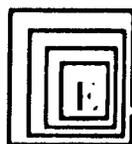


Blue Nile Integrated Agricultural Development Project

Second Annual Report Blue Nile Project

Project 650-0018 - Contract AID/afr-C-1582

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**EXPERIENCE, INCORPORATED**

MINNEAPOLIS, MINNESOTA 55402

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## I. INTRODUCTION

The purpose of this project is to develop, within the Blue Nile Province, a Sudanese institutional capability to plan and implement agricultural development projects designed to increase production and the income of sedentary farmers and herder families. The approach taken is action-oriented. The project plans on developing this institutional capability by actually implementing such a project. This program of building institutional infrastructure and development experience through demonstration and action is also expected to yield a substantial amount of agricultural development in the project area.

The headquarters of the project is located in the provincial capital of the Blue Nile Province, Damazin. The project area has 312,000 acres starting approximately 30 kilometers south of Damazin extending in a triangular shape along the Blue Nile to the River Tamat, then to the village of Kharen Kharen at the southern point and then north with the river Uffalt making the western border. Approximately 2,500 village and 3,300 nomad families will be affected by the project. The project has a budget of \$12 million provided by USAID and \$3.7 million provided by the Government of the Sudan.

The initial two years of the project have been largely devoted to adapting the project to actual, as opposed to preconceived physical and institutional conditions in the Blue Nile Province. An example may help make the magnitude of this effort understandable. The housing originally planned for project personnel was found to be structurally and environmentally inadequate for conditions in Damazin. The process of altering plans, obtaining approvals and constructing the modified housing has set the completion date back considerably. To some extent this has hampered efforts to get qualified staff on board and working effectively, while forcing

the use of scarce staff time in unplanned activities. In spite of these and other, similar, challenges, the project has made substantial progress in its first two years of operation.

This report will summarize the progress made from October 1980 through December 1981. This reflects a shift in project reporting from the fiscal to the calendar year to be more compatible with project agricultural activities.

#### A SUMMARY OF PROJECT ACTIVITIES FOR THE PERIOD

The project demonstration farm was again used to demonstrate various crops and farming systems. Approximately eighteen local farmers participated in some of these trials. The project verification farm was divided into 10 x 10 meter plots and used to test various field crops not normally found in the project area as well as different fodder crops, vegetable varieties and farming systems. A small demonstration of improved planting and weeding practices was carried out in Abu Gemai with participating farmers reporting increases in yields of nearly seventy percent. Given the sources of these figures, they may be an indication of farmer enthusiasm over the results rather than an objective evaluation. A demonstration vegetable plot was also well received by the villagers. They obviously expect this to be a continuing activity in their village and erected a thorn brush barrier around the plot for its protection.

Although a base of socio-economic information concerning the project area was developed through surveys conducted by the Economic and Social Research Council (ESRC), it was determined that more detailed information would be required for project guidance and evaluation. Accordingly, more staff were brought into the project and additional studies were initiated. Of these, the anthropological studies have been completed and the resulting draft report is being used to guide cooperative

development and extension activities in the project area. An expatriate economist began developing detailed farm budgets from farm-level observations after the Economic and Social Research Council and anthropological studies established that farmer interview data would not be adequate.

The land used survey team developed soil and vegetation maps, conducted preliminary soil tests, outlined local farming methods and nomadic activities, and recommended approaches to assisting and working with the farmers and herders. For details, see the report titled Land Use Survey by James Irvine dated June 1981.

The public health aspects of the project area were studied by an E.I. consultant medical doctor who issued a report recommending how the project could best serve the public health needs of the project area people by supporting a planned Government of Sudan (GOS) public health program for the area. See Dr. Willard Boynton's report entitled Health Aspects of the Blue Nile Integrated Agricultural Development Project, dated April 1981 for details.

The livestock and range management team, made up of Sudanese and American team members and assisted by the local GOS range management department, studied local conditions and presented a report which detailed a program of action to begin developing the livestock and range resources of the project area. An integral portion of this program deals with project area nomads and approaches for reducing conflict between them and sedentary farmers. With project support, the Provincial Range Management Department began conducting a series of long-term trials including range exclosures and reseeding. The reseeding trials have been termed successful by the experimentors, suggesting that reseeding may play a major role in increasing the livestock carrying capacity of the range lands in the project area. Details are available in the report entitled Range, Livestock and Soils Team - Final Report dated December 30, 1981.

The Sudanese staff housing was nearly complete, lacking only the final hookups of electric and water services. The main warehouses and workshops in Damazin are approximately ninety percent complete. Foundations were dug for expatriate housing in Damazin, the project office building in Damazin, and the Agriculture Development Center in Abu Gemai.

All the farm tractors and some of the associated implements to be used in the project area arrived and are being checked at the project demonstration farm.

Staffing from the E.I. side was completed with the following advisors coming on board during the year: John Butts, Credit and Cooperatives Advisor, in February; Ken Eubanks, Agronomist, also in February; Marie Peterson, Extension and WID Advisor, in June; John "Zack" Lea, Data Management Advisor, in September; and Jerry Pruitt, General Services Officer, in December. With their arrival activity was considerably speeded up, but full steam activity was hampered by lack of adequate counterparts. No counterparts were available during the year for Peterson, Lea or Pruitt, and while John Butts was assigned some staff they were not of the caliber required. Eubanks was assigned a very well-trained and motivated counterpart, but one with little experience.

The arrival of the GSO was especially welcomed by the staff. He was specifically charged with assisting the Engineer and Logistics Officer in supervising construction, maintaining vehicles, controlling inventories, and handling logistics and related functions. Since all these functions had been handled by various members of the expatriate team, the addition of the general services officer not only completes currently approved E.I. project staffing, but also frees program staff to concentrate on their specific responsibilities.

With the expatriate staff complete and expected to move into adequate housing before the next rainy season, and with the Sudanese staff housing complete enough to begin attracting

a full staff of Sudanese, the project is in a position to concentrate on field activities. Even though there are still substantial changes to be made in project timetables to adjust to realities of actual project conditions as opposed to pre-project predictions in such vital areas as cooperative development and agricultural extension, it is expected that this coming year will prove to be one in which all the difficult and frustrating work of building the project to its critical mass will come to fruition and the project will begin to produce results consistent with its potential and expectations.

## II. A DETAILED DESCRIPTION OF PROJECT ACTIVITIES BY SECTION

In this portion of the project annual report, the activities of each section will be described in more detail. At the end of each sectional description, a short evaluation will examine how closely the actual accomplishments of each project section conform to the planned accomplishments as projected by the project implementation plan presented in the July 10, 1978 Project Paper.

### A. Agronomy Section

During this second year of agronomic activities on the project demonstration and verification farms, the major thrust of activities has been with field trials. Six varieties of sorghum and one variety each of sesame, cowpea and rice were put under observation at the demonstration farm. Of the six varieties of sorghum, four were recommended by GOS researchers while the remaining two were selected by local farmers participating in the field trials. A total of seventy-one feddans were planted and harvested in these trials. Local farmers participated in the trials by taking over the

management of forty-five feddans immediately after mechanical planting. From this point onward, the local farmers decided when to weed and when to harvest their crops. Through this experience of being able to compare traditional and improved cultural practices, the local farmers learned several techniques which they plan to try on their own farms in the coming season.

The agronomic staff also conducted trials of farming systems under simulated and real farming conditions at the project demonstration farm. Again, local farmers participated and represented real farm conditions. Excellent to good results were obtained and will be incorporated into the technical package offered to cooperative members in 1982. The following systems were tested: 1) intercropping sorghum X cowpea; 2) relay cropping sorghum X cowpea; 3) double cropping sorghum X cowpea; 4) double cropping sesame X sorghum, and 5) double cropping sesame X cowpea. Of the farming systems tested, intercropping appears most promising. This system was tested at both demonstration and verifications farms with a high degree of farmer acceptance.

Trials at the verification farm concentrated on food and fodder field crops, farming systems, and horticultural crops. Field crops tested were sorghum, millet, corn, and various legumes such as lab lab (dolichos), peanuts, cowpeas, green beans and English peas. The lab lab, cowpeas, and several varieties of green beans gave excellent results and will be worked into recommended cropping systems. Of the eighty varieties of vegetables tested at the verification farm, none were rejected as being unsuitable for local conditions, although further tests in this area will be required to determine varieties to recommend to farmers.

Another significant test conducted at the verification farm this year concerned sesame plant population as a weed control measure. These trials were overseeded up to 300%.

After one hand weeding, the plant population was so heavy that most weeds were choked out. Since excellent yields were obtained, this practice may, in some cases, prove to be an economical alternative to numerous mechanical or hand weedings.

In addition to the work conducted at the demonstration and verification farms, the project agronomists set up a joint program with the GOS Horticultural Research Station at Roseries. This arrangement has allowed the observation of many more crops than would have normally been the case. The joint team concentrated on warm and cool season vegetables and fruits.

Other work in Damazin included the formation of an agricultural club at one of the local schools. Participants included boarding students from the project areas as well as Damazin area students. The club maintained an intensive vegetable production unit and held a field day which was well attended by Damazin residents and provincial authorities.

Agronomic activities in the project area were focused on the village of Abu Gemai. Six participating farmers were provided seed and advice by the agronomy section's agricultural technician. The seed was planted by the individual farmers using line sowing, uniform plant spacing and optimal sowing time. To insure that weeding recommendations were followed, the farmers were paid a nominal sum for the extra weeding efforts. As previously noted, the farmers were very pleased with the results from these trials.

In the village-level vegetable production demonstration, the villagers were given seed and were advised in the planting and care of a one-feddan vegetable plot. Sequential cropping was demonstrated as one crop was harvested and another planted in its place. This effort was very successful and helped to create a favorable attitude among the villagers towards the project.

### Evaluation

The work of the agronomy section and the project demonstration and verification farms is on schedule and has achieved all of the objectives proposed by the Project Implementation Plan in the Project Paper. The PIP proposed that the demonstration and verification farms be planted for the first time in the spring of 1981. The agronomy section actually planted these farms for the first time a year ahead of schedule, in the spring of 1980.

Agronomic activities in the project area are one year behind schedule. The PIP called for 2,000 feddans to be mechanically planted during 1981. A partial explanation as to why this has not occurred lies in the absence of any extension oriented effort or personnel in the project until the arrival of the expatriate extensionist in the summer of 1981. Moreover, neither the tractors nor the related equipment was available. However, it is anticipated that this activity will be possible for the 1982 cropping season. The Project Implementation Plan had projected that a mid-level staff of Sudanese extension workers would have received a six-month training course in their fields of specialization by September of 1980--one month before the expatriate agronomist was scheduled to arrive in the country. These workers have yet to be selected. An additional group of extension field workers--the para-professionals--was to have been trained at an Extension Training Center which has been planned for Damazin, but has not yet been constructed.

Once the level of interest in extension activities among the project staff became evident, it was decided that the extension component of the project would require the full-time attention of an expatriate extensionist. Accordingly, this person was brought onto the project staff and has begun the task of building this important component to the projected level of effectiveness.

## B. Cooperatives and Credit Section

The long-term expatriate cooperatives and credit advisor arrived in early 1981. Much of the organizational groundwork targeted for completion before his arrival had not been done. The team of cooperative extension personnel, which was supposed to have received a three-month training course at the National Cooperative Center prior to the advisor's arrival, had not yet been chosen. Cooperative organizational work in the project area, which had been expected to begin in early 1978 and result in the establishment of viable cooperatives in several project area villages, had been less than successful. Upon inspection, the cooperatives advisor found only one, a flour milling cooperative, functioning in an effective manner. The Cooperative Development Bank has yet to be established while the National Cooperative Insurance Corporation efforts have been minimal. Both organizations were to be key agencies in the proposed cooperative financing program.

Faced with the prospect of building the cooperatives and credit program from an underdeveloped level, the advisor began making plans for recruiting and training his staff. A job description and qualifications for a cooperative education and training officer were developed and an agreement was reached with the National Cooperative Development and Training Center to second such an officer from their staff to the project. The necessary paper work for this transfer was forwarded to the Project Director by July 1981. A similar effort was mounted to have a cooperative development officer join the staff. The necessary documentation for this position was submitted to the Project Director in August, 1981. Late in the fall, when it became obvious that people with the required qualifications for these two positions would not be joining the project, the cooperatives advisor accepted the nomination of two lesser qualified men and began the task of training them for field work.

During 1981, the cooperatives advisor also developed a basic organizational model for village-level cooperatives including model by-laws and book-keeping systems. In the field of credit, the advisor developed a basic loan policy for credit/cooperative use. In the field of marketing, he and the Chief of Party drew up plans and a scope of work for a grain storage and marketing study to be conducted by a short-term expatriate expert.

The future manager of the Cooperative Union left Sudan on April for MBA training in the U.S. To date, we understand that he is doing well in his studies. Prior to his departure, he worked closely and effectively with the E.I. Advisor.

#### Evaluation

Project activities in the area of cooperatives and credit are behind the schedule set by the PIP of July 10, 1978, primarily because of the low level of achievements prior to the arrival of the expatriate advisor. Instead of encountering a group of established cooperatives and a trained cooperative development staff as planned, the expatriate advisor had to develop both cooperatives and staff. A major cause of delay in the program developed by the advisor, in response to observed conditions, has been the difficulty of obtaining qualified co-workers. Since his arrival, the cooperatives advisor has acted as project fiscal and inventory control officer at Project Headquarters in Damazin. He has also served as acting chief-of-party when necessary and played a major role in monitoring and supporting the various teams of short-term experts prior to the arrival of the data management officer.

### C. Data Management Section

Since the Data Management Specialist/Officer did not arrive in-country until late September, 1981, the majority of this section's responsibilities for the year have been managed by other expatriate team members. The planning portion of this job was carried out by the Chief of Party, the Cooperatives and Credit Advisor, and the Administrative Officer. The logistical portion of the data management section's responsibilities was assumed through a cooperative effort between the Administrative Officer and other long-term expatriates on the team. Through this joint effort, the data management section managed the production of five studies concerning physical, social and economic conditions in the project area. These studies of land use patterns, livestock and range management practices, public health, sociological conditions and farm economics have provided a great deal of insight into project area conditions and have given guidance for the design of a development program suited to the area's needs.

Two of these studies, the social conditions study and the the study of farm economics, were not called for in the PIP but were added on the advice of the expatriate Information System Advisor. The social conditions study conducted by the project's anthropologist was needed to gain a more complete picture of such indicators as wealth, the degree of inter-village communication and the role of women. In the course of this study, it was established that there was no necessary relationship between the typical farmer's response to interview questions concerning time, distance, or land area and the actual, measured values. This discovery substantially increased the importance and validity of the farm economics study being conducted by the expatriate economist, who with his staff was collecting time, distance and area measurements data.

### Evaluation

The work of the data management section is on schedule; however, because other team members have had to assume interim responsibility for a portion of this section's work, the progress of other sections has suffered. Fully staffing this section with Sudanese counterparts is also behind schedule, only the GOS economist whose appointment was implemented by the expatriate economist has been brought on board.

### D. Extension Section

The Expatriate Extension Advisor arrived in early June 1981, and immediately began to develop an action plan for the section. While this advisor had originally been recruited to work mostly with women (WID), a mutual agreement was effected whereby she would assume overall extension advisory responsibilities for the project. While the Sudanese Technical Divisions (Agronomy, Livestock, Range, etc.) are to be responsible for technical input, the delivery system, i.e. methodology, is the responsibility of the Extension Advisor. Much of the advisor's efforts were devoted to understanding the organization of extension work in the country, collecting and developing education all materials to be used in the training program, and visiting relevant institutions and people in an effort to identify possible Sudanese staff members.

The search for qualified Sudanese to fill extensions posts has been hampered by the fact that there are very few Sudanese in the country with the training and experience required by the project. This was further compounded by difficulties of finding qualified women to work in remote rural areas. After an extensive search at every level of government, it was finally conceded that obtaining the professionals called for in the Project Agreement would be impossible. The extension

advisor, therefore, arranged to have two local GOS employees seconded to the project, and two people hired directly. She developed a detailed program to orient them to the project and to extension activities in general. In addition to her extension activities, the advisor also helped set up a Sudanese language training program for the expatriate staff. She began the work of organizing a project library and for three weeks served as acting chief of party.

### Evaluation

Extension activities are more than one year behind schedule; primarily because very little was accomplished in this area of activity before the arrival of the expatriate extension advisor. According to the PIP, a cadre of mid-level extension professionals was to have begun a six-month training course in April 1980. Additionally, another training program was to begin for a group of para-professionals during the month of January, 1981. This second group was to have been trained at an Extension Training Center which was to have been developed in Damazin. None of these activities have taken place; instead, the extensionist found that her first job was to recruit and train upper-level counterparts plus developing a plan of work (including training) appropriate for both men and women.

### E. Livestock and Range Management Section

This section is distinguished by the high degree of cooperation between the project and provincial departments of range management and animal health. In the spring of 1981, the Provincial Department of Range Management developed experiment designed to discover practical methods of improving the livestock carrying capacity of project rangelands. The program, supported with low-level inputs of project funding,

included exclosures and reseeding trials. The reseeding trials appear to be especially successful. A visit to the reseeded area in the fall of 1981 revealed that resulting plants had withstood heavy grazing pressure, produced seed, and become established well enough for the range scientists to predict that the original plants would survive the dry season.

Both the Range Management and Animal Health Departments assisted the team of short-term livestock and range management experts during their study of project area conditions in the fall of 1981. As a result, the short-term team successfully completed its study and detailed a plan of action to effectively address the needs of livestock owners in the project area by supplementing the resources of the established range management and animal health departments. Another distinguishing aspect of this section's work is that it is the major avenue through which the project reaches the nomadic population in the project area.

#### Evaluation

The livestock and range management activities are approximately one year behind the schedule presented in the PIP. That plan called for the initiation of livestock management activities to begin with a nomad livestock vaccination program in February 1981. The plan of action suggested by the team of short-term experts set February 1982 as the starting date. In terms of staffing, this section is over a year behind the 1978 implementation schedule, since neither Sudanese livestock nor range management specialists were on board at the end of 1981 in spite of repeated requests by the E.I. team. A position description for the senior livestock officer was developed by the Chief of Party and local animal health officials in August 1981, but to date no action has been taken by the GOS Project Director.

F. Mechanization Section

Due to the incomplete nature of the project staffing pattern--specially, there being no trained vehicle maintenance person, no logistics officer in Damazin, and no construction supervisor--much of the agricultural engineer's time had to be spent in activities outside his major area of responsibility. Without the engineer's willingness and ability to fill in for these missing staff functions, the project would quite likely have been much further behind schedule than it is today. In spite of all the extra demands on his time, the engineer was able to have the demonstration and verification farms prepared for spring planting and to arrange for the purchase and delivery of the ten tractors and associated implements to be used in the project area.

Evaluation

Activities of the mechanization section are a year behind schedule. The PIP projected that 2,000 feddans would be tilled by project tractors in the spring of 1981. The agricultural engineer was able to devote only a small part of the necessary time required by this activity during 1981. It should be noted, however, that the mechanization section would have been hampered severely by the lack of extension and cooperatives staff and credit institutions in the project area. This section is also behind schedule in staffing itself with qualified Sudanese counterparts.

G. Project Administration

As expected, most of the Chief of Party's time was spent monitoring project progress, counseling expatriate advisors and

Sudanese counterparts, conferring with GOS and USAID officials and, in general, seeing that progress was smooth and continuous. A substantial amount of time was spent discussing the role of the project director with the project director himself, USAID officials, and GOS officials. The Chief of Party spent considerable time filling in for those EI staff members not on board during parts of the year, and worked very closely with E.I. staff members in developing and implementing their programs. With no full-time livestock or range advisor on board, the Chief of Party assumed these duties (assisted by the Coop/Credit Advisor who was also very helpful in overall project management and administration).

Project planning was severely constrained by the lack of both GOS and E.I. staff and by the difficulty in getting the GOS Project Director to focus on this problem.

Other activities of the Chief of Party included the establishment of a new reporting system, development of administrative procedures and institution of general management practices.

The project administrative logistics officer operated the project office in Khartoum and provided the day-to-day interface with USAID, GOS and EI/Washington. He also served as the project's Khartoum-based logistics officer, locating critical supplies of benzine and processing incoming shipments of project materials for transshipment to Damazin.

With the assistance of the Cooperatives/Credit Advisor, a system of property accountability was set up and implemented. Upon the arrival of the General Services Officer this was further refined and is expected to be completely in place during the first quarter of 1982.

Construction proceeded fairly smoothly following the signing of the contract on February 18, 1981. By the end of November, the GOS staff housing was completed except for hook-up of utilities on a permanent basis.

The movement of project commodities to Damazin continued to be hampered by late shipping slow issuance of the out-turn manifests by the shipping lines and transport difficulties within Sudan. The freight forwarder did a less than adequate job in moving goods on a timely basis. Notwithstanding, nearly all procurement was completed.

#### Evaluation

The PIP mentions very little about project management in terms of its timetable. The construction issue, for example, had to be re-thought in 1980 due to the unsuitability of what had been proposed in the P.P. Thus, construction was delayed. It was delayed even further by a slow review and approval of the bid package by AID/W. Without the assistance of REDSO and USAID/Khartoum, it might have been additionally delayed. Since approval, progress has been good.

The freight forwarder chosen by E.I. was satisfactory in the initial stages. However, following a merger, in 1980, with Jalab Trading, we began to have problems. The forwarding itself is adequate, but customs clearing is a major, problem, and on several occasions we have been grossly misinformed about the status of our goods. It is the intention of the project to let a second contract for clearing.

Financial management is not a major problem for project staff; however, finding the necessary time for accounting and posting is a constraint on the administrative logistics officer. Several times during the year, reporting fell behind substantially. The arrival of the General Services Officer and the Data Management Officer should prevent this from occurring during 1982.

It should be mentioned that a project management audit was conducted by RIG/EA during December, 1981. While the final recommendations have yet to appear, the project, working with GOS and USAID, is attempting to react to those recommendations made available in draft. There were no major problems to be dealt with by project personnel.

#### H. Staffing

Progress has been slow in seconding qualified Sudanese to the project. This may be due, in part, to the scarcity of Sudanese with the qualifications suggested by the Project Agreement. Also, the lack of adequate government housing in Damazin may be a factor. Hopefully, with the completion of the Sudanese staff housing being built by the project, most of the Sudanese staff positions can be filled.

Turnover among long-term expatriate advisors was excessive during the first year of project life, and it was only this year that full staffing was achieved. The members of the expatriate staff are:

1. Chief-of-Party: Clyde Adams, arrived 9/29/80
2. Cooperatives/Credit Advisor: John Butts, arrived 2/1/81
3. Agricultural Economist: Ken Eubanks, arrived 3/1/81
4. Admin/Logistics Officer: John Hannum, arrived 11/14/79
5. Ag Engineer: David Johnson, arrived 11/21/79
6. Data Management Advisor: J.D. (Zach) Lea, arrived 9/27/81
7. Agronomy Advisor: Floyd McGrath, arrived 8/12/80
8. Extension Advisor: Marie Peterson, arrived 16/11/81
9. General Services Officer: Jerry Pruitt, arrived 12/21/81

### III. SUMMARY

Several of the assumptions underlying project planning have been found to be inaccurate. Four of these assumptions which have had the greatest impact on project progress are:

- A. That all project construction be completed by 10/80;
- B. That a cadre of trained cooperative development officers have established a series of coops in the project area before the arrival of the expatriate coop/credit advisor;
- C. That a system of extension activities be developed without the aid of a full-time, expatriate, extension advisor; and
- D. That qualified Sudanese fill project positions in a timely manner.

While struggling to adjust to these unexpected conditions, the project has done more than originally planned in many activity areas. The struggle has been difficult and frustrating. In spite of this, the project staff has maintained a sense of purpose and enthusiasm for their work.

Now, with most of the adjustments behind them, the staff, both Sudanese and American, are looking forward to a year of meaningful accomplishments.