N	Salt block carrier	3.59	7.18
2	Z1364N	1445, EZY roll silage truck	328.00	656.00
3	C6114N	Quart bottle brush	5.80	11.60
		SUB-TOTAL		15,965.52

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
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PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF ANIMAL SCIENCE

Ward's Biology Catalog 85-86.
5100 West Henrietta Rd, Box 92912, Rochester, NY 14692-9012

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	88W4156	Mannitol Solution. 50ml tube; 12 to pkg	8.50	8.50
1	18W1580	Stenile syringe Filters,20m membrane; 12	13.50	13.50
2	38W54511	Cellulase	10.00	20.00
2	14W5503	Automatic Lancert Device	8.10	16.20
2	14W5504	Blood lancets, pkg of 100	7.50	15.00
3	88W6178	Membrane Filter assembly .22micron	5.20	15.60
2	88W6179	Ward's Phage Bubbler Assembly	8.40	16.80
1	88W8108	Identification of bacteria demnstration	40.00	40.00
1	88W8105	Bacteria Sensitivity concept study	21.00	21.00
1	88W8200	Ward's Bacterial filter kit	29.00	29.00
		SUB-TOTAL		195.60

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF ANIMAL SCIENCE

Fishers Scientific Catalog, 1983
711 Forbes Ave., Pittsburg, PA 15219

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	13-636	816MP Accumer Microprocessor ph/mv/tempe	950.00	950.00
1	11-923	Instrument Cart	154.00	154.00
1	11-925-20	Pan Cart	260.00	260.00
1	11-926	Heavy Duty Cart	184.00	184.00
1	11-928	Glassware Cart	210.00	210.00
1	09-528-21	Complete Semimicro II Kit	612.00	612.00
1	10-617	Fisher-Orsat Gas apparatus	799.00	799.00
1	13-160	Rapid Digestion Unit	2,995.00	2,995.00
1	13-163-11	75ml Standard Straight Digestion tubes	483.00	483.00
1	09-531	Polyanalyst Gel Electrophoresis Apparatu	395.00	395.00
1	09-531-51	Digital Constant Power Supply	1,195.00	1,195.00
1	10-496-1	Fisher Isotemp Model 496 Oven (230V)	1,800.00	1,800.00
1	08-226-10B	Crucibles with Filtering Devise	129.75	129.75
2	04-349-2	Adiabatic Oxygen Bomb calorimeter #2015	4,350.00	4,350.00
1	04-385-5	Fuel Capsule	14.40	14.40
1	04-404	Loop Electrode	14.40	14.40
1	04-392—1	Replacement Oxygen Bomb	750.00	750.00
1	07-855	Boring Machine for cork/rubber stoppers	150.00	150.00
1	07-860	Replacement borers	70.00	70.00
1	07-880	Cork Press	28.00	28.00
2	11-284	Fisher brand stopper gauge	3.50	7.00
1	07-865	Fisher brand sharpener for cork borers	24.00	24.00
3	08-237-1F	Gooch type crucibles cs of 9	94.14	282.42
2	08-237-1C	Gooch type crucibles cs of 12	95.28	190.56
3	08-236-1E	Cooch type crucibles cs of 12	95.28	285.84
2	08-236-1C	Gooch type crucilbles cs of 12	95.28	190.56
2	08-238B	Holders for crucibles	76.95	153.90
1	02-961C	Polyethylene carboys	168.08	168.08
2	02-963BE	Leak proof polyethylene carboy	39.37	78.74
1	02-964-E	Low Profile polyethylene carboys	136.08	136.08
2	02-884-5EB	Ring jugs	19.55	39.10
1	02-972D	Aspirator with tubulation	84.24	84.24
1	02-716	Blowtorch	55.25	55.25
1	02-716-10	Adjustable horder for 02-716	39.00	39.00
2	02-716-5A	Compressed air tips for blowtorch	8.50	17.00
1	02-716-5D	Compressed air tips for blowtorch	17.00	17.00
2	02-716-5F	Oxygen tips fine	5.50	11.00
2	07-965E	High Form Crucible	86.50	173.00
1	08-336-10	Standard Wiley cutting Mill (220V)	3,400.00	3,400.00

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	08-631A	Large diameter dsiccator	159.78	159.78
1	08-641C	Porcelain desiccatar plate	67.00	67.00
1	08-666	Multiple Dialyzer	228.00	228.00
3	08-666-5	Replacement tubes for 08-666	48.70	146.10
3	08-666-10	PVP (454 g)	12.65	37.95
1	09-201-11	Heat-Blo-Gun	91.50	91.50
2	08-239B	Rubber Adapter for 08-238 holders	29.50	59.00
2	14-180B	Rubber tubing for Gooch crucibles	17.75	35.50
1	08-261B	Filtering crucible holder	98.16	98.16
1	08-261C	Filtering crucible holder	116.46	116.46
1	08-282B	Filtervac diaphragm	124.00	124.00
1	08-285	Walter crucible holder	39.40	39.40
1	08-265	Rubber crucilbel holder	27.50	27.50
1	08-195E	Gooch crucible	59.00	59.00
1	08-220-10	Gooch crucible for extration	53.80	53.80
8	08-227-1A	Selas Porcelain crucibles	9.00	72.00
10	08-227-1B	Selas Porcelain crucibles	9.00	90.00
9	08-227-2B	Selas Porcelain crucibles	10.00	90.00
1	08-226-10C	Crucibles with Filtering Device	129.75	129.75
2	02-716-5K	Oxygen Tips, heavy duty	5.50	11.00
1	02-883-DD	Flint Glass Bottles	10.60	10.60
1	02-945-10	Glass sampling bottle	52.32	52.32
1	02-945-12	Caps for 02-945-10 bottles	21.00	21.00
1	02-883-1DD	Amber Glass bottles	54.40	54.40
1	02-940-5E	Wheaton "400" brand bottle	71.28	71.28
1	02-923F	Polyethylene Boston Round bottles	33.55	33.55
1	02-923B	Polyethylene Bottles with shoulder loops	50.22	50.22
1	02-923K	Conventional polyethylene bottles	57.62	57.62
1	01-812-15	Scotch Pak Pouch sealer	54.75	54.75
1	01-812-21	Pouch cutter	3.50	3.50
2	02-176	Balance Rest	13.60	27.20
1	02-203	Anti static brush	9.95	9.95
1	02-203	Replacement Polonium cartridge for 02-20	5.95	5.95
1	02-626B	Bell jar with knobs	198.32	198.32
1	14-317-5	Sink matting	29.50	29.50
1	14-125	Rubber Sheets	20.75	20.75
1	01-215-B	General purpose Ampoules	14.90	14.90
1	10-269-75A	Freeze dry ampoules	109.00	109.00
1	10-299-82	Flame Sealing torch	200.00	200.00
1	01-287	Metabolisme cage	178.75	178.75
1	01-287-5	Entender kit for 10-287 Metabolisme	97.70	97.70
1	14-509-17	Two speed blender	125.00	125.00
1	C-601	Cello-seal lubricant	24.60	24.60
1	14-130F	Solid stoppers	9.00	9.00
1	14-130G	Solid stoppers	9.00	9.00
1	14-130H	Solid stoppers	9.00	9.00
2	14-130J	Solid stoppers	9.00	18.00
2	14-130K	Solid stoppers	9.00	18.00
1	14-793-4	Blue epoxy-coated racks	19.00	19.00
1	10-062	Flask tong	10.00	10.00
1	02-620	Beaker tong	13.75	13.75
1	10-269-4	Freeze dryer 220V	3,100.00	3,100.00
1	10-269-13	Drying chamber	515.00	515.00
1	07-911-1	Fisher Acculite Bacterial Colony counter	659.00	659.00

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	07-911-10	Marking Pen	70.00	70.00
1	07-906-1	Fisher Lilly Antibiotic Zone Reader II	850.00	850.00
		SUB-TOTAL		29,382.83

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project #. 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF ANIMAL SCIENCE

Petersime Incubator Company
Gettysburg, Ohio 45328

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	2SD24	Brood Unit	1,960.00	1,960.00
		SUB-TOTAL		1,960.00

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF FORESTRY AND WATER RESOURCES

Forestry Suppliers, Inc., 1983-84 Catalog

Quanity	Catalog #	Item	Estimated UnitPrice	Total
30	43-877	Sunto Clinometer PMS/1520P	123.75	3,712.50
1	59-702	Wheeler Pentaprism Caliper+Clinometer Mo	363.95	363.95
3	59-702	Wheeler Pentaprism Caliper+Clinometer Mo	381.95	1,145.85
5	95-423	Homelite Super 2 Chain Saw	300.00	1,500.00
5		Guide Bar for Above	20.00	100.00
5		Chains for Above	10.00	50.00
5	95-407	Chain Saw File	2.00	10.00
1	77-341	Munsell Soil Color Charts	45.50	45.50
10	77-342	Munsell Soil Color Charts	9.00	90.00
5	51-093	Aerial Photo Carriers/Rigid	8.65	43.25
10	51-092	Aerial Photo Carriers/Flexible	2.35	23.50
5	45-867	TG 1 Professional 4 Pen Set S1564	39.95	199.75
7	91-117	Swift Binoculars-Skipper MK I 7x50mm	129.95	909.65
			260.00	520.00
		SUB-TOTAL		8,713.95

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF FORESTRY AND WATER RESOURCES

Carolina Biological Supply Company
Burlington, North Carolina 27215

Quanity	Catalog #	Item	Estimated UnitPrice	Total
10	15-4727	Bacterial Investigative Biokit	35.95	359.50
10	15-4737	Antibiotic Study Kit	30.50	305.00
10	15-4710	Bacterial Fermentation Kit	68.25	682.50
10	14-4724	Gram Stain Antibacterial Mophology Kit	42.00	420.00
1	60-3604	Slide Projector	472.00	472.00
5		Replacement lamps for Slide Projector		
1	60-3301	Camera, Nikon EM	268.00	268.00
1	60-3302	Nikon Lens	99.50	99.50
		SUB-TOTAL		2,606.50

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AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF FORESTRY AND WATER RESOURCES

Ward's Biology Catalog 85-86,
5100 West Henrietta Rd, Box 92912, Rochester, NY 14692-9012

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	21W0890	Portable Water Analytical Labatory	630.65	630.65
100	90W0131	Typical Cocus	1.39	139.00
100	90W01221	Typical Cocus	1.39	139.00
100	90W0132	Typical Bacillus	1.39	139.00
100	90W0121	Typical Bacillus	1.39	139.00
100	90W0141	Typical Bacteria Forms	2.25	22.50
100	90W0142	Typical Bateria Forms	2.25	22.50
10	15W3770	New Dual Calibration Spring Scales	5.80	58.00
10	15W3771	New Dual Calibration Spring Scales	5.80	58.00
10	15W3772	New Dual Calibration Spring Scales	5.80	58.00
10	15W3773	New Dual Calibration Spring Scales	5.80	58.00
10	15W3774	New Dual Calibration Spring Scales	5.80	58.00
10	15W3775	New Dual Calibration Spring Scales	5.80	58.00
1	26W7556	Retroprojector	280.00	280.00
5	26W7509	Lamp	26.65	133.25
5	26W7505	Film Roll	11.75	58.75
5	69W1548	Fish Scale Study Set	9.27	46.35
1	21W0106	Kemmerer Water Sampler	280.00	280.00
		SUB-TOTAL		2,378.00

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF AGRONOMY

FisherScientific, 1983
711 Forbes Ave., Pittsburg, PA 15219

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	02-539G	KIMAX Brand Beakers Pk of 12, 50mm	15.84	15.84
1	02-539H	KIMAX Brand Beakers Pk of 12, 100mm	17.03	17.03
1	02-539K	KIMAX Brand Beakers Pk of 12, 250mm	15.84	15.84
2	02-539M	KIMAX Brand Beakers Pk of 6, 600mm	11.88	23.76
1	02-539N	KIMAX Brand Beakers Pk of 6, 800mm	16.43	16.43
1	21-131-6	Microkjeldahl digestion unit	605.00	605.00
1	21-101	Compact nitrogen distillation apparatus	623.00	623.00
1	04-881-10T	Fine Sieve stainless steel frame	48.30	48.30
1	04-881-10BB	Fine Sieve stainless steel frame	60.65	60.65
1	04-883H	Course Sieve	36.40	36.40
1	04-866B	Brass 5.1 Cm deep receiver	15.20	15.20
1	15-424-20	Precision General purpose water bath	773.00	773.00
1	11-493-600M	Jumbo size hot plates	190.00	190.00
1	14-385-?55	BSL Spectronic 710 Spectrophotometer	4,516.00	4,516.00
1	14-377-290	Tungsten lamp	60.00	60.00
1	14-385-912B	Rectangular glass cells with optical gla	78.00	78.00
1	14-385-932B	Cylindrical glass cells 20 mml	115.00	115.00
1	14-385-932E	Cylindrical glass cells 50 mml	132.00	132.00
1	13-636-810	Acumet 810 ph/mv meter	750.00	750.00
2	13-639-52	Calomel reference electrode	48.00	96.00
2	13-639-3	Ph indicating electrode	54.00	108.00
1	01-913-356	Balance, model PC 4400 220V	2,135.00	2,135.00
1	01-601-21	Sartorius electronic top loaders model 1	2,250.00	2,250.00
1	02-089-6S	Balance weights	15.50	15.15
1	02-173-45	Fisher prescription balance	90.00	90.00
1	02-262-5	Ohairs NBS Standard weights	143.00	143.00
1	13-245-231G	Isotemp Series 2000 lab oven	525.00	525.00
1	14-375-20	Fisher spoonulet lab spoon	42.10	42.10
1	14-373	Fisher chemi scraper spatule	33.65	33.65
1	10-347G	Analytical funnels 100mm	36.07	36.07
1	08-670-50	Aspirator pump	54.50	54.50
1	08-670-52	Adapter 3/8" NPT to 3/4" NPT	15.50	15.50
2	09-735	Magnetic filter funnel	73.60	147.20
5	09-730-1E	Gelman metricel membrance filters 47mm	44.40	222.00
1	14-260	Wrist action shakers for 8 containers	590.00	590.00
1	08-335	Micro-mill grinder	419.00	419.00
1	02-540C	beakers 20ml	18.48	18.48
1	02-540G	Beakers 50 ml	15.84	15.84
1	02-540H	Beakers 100ml	17.03	17.03
1	08-549-5E	Cylinders KIMAX 100ml	37.84	37.84
2	08-549-5G	Cylinders KIMAX 250ml	26.14	52.28
2	08-549-5H	Cylinders KIMAX 500ml	18.27	36.54
1	08-549-5J	Cylinders KIMAX 1000ml	83.08	83.08
2	03-388E	Conventional Polyethylene vials 18ml	43.52	87.04

Quanity	Catalog #	Item	Estimated UnitPrice	Total
2	03-388G	Conventional Polythylene vials 28ml	54.65	109.30
1	03-420B	Weighing bottles, flat form, 50ml	140.00	140.00
40	03-484B	Reusable plastic utility boxes 325ml	10.08	403.20
2	03-485C	Aluminium containers	97.80	195.60
2	14-809B	Corning polystyrene disposable tubes	128.50	257.00
1	14-809B	Polypropyline holders for 16.20 mm tubes	37.86	37.86
1	03-312C	Square polyethylene bottle 500ml	18.95	18.95
2	03-312D	Square polyethylene bottles 1000ml	14.15	28.30
1	03-312B	Square polyethylene bottles 250ml	13.35	13.35
1	03-312A	Square polyethylene bottles 175ml	10.01	10.01
1	02-923E	Polyethylene boston round bottles 500ml	10.48	10.48
1	02-923F	Polyethylene Boston round bottles 1000ml	9.32	9.32
1	02-883-CC	Flint glass bottles 250ml	10.60	10.60
1	02-883-DD	Flint glass bottles 450ml	13.80	13.80
1	02-883-EE	Flint glass bottles 950ml	19.75	19.75
1	02-883-1CC	Amber glass bottles 450ml	14.25	14.25
1	03-006	Polyethylene drop dispensing bottle 125m	15.53	15.53
1	10-044A	Flat bottom boiling flasks	94.20	94.20
2	07-736A	Sealed condensers 300mm	202.44	404.88
2	10-402B	Cylindrical separatory funnels	126.35	252.70
5	09-801C	Fisher filter paper	11.54	57.70
2	14-740	4 Funnels support arm	9.85	19.70
1	15-202	General purpose pick up tongs	15.35	15.35
1	14-169-1M	Tygon tubing	36.70	36.70
1	14-169-1Q	Tygon tubing	43.15	43.15
2	08-057A	Glass crucibles 30ml	138.00	276.00
2	08-057B	Glass crucibles 50ml	153.78	307.56
10	08-732	Fisher disposable dishes	9.75	97.50
5	14-670C	Tough rectangular epoxyn stand	12.70	63.50
2	14-666-6	Horizontal or vertical mounting	139.95	279.90
1	02-540K	Beakers 250ml	15.84	15.84
2	02-540M	Beakers 600ml	11.88	23.76
2	02-540N	Beakers 800 ml	16.43	32.86
2	02-540P	Beakers 1000ml	22.64	45.28
10	02-591-16	Polypropylene beaker set	9.25	92.50
10	02-593-5A	Fisher teflon beaker 100ml	16.50	165.00
1	10-198-50A	Polypropylene Flasks 50ml	82.08	82.08
1	10-198-50B	Polypropylene Flasks 100ml	88.56	88.56
1	10-198-50E	Polypropylene Flasks 500ml	87.62	87.62
1	10-198-50F	Polypropylene Flasks 1000ml	93.66	93.66
1	20-810B	Flasks 25ml	66.48	66.48
1	10-202A	Flasks 50ml	68.28	68.28
1	10-202B	Flasks 100ml	79.68	79.68
1	10-202D	Flasks 250ml	99.00	99.00
1	10-202E	Flasks 500ml	120.48	120.48
2	10-202F	Flasks 1000ml	76.62	153.24
2	13-687-620	Repipet Dispensers	82.50	165.00
1	13-651-10A	Pipet 1mil	77.04	77.04
1	13-651-10B	Pipet 2mil	77.04	77.04
1	13-651-10E	Pipet 5mil	77.04	77.04

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	13-651-10F	Pipet 10mil	84.96	84.96
1	13-651-10J	Pipet 25mil	92.46	92.46
1	13-651-10K	Pipet 50mil	112.08	112.08
1	13-664C	Mohr pipet 1ml	57.42	57.42
1	13-664E	Mohr pipet 2ml	58.14	58.14
1	13-664F	Mohr pipet 5ml	58.14	58.14
1	13-664G	Mohr pipet 10ml	67.14	67.14
3	14-241A	Cast aluminium scoop	5.25	15.75
3	03-700-22B	Precision burets with teflon stopcoks	52.22	156.66
1	03-409-22C	Fisher Dispenser with spouts 500ml	10.55	10.55
1	10-041-170	Polycarbonate erlenmeyer flask 250ml	54.24	54.24
1	10-093-10C	Pyrex brand erlenmeyer flask 250ml	45.80	45.80
2	08-568-2A	Soil test cylinders 1000ml	100.28	200.56
2	08-572E	polypropylene cylinders 250ml	7.56	15.12
2	08-572F	polypropylene cylinders 250ml	9.78	19.56
2	08-572G	polypropylene cylinders 1000ml	12.07	24.14
2	05-781	Double buret clamp	12.50	25.00
12	05-754	Regular holder	3.00	36.00
10	05-740	Three prong clamp	6.95	69.50
10	05-772	Single buret clamps	7.25	72.50
5	05-777	Single buret clamps	9.50	47.50
5	15-239-2	Fiber glass safety tray	42.25	211.25
2	A-505	Activated alumina	11.10	22.20
5	01-952-5	Silica gel dessicator	9.75	48.75
1	05-525-26	IEC centrifuge Model C4 5000	4,070.00	4,070.00
1	05-111-17	4 places rotor	415.00	415.00
2	05-425-16	cups 1000ml (IEC353S)	278.00	556.00
2	05-112-61	adapters (IEC 6780	71.80	143.60
1	05-430-45C	IEC centribottles 1l	52.40	52.40
1	05-112-70	Flat bottom polyethylene bottles 250ml	46.00	46.00
1	14-511-59	Magnetic stirring bar kit	46.50	46.50
2	14-511-86	Stir bar retrievers	6.15	12.30
3	14-493-121MR	Magnetic stirrer	93.60	280.50
2	13-712-10	Polypropylenepipet support	15.00	30.00
1	11-473-10	Rotamantle 250ml	261.00	261.00
2	11-823-31	Wide Wide mouth jars 250ml	69.88	139.76
3	11-823-32	Wide Wide mouth jars 500ml	70.42	211.26
1	11-823-33	Wide Wide mouth jars 1000ml	104.00	104.00
5	14-232	Sedimentation pipet	149.00	745.00
1	21-130B	Replacement Manifold	138.50	138.50
1	21-110	Silver Micro condenser tube	425.00	425.00
1	21-120	Vapor vessel	61.00	61.00
1	10-040D	Receiving flask	19.01	19.01
2	10-065C	Vial Month flask	6.69	13.38
1	14-135L	Rubber stoppers	8.25	8.25
1	10-110C	Kjeldahl flasks 100ml	96.24	96.24
1	11-875D	Self-adhesive label tape	72.90	72.90
1	11-855AA	Polyethylene-coated labels	61.92	61.92
2	08-741A	Crystallizing dishes	64.56	129.12
2	12-070B	Hand held magnifier	11.50	23.00
2	P-277	Potassium peirodate meta, 100g	38.75	38.75
1	C-566	Calein, 5g	42.25	42.25
1	O-4747	Thymolphtalein, 25 g	22.80	22.80
1	T-407	Triethanolamine, 1l	27.10	27.10

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Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	02-539G	KIMAX Brand Beakers Pk of 12, 50mm	15.84	15.84
1	02-539H	KIMAX Brand Beakers Pk of 12, 100mm	17.03	17.03
2	S-657	Sodium(tetra) ethylenediamine tetraaceta	78.50	157.00
1	So-E-32	Eriochrome black T solution	16.50	16.50
2	A-661	Ammonium chloride, 1 kg	21.35	42.70
1	A-669	Ammonium hydroride	33.65	33.65
2	M-296	Methyl red ph indicator	7.70	15.40
2	B-383	Bromocresol green, 5g	42.20	84.40
2	S-309	Sodium hydrosulfite, 500g	12.15	24.30
1	A-174	Ammonium vanadate meta, 500g	41.20	41.20
1	S-442	Sodium Thioglycolate, 100g	27.80	27.80
2	P-217	Potassium chloride, 3kg	46.25	92.50
1	So-B-109	Buffer solution ph 7.00, 1l	28.25	28.25
1	So-B-99	Buffer solution ph 4.00, 1l	17.45	17.45
1	P-304	Potassium sulfate, 1kg	38.15	38.15
1	C-489	Cupric sulfate technical, 500g	11.80	11.80
2	H-327	Hydrogen peroxide technical, 500ml	59.20	118.40
1	So-A-196	Sulfuric acid solution, 37N, 500ml	192.85	192.85
1	S-318	Sodium hydroxyde pellets, 5kg	60.80	60.80
2	S-279	Sodium citrate, 1kg	24.95	49.90
3	S-233	Sodium bicarbonate, 1kg	14.00	42.00
2	P-279	Potassium permanganate, 500g	21.15	42.30
1	O-2611	Diphenylamine, 100g	27.85	27.85
2	I-77	Ferrous ammonium sulfate, 1kg	70.45	140.90
2	P-188	Potassium dichronate, 500g	42.55	85.10
1	S-299	Sodium floride, 500g	40.70	40.70
4	A-200	Nitric Acid, 500ml	17.25	69.00
1	A-674	Ammonium molybdate, 500g	77.30	77.30
2	P-285	Potassium phosphate, mono basic, 500g	17.40	34.80
5	A-229	Perchloric acid 70-72%, 1lb	22.70	113.50
2	A-637	Ammonium acetate, 1kg	47.10	94.20
1	A-709	Ammonium thiocyanate, 500g	32.35	32.35
1	A-938	Ammonium sulfate, 1kg	22.85	22.85
1	T-163	Stannous Chloride, 500g	50.10	50.10
2	A-147	Hydrofluoric acid, 500ml	21.35	42.70
1	A-144	Hydrochloric acid, 500ml	42.60	42.60
1	S-435	Sodium tartrate, 500g	52.00	52.00
1	S-654	Sodium bisulfite	13.80	13.80
2	S-333	Sodium metaphosphate, 3kg	37.05	74.10
2	A-37	Acetic acid 80%, 1l	20.30	40.60
4	A-219	Oxalic acid, 500g	29.20	116.80
4	A-679	Ammonium oxalate, 500g	40.00	160.00
2	M-87	Manganese chloride, 100g	9.60	19.20
1	A-242	O.Phosphoric acid 85%, 1l	19.60	19.60
1	So-1124	Iron reference standard solution, 500ml	14.85	14.85
1	SO-A-442	Aluminium reference standard solution, 5	19.75	19.75
1	SO-A-191	Calcium reference standard solution, 500	14.85	14.85
1	SO-M-51	Magnesium reference standard solution, 5	14.85	14.85
1	So-S-465	Silicon reference standard solution, 500	19.75	19.75
		SUB-TOTAL		32,850.61

GP

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF AGRONOMY

Science Products Division, Corning Glass Works
Corning, NY 14830

Quanity	Catalog #	Item	Estimated UnitPrice	Total
1	3885	Extraction Apparatus, 200ml	$302.16	302.16
		SUB-TOTAL		302.16

AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT
Project # 686-0221

PROPOSED COMMODITIES LIST
April 1, 1986 - March 31, 1988

DEPARTMENT OF ANIMAL SCIENCE

Ward's Biology Catalog 85-86,
5100 West Henrietta Rd, Box 92912, Rochester, NY 14692-9012

uanity	Catalog #	Item	Estimated UnitPrice	Total
1	88W4156	Mannitol Solution. 50ml tube; 12 to pkg	8.50	8.50
1	18W1580	Stenile syringe Filters,20m membrane; 12	13.50	13.50
2	38W54511	Cellulase	10.00	20.00
2	14W5503	Automatic Lancert Device	8.10	16.20
2	14W5504	Blood lancets, pkg of 100	7.50	15.00
3	88W6178	Membrane Filter assembly .22micron	5.20	15.60
2	88W6179	Ward's Phage Bubbler Assembly	8.40	16.80
1	88W8108	Identification of bacteria demnstration	40.00	40.00
1	88W8105	Bacteria Sensitivity concept study	21.00	21.00
1	88W8200	Ward's Bacterial filter kit	29.00	29.00
		SUB-TOTAL		195.60

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Annex E

Training

Participant Training

During the Two-Year Project Extension

The two year extension of the project will not be long enough to support new starts of long-term participant training. However, substantial short-term training will be carried out. An outline of planned short-term training is outlined below.

1. U.S. Short-Training for ISP/IDR Professors.

Nine ISP/IDR Professors will be selected for short-term training in the United States. Five will be sent in 1986 and four in 1987. The participants will attend short courses such as those conducted by USDA for foreign scientists. The training will take place during the summer months when the professors are free from teaching responsibilities. The Office of International Training (OIT), AID/W will be utilized for placement services. Each training activity will last for about 45 days.

2. U.S. Training for Farm Manager.

ISP/IDR has recently appointed a new Burkinabe farm manager. He would benefit greatly from experience working with a manager at a small school farm in the United States which has teaching and research activities. The farm manager will be sent to the United States each year for 45 days. OIT,AID/W will be utilized for placement services.

3. VIP Tours of U.S. Land-Grant Universities.

Six high level Burkinabe officials responsible for agricultural education, research and extension will be sent to the United States for a tour of Land-Grant universities. The purpose of the visit will be to acquaint the officials with the integrated approach to agricultural extension, education and research which characterized the United States. This is in preparation for a Phase II project centered around this concept. The visits will be for about 45 days.

4. Visit to AID Project utilizing the Land-Grant Approach in West Africa.

The Mission plans to follow the project extension with a Phase II project utilizing the Land-Grant model. AID currently have projects in West Africa employing this model. Eight Burkinabe, ISP Professors and government officials involved in agricultural education, research and extension will tour an appropriate project in another West African country. The visit will list for eight days.

The estimated costs for the Short-term Participant Training activity is $152,000. A detailed breakdown for estimated expenditures for this activity is found in Table 4. The Office of International Training, AID/W will place the participants in U.S. training programs. The Training Office, USAID/Burkina will handle local arrangements and arrangements for tour of West African project.

Participant Training During A Phase II Project

1. Long-term.

Twenty long-term particpants were trained at the Masters level under the AgHRD Project. Most of these trainees have returned to ISP/IDR and provide the nucleus for the technical faculty in agriculture, forestry and animal science. Their training has made an important contribution to the quality of instruction at ISP/IDR. Additional training at American institutions is needed during the Phase II activity.

a. Ph.D Training. Like its American counterparts, ISP/IDR promotes it faculty on the basis of training and experience. The faculty members trained at the Masters level under AgHRD will have only a limited chance for promotion without Ph.D degrees. Currently, three of the AgHRD participants are being sponsored by the Sahel Manpower Development Project for Ph.D degrees in the United States. Additional scholarships should be provided under the Phase II project. With Ph.D degrees, American trained scientists will be able to play important leadership roles at ISP/IDR.

b. Additional training at the Masters level. As the school expands, there will be a need for additional personnel for the school. A limited number of Masters level scholarships should be awarded during the Phase II project. ISP/IDR, working with its American advisors, should identify specific areas of specialization needed by the school and nominate qualified ISP/IDR graduates for scholarships in the United States to obtain training in these areas.

2. Short-term Training.

Short-term training should continued to be used to provide ISP/IDR faculty training in specific skills. Three to six faculty members per year should be sent to the United States for short-courses similar to those offered by USDA for foreign scientists.

Annex F

Recurrent Costs

Annex F

Recurrent Costs

Activities at Gampela, like any other activities, have their price. While the use of the farm as a classroom and laboratory, the carrying out of research and the performance of extension work and training are no doubt worth their cost, expansion of these activities will increase the size of the budget for recurrent costs which must be borne in the long run by the government of Burkina Faso.

Over the last two years, recurrent costs have averaged 1.1 million F CFA per month, or (at 350 F CFA per dollar) about $3100. These costs follow a seasonal pattern that is shown by the graph that follows. These expenses have included vehicle maintenance, labor, animal feed, fertilizer, purchase of animals, irrigation system costs, tools and equipment, fencing, miscellaneous costs, and a very small amount of construction.

This Section discusses two possibilities for meeting, or helping to meet, recurrent costs: commercial production, and collecting fees from research organizations.

Commercial production at Gampela farm.

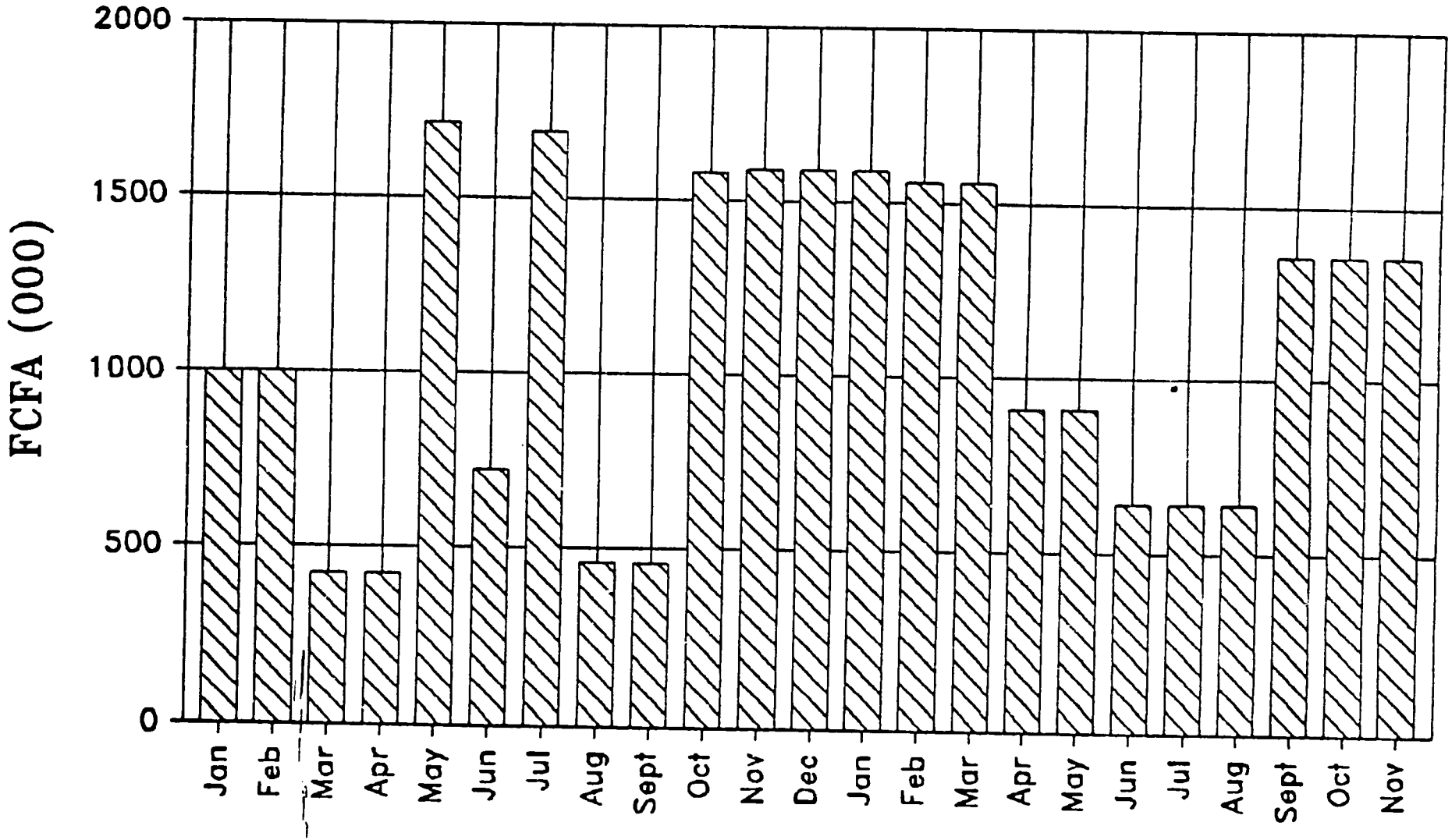
It has been argued that the farm at Gampela, having a large area, being equiped with machinery, and having access to the best information about crop and livestock production, should utilize these resources to the maximum extent possible in large scale production. The idea has merit from the point of view of Burkina Faso's food balance; more food produced here means less need to import. Also, any income generated by sale of the produced, or reduction of operating costs through internal use of the products, would contribute toward meeting the recurrent costs of the farm.

However, it is obvious that the "raison d'etre" of IDR is not production of food, so this activity should be encouraged only to the extent that it is compatible and non-competitive with the main objectives of the institution. Also it is important that enthusiasm for the concept of production should not blind decision makers to the costs involved. Production of cereal crops, at least, is not cheap and may not pay its way.

The accompanying table presents a budget of costs and returns for production of maize (corn), sorghum and millet at Gampela. The data are of necessity estimated, but they meet the test of reasonableness under the circumstances. Further commentary on the costs and coefficients is continued in notes appended to the table .

AVERAGE MONTHLY EXPENDITURES, AgHRD PROJ

Jan 1984 – Nov 1985



Costs and Returns from Crop Production (per hectare)

Item	Number			Cost or Value, CFA		
	Maize	Sorghum	Millet	Maize	Sorghum	Millet
Tillage (A)						
Tractor and implements, hours	3	3	3	45000	45000	45000
Fertilizer (B)						
Complete (15-23-15)	200	200	200	11000	11000	11000
Urea	80	60	60	9600	7200	7200
Seeds C) at 200 cfa/kg	40	6	4	8000	1200	800
Hoeing and weeding (D) man days						
Done twice, by hand	16	16	16	16000	16000	16000
Harvesting, man days (All hand labor; not mechanized)	16	16	16	16000	16000	16000
Shelling/Threshing/Sacking						
Machine and 3-man crew at 500 cfa/hr						
Output per hr, kg	1000	800	600			
Time required per ha, hours	1.2	1.2	0.9	600	750	450
Sacks (usually not reusable)						
200 cfa pa sack holding 30 kg	24	24	18	4800	4800	3600
Total				111000	101950	100050
Yields: achievable on commercial scale at Gampela, kg/ha	1200	1200	900			
Price (E): estimated per kilo	90	80	90			
Value of crop at producer prices				108000	96000	81000
Profit or (Loss)				(3000)	(5950)	(19050)
Profit or less as % of costs				(2.7%)	(5.8%)	(19.%)
Cost of crop, cfa per kg produced				92.5	85.0	111.2
Consumer prices (F)	120	90	120			
Costs and Returns from Crop Production (per hectare)						
Value of crop at consumer prices				144000	108000	108000
Profit or (loss)				33000	6050	7950
Profit or loss as % of costs				19.8%	5.9%	7.9%

Notes on attached page

Notes

A. Cost of tractor and implements including fuel, lubricants, operator, depreciation and repairs. Intended to represent a reasonable charge for "custom hire" or contracted work. Three hours per hectare includes all tractor-powered operations during the season.

B. Complete fertilizer costs 2750 cfa per 50kg bag. Urea cost is 120 cfa per kg.

C. Seeds are locally produced, not hybrids.

D. At Gampela this operation has required an average of about 8 man days per hectare. Labor costs of 1000 cfa per day include salary, fringe benefits and taxes.

E. Estimates of official producer prices

F. Estimates of official consumer prices

All three of the crops budgeted are losing ventures; i.e. their value if sold at government-fixed producer prices is less than the cost of producing them. However, if the grains are consumed internally, either as livestock feed or as kitchen supplies, their value should be calculated at consumer prices. At these higher prices, all three crops are modestly profitable.

All of the foregoing inputs, coefficients and prices are preliminary, so the conclusions are indicative only. However the conclusion seems reasonable that commercial production of cereals at Gampela farm is justifiable only to the extent that the products are needed and used internally. Commercial production for sale is a losing proposition and should not be undertaken.

If further studies show that costs are significantly lower than shown, or that yields are appreciably higher, the economics of commercial production (for sale) should be recalculated and the question reconsidered.

Production of livestock - poultry, eggs, meat, wool and possibly also breeding stock - is another field in which commercial production may be advocated and could be undertaken. Budgeting studies to show the financial feasibility of such production have not been done, but the same principles apply as for crops: production for internal use probably is justified; production for sale is unlikely to be profitable and should be undertaken only after adequate study.

Collecting fees from research organizations

ISP and IDR have benefitted from the research done at Gampela by collaborating organizations. The benefits have included professional interaction of faculty with their peers who are doing research for other organizations; the achievement of a "critical mass" of research effort through cumulation of efforts of many persons and several donors; enhanced prestige as the fallout from that critical mass; and opportunity to use additional and different research as classrooms in the field. The price paid for these benefits to date has been provision of land and other facilities and provision of service such as tillage of the plots, apparently at no cost. Initially it may have been necessary to give concessionary terms to the various research organizations and agencies to induce them to use new facilities, but that situation no longer exists.

Of the agencies that have used research sites at Gampela, several (e.g. ICRISAT, IITA, IRAT) are independently funded. Others (e.g. SAFGRAD and CRSP) receive funding from USAID. Why should these agencies receive free services, that amount to a subsidy from an impoverished country? A charge should be levied on these users of land at Gampela.

The terms of the arrangements, including the level and mode of payment of charges, would have to be negotiated with each user of the Gampela facilities. Factors in such negotiations probably should include the area of land and/or other facilities used; the period of time or length of the commitment; any obligations for participation by IDR, and any benefits to IDR. It should be borne in mind that the benefits to staff from interaction, pride of association, etc. are reciprocal now that IDR is gaining prestige as a research organization.

A second type of fees or charges should also be established. Tillage of research plots, provision of manpower for any operations required, transport of goods and personnel, and other services in this vein should be billed to the agency requesting the agency. Illustrative charges are 15,000 cfa per hour as the cost of tractor-powered tillage operations, and 1000 cfa per man day of labor; these costs are presented and annotated in the budget for crop production costs earlier in this annex.

A third possible source of income that is less clearly perceived is from American universities through grants in support of research. This possibility needs further study.

In any case, the precedent should be establis[illegible]nd followed that income generated by the farm should be sequestered in a separate fund, rather than being merged with other ISP/IDR monies. This special fund should be used only for farm purposes, thereby recouping some part of recurrent costs or permitting a reduction of those costs.

Annex G

Technical Assistance

Technical Assistance.

ISP/IDR has need for continued long-term and short-term technical assistance. During the first five years of the AgHRD Project, technicians from American universities assisted ISP/IDR in curriculum development, research and the establishment of a school farm. While much progress was made during that period, additional technical assistance is needed to insure the continued development of the school in terms of the American model of agricultural eduation. Given the two year time limit of the project extension, only limited technical assistance can be provided during this period. Additional technical assistance should be considered during a second phase of the project.

Technical Assistance during the Project Extension

Both long-term and short-term technical assistance are proposed for the project extension. The basic rationale for providing additional technical assistance for the extension is to continue to provide American advisors to assist ISP/IDR in its efforts to incorporate additional components of the American system of agricultural education.

1. Project Leader.

Two-person years of long-term technical assistance will be used during the extension. The long-term technician will serve as Project Leader. The basic responsibility of the Project Leader will be to organize and monitor the implementation of the activities funded during the extension. The activities are varied and complex and will require a Project Leader will substantial management training and experience. He/She will report to the ISP/IDR Director and the USAID Project Manager. The specific duties of the Project Leader are:

a. Serve as liaison between ISP/IDR and USAID/Burkina on matters related to the AgHRD Project.

b. In collaboration with the USAID/Burkina Project Manager, initiate the implementation of all activities related to local commodity purchases in accordance with AID regulations and procedures as specified by AID Handbooks 14 and15;

c. In collaboration with the USAID/Burkina Project Manager initiate the implementation of all activities related to construction activities and monitor construction according to the guidelines provided by Handbook 11;

d. Assist ISP/IDR Director in the development of a Scope of Work for the project extension and in the selection of

short-term participants for training in US and third countries;

e. Assist academic departments at ISP/IDR in the selection of short-term American consultants;

f. Advise the Project accountant;

i. Assist the USAID/Burkina Project Manager in the scheduling and monitoring of project;

j. Assist the Phase II design and evaluation teams in its work.

Qualifications for the Project Leader/Curriculum/Farm Management Adivsor are:

a. Masters degree in business management or a related field.

b. Experience working in USAID-sponsored agricultural programs in West Africa with substantial knowledge of USAID project management procedures in commodity procurement and construction. On farm experience desired;

c. FSI 3S-3R in French;

The estimated budget for this activity is $164,000. A detailed breakdown of expected expenditures is found in Table 2. The mechanism for employing the long-term technician is a Personal Services Contract or the use of an IQC or TSM.

The schedule for the long-term technician is found in Chart 1. The technician is due at post April 1, 1986 and will complete his/her tour March 31, 1988.

Graph 2 contains a visual presentation of the planned cummulative monlthly expenditures for long-term technical assistance. It is anticipated that approximately $7,000 will be spent each month.

2. Short-term Technical Assistance

The short-term technical assistance is designed to provide continuing American input into the program at ISP/IDR. This will allow for substantial input by American professors at ISP/IDR during the transition period between Phase I and Phase II. This is important since the Phase II project will focus on establishing major components of the American Land-Grant system at ISP/IDR. Ten consultants will be used for a total of ten person months. The following types of consultants will be utilized:

a. Microcomputer Specialist. A microcomputer specialist with experience in agricultural and statistical research will be employed to provide in-country short-term training for ISP/IDR faculty and staff. The consultant will be used one-month each year for a total effort of 2 person months. FSI S3, R3 in French required.

b. Advisor to Animal Science Department. A livestock specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Animal Science professors on research and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Animal Science component of the farm. Total effort will be 2 person months. FSI S3, R3 in French required.

c. Advisor to Forestry and Water Management Department. A forestry/fisheries specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Forestry and Water Management professors on research and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Forestry/Water Management component of the farm. Total effort will be 2 person months. FSI S3,R3 in French required.

d. Advisor to Agronomy Department. A agronomy specialist with experience working in West Africa will be employed each summer for one-month to advise Department of Agronomy professors in research and teaching activities at the Gampela farm. The consultant will assist the professors in establishing a long-term work plan for the Agronomy component of the farm. Total effort will be 2 person months. FSI S3, R3 in French required.

e. Agricultural Manpower Consultant. A specialist in agricultural manpower will be employed to conduct a brief survey of professional-level agricultural manpower needs in Burkina Faso. The consultant will have French-speaking capability and experience working in West Africa. The consultant's report will outline the projected 10 year supply and demand for university-trained agricultural professionals. Total effort will be 1 month. FSI S3, R3 in French required.

f. Specialist in Land-Grant college system. Will conduct an institutional analysis of the existing linkages between agricultural research, extension and education. Report will recommend approaches to establishing unified system. FSI S3, R3 in French required.

Technical Assistance during a Phase II Project

The thrust of a Phase II project for ISP/IDR will probably be to assist the institution in its efforts to apply the American Land-Grant system of agricultural education in Burkina Faso. The AgHRD Project assisted the institution in initial efforts in that direction. The Phase II activity will focus on the integration of agricultural research, education and extension. For the Phase II effort to be successful, it will be necessary to utilize the expertise of American professors. There will be a need for both long-term and short-term technical assistance.

1. Long-term Technical Assistance

The following types of long-term technicians will be needed during a Phase II project:

a. Land-Grant System Specialist. This person will be needed to provide overall guidance to the project. Ideally, the person will be someone who has had major administrative experience at a Land-Grant college.

b. Agricultural Research Specialist. This person will assist ISP/IDR in the establishment of its research program and help it to integrate its teaching and research activities with those of the other agricultural research organizations in the country.

c. Agricultural Extension Specialist. This expert will assist ISP/IDR in its program to integrate agricultural extension into its program. He/she will assist in establishing extension activities at the Gampela farm and in relating the ISP/IDR teaching/research/extension program to the other extension activities in the country.

d. Curriculum Specialist. The role of this expert will to assist ISP/IDR in the development of a better curriculum. This person should be experienced in the development of teaching materials. Currently, there is a lack of textbooks and other teaching materials.

2. Short-term Technical Assistance.

The need for short-term technical assistance will continue during a Phase II activity. It is anticipated that ISP/IDR will continue to need the same sort of short-term assistance outlined above for the project extension. The short-term technical assistance should be directed toward specific needs within the departments and at the farm.