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Evaluation of the Abyei Development Project, Sudan

A Special IRD Field Report

Prepared under project 936-5300 "Organization and Administration of Integrated Rural Development" of the Office of Rural Development and Development Administration, Agency for International Development.

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PREFACE

This evaluation report was prepared for USAID/Khartoum and the Government of Sudan (GOS) by a team from Development Alternatives, Inc. (DAI) in February 1981. The evaluation was scheduled to assist USAID and the GOS in deciding whether to continue funding for the Abyei Development Project beyond its scheduled termination in June 1981, as requested by the organization providing technical assistance, the Harvard Institute for International Development. In preparation for the field visit to Abyei on which this report is based, the evaluation team interviewed HIID staff in Cambridge, Mass., reviewed extensive documentation on the project, and attended a project review seminar in Cambridge in January 1981.

A draft version of this report was written in Khartoum and reviewed with USAID staff, GOS officials, and members of the Sudanese and HIID field teams. HIID received a copy of the document in early February and was invited to comment and suggest revisions or corrections before it was produced in final form. DAI has received no written or verbal communications from HIID since then, and has proceeded with an internal review prior to release of the final evaluation report.

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April 10, 1981

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SECTION ONE
SUMMARY

The achievements of the Abyei Development Project (ADP) fall seriously short of the objectives expressed in the original and amended project documents. The two successive field teams have produced tangible results for the people of Abyei. These results are evident in the areas of health and building construction and in the experiments related to local agricultural conditions. However these results seem relatively insignificant in content and haphazard in scope in relation to the expressed goal of integrated development assistance.

The rationale behind an evolutionary approach remains sound, but the procedures for testing such an approach at Abyei were not adequately defined. Thus, while experiments always produce new knowledge for someone, the project's research results have been disappointing in terms of quality and quantity.

Funding for available to the project was never very substantial, and its isolated location imposed serious logistic difficulties. Nevertheless, it appears to have suffered from serious deficiencies in both its design and its management. No institutional base has been established at the local level to ensure the continuation of project activities.

As the end of the project's funding cycle approaches, four options seem available to the Agency for International Development (AID):

- Termination of the project as of June 1981;
- Extension of the existing project for one or two years, thereby deferring a decision on Phase II;
- Extension of the existing project with a firm commitment and schedule for Phase II; or
- Support of a redesigned project with a preimplementation phase under a new contractor.

Table 1-1 enumerates the evaluation team's views as to the advantages and disadvantages of each of the four options. They can be briefly summarized as follows:

- Termination of the project as of June 1981 would save resources for allocation elsewhere and would reduce the presently perceievied political vulnerability of the project; it would, however, disappoint the people of Abyei and may raise new issues of political concern.

Table 1-1 Decision Matrix for the Abyei Development Project Beyond June 1981

Options	Advantages	Disavantages
# 1 Terminate Existing Project 6/81	1. Frees USAID program funds in era of "more with less" 2. Eliminates costly allocation of management time to small project 3. Reduces political exposure/ vulnerability at field level	1. High disillusionement among local community 2. Stops resource transfer into poor, isolated rural area 3. May further weaken provincial support for development of Abyei
# 2 Extend Existing Project for 1 or 2 Years but Defer Decision on Phase II	1. Maintains present resource transfer and good will 2. Preserves logistical support network for development activities 3. Allows continuity of personnel with experience in area	1. Low probability of research program giving results @ satisfactory confidence level 2. Unlikely to reach most of local community 3. Perpetuates ineffective management model 4. Continues to expose project to unstable security situation
# 3 Extend Existing Project with Firm Commitment and Schedule for Phase II	1. Politically very attractive in showing commitment to high-need area and population 2. Allows orderly transition from 1st to 2nd phase	1. Information gaps too large for Phase II design 2. Administrative support structure inadequate for large IRD project 3. Risk of exacerbating social/ political conflict 4. Scarcity of host country/local manpower for major IRD project 5. No firm evidence of economic base capable of sustaining long-term IRD effort
# 4 Support Redesigned Project with Pre-Implementation Phase under New Contractor	1. Sustains emphasis on remote small farmer areas 2. Potential to generate information for adequate Phase II design 3. Utilizes physical assets and logistical support links already in place 4. Opportunity for leverage on new contractor: a) tighter management; b) avoid repetition of errors	1. Time lag after 6/81: minimum 6 months, probably more 2. Probability of staff wastage and deterioration of physical assets 3. Limited number of qualified contractors 4. Limitations of USAID management capacity 5. Uncertainties re: long-term economic viability and social/ political stability

- Extension of the ADP in its present form, deferring a decision on phase II, maintains a resource flow into a geniunely needy area and may allow some continuity of personnel; it has the disadvantage of continuing a program which is seriously flawed and maintains U.S. personel in a politically vulnerable situation.

- A firm commitment to phase II under the existing program would be warmly applauded by the people of Abyei but continues certain political risks with little evidence to date that a suitable foundation has been or will be laid for such an extended effort.

- Support of a redesigned preimplementation contract would sustain the flow of aid, create an opportunity for more successful design results, and utilize some existing assets at the site; a serious time lag would inevitably lead to waste and uncertainty, without guaranteeing ultimate success.

The demonstrated shortcomings in evidence under the existing project lead the evaluation team to advise rejection of the second and third alternatives. The difficulties likely to be encountered in a search for a substitute contractor and the political uncertainties and insecurity manifest in the area lead us to recommend the termination of the effort.

SECTION TWO
EVALUATION METHODOLOGY

This evaluation was designed to provide analysis and recommendations for decision making by AID and the Government of Sudan (GOS) on the status of the Abyei Development Project beyond June 1981. The "experimental" nature of the project and the management arrangements that were used helped to define the evaluation task. A major issue recurring throughout the project's extensive documented and oral history concerns the relationship between research (investigation of rural development strategies and techniques) and action (delivery of services and benefits to the target population). The evaluation team acknowledged that the two elements are interwoven in the ADP and that this poses certain contradictions in assessing project achievements. The evaluation team determined, however, that research activities should be evaluated in terms specific to the project's structure, setting, and objectives. This is the only objective basis for assessing the magnitude and significance of what has been learned.

The analysis was conducted in three stages. First, data were collected on each of the project's major components (see annexes A through K), with present status measured against objectives that were formulated in 1978 ("Memorandum of Understanding," 1978) and modified in the revised project paper of 1979 (Agency for International Development, 1979). In each case the findings were analyzed in terms of the resource levels available, the techniques employed in implementing the activity, and the constraints encountered. Since no logical framework was ever completed and almost no quantifiable outputs were formally agreed to by Harvard Institute for International Development (HIID) and AID, progress towards objectives required thorough qualitative assessment.

The second stage was a review of major issues that cut across the various project components. Both discussion of "lessons learned" and a commentary on "action research" methodology have been included in this report. This final stage was a synthesis of findings and recommendations in summary form, using the PES outline.

The evaluation was conducted by a four-person team from Development Alternatives, Inc. (DAI), through DS/RAD Project Number 936-5300 (Organization and Administration of Integrated Rural Development), with costs to be shared by USAID/Khartoum when project development and support funds become available.

The team was composed of a team leader/anthropologist (Tony Barclay), a development economist (Edwin Charle), an agriculturalist (Don Humpal), and a management/administration specialist (Gene Owens). Sayed Osman Bedri, an agricultural economist, travelled to Abyei with the team and represented the ministry.

The team's preparation included review of reports, files, and documents at HIID in Cambridge, Massachusetts; interviews of HIID staff associated with the Abyei project; attendance at a HIID seminar from January 8-10; and briefings by USAID staff and the Director General of the Planning Office in the GOS Ministry of Agriculture.

The team worked in Abyei from Jan. 15-27, with Owens and Bedri spending two additional days at Kadugli to interview provincial officials. Field work in Abyei included group and individual interviews with a range of local leaders (teachers, Sudanese Socialist Union (SSU) officials, omdas of Ngok Dinka sections) and members of group farms; with administrators (including the assistant commissioner and inspector of local government); and with representatives of the Messiriya Humr at Abyei and at the Damboloy, a pastoral camp. Thorough interviews with HIID and Sudanese project staff were supplemented by ongoing observation of their activities and detailed study of the data in files and monthly reports maintained at the project site. A debriefing session took place before the evaluation team departed from Abyei. The writing of the evaluation report, followed by USAID and GOS review, and revisions, took place between in Khartoum.

SECTION THREE
EXTERNAL FACTORS

Implementation of the Abyei Development Project has been constrained by two factors that have changed since the project was first designed:

- The policy response of the GOS to the country's deteriorating macroeconomic situation; and
- Social and political tensions involving the two key beneficiary groups in the project area, the Ngok Dinka and Messiriya Humr.

Sudan's severe macroeconomic problems pose a major obstacle to sustained investment in the small farm sector, and particularly to integrated rural development projects such as Abyei where short-run economic returns are likely to be small.

Evolving GOS policy and the consensus view of external donors anticipates the concentration of trained Sundanese manpower and financial resources in export-oriented, "modern" agriculture in an attempt to halt the country's economic decline. The reduced priority assigned to innovative IRD activities indicates that such projects will experience greater difficulty in competing for qualified technical staff and budget allocations. The ADP has already been set back by staffing problems and delays in the arrival of GOS funding. These constraints are likely to become more severe in the near term, rather than being alleviated.

The influence of the ADP's sociopolitical environment on project implementation is controversial, and therefore harder to assess than macroeconomic factors. The project's initiation in 1978 took place less than a year after a series of violent Messiriya/Dinka clashes resulting in numerous deaths. This level of violence declined between 1977 and mid-1980, but tensions have risen over the past several months with the southward advancement Messiriya groups in search of pasture and water. Shooting incidents and burning of Dinka homesteads occured in June and July 1980, and with some regularity since November. Three shooting incidents (one resulting in seven deaths) occurred during the evaluation team's 12-day field visit. Although police and army units are now stationed at several sites outside Abyei to keep the peace, large areas normally inhabited by Ngok Dinka to the west and north of Abyei have been evacuated during this dry season.

The future political status of the Abyei area is uncertain. Many Ngok Dinka spokesmen favor a shift in the Bahr el Ghazal - South Kordofan boundary that would place Abyei and adjacent Dinka-occupied areas under the jurisdiction of the Southern

Region. The GOS is currently weighing the pros and cons of a plebiscite on this issue. If the decision is made to proceed, several controversial questions will have to be resolved prior to the actual voting: these include voter eligibility criteria, the timing of the vote in the dry season/rainy season cycle, and the location of the proposed revised boundary.

Continuation of present conditions pose three major constraints to successful implementation of the ADP:

- Staff mobility and commitment to extension activities will be restricted (Ngok Dinka staff are generally unwilling to travel in areas where Messiriya normally reside or are presently found);

- Access to beneficiaries will be limited if settlement patterns remain disrupted; and

- There are risks of exacerbating the potential for conflict in the delivery of services (such as water or dura storage facilities) at sites where both groups claim "traditional" rights.

SECTION FOUR
INPUTS

Funding approved for the ADP includes $1.5 million in foreign currency, LS 525,000 (US$ 1,050,000) in counterpart funds and LS 182.500 (US$ 365,000) in GOS annual budgetary contributions. With the exception of the 1977 grant to HIID for design-related studies, significant delays have occurred in the release of funds and in the case of GOS contributions, in their receipt by the project. A schedule of financial inputs appears in table 4-1.

A second, equally serious problem concerns the adequacy of funding in relation to the project's broad scope and ambitious objectives. Inputs were scaled to the requirements of a modest project of an "experimental" type that would be managed through an operating program grant (OPG) and initiated rapidly under mission authorization. Funding remained at least 50 percent below the minimum level needed to implement the complex IRD project to which HIID, USAID, and the GOS subsequently committed themselves. The type of drastic action needed to correct this problem (scaling up resources or reducing project scope and objectives) was never taken.

HIID was originally required to provide 72 person-months of long-term technical assistance over a two-year period. The revised project paper of 1979 increased this input to 147 months and extended the project's life by 16 month (Agency for International Development, 1979). Current team members' schedules indicate that about 120 months will have been provided by June 1981.

Long-term technicians recruited by HIID have been well-motivated but inexperienced in IRD project implementation. Most have had specific training and interests, (that is animal traction, agricultural machinery, nursing which prepared them for only part of their broad responsibilities. Gaps of several months occurred in which the health specialist and training adviser positions were unfilled. HIID's performance in recruiting long-term personnel, within the budget available, underscores the difficulties of attracting seasoned technicians with experience working in isolated areas such as Abyei.

Institutional support and short-term assistance of high quality can partially compensate for limitations in long-term teams. HIID budgeted 35 months of such assistance for the period from mid-1979 to mid-1981. In terms of quality, timing, and relevance to project needs, these inputs have been suboptimally utilized. Guidance to the field team has been personally supportive but nonspecific in terms assessing plans and performance. The design, monitoring, and analysis of research activities have been extremely casual, considering the project's

Table 4.1. Schedule of Financial Inputs. 1977-81

Funded Activity	Date	USAID dollar funds (thousand US$)	USAID counterpart funds (thousand LS)[a]	GOS funds (thousand LS)
HIID design studies	7/77	186.0	0	0
OPG start-up[b]	3/78	495.0	225.0	30.0
OPG start-up	6/78	0	0	75.0
OPG extension[c]	6/79	0	0	50.0
OPG extension	8/79	702.0	0	0
Water program[d]	6/80	0	0	27.5
Water program	2/81	105.0	300.0	0
Total		1,488.0	525.0	182.5

Notes:
[a] US$2.00 LS 1.00
[b] Project paper submitted 10/77
[c] Request for additional fund submitted 3/79
[d] Request submitted 8/80
[e] Notice of approval given (8/80) but fund not get released

overall research mandate. These issues are addressed in greater detail in section 11 on action research, and in annex J on monitoring and evaluation.

Identification and placement of qualified Sudanese staff for the project has also proven difficult. Efforts to recruit Dinka personnel from the Abyei area have been partially successful, although the individuals seconded by the Health and Community Development Ministries performed poorly and their secondments are not being renewed. Management and logistical responsibilities have commanded virtually all the time of the project director and deputy director, the two people with the strongest training in agriculture.

Commodity procurement has been affected by shortages in Sudan, by funding delays, and by the extreme isolation of Abyei. Experience gained in the first two years of the project has been applied in the creation of a functioning system of logistical support that serves the project's needs at its present level of operation.

SECTION FIVE
OUTPUTS

The main difficulty in evaluating ADP outputs is the variability and inconsistency in targets and criteria for project activities, and in the timing and sequencing of those activities. HIID's project coordinator has maintained, with considerable justification, that field conditions require flexibility, improvisation, and opportunism. This point is not disputed by the evaluation team, nor does it appear to have been rejected by USAID as a valid principle. But this does not eliminate the need for implementation plans. USAID interventions at three critical points in the life of the project (May 1978, May 1979, and January 1980) were made with the express intent of producing implementation plans that all parties could accept. None of these efforts achieved the desired effect. In briefing the evaluation team, HIID's project coordinator stated that the 1979 revised project paper (Agency for International Development, 1979) is identical to the "Progress Report and Proposed for Amendment of Grant Agreement," (Harvard Institute for International Development, 1979) and contained all the elements of an implementation plan, with outputs described in sufficient detail to permit an objective assessment.

This dilemma was resolved in the course of the evaluation by distinguishing between research products and physical outputs at the Abyei project site. Accomplishments in each category will be discussed separately.

RESEARCH PRODUCTS

An analysis of the "information system" utilized in the ADP is contained in annex J. The record of guidance and design for field data collection and the timeliness and focus of the analysis in relation to implementation needs was found generally unsatisfactory. This conclusion does not ignore the practical difficulties of executing research in Abyei or the problems inherent in coordinating a long-distance team research enterprise. These factors have been well documented, but they do not justify the ad hoc management of information activities.

In terms of the six specific "products" mentioned on page 53 of the revised project paper (Agency for International Development, 1979) only one document, (Cole and Cohen, 1980) has appeared with form and content corresponding to the research mandate.

Reports on animal traction and Parr construction were never written and are unlikely to be since the individuals have no further association with HIID. Larson's report on health (1980)

is a narrative of her own activities at Abyei, rather than an analysis of preventive health strategies, and it was produced 16 months after her departure. Huntington's paper (1980) is brief, contains relatively little data and does not analyze government linkages. A Socioeconomic Profile of Abyei District in edited form has never been published, although such a publication would be useful, since the 1977-78 "Baseline Study" was incomplete and of mediocre quality. Hayes' land use study (1980), which was not specifically foreseen in 1979, is discussed in annex A.

The potenetial for further analysis, writing, and dissemination will exist beyond the life of the ADP. To date, outputs in this category do not match the plan laid out in the revised project paper.

PHYSICAL OUTPUTS

This category of outputs is more problematic because of its vulnerability to logistical, financial, and staff constraints. As a general observation, the field team has placed special emphasis on completing construction of housing and project facilities. This decision has involved tradeoffs in terms of the resources and staff time; particularly at the senior level, that have been diverted from other activities, especially agriculture. Diminished outputs from these other activities have not been formally acknowledged, although they can be rationalized when ex post analysis is done.

With the exception of construction, the numerical "targets" cited in the text of the 1979 revised project paper (Agency for International Development, 1979) have not been approached.

In the agriculture program, for example, the beehive and ox-training programs have lapsed; many of the planned equipment, production, and agronomic trials have never been carried out; and group farm areas under cultivation and cost-covering performance have fallen below expectations. Only a small number of the training courses planned for health workers have been implemented; annual brick production capacity is nowhere near the one million target foreseen for 1979; and the timetable for local organization initiatives was not followed. (Agency for International Development, 1979: 15-21, 23, 26, 40-41).

These results are not an absolute measure of success or failure, because the targets set in 1979 were provisional and subject to revision. Yet the process of revision was so casual and ad hoc that few clear performance standards survive by which the staff--let alone external evalauators--can measure accomplishments in an objective fashion.

SECTION SIX
PURPOSE

There is no formal statement of the ADP's purpose to which HIID, USAID, and the GOS officialy subscribe. However, substantial agreement appears to exist between USAID's characterization in Khartoum telex number 9337 ("to test, through a program of action research . . . a package of services [to meet basic human needs] that can be replicated successfully in areas of Sudan similar to Abyei") and the statement derived from the evaluation team's briefing session at HIID. The latter defined the purpose as "to test the feasibility of alternative techniques to meet basic human needs and organizational arrangements for participatory development."

A summative assessment of project success, in the case of Abyei, should focus on whether feasibility testing has refined a rural development strategy for Abyei to the point where implementation (and eventual replication) can begin. An evolutionary approach to strategy formulation and implementation remains conceptually sound, in the view of the evaluation team. However, the rate and direction of the evolution must be measured and verified.

In the context of a development project, that verification requires assessment of the strategy's component parts in terms of their specific objectives. Table 6-1 summarizes material contained in annexes A through K with regard to indicators that were formulated collaboratively with HIID staff and consultants during the preevaluation briefing. These indicators were chosen to reflect the types of end of project status (EOPS) conditions that were generally anticipated but never formally stated.

The results shown in the table are consistent: they indicate that the project will fall far short of achieving its purpose, as defined above, by the time of its scheduled termination in June 1981. There is little evidence that this conclusion would change if the project were to continue for an extended period under its present mode of operations.

Table 6-1 Indicators of Purpose Achievement

Indicator	Status as of January 1981
Improved agricultural technologies developed for crop production.	No breakthroughs and no systematic comparisons made; results to date impressionistic.
Improved water supply facilities developed.	No new water points yet in operation; serious problems with technologies tested to date. One test well operational 2/81.
Improved medical facilities and services developed.	Minor improvement in physical Services temporarily augmented by HIID health adviser who departed 1/81.
Experimental cooperative	Four group farms receiving subsidized tractor services with little experimentation introduced by project.
Low-cost, locally adapted building technologies developed.	Cost data not compiled or analyzed for comparative purposes; techniques have been adapted to conditions and appear sound.
Local development organization established and operating.	None in existence and no proposals developed.
In-service and formal training programs developed.	On-the-job training system functions for project employees, but with no significant outreach.
Administrative links with province and district strengthened.	Total absence of support to project except from national level.
Monitoring and evaluation in place to guide ongoing IRD activities.	Structure of system poorly system defined; decisionmaking roles unclear; data collection and analysis functions not responsive to project needs.
Improved transportation and communication links.	No change in transport situation except improved airstrip; logistical support and radio system operating reliably.

SECTION SEVEN
GOALS

Goal statements for the ADP have been framed in several different ways over the life of the project. No logical framework was completed and no alternative methods were used to clearly differentiate broad, long-term rural development objectives from intermediate (purpose-level) objectives. Similarly, critical assumptions were not made explicit. The absence of formal agreement on the project's goal corresponds to the conflicting perceptions of project purpose and outputs that were noted in the preceding sections.

In preparatory sessions at HIID in early January, the evaluation team sought to define the ADP's goal in terms that would be consistent with log-frame analysis and with HIID's perspective on the project. The result, with minimal paraphrasing, was: "Improved well-being of the people of Abyei and South Kordofan, based on enhanced local capabilities to sustain participatory development." At present, there is little solid evidence of progress towards this goal that can be attributed to the ADP. Health and employment benefits have been realized by the target population, but these are results of a resource transfer initiated by the project.

While the time period involved is relatively short, the basic purpose-to-goal linkage appears sound. In other words, if the ADP had achieved greater success in identifying, testing, and applying technologies and participatory organizational arrangements, the potential for goal achievement would have been significantly enhanced.

SECTION EIGHT
BENEFICIARIES

The ADP began with a mandate to benefit the entire rural population of the Abyei area, although no precise geographical limits were attached to the area that would be served. This mandate specifically included the Messiriya as well as the Ngok Dinka. Accurate census data were also lacking. Rural women and dependent children were identified as an important target group for food production and preventive health care activities, although the techniques for measuring impact on this group were not specified.

As the annexes demonstrate, most project activities have yet to reach large numbers of people. Direct beneficiaries to date comprise 150 group farm members and 180 salaried project employees (almost exclusively male), and numerous health care recipients of all ages in Abyei town and in certain adjacent Dinka areas. The agricultural program has concentrated on full-time farmers, thereby excluding merchants and civil servants from participation in the group farms. The preventive health care training offered by the project has placed emphasis on women of child-bearing age and their children. Important questions were raised in this evaluation concerning the sustainability of these benefits beyond the life of the project.

Taken as a whole, the outreach of the project is not commensurate with the original design, in terms of either direct impact of the capacity to serve a wider area and larger population. This has two serious consequences:

- Expectations within the Ngok Dinka community of rapid service delivery cannot be met, with negative effects on the potential to mobilize self-help initiatives; and

- Messiriya groups perceive the project as being exclusively Abyei-oriented that is, responsive only to Dinka needs, and their spokesmen question the project's expressed commitment to equity.

Both of these consequences were observed directly by the evaluation team in the course of individual interviews and group discussions. The comments reflect the fact that expectations were high to begin with--perhaps unrealistically so--and that the theory and practice of "action research" are not well understood by the project's client group.

Annex H provides a more detailed analysis of the local organization component of the ADP, which was intended to assure broad participation in project decision making and access to project benefits. Significant opportunities to maximize participation in the "action research" process remain unexploited, and no local institutional base exists to sustain such participation beyond the termination of project funding.

SECTION NINE
UNPLANNED EFFECTS

The region around Abyei is characterized by widespread seasonal migration, as both Messiriya and Ngok Dinka move their herds in search of limited pasture and water resources. There is a long history of ethnic hostility and occasional violence between the two groups, with some evidence of increasing conflict over the past several months. While one of the goals of the ADP is to facilitate reconciliation through involvement in an equitable development process, the nomadic Messiriya have been bypassed entirely by the project.[1] Whether the presence of an externally-funded project with expatriate technicians has partially dampened the potential for violence, or heightened feelings of relative depriviation (the opposite of what the project's sponsors intended), is very difficult to determine. To a significant degree, the issue is moot until development initiatives in the area can offer tangible benefits with a capacity to reach large numbers of people.

Notes to Section Nine

[1] Messiriya who are permanently settled in Abyei Town have had access to health care services.

SECTION TEN
LESSONS

The experience of the Abyei Development Project offers several instructive lessons relating to the theory and practice of integrated rural development. That it would do so was one of the project's original justifications: the entire effort was represented as an "experiment" that would advance the state of the art in IRD design and implementation. In this sense the ADP was always destined for comparison with other projects, both within Sudan and elsewhere. HIID has already undertaken such comparisons in its publications (Cole and Cohen, 1979; Cole and Vail, 1980) during the lifetime of the project. Much of the argument presented in those publications is philosophical, contrasting process-oriented "action research" with conventional project planning models in which "blueprints" are developed with inflexible timetables and input/output schedules. In this evaluation, however, it is the application of the "action research" philosophy in the ADP that provides the most interesting and provocative lessons.

The evaluation team attempted to derive generalizable lessons or hypotheses from the ADP experience under four categories: management, design, implementation, and development strategy. These categories are not mutually exclusive, but they provide a convenient way of organizing the conclusions that were reached. The lessons in each category are stated with brief elaboration, and further details can be found in the annexes.

MANAGEMENT

The system that was used in this project is unusual in terms of the roles that were taken by the donor (USAID), the grantee (HIID), the field team, and the host country government. An overriding conclusion of this evaluation is that the system did not funcntion well: nor did it serve the needs of the project:

- "Experimental" projects are management-intensive by nature, but this aspect tends to be underestimated. Abyei demonstrates the limitations of a field team staffed by technicians with specialized backgrounds and with neither the preparation, the time, nor the mandate to carry out key managerial functions.

- Clear lines of decision making need to be established between a home office and its field team, particularly when the former assumes responsibility for definition and coordination of basic project strategy. Total delegation to the field--as reflected in a "bodyshop approach" in

which the home office abdicates all such responsibility--has obvious weaknesses. But the model employed at Abyei appears equally unsatisfactory: too many key operational decisions were made outside of the field setting, while some critical policy decisions were never dealt with or were resolved in an ad hoc fashion.

- The management and monitoring demands posed by an "experimental" project in which USAID took a substantive interest were poorly suited to the OPG framework. The OPG is designed to minimize USAID's management role, while allowing a PVO, contractor, or university to carry out known activities in which it has a proven track record. The ADP, however, was a high-risk project and HIID had almost no prior implementation experience relevant to the situation found at Abyei. As difficulties arose, the OPG framework did not provide accountability to the degree that USAID desired and expected.

- The remote location of Abyei and similar IRD project sites contributes to a syndrome of "management by anecdote," in which the field team is judged on the basis of fragmentary (and not always accurate) information. The impact on team morale is negative and this undermines the work, which is difficult enough to begin with. USAID staff must be prepared to spend far more time in the field, directly experiencing the project environment of an IRD activity, if this syndrome is to be avoided.

DESIGN

Within the philosophical framework that was articulated for the ADP, various project design strategies and techniques can be applied. The fact that an evolutionary approach is preferred does not provide a formula for design: there are options available, and the options selected for the ADP can be weighed against alternative design models. Several lessons can be drawn when such an analysis is performed:

- An IRD project with "experimental" content and flexibility to permit modifications should be designed with clear specification of the structure and timetable for decision making. Without this, information use and management will be inefficient, crucial decisions will be deferred or made precipitously, and project implementation strategy will drift. Both structure and process are essential ingredients in evolutionary designs. The ADP emphasized the second at the expense of the first.

- The initial reconnaissance of a potential IRD project area must be sufficiently thorough to define technical parameters, particularly for the natural resource base. Disdain for "master-planning" and a shortage of relevant HIID institutional expertise produced a flawed design that grossly underestimated the significance of the lifestock sector--a curious outcome of reconnaissance in South Kordofan.

- Serious attention must be given to the match between financial and human resources and the scope of "experimental" research to be undertaken. The ADP design did not acknowledge important tradeoffs and promised a low-budget program to address very complex socio-technical problems.

- Project designers must carefully weigh the timing and sequencing of multiple components in an IRD project. Simultaneous initiation of all components is likely to be the most difficult course of action, even if all of the concerned host government agencies appear to be "geared up" and ready to start. If they are not equally well prepared, as was the case at Abyei, a phased approach may prove more workable. The selection of initial components, particularly the choice between income-generating and social service activities, is a development strategy problem rather than a design issue per se.

IMPLEMENTATION

Implementing the ADP was even more complicated than usual, because it included a learning function and a benefit delivery function. This combination produced a conflict in the way the project was represented and perceived. It also led to difficulties in the day-to-day implementation of the project's components. If the need for learning in an Abyei setting is acknowledged, and the realities of host country politics (especially local-level realities) are taken into account, then an either/or approach to the "action-research" dilemma is unjustified. The key problem is then to find ways in which an appropriate balance between the two can be achieved under implementation conditions. There are no "recipes" for doing this, and the ADP has had to confront an extraordinarily difficult situation, in which a multitude of agendas and special interests collide. The experience gained at Abyei suggests the following:

- The sponsoring institution undertakinng an "action research" project must accept the full burden of implementation support. HIID never formally accepted that burden: it did not undertake similar projects elsewhere, nor did it make a long-term investment to develop in-house capabilities in logistics or personnel recruitment. The ADP has remained a peripheral activity, and only the energy and dedication of the project coordinator have maintained support at a survival level.

- An IRD project's client group--small farmers who are its intended beneficiaries--must be incorporated into the learning process at the outset. If their perceptions remain fundamentally at odds with those of the project staff, that is, one group's "problem" is the other group's "solution", the project will never develop broad credibility and support in the community. The ADP has been significantly weakened by its failure to foster participatory learning.

DEVELOPMENT STRATEGY

The Abyei Development Project has several features that set it apart from other rural development projects in Sudan. The integration of multiple components and the gradual approach towards improved agricultual production are not typical of GOS interventions in the "traditional" sector. These are other atypical elements in the development strategy adopted for the ADP:

- The targeting of an area with high political visibility and especially complex socio-political problems;

- The decision to assign a very small-scale project special "national" status; and

- The proposal for a local development organization (the APDO) with a degree of autonomy hitherto unknown in Sudan.

No single project provides a full test of the viability of IRD approaches or the wisdom of evolutionary project designs in Sudan. The evidence is not yet in on those issues, and the findings of this evaluation indicate shortcomings in the ADP that are specific to that project, rather than generic to IRD efforts. Analysis of the three elements in the Abyei strategy cited above suggests the following lessons:

- An area whose future political status is uncertain and which is experiencing even occasional armed violence, may be targeted on a need basis, but rarely because the prospects for successful development are considered bright. In the case of Abyei, a donor-assisted development project had a high symbolic content, but multiple meanings were associated with the symbol. The idealistic vision of a project that would transcend politics was never translated into a feasible plan of action.

- Special status, that is placement outside the conventional system, has very high costs for a development project that is intended to have a long implementation cycle. The ADP was launched in a manner that effectively bypassed the provincial administration in South Kordofan. Efforts to remedy this situation later did not succeed because no incentives existed to attract provincial support: credit for ADP success would not accrue to Kadugli in any event, and officials there perceived a high risk of failure in the project. As a consequence, the project must depend on its special "national" status in order to survive.

- Appropriate local organizations evolve as a result of adaptation to changing circumstances. A prescriptive development strategy specifying a model of local control that satisfies "participation" criteria may be counter-productive when there is no frame of reference for the model. The ADP never got off the ground for this reason.

SECTION ELEVEN
ACTION RESEARCH: THEORY AND PRACTICE AT ABYEI

THE MODEL

Action Research

The theoretical model designed to guide HIID's approach to its Abyei project was labelled "action research". It was described as "an effort to initiate some action programs . . . . oriented toward exploring a range of optional technologies or organizing principles, or cultural attitudes, prior to selection and implementation of longer term efforts . . . ." (Cole and Vail, 1980: 3). It was a plan to combine "information gathering, strategy testing, and achievements of concrete development results," (Agency for International Development, 1979).

The idea was put forward in contrast to "the master plan model which involves a long period of research into the human and material resources base of an area as a prelude to designing a detailed plan," and in contrast to "the imported plan, developed and tested in one area and then transferred to another with minimal adjustment despite substantial ecological, cultural, and other differences." (Cole and Vail, 1980: 2).

It was suggested that in a place such as Abyei "projects should not be designed fully at the beginning but should evolve gradually through the careful application of rural development principles to specific project area conditions through testing and redesign processes." (Agency for Intervnational Development, 1969: 2) The model was seen as especially appropriate for Abyei since the information base regarding traditional farming in Sudan was so inadequate. (Cole and Cohen, 1980: 96). Action research was conceived as a process which would "increase local participation both in the selection and in the benefits of improved technologies." (Cole and Vail, 1980: 1).

Three Stages

Action research at Abyei was to take place in three stages.

Stage One: Identification of Critical Areas

There was to be an identification of the things which the people of the area valued most and those which they found most onerous. This identification was to be done by sociologists or anthropologists who would prepare a ranking of preferences for both the goods and the bads. Then there was to be an

identification of the "potentials"--the positive potential for improvements, the negative potential for detriments. This identification was seen as the work of economists, technicians, and ecologists. This process was to be accompanied by the identification of external constraints, for instance, ethnic and political considerations, and resource limits, which were likely to hinder development. Thus stage one was to provide definition to a set of critical activities which through discussion with the affected people were to determine appropriate priorities. (Cole and Vail, 1980: 5).

Stage Two: Testing of Alternative Techniques

Technologies were to be applied. (The process by which an initial technique was to be selected for application was not stated). There was then to be incorporated within the project design "a system for early testing of technological alternatives for each critical activity and continued testing of new alternatives as new information becomes available". The range of alternatives to be tested and the extent and rigor of the tests were said to be "matters of judgement" depending on whether "research facilities" were close at hand. (Cole and Vail, 1980: 6).

Stage Three: Combining Preferred Alternatives into a Program

As information became available on the input requirements and the potential outputs of alternative ways of performing critical activities, a partial input-output model was to be utilized. For this purpose it was necessary to "develop information on the stocks and flows or primary inputs, the costs, benefits, and probable risks of the several main alternative technologies." Thereafter, combinations of technologies were to be compared in terms of their mutual reinforcability and the severity of external constraints. Major alternatives were then to be presented to the relevant decision makers who were to guide the formulation of the final program. (Cole and Vail, 1980: 8).

THE APPLICATION

Agriculture

Project designers perceived the need for improved technologies to augment dura (sorghum) production, to achieve better grain storage and marketing and to permit crop diversification. Identification, testing, and adaptation of agricultural technologies would lead to increased production through surface area extension and higher yields, a more stable

dura supply due to safer storage and better market leverage, and, eventually improved nutrition from diversified vegetable diet.

Without an information base on the Abyei area's natural environment or on the farming practices employed, the project undertook a program which initially focused almost entirely on the introduction of animal traction and bee keeping (due to the appointment of an animal traction specialist as agriculturalist and team leader). Addition of an agricultural equipment specialist restored a certain balance to the program by splitting attention between animal traction and tractor-powered cultivation, and adding some agronomic trials. A zero-tillage package was introduced as another alternative in 1980, after a visit to IITA in Nigeria by the equipment specialist/team leader and the Sudanese deputy project director.

Trials designed to date have for the most part not been implemented due to a combination of logistic problems and extremely poor methodological support of an agricultural team with little methodological training or research experience. The lack of an information base on the agricultural activities of Abyei, and the failure to provide technical consulting assistance early on to generate it, resulted in a highly personalized, ad hoc research strategy and extreme tardiness in project consideration of the very important livestock sector in the area's agricultural economy. At present a data base does not exist for statistical comparison of alternative agricultural production technologies.

Water Supply

The people living around Abyei work hard to secure water and welcomed the suggestion that conveniently located wells would be provided. Water production would be an extremely visible development result.

Without precise information on the costs of alternative drilling technologies, a relatively small mechnical drill and a hand-operated drill rig were brought to Abyei under the direction of an experienced, expatriate driller on a very short-term contract to the project. Holes were dug, but the failure of equipment to arrive prevented casing. A pump technology was selected which promised favorable results under Abyei conditions but which had not been fieldtested. The results were disappointing and no producing well has been constructed.[1]

Health

The people of Abyei evidenced high mortality and morbidity levels and were receptive to ideas that their medical problems might be addressed. Again a highly visible development result was suggested.

Two trained clinicians--a medical doctor and a trained nurse--were sent to Abyei for one-year assignments under the HIID program. Their goals were specified as intiation of a health inventory and the training of local health workers. In fact, they were charged to take stock of the situation and react appropriately. These individuals worked with diligence and compassion and benefited the people of Abyei in many ways.

No clear-cut research strategy was provided to the expatriates health specialists, and their efforts were relatively unmonitored by HIID. No Sudanese were incorporated into the program in a managerial or planning capacity, despite attempts to recruit qualified personnel.

Construction

The project plan called for construction aid to the Abyei community and several expatriate specialists were sent to participate and give direction. Field personnel recognized the obvious need for staff housing, project workshop facilities, and so forth, and devoted most of their efforts during these initial years of the project to these activities. Minor assistance was provided directly to the community. The appropriateness of this direction of effort to project facilitation was not questioned by HIID. There was little feedback to reports from the field in respect to technical aspects of construction technique or training method.

The original project goal of providing a block-making facility was replaced by the development of brick-making capacity, since local materials were available. Cost data were not accumulated for analysis and thus the relative efficiency of the process is difficult to assess; nor were cost data maintained on the construction efforts themselves. Local workers were trained in the technical components of construction, although little transfer of managerial skills has been achieved.

Local Organization Program

A relatively elaborate suggestion was proposed by HIID in its early project proposals for the creation of an Abyei Peoples' Development Organization (APDO). This organization was to participate in development decisions and gradually play an expanding role in the economic life of the community. The early plans contained suggestions as to what local groups should be represented and how appropriate ideas should be generated. Unforeseen resistance to the APDO concept caused this plan to be abandoned. No serious effort was made to develop alternative proposals, with the result that there is no local organization in place to take over project facilities and functions when external funding terminates.

AN APPRAISAL

The initial question addressed by the theory of action research related to how development issues were to be selected for possible response. This selection of issues on which to concentrate was said to require "expert" participation, (sociologists, anthropologists, economists, technicians, ecologists) but the question of the appropriate intensity of this preliminary work was left unanswered.

A major advantage alleged for the action research strategy was that the time required for this initial decision-making process could be shortened, because the combination of action and research which was to follow would make the accuracy of the preliminary decision process less important; but here is a dilemma. If the strategy induces too much casualness at this stage, it may do a serious disservice to the planner who may find that his projects fail, because certain issues were not explored when they might have been fruitfully investigated.

Proponents of action research suggest the appropriateness of local participation at this (initial) stage. This seems a helpful idea. If local residents can be used effectively in the initial selection of issues, their ideas may cut short the need for outsiders. But we are left with no specifics as to how such a trade-off between local and externally derived knowledge is to be achieved, and thus we are still without guidance as to when to move forward from the preliminaries to implementation.

In respect to the project at Abyei, there is little evidence of in-depth preliminary studies by outsiders with or without local assistance. This implies that a degree of risk was assumed in the belief that errors in the preliminary design, if they were to occur, could be quickly corrected. The value of the preliminary aspects of the approach must, therefore, be judged by the record of subsequent achievement.

Once the development issues are selected on which to concentrate, the action research strategy requires the planner to choose from among alternative technologies. But the question of which technology to try first is not addressed. The range of possible technical responses to any specific development problem presents the planner with an enormous area of choice. The action research strategy proposes to economize in this search by resorting to an implementation program which combines action and research. But the question of how short to cut the search for a "best" technology to try at first is left a matter of personal discretion. Of course it always is, the problem is that some may interpret the theoretical prescriptions themselves as undermining the usual inducements to diligence and rigor.

Should the first equipment salesman encountered determine the selection of the first technology to be applied? Should the skills which happen to be part of the personal equipment of an individual recruited for the assignment to a field position determine which technological trials are to be made: oxplows?, hydradrills?, IDRC pumps?, dry leaf preservation?, bricks instead of blocks?

One conclusion presents itself forcefully at this point in respect to action research. Once a set of development issues has been chosen for experimental response and once a technology has been selected for experimental adoption, records of performance must be carefully maintained and monitored. If they are not, any errors which occurred in prior stages can be expected to take their full toll. This point seems serious and is, indeed, carefully prescribed in the theoretical plan of action. (See the outline of stage three, above).

An ancillary point also deserves attention. The summarization of field reports, their analysis for consistency and fulfillment of prescribed plans, comparisons with other experimental results and with secondary sources in general, and the analysis of these reports by experts can all take place at some safe, quiet place far removed from the logistic and administrative turmoil of the field site. Thus it is disappointing that deficiencies appear consistently in respect to the monitoring of the various activities underway at the Abyei project. Initial research designs are cursory. There are few well-planned data-gathering instruments. There is little evidence of rigorous analysis and rapid feedback in respect to reports from the field. Conventional requirements for cost accounting data have been neglected. Without such backup support, the field team will be seriously disadvantaged in its efforts. Without such support potential verification of the research strategy will be undermined.

Participation by the people of the Abyei area was recognized as crucial by the planners of the program, and without such involvement it is difficult to see how permanent success could be achieved even if other problems were solved. But shaping a plan for effective local participation and implementing such a plan once conceived are notoriously didfficult. This issue is relevant to an analysis of action research. If the application of this strategy is to effectively reduce the time required for the preliminary identification of issues and the selection of an appropriate technology, there are strong reasons to expect that local participation will be a vital requirement for a project's success from its inception. The inputs of those who know local conditions seem essential if others are to be relieved of the need to learn them for themselves. Furthermore, it would seem essential not only that locals "being involved," but that this involvement constitutes genuine commitment. They should stand to benefit from success or lose from failure in respect to the preliminary identification of issues and each technological choice.

Expansive plans were originally proposed for an Abyei Peoples' Development Organization which gradually had to be an abandoned as unrealistic. There is little evidence that an equivalent amount of thought was given to the possibilities of local participation in respect to other aspects of the project. In respect to the water supply program, issues of ownership and management were said to be intentionally delayed pending the discovery of a "viable" technology. But the plan did not specify who was to be responsible for those subsequent efforts or how such expectations could be effectively implemented if local participation had not occurred as a vital component of earlier steps.

Notes to Section Eleven

[1] Local workers were hired to assist the expatriate driller but the short time available prevented meaningful technological transfer to them. No cost data on the Abyei drilling efforts have been assembled for analysis.

[2] A test well at Duop, with an IDRC PVC hand pump was producing 2 1/2 gallons per minute as of February 4, 1981.

ANNEX A

AGRICULTURE PROGRAM

ANNEX A

AGRICULTURE PROGRAM

OBJECTIVES

The overall objective of the agricultural component of the Abyei Department Project is to develop improved technologies for crop production and grain storage, according to the orginal project paper "Memorandum of Understanding" (1978) listed, specific objectives:

- Expansion of sorghum production through both extensive (additional sown acreage) and intensive (improved productivity) means;
- Crop diversification through the introduction of vegetable crops in school and home gardens;
- Design and construction of 100 cubic meters of grain storage facilities;
- Identification of appropriate technologies for the clearing and cultivation of land for agricultural purposes in areas of varying soils and vegetation.
- Identification of more efficient, locally acceptable and locally produceable farm tools; and
- Identification and field testing of improved seeds (Memorandum of Understanding; 1978: annex A).

The revised project paper restated the primary agricultural objective: "to develop technologies capable of increasing and stabilizing the supply of dura (sorghum) (Agency for International Development, 1979: 9)." A layer of strategic guidelines was added which stated that the technologies to be developed were to be:

- Broadly participatory;
- Economically and ecologically sustainable over the long-term; and
- Economically efficient, meaning that the returns to the technology should more than cover the full costs of using the technology (Agency for International Development, 1979: 9-10).

Table A 1. Amended ADP Agricultural Activities and Quantitative Targets.

Activity	Targets
Dura storage and marketing	1000 bags bought in 1979 sold at legal price ceiling (LS 12.00);
	If 1979 successful then 2000 bags bought in 1980, with a pilot project to establish a semiautonomous storage and marketing cooperative;
Ox-cultivation	6 Smallholder farms; 4 group farms; and 10 feddans each.
Systematic testing and evaluation of alternative types of equipment and sequences of tillage operations using (ox and tractor):	None
. Moldboard plow	None
. Disc plow	None
. Chisel plow	None
. "A" shareplow	None
. Disc harrow	None
. Tooth harrow	None
Comparisons of row-planters with wide-level-disc seeder	None
Tests of interrow cultivators	None
Economic analysis of primary tillage, row planing, cultivation and weed control	None

(Continued)

Test alternative land clearing technologies:	None
• Land-clearing, burning, stumping	None
• Winch	None
• Ax-pulley and chain	None
• Bow saw	None
• Mattock and bush scythe	None
Comparison of controlled trials with work on group farms and smallholder dom dits	None
Extensive soil sampling	None
Irrigated vegetable and fruit tree trials	None
Dura agronomy trials:	
. Planting date	None
• Spacing and seed rate	None
• Type of seedbed	None
• Seed variety	None
Design of experimental projects:	
. Long-term crop rotations for sold-building and pasture improvement	None
. Development of sweet-caned sorgho and cane crushing appartus for local sugar products	None
. Trials on potential cash crops such as maize rice, sesame and sugar-cane	None
. Methods of food preservation and processing	None
. Beehive and oxcart production	None

PRESENT STATUS

Dura Storage and Marketing

The Abyei project purchased grain produced during the 1978 rainy season through May of 1979. A total of 677 bags were purchased and stored in the rural council warehouse. Due to a good harvest year in 1978 the project was unable to sell dura at the projected ceiling price of LS 12.00 per bag. The originial marketing plan has been to buy from farmers after harvest, puth the grain in short-term storage and resell it at the ceiling price, returning a dividend above costs and fees to the farmers and damping seasonal price swings. Instead, the project brought dura at the Abyei market and through agents; was forced to hold the grain for a long period; sold the grain to merchants and government and project employees; and had no records to pay dividends to original suppliers. As table A-2 indicates, the project absorbed a net loss when the loss of 95 bags that were not sold is taken into account.

Ox-cultivation: Craig Wynn had the responsibility for management of the ox-training and cultivation program. During his tenure 8 trainees and 12 oxen attained varying degrees of competence. No ox-cultivation has been done on any of the group farms or smallholder sorghum fields. During the 1980 season, two salaried trainees were directed to farm a dom dit field (corresponding to a typical household's main sorghum field). They managed to cultivate only 1.5 feddans which yielded about 133 kilos per feddan, less than half the average smallholder yield. The most extensive use of the trained oxen has been to transport bricks, water, and other materials on the project and to weed some of the projects trial fields. The results of the only closely monitored and timed tillage trials (see table A-3) suggest that neither the teams nor the operators had achieved high levels of efficiency or similar performance standards.

Having concluded that the "Unibar" plow was unsuitable for training local oxen, the project procured heavier Hert reversible moldboard plows. No formal data on their performance characteristics has been obtained, however.

Table A-2. Summary of Operations of the Dura Storage and Marketing Program

Financial Summary	Amount (LS)
Cost of purchase, sacks, transport, storage, agent fees, phytosanitory products for 677 bags	9,035
Income from sale of 582 bags, 1979-1980	9,696
Cash Balance	661[a]
Physical Summary	
Bags purchased	677
Bags sold	582
Bags lost	(95)
Value of Bags Lost	
95 bags @ LS 12.95 (weighted average) =	1,230.25b
Gross margin or (value lost)	(569.25)

Notes

[a] Does not include capital, management, and supervision costs nor, apparently, some labor costs.

[b] Some of lost grain used in livestock feeding program and rental of land. Most of this is weevil infested.

[c] A more recent set of figures was submitted by ADP on February 4, 1981. These recent figures do not correspond to the number used in Table 2, and have not been included above.

Table 3. Results of Two Timed Trials (single repetition) with Different Bulls and Operator Using the "Unibar" Moldboard Plow

Team	Total time (seconds)	Total effective time (seconds)	Total turn speed time (seconds)	Total turn speed (m/sec)	Field efficiency	Average width (cm)	Field capacity (feddans per hour)	Feddans per day
B-1	2009	1411	598	0.20	0.70	14	.26	1.3
B-11	2376	995	1381	0.57	0.42	15	.08	0.4
						Averages	.17	.85

Source: Adapted from a table presented in Craig Wynn's Monthly Field Report of August 1979.

Systematic Testing and Evaluation of Alternative Types of Equipment and Sequences of Tillage Operators Using Tractor and Animal Power.

In 1979, a wide variety of comparative trials using split plot designs were devised for use on project fields and on the group farms. None were implemented in that year. As noted in Richard Fuller's report of June 1979 concerning the tractor mechanization trial: "We have decide to drop this trial as such. We feel that more valid data can be gathered from the work on group farms. In any case, two of the machines did not arrive in Abyei." Simplified observation tests of primary tillage and planting operations were designed but not done in 1979.

During the 1980 season, tractor mechanization trial design was limited to observations of primary tillage and planting on group farms, but the lack of equipment permitted only a comparison of tillage equipment. In addition, the failure to make regular growing season observations, the necessity of replanting due to poor seed germination, and the absence of yield data renders comparison of the tillage variable meaningless.

In 1980 an observation trial of IITA-recommended zero tillage methods was done on large plots (15 by 100 meters; single repetition). Plots were planted with IITA's rotary jab planter and weeds were controlled with five different herbicide treatments. The trial would be more appropriately called a herbicide trial, as no tillage comparisons or examination of tillage/herbicide or planting method/herbicide interactions is possible.

In sum, conclusions from the project about the comparative advantages of tillage equipment can only be characterized as impressionistic.

Comparison of Row Planters with Wide-Level Disc Seeders.

The row planter (drill) arrived incomplete in 1980 making the tractor implement comparison impossible to execute.

Tests of Interrow Cultivators

No tests of interrow cultivators were peformed.

Economic Analysis of Primary Tillage, Row Planting, Cultivation and Weed Control.

During the 1979 and 1980 seasons, records were kept of the primary tillage and planting operations on the group farms. Using the most optimistic assumptions about tractor efficiency, the following per feddan costs of two tillage variants were calculated for 1979:

- Wide-level disc seeder (three passes) LS 17.092
- Disc plow, wide-level disc tillage and planting LS 17.508

The 1980 season costs have not yet been calculated.

No cost accounting has yet been attempted for other tillage, planting, and weed control equipment.

Test of Alternative Land Clearing Techniques

Craig Wynn attempted to use a winch to clear trees on a group farm in 1979. After successfully felling one tree and failing to fell a second, he concluded that the winch was not feasible. No formal attempt to compare clearing technologies has since been attempted.

Comparison of Controlled Trials with Work on Group Farms and Smallholder Dom Dits

Programs were designed to establish trials at Duop (the project site near Abyei) and on group farms. Observations of dom dit cultivation has been carried out informally up until 1980 when a survey of crop production in one village (Mabior) was initiated. No formal framework exists to compare trials with group farms and dom dits.

Extensive Soil Sampling

During 1980, Richard Fuller collected soil samples from sites at Duop, on group farms, and a few dom dits fields. The samples were forwarded to Wad Medani for analysis. Results have not yet been obtained.

Irrigated Vegetable and Fruit Trials

The Abyei staff established one rainfed and one irrigated vegetable field. Crops grown include tomato, eggplant, squash, gourd, okra, watermelon, spinach, pigeon pea, and mung bean. A few citrus saplings have been started.

The project contacted the Banton irrigated horticultural garden in 1979 to obtain land for trials of vegetables, fruit trees, and forest trees. Permission from the Ministry of Agriculture was obtained to use 10 feddans in November 1979. No use has been made of the land to date.

Dura Agronomy Trials

Dura agronomy trials carried out fall into three categories:

- Weeding planting date trials in 1979;
- Population variety trials in 1979 and 1980; and
- Zero tillage (Herbicide) trials in 1980.

The data from these trials have not been analyzed or interpreted. An initial scan of the raw data suggests that variance will be high and the interpretive power will be low. While some collection of local cultivars has been done, there has been no systematic attempt to screen local and exotic cultivars for adaptability to site conditions.

Design of Experimental Programs

Long-Term Crop Rotation for Sod-Building and Pasture Improvement.

A tentative identification of a grain and pasture legume strategy has been prepared as the basis for a sod-building and pasture improvement "rotation." General ideas about the potential theoretical value of including legumes in crop, pasture, and forestry programs have been discussed by project staff with visiting livestock consultant William Payne, scientist at IITA, and with Sudanese research center personnel.

The following trials incorporating legumes have been carried out:

- Cowpea variety trials in 1979 and 1980;
- Sorghum, sesame, cowpea intercropping trial in 1980; and
- Informal observation of mung bean and pigeon pea in the staff garden trial results have not been analyzed.

Richard Fuller's limited examination of cowpea roots suggested that only moderate nodulation occurs.

Development of Sweet-Caned Sorgho and Cane Crushing Apparatus for Local Sugar Products.

Ten sweet sorghum cultivars from the Delta States Area U.S. Sugar Crops field station in Meridian, Mississippi were tried in Duop in 1980. A five cultivar variety observation was also run. Stand establishment was poor, stalks were etiolated and less robust than local "sweet reeds." As no local cultivars were included in the trial due to difficulties in obtaining seed, it is

difficult to make any generalizations from the trial. Due to the lack of a refractometer, no sugar content determinations were possible, and the wet weights recorded cannot be validly used to compare varietal sugar production. No crushing equiment has been ordered.

Trials on potential cash crops such as maize, rice, sesame, and sugar cane.

Twenty-six sesame cultivars from the Agricultural Research Corporation station in Kadugli and three local cultivars were grown in nonreplicated variety observation. Severe insect depradations of capsules and flowers prevented meaningful comparison, but suggests to Richard Fuller that local varieties must be more resistant. The limited yield observations recorded do not support or contradict this impression.

Trials of Food Preservation and Processing Methods.

The project has attempted to use Actellic on sorghum stored in the marketing program and to make observations on sorghum stored in a cement jar. No experimental program has been designed.

If threshing can be included in this category, the project built an Intermediate Technology Group hand crank thresher, which, when tried at Thithyei group farm, proved to be both slower and no more efficient than the local beating stick method.

Beehive and Oxcart Production

During Craig Wynn's tenure as project agriculturalist, several dozen beehives were constructed and three oxcarts were produced. One trainee developed the skills to build both. On the departure of Mr. Wynn, both the bee keeping and ox cart production programs deteriorated.

ANALYSIS

Resource Levels

Personnel resources have been grossly inadequate in kind and in number. Craig Wynn, the original agriculturalist and expatriate acting team leader, appears not to have completed a basic degree program. At the same time his interests were rigidly focused on animal traction as the most appropriate tillage technology, bee keeping as a major project activity, and construction. Richard Fuller, the current agriculturalist and team leader, is well-trained and experienced with agricultural machinery, but he has had limited exposure to animal traction, or

agronomic trial design and management. As successive team leaders, both have had to shoulder managerial, administrative, and logistic responsibilities which severely curtailed their ability to devote time to those aspects of the agricultural program in which they specialized. Since overlap of the two agriculturalists was relatively short (one rainy season), Wynn's agricultural program focused almost entirely on animal traction (an activity which as been greatly curtailed since his departure), while Fuller has concentrated on obtaining tillage data and establishing agronomic trials.

On the Sudanese side, there are parallel staff deficiencies. Sayed Sidig Abdallah, project director of the Ministry of Agriculture's Department of Soil Conservation, Land Use and Water Programming, is almost totally occupied with managerial, administrative, and logistical responsibilities. Sayed Kuol Arop, an entomologist with mechanized sorghum production experience, was the original Sudanese staff agriculturalist, but was promoted to ?r?rdeputy project director in 1980. The promotion required that he drop most of his technical responsibilities. Abdul Nasser is a community development officer with no agricultural education who works mainly on group farm organization. Sayed Fathi El Sediq Jamil, seconded from the Forestry Department, has spent most of his time as a logistics and administration officer in the project's Khartoum office. Sayed Agwek Noor, a veterinary officer has no skills or interest in animal traction apart from its animal health and husbandry implications.

Other Sudanese personnel involved in the operation of the ragricultural program have been slightly educated or illiterate laborers who have been trained in ox traction, beehive construction, and ox implement construction. When available, visiting university students have been employed to make crop trial observations, with uniformly poor results.

To expect the past and current staff to undertake serious examination of technological and organizational alternatives in areas ranging from land clearing to grain marketing and food processing suggests an extremely severe underestimation by project management of the nature and magnitude of the tasks assigned to the field team. Even superb short-term technical assistance and continuous institutional backstopping would not have made up for the lack of more trained expatriate and Sudanese personnel at the field level, if the objectives outlined in the revised project paper (Agency for International Development, 1979) were to be met. In actuality, the short-term assistance provided to the program consisted of visits by economists, anthropologists, a livestock specialist, a geography graduate student, an urban planner, and an undergraduate researcher. Other external technical and methodological inputs were provided by occasional visits to Sudanese research institutions, a trip to IITA by the team agriculturalist and the Sudanese deputy project director, and though correspondance and contacts with individuals and institutions by staff and the HIID project coordinator.

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It is clear that the field team recognized how thinly they were spread. After outlining a phased approach to animal traction in the November/December 1979 field report, Richard Fuller commented: "We do not have an expert in draft animal technology to carry out the program. This position will need to be filled before the program can progress." A discussion of the sorghum storage and grain marketing program in the report for Ausust/September 1980 noted:

> The big question is: Who will be in charge of the program and implement it? This is no small matter given the experiences of the 1978/79 season.

Failure to recognize the magnitude of the agricultural problems being tackled and to augment staff or to reduce the program has led field staff to attempt to cover all activity areas. When combined with the logistic and operating constraints to be discussed later, this has resulted in poorly managed trails and underutilization of the individual's technical skills.

Techniques

There were serious deficiencies in the information base at the outset of the ADP. In 1978-78, The Development Studies and Research Center at the University of Khartoum carried out a socioeconomic survey of the Abyei area. A generalized description of Dinka crop production was presented, but few insights into the dynamics or constraints of farming activities were generated. (Fetterman, 1978). The initial project paper (Cole and others, 1977a) proposed that soil and land use studies should be undertaken by the Department of Soil Conservation, Land Use and Water Programming. The studies were not done, however. No systematic effort was made to obtain information on smallholder agricultural production parameters until 1980, when a participant observer study of production practices in one village was undertaken. The level of understanding of the natural resource base for agriculture is summed up by project geographer Jane Hayes who delimited three major land and vegetation classes in her 1980 land use survey "Population Survey" and concluded:

> The main implication of the land use study is that there is a finite amount of tillage land within the project area. The tendency in previous planning for Abyei has been to assume an unlimited supply of cultivable lands, and that the main constraints to increased production were the supply of labor o r capital in conjunction with technology in the form of tractor or ox cultivation, zero tillage and the like (Hayes, 1980).

The lack of even rough relative comparisons of currently tilled land with that "finite" tillable amount makes the utility of this analysis for agricultural design highly questionable.

The poor initial information base appears to have created a situation in which both identifying the problems and defining ranges of potential organizational and technological solutions were highly ad hoc and personalized. Selection of animal traction as the principal alternative to tractor cultivation occurred when Craig Wynn, an animal traction specialist, became team leader. There is no documentation or personal recollection among the staff that Wynn even attempted to learn what practices were employed or what constraints were encountered by Ngok Dinka farmers. How bee keeping became the second priority agricultural activity under his direction is even more obscure. The lack of any agronomic investigations during 1978 can be reasonably attributed to his lack of training and experience in this area.

The arrival of Richard Fuller restored some balance to the program in terms of improvements in machinery use and initial attempts to establish agronomic trials. Once again, however, the failure to link research problem specification to an analysis of local farming constraints has maintained an agricultural research program which is basically unprioritized and overscaled given the knowledge, personnel, material, institutional and logistic constraints.

Several consistent problems in research strategy and design should be emphasized:

- In general, the failure to link research design to identification of local constraints to agricultural production;
- Highly personalized and ad hoc identification of technology options; and,
- The failure to scale research design to the existing level of knowledge and resources.

Management of agricultural research has also been deficient. Recognition that Sudanese institutions were not providing critically needed information on local farming systems should have led to assessment of how the information could be obtained. If such an assessment was made, it is difficult to understand why the first field effort to remedy the situation only took place in 1980.

In those instances where local problem areas or information gaps have been identified, the use of short-term consulting services to design trial programs and the management of the subsequent trials and its evaluation has been insufficient. A major case in point is the sorghum storage and marketing program which figures prominently in the 1979 revised project paper. During a visit in 1978, the consulting agricultural economist learned of the large local price swings that had occurred following the 1977 season.

A sorghum storage and marketing program was designed to intervene in the market and dampen the swings. The plan was to buy sorghum slightly above the market price just after the harvest period when prices are low, and to sell back to individual farmers at the official ceiling price when market prices floated above the ceiling due to supply shortages. A buying organization was specified without any apparent knowledge of staff resources or the normal flow of sorghum from farms. The 1979 program was unable to purchase sorghum from individual farmers, and the bulk of the grain came from the Abyei market and from merchant's buying agents.

The 1978 harvest also happened to be a good one (as was the 1976 harvest, when only small swings in dura prices were observed during the 1977-78 socioeconomic survey). As no long-term storage arrangements had been made, storage losses were significant. The inability to buy from individual farmers and sell back to them led the lean leader to state: "To date, the only beneficiaries of the probram have been staff members, project laborers, local government employees, and some local merchants and agents," (Monthly Report, August/September 1980).

The problems during 1979 led to the proposal that a sorghum consumption, storage, and marketing survey be carried out in early 1980. A questionnaire was designed which was to be administered to 15 households selected at random from the tax rolls. No arrangements were made for selecting or training surveyors, and no procedures were developed for data compilation, analysis, and interpretation. Craig Wynn was to head the survey, but he turned the task over to Kuol Arop, who selected a Sudanese student to assist him. Kuol failed to gain access to the tax records. He then devised an ad hoc solution to the problem by entering a village, obtaining a list of households and selecting every seventh name. Kuol and the university student ran two test questionnaires. Kuol then went on leave and the student completed the survey. On his return, Kuol attempted to compile the results and found them unreliable. As Wynn had indicated that he had not done the survey, none of the expatriate staff knew that it had been carried out. No subsequent attempt was made to follow through.

The storage and marketing program is only one example of the generally poor research design, insufficient monitoring and recording, almost nonexistent formal analytic procedures, and lax research management and follow-up that has characterized the agricultural program.

Constraints

The physical environment and isolation of Abyei makes rainy season supply nearly impossible and consistently reduces project area mobility. These factors have hindered operations on both the

Duop trial areas and group farms (see annex C). The limited numbers and insufficiently trained and technically competent personnel has already been discussed. This not only constrained agricultural activities but diverted attention from project management and led to the failure to recognize the severe resource constraints and reorient the research program accordingly.

The lack of Sudanese capacity to provide institutional support in the form of tractor services from the Nuba Mountain Agricultural Production Corporation; survey work from the Department of Soil Conservation, Land Use, and Water Programming; and research assistance and personnel from the Agricultural Research Corporation constrained the agricultural program's development and diverted financial resources from other project activities.

While lack of knowledge about the dynamics of local farming systems is almost always a constraint in implementing agricultural development activities, in the case of the ADP this constraint was exacerbated by failure to undertake skilled agronomic investigation of local farming conditions before designing a research program.

CONCLUSION

If the 1979 project objectives were to be met, a much more agronomically skilled expatriate team would have had to have been recruited. At a minimum this would have included these full-time personnel:

- An agronomist;
- An animal traction specialist;
- An agricultural engineer/equipment specialist; and
- An agricultural extension specialist.

Short-term assistance in soils and land capability assessment and research design would also have been desirable.

If project resources were to remain at their original levels, the agricultural program should have been greatly reduced. The research program consistently underestimates both the nature of the problems being examined, the time needed for resolution of the problems, and the resources required.

Failure to undertake initial examination of agricultural production practices and constraints has led to poor research designs. A low frequency of contact with smallholders combined with a weakly supported field program has led to very little understanding among Sudanese staff or farmers of the directions or rationale of the program.

While Abyei project agricultural staff have gained some experience with potentially valuable technologies and have developed interesting insights into the constraints imposed by the area's natural environment, the lack of reliable data, the failure of the majority of trial designs to be implemented, and the lack of analysis, interpretation, and redesign when resources were exceeded or problems were poorly defined suggests that there has been a systemic failure in the agricultural program. At this stage essentially all of the initial technical and economic questions about power sources, implements, tillage practices, seed varieties, sorghum marketing, and so forth, remain open to multiple interpretations which cannot be rigorously compared given the project's data base. The current staffing patterns and support resources suggest that it would not be reasonable to assume that the program could correct its major informational, strategic, managerial, and implementation deficiencies.

ANNEX B

LIVESTOCK PROGRAM

ANNEX B

LIVESTOCK PROGRAM

OBJECTIVES

No livestock activities were presented in either the 1977 project paper (Cole and others, 1977) or in the 1978 "Memorandum of Understanding" between the Government of Sudan and HIID. The reason for this given during discussions in January 1981 at HIID in Cambridge was the project designers had been told by Sudanese from Abyei that livestock were being adequately managed and that any existing problems were of secondary importance to the crop production problems.

The revised project paper, which amended HIID's grant agreement, listed three main livestock related objectives:

- A program for training oxen and ox-trainers;
- Studies in support of oxen power; and
- A livestock survey.

As has been discussed in annex A, the inclusion of animal traction activities in the project appears to have resulted from the assignment of an animal traction specialist, Craig Wynn, as HIID's first acting team leader. The rationale behind the livestock survey is given in the "Terms of Reference for Livestock Survey":

> With the exception of a program to develop ox traction, livestock do not figure significantly in the project. The project team recognizes this lack as anomalous in view of two facts: (1) livestock, both cattle and small stock, feature prominently in both the culture and economy of the people of Abyei; and (2) as a crossroads for two major cattle-keeping peoples, competition over water, grazing, and 'space' during seasonal cattle migration is a major source of social and political tension in the area. (Harvard Institute for International Development, 1979: annex B)

PRESENT STATUS

Training of Oxen and Ox Trainiers

The aim in the 1979 document to establish "a system for training additional animals and trainers," has not been fulfulled. The level of training achieved by Craig Wynn with salaried

employees was not sufficient to enable the trainees to successfully cultivate a dura field comparable in size to a local farmer's dom dit. Craig Wynn's assistant, Ding Deng, does not appear to have the capacity to train additional trainees.

Studies in Support of Oxen Power

The project paper (Agency for International Development, 1979) listed the following studies:

- Dry season feeding regimes, stressing hay and pit silage;
- Grass-cutting tools;
- Nutrient analysis of silage stored for several months;
- Optimum daily rations for animals doing different work;
- Training methods;
- Ox harness (improvement); and,
- Donkey training.

Craig Wynn carried out a test of pit ensilement using sorghum stalks in 1978. The stalks ensiled well with some loss, but the pit collapsed during the 1979 rainy season. Design improvements were suggested by Wynn, but not tried. Agwek Ngor Kuol, the project livestock officer, has been in charge of dry season feeding regimes since Wynn's departure in early 1980. Sorghum stalk storage has been shifted from pit ensilage to a platform design. As in the case of the ensilage observational trial, no records were supplied on the amount stored, loss rates, or costs.

A rough program to feed daily rations of sorghum has not been followed due to unsupervised foraging by project oxen on undisposed weevil-infested waste sorghum. That the oxen are doing well on the grain diet is obvious from their condition. It is less obvious that anything can be said about the size of an optimum daily ration.

Livestock Survey

With the consultation of a livestock specialist, William Payne, late dry season and rainy season fieldwork for the survey has been completed. Participants included Richard Huntington, anthropologist and research coordinator, Miryam Niamir, regional and urban planner, and the Livestock officer.

Agwek Noor. Approposal to carry out the second part of the livestock survey has been prepared and will involve the same participants. the earlier plan to survey Messira livestock herds was dropped due to security problems.

The results of the livestock survey's first field studies have not yet been circulated. A discussion paper entitled "A Development Programme for the Mixed Husbandry Agricultural Economy of the Abyei Area," based on some initial perceptions, has been written, and was discussed at Cambridge in early January 1981.

ANALYSIS

Resource Levels

The only full-time livestock technician associated with the project is Agwek Ngor. His training and interests are predominantly in animal health. William J. A. Payne is an experienced livestock specialist with substantial exposure to Sudanese and East African livestock problems. On a consulting basis he supervised the design of the livestock survey and is participating in the analysis of results. Miryam Niamir, trained as a regional and urban planner, but with previous field survey experience, has been the principal field worker cooperating with Agwek Ngor and local veterinary assistants to execute the survey.

There has been insufficient personnel support for the existing livestock project activities, both in the ongoing animal traction and feeding studies and in the livestock survey. While the lack of implementation resoruces for livestock investigations is tracable to early information gathering at the design stage, the revised project paper proposed a livestock survey committee of individuals possessing impressive experience with pastoralist livestock problems in Sudan and East Africa. While the availability of named individuals may have changed during the period between project paper approval and survey design and execution, it is surprising that individuals with similar skills and experience were not recruited to replace them.

Techniques

Initial project livestock activities were unplanned consequences of the selection of the field team leader and agriculturalist. They grew in scope and complexity until the time Craig Wynn left the project.

Neither Wynn nor Agwek kept sufficient records on herd management and feeding to make even gross estimates of management costs. The methods employed in the survey of herd structure, animal health, animal condition, milk production, and herd management practices are quite capable of generating reliable information. Field changes in sample stratification due to security problems may lead to bias which can only be judged when results are available. Two improvements to the survey design and implementation could have significantly increased both the quality of data collection and the interpretation of analyzed data:

- The inclusion of a livestock specialist to undertake the survey, reducing the need for laboratory analysis to only the most troublesome diagnoses, and increasing the potential for collection of specialized management details; and

- The inclusion of a range scientist to assess range conditions and the need and potential methods for trend analysis. It seems unlikely that the present clipping and plant collection approach, with plant identification done in Khartoum, will permit accurate description of representative grazing types or their carrying capacity in the Abyei area.

Constraints

The lack of initial knowledge about the livestock sector in the Abyei area and the uncritical acceptance of local statements that though there was no problem with livestock management led to the failure to allocate resources to this sector. Neither field nor coordinating staff (HIID) were technically equipped to devise a livestock program and implement it. Also, the negative reaction of local elites to the ox-traction program appears to have contributed to the failure to devise a carefully monitored testing program. Late arrival of oxen equipment in 1979 delayed the start of animal traction training. While a Sudanese range technician was recruited to participate in the livestock survey, he failed to join the field team.

CONCLUSION

The livestock activities related to ox-traction, apart from animal health maintenance, were dependent on the presence of Craig Wynn. Unfortunately, Wynn did not maintain herd records or train Agwek Ngor in herd management record keeping.

The livestock survey is not yet complete. Under these circumstances survey results cannot be evaluated. It appears methodologically strong in its examination of animal and herd management characteristics. Its main methodological weakness is in its survey of grazing resources, which is almost certain to fail in describing representative grazing types.

Consideration of mixed crop and livestock husbandry schemes is premature, given available knowledge about cropping constraings, research performance to date, and the fact that the livestock survey is not yet complete.

ANNEX C

GROUP FARMS PROGRAM

ANNEX C

GROUP FARMS PROGRAM

The "Memorandum of Understanding" between HIID and the Government of Sudan specified that the ADP would support the "creation and operation of three experimental farming cooperatives" (1978: annex A-1). Further elaboration was provided in the revised project paper (Agency for International Development, 1979) which stated that three "experimental" group farms would receive assistance from the project and would serve as focal points for the testing of technological alternatives for dura (sorghum) production.

Based on experience during the 1978 rainy season and a review of results achieved by the heavily subsidized "modernization" scheme (which provided tractor cultivation at no cost to farmers), the revised project paper laid out the following objectives for the group farm component:

- Each of the three group farms identified by ADP would have cleared between 100 and 300 feddans prior to the 1979 rainy season;
- Group farm members would be charged "a substantial fraction of costs" for tractor disking and seeding in 1979, with full costs being assessed thereafter, payment being made through a crop lien on the sorghum produced on the farm; and
- Each group farm would set aside 10 feddans of cleared land for a demonstration of ox-cultivation by the project, to provide a comparison with tractor cultivation (Agency for International Development, 1979: 15-16).

PRESENT STATUS

As of January 1981, following two rainy seasons in which the ADP assisted group farms, four such farms are in existence: Thithyei and Nyinchuor to the north and west of Abyei, and Mabior and Mabok to the southeast. The second and fourth were sites of "modernization" fields in the mid-1970's, and all four are located in Ngok Dinka areas. Table C-1 shows the membership, size of cultivated area, sorghum production in metric tons, and yield per feddan for the 1980 season.

Table C-1. Characteristics of ADP Group Farms, 1980 Rainy Season

Farm	Number of members (1)	Area in cultivation (feddans) (2)	Sorghum production (metric tons) (3)	Output per feddan (col. 2/col. 3)
Thithyei	32	50	21.3	0.43
Nyincuor	40	30	6.4	0.22
Mabior	38	20	4.0	0.20
Mabok	37	90	4.0	0.04

The figures show that none of the farms has met the minimum size projected for the 1979 rainy season, and with the exception of Mabok, the 1980 yields were higher than those achieved on the same farms in 1979.

The ADP has not yet calculated tractor charges for 1980, however. In 1979 farmers were charged a nominal LS 0.57 (US$0.29) per feddan (representing only fuel costs). Estimates of actual costs for tractor operations including depreciation, fuel, maintenance, salaries, and so forth, on the group farms, given the small area placed under cultivation, are in the range of LS 15-20 (US$ 7.50-10.00) per feddan, and may prove to be even higher. With sorghum prices (as of mid-January 1981) at LS 150 (US$ 75.00) per metric ton in the Abyei market, it is certain that production at Mabok cannot cover costs, and the results at Nyinchuor and Mabior appear to be only slightly above the break-even point. Project staff recognize this and may reduce the charges levied on the group farms as a result.

Project assistance to the group farms has consisted of tractor cultivation, encouragement of group members to weed and thin the sorghum crop, and assistance with transport and storage after harvest. No regular extension advice is provided, either to the management of the group farm itself or to individual members who maintain their own fields (dom dit in Dinka). Travel to and from Mabior and Mabok is extremely difficult during the rainy season (only tractors or pedestrians can get through), limiting the ability of Abyei-based staff to visit the farms. While Thithyei and Nyinchuor are more accessible, they are also adjacent to the disputed area where Dinka/Mesiriya clashes have occurred. As of Januaray 1981, Nyinchuor is abandoned (its inhabitants have moved to Abyei Town) and members at Thithyei also voiced concern about the security situation, claiming it would impair their ability to clear new land for the coming season.

The ox cultivation trials and demonstrations have not been carried out on the group farms, and this component has been dropped from the program. If the ADP is extended for one or more rainy seasons, some testing of zero-tillage techniques on group farms and members-owned fields is planned.

ANALYSIS

Resource Levels

When the results measured against the stated objectives in the revised project paper (Agency for International Development, 1979), serious shortfalls appear which can be partially attributed to problems with the quantity, quality, and timeliness of inputs:

- The ox trainer on the project team (who resigned after the 1979 season) did not have sufficient implements or trained oxen to carry out the program described in the revised project paper;

- The project had no staff capable of providing continuous extension advice to group farmers, let alone supervising on-farm trials of alternative techniques; and

- The project encountered germination problems with a sorghum variety (Geddam el Hammam) imported from the north, and had to reseed portions of certain group farms with local varieties late in the season.

In terms of the potential of group farm members to play their part in the program, land-clearing capacity was grossly overestimated. Interviews conducted at the four sites during the evaluation (farmers from Nyinchuor were interviewed at the ADP office in Abyei Town) suggest that many farmers expected the project to bring in bulldozers for this purpose, despite frequent statements by ADP staff that this would not occur. On the other hand, the groups have demonstrated an ability to mobilize labor for weeding, harvesting, and to a lesser extent, thinning the sorghum crop, (though Mabior has experienced factional quarrels between the two tribal sections).

The project has formulated guidelines by which the groups ensure their members turn out for communal labor (no-shows are fined at least LS 0.30 (US$ 0.15) per day) and regulate the entry of new members, who are required to pay a fee specified by the existing members.

Techniques

Major technical and economic issues remain unresolved concerning the use of tractors in the conditions found at Abyei. While farmers among the Ngok Dinka and Messiriya merchants based in Abyei voice strong enthusiasm for tractor services, it is essential to note that they have never had to bear more than a tiny fraction of the costs. (It seems highly doubtful that the "modernization" schemes in South Kordofan had no alternative to convince farmers to accept tractor services, except on the basis of a 100 percent subsidy in the first few years). The project's problems in obtaining and scheduling inputs for tractor services to group farms have made it difficult to fix a rate for these services at the beginning of the rainy season. With production levels below the levels achieved by hand cultivation on two farms (Mabior and Nyinchuor) and virtual crop failure on a third (Mabok) in 1980, farmers are in for a rude shock unless an ad hoc decision is made to apply a large retroactive subsidy.

If the group farms are to evolve as decision-making units toward the status of viable functioning coopeartives, members must be actively involved in selecting the inputs and assessing the costs of those inputs against the risks associated with various production "packages." While this type of capacity cannot be developed in a single season, it does require that the groups have access to the information acquired from an ongoing research program. This means that strong two-way communication is needed between farmer groups and project technicians engaged varietal trials and the testing of technological combinations so that the groups can participate in the selection, experimentation, and evaluation of new inputs and techniques. This type of linkage has not been established in the ADP, as evidenced by the radically different perceptions of tractor suitability by group farmers on the one hand, and the HIID team and outside observers on the other. Significantly, Sudanese project staff seem relatively ambivalent--understandably so, given that heavily subsidized "tractorization" has been so widespread in Sudan. No firm decision has been made to abandon this policy, although the country is experiencing severe economic problems.

The project has not explicitly adopted an organizational model for the group farms, but has found through experience that homogeneous membership from a single Ngok Dinka section or "subtribe" appears to facilitate cooperation. This has been the case at Thithyei and Nyinchuor, composed of Bongo and Abior farmers, respectively. At Mabior, on the other hand, a perennial quarrel predating the group farms has pitted members of the Manywar and Anyel sections against one another. Rick Huntington of HIID concluded in a recent paper that the wut, or section, which conforms to territorial divisions among the Ngok, appears to be the most promising indigenous organizational base for establishisng group farms.

Constraints

The potential for further development of group farms is constrained by several factors. While these have been referred to elsewhere in this evaluation, it is useful to summarize them here:

- Access. The local population resides mainly in homesteads dispersed over a large area, and transport to and from existing and future group farm sites is extremely difficult during the rainy season.

- Security. Tensions and incidents of violence between the Ngok Dinka and the Messiriya pose a major threat to the continuation of present group farm activities, and to the future of the project as a whole.

- Cost. To the degree that the project is instructed by the GOS to continue the provision of tractor services--which may also be essential to sustain group farmers' interest,

at least in the near term--it will be delivering an input whose cost implications require a major policy decision above the project level.

- Human Resources. Existing Sudanese personnel are too few in number and lack requisite training for an accelerated extension effort with the group farms, and it has proven very difficult to attract additional educated personnel to work in Abyei.

- Factionalism. Whether activities are limited to Ngok Dinka areas or are expanded to reach Messiriya groups (as the latter demand and expect), the formation of group farms will encounter significant divisions whitin local communities, with the likelihood that inclusive membership may not be viable in all cases.

CONCLUSION

ADP activities conducted to date with group farms have reached about 150 farmers, all Ngok Dinka, delivering a service that is in great demand. The method of delivery, coupled with the technical and economic uncertainties facing mechanized agriculture in the Abyei region, indicate that the net benefits to participating farmers have been low. The present program might conceivably be sustained on a cost-covering basis, but the evidence from the recent season (while not yet thoroughly analyzed) suggests the opposite.

The constraints listed in the preceding section will not be easily overcome, in particular, no obvious solutions for the access and security constraints present themselves. These might be cited as sufficient reason to abandon or curtail the group farm activities in favor of a more concentrated program in the immediate vicinity in Abyei. This conclusion might be endorsed by critics who feel the project has spread itself too thin, or by those who favor redirecting resources into the livestock sector and away from crop production.

The group farms do represent a major outreach effort on the part of the project, however, and they could play a role in the future evolution of an agricultural program in the Abeyi area.

While they are not "experimental" in the context of the present program, a more carefully designed research and extension system could incorporate the existing farms (possibly excluding Mabior) and several new sites in the testing and dissemination of technological innovations for sorghum production and other crops. If, for example, major emphasis were given to testing zero-tillage methods on individually owned fields, alternative approaches for organizing participant farmers would need to be tested to

determine the most appropriate means of pooling equipment and achieving economies of scale. The present organizational structures would almost certainly change if the main thrust of research and extension were to shift individually owned fields, with communal fields being phased out. The principal organizational options for farmer groups in a program of this kind have not been identified, however. (See annex A, "Agricultural Program" for a more detailed discussion of how research and extension might be redesigned).

It should be noted that effective utilization of farmer groups would be subject to the same demands of time, personnel, and funding as those required for a long-term research and extension effort.

ANNEX D

WATER SUPPLY PROGRAM

ANNEX D

WATER SUPPLY PROGRAM

OBJECTIVES

The "Memorandum of Understanding" (1978) called for HIID "to provide technical services, equipment and supplies in support of... construction, operation and maintenance of wells in six villages." The project paper (Agency for International Development, 1977) had suggested earlier that the dry sandy areas northeast of Abyei town should have the first wells. HIID's "Progress Report" (1979a) proposed "to concentrate on water supply for four (group) farm areas this year." It further stated the need for "assuring the water supply of the multipurpose center near Abyei and at the agricultural center" and stated the need "to work out the organizational arrangements of the new water sources" (Harvard Institute for International Develoment, 1979a: 28,30).

The project coordinator wrote in July 1980: "The objective of the Abyei project's water program has been clear and consistent from the inception of the project. It is to find a practical, low-cost way of meeting human water needs in dry areas during the dry season."

CURRENT STATUS

Five wells were drilled and developed in the periods December 1979-January 1980 and March 1980-May 1980. Equipment failures, lack of materials, and the departure of short-term technical advisers made water production impossible and prevented a test of water availability. At present (January 1981) a short-term well-drilling specialist, Bruce Eaton, is using a hand-powered drill rig at Duop (the project headquarters) to develop a well which will compare three pumping technologies.

ANALYSIS

Resource Levels

The following expatriate personnel have worked with the ADP as water supply specialists:

- Bruce Eaton, a professional well driller with third world experience, worked at Abyei in December 1979 and January 1980, and began a second assignment in December 1980; and

- William Claybaugh, a student with previous experience in water supply programs, worked at Abyei from March 1980 to May 1980. Claybaugh was described as follows in a project report: "While he had not done any drilling himself, he had observed drilling operations in Tunisia and had been involved in installing pumps."

The supplies and equipment furnished for the water supply program of the ADP included two types of well-drilling equipment, a lightweight hydramill rig and a hand-powered rig used extensively in Bangladesh; three types of pumps (an Indian Mark II pump, a Moyno pump, and five IDRC PVC handpumps); and supporting materials and tools.

In "A Development Program for Abyei" (Cole and others, 1977a), the following assessment was made of locally available resources for a water program:

> The provincial water resource specialists and the Rural Water Corporation are well qualified to identify suitable sites for developing water sources. The main limitation appears to be financial resources for implementing the programs. The Sudanese members of our team are proposing new surveys of water needs and resources within the Abyei District. We support this proposal and urge that it be followed up with a substantial commitment of resources to increase available water supplies.

In the subsequent design of the ADP, no foreign exchange was allocated for the water program, with the exception of funds for "one drilling unit." It was assumed that an interagency coordinating committee for Abyei would "work out these cost estimates and try to get them into a phased program that takes account of broader bugetary constraints of the [of the Sudanese Government]," (Cole and others, 1977a: 39).

By the time of the project paper revision (Agency for International Development, 1979), no significant host country resources had been committed to the water program of the ADP. Despite this, budgeting for the water progam in the new project paper continued to assume that Sudanese personnel and funds would eventually be made available, and made only marginal allowance for commodity procurement with dollar funds. It is difficult to understand how HIID arrived at the 1979 decision to place continued reliance on Sudanese resources, since the institutional and administrative capacity to deliver those resources was not analyzed. A serious error appears to have been made in advancing a water program option that would use an imported Canadian

drilling technology, without providing for the foreign exchange costs of a technical consultant to test and adapt the technology to the environment of Abyei. The subsequent decision to undertake direct implementation responsibility for the water program, including the use of consultants, had the effect of spreading the budget more thinly and weakening support to other project components.

Techniques

A water resources and supply survey was one of the originial field investigations proposed in 1977. The failure of the Sudanese Government to provide technical expertise and support for this survey was visible by 1979. Given the original emphasis on the importance of the survey, this would have been an appropriate time to assess the likelihood that Sudanese institutions could provide the necessary inputs, and to decide whether to discontinue the water program or to finance a survey by an outside technical consultant. The latter option would have had terms of reference covering problem definition, specification of likely alternative technological solutions, and estimation of program development costs. Neither decision was taken, however.

HIID staff members did contact the Rural Water Corporation, representatives of the Norwegian Church Relief program in Torit and members of the UNICEF mission in Wau, all of whom are working with well-drilling and pumping technologies. As a result of these visits, HIID decided to test a limited number of low-cost drilling and pumping technologies, but no technical survey took place to provide a basis for this strategy decision. Specifically, no investigation was made of rainfed collection, surface water development, or open wells, each of which poses a potential alternative to the choice that was made.

Within the drilling and pumping technology approach, there appears to be confusion about both programmatic objectives and the assessment of results. Project documents clearly indicate that service delivery--the provision of water supply to a targeted number of sites--was the principal objective through 1979. When a single category of technology was selected in 1979, the analysis carried out by HIID was cursory and technically unsound. None of the drilling technologies "nominated" for Abyei had been tested previously in the Sudan, and only one of the three pumping technologies had been extensively tested under Sudanese conditions--the Mark II pump from India. The second, the Moyno pump, was then undergoing tests in botswana, and the third, the idrc pvc pump, was a prototype model tested only under simulated load laboratory conditions.

The economic analysis of the relative costs and benefits of different pumps, (Cole and Vail, 1980) uses fairly solid cost figures from experience with the Mark II in Sudan; cost figures for the Moyno pump do not appear to take account of differing cost burdens associated with its introduction to the Sudan; and projections of IDRC pump costs are both hypothetical and very

optimistic. Given the short time period allocated to the tests and the increasing risk and cost uncertainties associated with the Mark II-Moyno-IDRC progression, the "opportunistic" strategy used at Abyei in comparing the three technologies is unconvincing. The project borrowed whatever Mark II equipment UNICEF could spare, while purchasing the Moyno and IDRC pumps from overseas. The failure to establish a cost-monitoring system for the testing program invalidates the entire effort as far as its basic objective is concerned.

The balance of the project's experience in the water program tends to support the following observation by Bill Claybaugh in his trip report: "While the project has consistently told the people of Abyei that the intention of the program is to bring water, the project has nevertheless acted in a manner consistent with the interpretation that the purpose of the water program is to experiment with alternative drilling and pumping technologies."

HIID's assessment of "lessons learned" in the November 1979 - July 1980 "Progess Report" states: "There appears to be adequate water in the range of 90 to 120 feet below the surface in all the areas where drilling is done" (Harvard Institute for International Development, 1980: annex A). In discussions with the consulting driller, Bruce Eaton, it became clear that this is a very optimistic assessment. During the 1979-80 campaign only one well was pumped and no static water level determination was made. The Mark II pump that was employed had materials sufficient only for a 90-foot placement, and was unable to produce consistent flow. From available information, Eaton is unable to determine:

- Whether the water available was adequate for the pumping capacity of the Mark II pump;
- Whether the well had been incompletely developed (cleared of drilling mud); or
- Whether the depth of pump placement was insufficient.

The most recent statement of the project's water supply goal is to provide a program that "can continue under its own steam" (Harvard Institute for International Development, 1980: annex A, p.7). The original assumption was that existing equipment could be turned over to workers trained by the project for operation in a small enterprise. In discussions with the consulting well driller, time frames on the order of five years were cited as necessary to train individuals to successfully adapt drilling procedures and equipment to varying local conditions. Further questions about how such individuals would acquire the working capital, administrative expertise, and access to imported components of any pumping technology have not yet been explored.

Constraints

The adequacy of resource allocations to the water supply program have been discussed above. The program has also been effected by the same logistical difficulties of supply to a remote area that have retarded other project activities. Logistical problems were complicated further, in the case of the IDRC pump, by the fact that no established manufacturer existed and no reliable information existed on adaptability to essential PVC casing, pumprod, and cylinder components that were purchased separately. Dependence on UNICEF as the supply source of the Mark II pump resulted in a shortage of riser pipe, limiting depth, and depriving the project of essential data on water availability. The decision to depend on UNICEF for the Mark II pump was a result of the one-year lead time required for delivery of the equipment from India.

CONCLUSIONS

The water supply program failed to undertake adequate technical, institutional, and economic analyses of either the water supply problems or the technologies selected to address the supply problem. Failure to establish methods for monitoring and evaluating inputs and costs of the drilling and pumping technologies severely are present.

Valuable experience in well-drilling has been gained by the drilling consultants. Knowledge has been gained about the drilling conditions, design flaws in the IDRC pump, the requirements for technical consultant expertise, and supporting equipment to make on-site design modifications. It appears that the elements for beginning to design comparative technical assessment of drilling and pumping technologies severly restricts accurate technology assessment.

The project has failed to examine the training, manpower, institutional, and economic limitations to the establishment of a self-sustaining small-enterprise in water supply.

ANNEX E

HEALTH PROGRAM

ANNEX E

HEALTH PROGRAM

OBJECTIVES

A significant contribution to the health of the people of the Abyei area was included as one of the project's objectives. The "Memorandum of Understanding" (1978) stated that the project was "to provide technical services, equipment and supplies in support of... improved supervision and increased outreach capability of medical facilities through better transportation and training of medical staff".

The "Progress Report" restated the project's health goals in these words, "to help fill some of the gaps in existing health service, complement the Government's health services...by experimenting with a village-level health worker training program... [and to] monitor the health status of the population both as a way of assessing the impact of other project activities on the well-being of the community and to explore opportunities for increasing the beneficial health effects of those activities" (Harvard Institute for International Development, 1979: 22).

These objectives were to fit into the overall project strategy "to experiment, learn, revise and improve a rural development program for the Abyei district". The unique feature of the design was to be "the combination of information gathering, strategy testing [coupled with] the achievement of concrete development results." Key procedures to devise and monitor the research were enumerated. Notes and records of the project team were to be forwarded to the HIID project coordinator and analyzed by him. The results of the primary research were to be linked to secondary document research and woven into a general analysis of the situation. Outside consultants were to be used to develop data-gathering instruments and methods of collecting health and demographic data (Harvard Institute for International Development, 1979: 46-52).

PRESENT STATUS

The health specialists in the ADP team have made genuine contributions to the health and well-being of the people of the Abyei area. These achievements have been widely recognized by members of the community and constitute a significant outreach effort:

- Community diagnosis. Physical examinations have been undertaken of Abyei school children and of representative families on the group farms. Records at the Abyei health center have been supplemented by the collection of new data.

- Community health. This has included the training of three community health workers, three dressers, four health workers at project group farms, and six prenursing students.

- Maternal health. Three midwives and nine traditional birth attendants have received training from project personnel; weekly assistance has been provided to a prenatal clinic and an infant weighing program was carried out.

- Project clinic. Individuals from each of five occupational groups of project workers have received first aid training, and a project clinic was staffed for part of each day by the expatriate or counterpart staff.

- Nutrition. A market survey (food availability, prices) has been conducted monthly since January 1980. Experiments have been undertaken with chicken production and the sun-drying of leaves.

Although these examples of health service benefits are both real and widely appreciated, they do not result from a systematic health services delivery strategy. There appears to have been little monitoring of the work of the field specialists so as to ensure the continuity or replicability of their work; nor is there evidence of an external analysis of the components of the project's health program which might provide links to similar efforts elsewhere or ensure their economy, efficiency, and research value. The Sudanese staff have not been incorporated into the managerial or planning segments of the program despite efforts of the field team members to encourage such participation. Also, there is no evidence of effective tie-in of the progams to local institutions in a way which would make them sustainable.

ANALYSIS

Resource Level

Two experienced expatriate clinicians were recruited by HIID for service as health specialists at the ADP. (A third was recruited and reached Abyei in June 1979 but had to be evacuated for medical reasons after less than a month in the field). Dr. Dana Larson, a medical doctor with prior African experience,

worked in Abyei for seven months between June 1978 and June 1979. Ann Byerly, a nurse with prior African experience, had served with the ADP from January 1980-January 1981. Neither Larson nor Byerly had extensive experience as a health systems specialist before coming to Abyei.

Salvatori Atem, who had been formally trained as a medical assistant, was assigned to the ADP in March 1979. He was scheduled to return to government service by the end of February 1981. He is reputed by his colleagues to be uninterested and incompetent, and has therefore not been utilized to advance the goals of the project. His position will not be filled, a decision taken by the project director.

Project personnel expected to receive a considerable part of the supplies needed to support the medical components of their program from the provincial government offices in Kadugli (via the Abyei health center). They have been consistently disappointed in this expectation and were never able to tap this source. Instead, supplies were obtained with funds allocated directly to the project in amounts which were characterized as meager by the present field health specialist. The precise amount of funds expended for this purpose is unknown, however, since records of expenditure have not been summarized for analysis.

Techniques

With respect to the project's health program, there was an obvious need for a detailed and carefully devised plan of action. The strategy should have been consistent in terms of goals and flexible in its ability to adjust to new knowledge and changing conditions. Field personnel needed continous material and intellectual support if their efforts were to be efficient, sustainable at Abyei, and replicable elsewhere. There was, however, no general survey of health needs in the area and, therefore, no carefully devised strategy to address those needs. Moreover, the field specialists were not specifically directed to attempt to develop such a strategy--difficult as that might have been from their positions.

Continuity between specialists was disrupted, and the orientation of Byerly was inadequate to acquaint her with the work done by Larson. She was not provided with either statements of specific goals or statistical instruments which would have maintained a continuity of effort.

There is no evidence of meaningful feedback to the field specialists in response to the reports which they submitted to HIID. Thus, they were deprived of the benefits of external analysis and received no encouragement to maintain the consistency necessary for meaningful research or to correct errors. Nor is

there evidence of an effective search of secondary materials relevant to health care at Abyei. Relevant literature does not seem to have been located, analyzed, and made available by HIID to its field health staff so that they might benefit from experience gained elsewhere.

Constraints

The major constraints to the development of a health program at Abyei include the following:

- There is no general knowledge of the health needs of the Abyei community available to outsiders which could link a potential health program effectively to the local culture; thus, the formulation of a strategy to meet Abyei health needs remains problematical;

- The research efforts generated at the ADP have done little to remedy this deficiency;

- There has been no successfully demonstrated means for tying logistical and intellectual support for a health assistance program into the framework of institutions of the Abyei community; and

- There have been no successful efforts to secure support or establish useful information linkages within the framework of the national/provincial/local governmental apparatus.

CONCLUSION

The extraordinary efforts of the HIID health specialists have given the ADP wide visibility and have made a genuine contribution to the improved health of the people in the Abyei area. But the failure to train a medical counterpart seriously reduces the capacity of the community to continue these efforts.

The absence of a consistent set of objectives and a systematic procedure for monitoring accomplishments reduces the value of the team's experience in terms of potential benefits to the people of Abyei or elsewhere.

ANNEX F

CONSTRUCTION PROGRAM

ANNEX F

CONSTRUCTION PROGRAM

OBJECTIVES

The Abyei project planners included a variety of construction activities that were intended to contribute to their development goals. "A Develoment Program for Abyei", expressed the need for a phased program to upgrade buildings and facilities for administrative services in Abyei, and emphasized the need for warehousing and storage facilities (Cole and others: 38-39). This document called for "infrastructure based on the broadest possible local participation so as to respond to local needs and minimize external costs" (p. i.).

The "Memorandum of Understanding" (1978) called for HIID to recruit personnel as resident or short-term advisers, supply reference materials and expert advice, and procure commodities as needed for various project components including design and construction of 100 cubic meters of grain storage facilities and a multipurpose development center. The memorandum also notes that HIID will undertake "the identification of comparatively inexpensive and simple technology for producing durable building blocks utilizing locally available materials and labor, the construction and operaton of pilot block production facilities, and the training of local residents in the skills involved in block production" (pp. A-1, 21).

The "Progress Report" (Harvard Institute for International Development, 1979) reiterated the need for a multipurpose center and noted that need for an agriculture center (pp. 35-36). Some details of the construction program were contained in an annex to this document which noted that staff housing "is usually an essential part of a rural development project." This annex presented cost estimates for various production components and noted the need for cost/benefit studies in connection with the construction program (Harvard Institute for International Development, 1979: appendix A, pp. 9, 18-20, 10).

These objectives should be seen in relation to the general statement of HIID's goals which included "the development of information on the stocks and flows of primary inputs, the costs, benefits and probable risks of the several main alternative technologies" (Cole and Vail, 1980: 8).

PRESENT STATUS

The construction component of the ADP has produced some of the most visible results associated with the project. These have included the following completed buildings:

- Three staff housing units and two comparable structures which are used partly for staff housing and partly for ancillary services;
- An extensive workship complex;
- A warehouse (10 by 15 meters);
- A "belvedere" (luak), an 8 meter hexagon used for staff dining and assembly;
- A sheet-metal warehouse/fuel store; and
- A generator house.

Further construction activities planned for the near future include an administration building and workers' kitchen (now underway), an extension to the warehouse, a grain store, and fencing.

Brick production facilities have been developed with a capacity of over 10,000 bricks per week. A number of experiments in brick firings have taken place with some success achieved in the current dry season. These efforts have been directly supervised in recent months by the project director, Sayed Sidig Abdallah.

Prior year efforts were principally supervised by the construction and vocational training specialists, with kiln failures occuring when Sudanese staff initiated kiln firing in the absence of adequate fuel supplies.

A construction labor force has been recruited locally, varying in size from about 30 to more than 100, depending on seasonal conditions. These workers have developed technical skills but their efforts at self-generated and self-sustained construction activities have been judged technically deficient by the expatriate staff.

The following activities have been provided as services to the Abyei community:

- Completion of concrete benches, wooden benches, a new mortuary room, five new clinics, an examination bed, 19 window screens at the Abyei health center:

- Grading of a new, longer, and wider airstrip plus raising of new windsock and pole;
- Repairing doors and windows at the veterinary office;
- Repairing government buildings and the well site;
- Preparation of a soccer field;
- Grading of roads between Abyei and the project site; and
- Inclusion of the rural council at the brick site.

Construction projects enumerated in the planning documents which have not been completed include:

- The multipurpose center (it should be noted that the ADP workshop and the central dining and assembly shelter near the staff housing units might be used for certain kinds of community assembly);
- The agriculture center;
- The grain storage facility (this is planned for later in 1981);
- The block production facility (this may be effectively substituted for by the brick making facilities);

There is no evidence of any systematic collection of data regarding costs of inputs or estimated values of outputs which would make possible an efficient comparison of costs of alternative efforts or the preservation of economic experience relating to construction activity at the ADP. There also seems to have been little analysis to date of achievement in construction technology or construction training processes (other than that which occurred on site in response to immediate demands) which would make possible systematic comparison with other development efforts, or which would make it possible to preserve the experience of ADP in a form which would be usable elsewhere.

ANALYSIS

Resource Levels

A variety of resources--human and material--have been made available by the Government of Sudan (GOS) and through HIID to support construction activities at the ADP. A local Sudanese was assigned by the Government of Sudan to the ADP in May 1978. His education was in the area of production engineering, and he had also completed a six-month course in building construction. He

had had no professional experience in construction prior to this assignment. In his work in the ADP, he has been judged relatively ineffective in his relations with the workers and lacks the technical skills possessed by many of the senior workers. His ability to function as a senior-level manager is questioned, but attempts to recruit a more qualified Sudanese to manage construction for the project have not been fruitful.

No expatriate construction specialist was assigned with the initial team. This was a questionable exercise of judgment since living and working accommodations at Abyei were clearly minimal, and team members could be expected to experience considerable hardship until they improved.

Peter Parr, an expatriate construction specialist with extensive local experience, was employed by HIID and worked at the ADP in November 1978 and from March 1979 to May 1979. In addition, several members of the first team were beginning to acquire experience in brick making during this initial period. Parr designed the ADP staff houses and initiated their construction using project-produced bricks.

Joseph Sharp, a construction specialist with prior experience in Africa and Asia, was hired by HIID and has worked at ADP since November 1979. He terminated his assignment in March 1981. William Donovan was hired as a training specialist but with additional construction skills. He has been in Abyei since December 1979.

Materials used in construction activity at the ADP include local sand, gravel, timber, and thatch; imported softwoods, cement, zinc roofing, reinforcing steel, flat sheet, steel, screening, paint, piping, drums, and so forth. Considerable quantities of tools and equipment also have been assembled so as to provide well-equipped wood and metal working facilities. Project vehicles have been used in part for construction activities.

Cost records for local labor expenses are available (in Arabic) in the ADP offices in Abyei and Khartoum. They indicate expenditure for labor costs associated directly with construction work at about LS 1,700 per month. There has been no attempt to summarize or analyze these data. The total value of materials (including imports) and labor (both Sudanese and expatriate) is difficult to estimate since records of most costs are not available.

A considerable quantity of technical publications relating to construction was supplied by HIID to its construction specialists in the field.

Techniques

The team in Abyei displayed ingenuity and industry in undertaking their construction activities by:

- Developing an appropriate formula for brick composition using local materials;
- Providing a technique for kiln construction and operation;
- Developing local supplies of gravel;
- Overcoming the lack of technical and supervisory skills in local labor;
- Procuring equipment and supplies (including cement) despite formidable logistic obstacles; and
- Adapting building designs to local area needs.

The absence of consistent, usable cost and output records regarding construction activity at Abyei is lamentable. In this regard there seems to have been little pressure from HIID to institute or maintain such a system and little guidance as to its specifics. It would appear unreasonable to expect field personnel, while occupied with day-to-day activities, to devise and institute such procedures on their own. Moreover, the systematic analysis of results and comparison with data from elsewhere could most effectively be accomplished at Cambridge.

Decisions regarding priorities in construction activities seem to have been made in the field with little participation from HIID. This arrangement was apparently satisfactory to the parties concerned. But it calls into question the capacity of HIID to coordinate or control for consistency or replicability.

Constraints

Constraints on further development which relate specifically to construction activity include the following:

- Various pressures within the Abyei community (including political pressures) tend to dilute development efforts by appropriating manpower, equipment, and supplies to a wide variety of uses. Development objectives compete with real, immediate social needs;
- Effective channels for the procurement of supplies and equipment are extremely difficult to develop and maintain and often absorb the valuable time of the most qualified managerial talent;

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- Rural councils in Sudan have traditionally lacked funds for building maintenance;

- Within a project such as the ADP, difficult decisions arise regarding construction priorities; that is, the Sudanese staff would prefer larger, more expensive housing than has been built for the visiting expatriates; and

- Without some organizational framework such as that of a formal development project supplied with funds from outside, and high levels of technical and managerial talent, the stock of construction skills assembled at the ADP will be difficult to preserve in the Abyei area.

CONCLUSION

There have been genuine achievements in construction activity generated by the ADP. Given the short time period in which it has been in operation, it has probably been inevitable that these achievements have been associated primarily with providing facilities for the field team and its work and have been less directed to the public service of the people of Abyei than was originally intended.

The preservation of a team effort with approximately the skills now assembled and the level of logistic support and funding provided thus far would make possible a strong potential service contribution to the people of Abyei. Other aspects of an integrated development program would clearly benefit from such support.

If the project were terminated, there seems a likelihood that the technical skills assembled and developed in the local manpower working at ADP would be dispersed to other places. Thus the development potential now in Abyei might be reduced. This would constitute a local, rather than a national, disadvantage.

The deficiency of cost/benefit data and analysis reduces the potential benefit of the project's construction experience for others and reduces the potential benefit to ADP from parallel experience elsewhere.

ANNEX G

EDUCATION AND TRAINING

ANNEX G

EDUCATION AND TRAINING

OBJECTIVES

The "Memorandum of Understanding" (1978) between HIID and the Government of Sudan (GOS) outlines the following project objectives in the area of education and training:

- Training of local residents in the skills involved in brick production;
- Preparing curriculum, materials, and methodology for the training of local residents in job-related (income-producing) skills, such as well construction and maintenance, structure construction, machinery maintenance and repair, collection of gum arabic and honey;
- Training of field development officers in instructional techniques; and the conducting and assessing of pilot courses in job-related skills;
- Preparating curriculum materials, and a methodology for the training of local residents in practical life skills, such as pest control, refuse disposal, nutrition, and vegetable gardening;
- Upgrading primary school facilities;
- Providing classrooms for general secondary classes at Abyei Center; and
- Developing of administrative processes to be used in the expansion of primary schools and the test of implementation of these processes at a minimum of four sites.

In addition, training and skill transfer activities were subsumed under other components of the ADP, including the training of medical staff for dresser stations in outlying areas, and at least implicitly, the transfer of innovative agricultural skills to farmers after techniques had been tested. This evaluation discusses solely those activities related to the stated education and training objectives, while health and agricultural training are included as integral activities of those components. (See annexes E and A, respectively).

There was no order of priority given to training/education objectives, with the exception of health and agriculture where additional expatriate technical assistance was provided; nor were

training objectives, as initially stated, phased in any sequence to meet evolving project needs or to be congruent with environmental conditions, specifically with the dry season/rainy season cycle.

HIID's "Progress Report" (1979a) reviewed the education/training program up to mid-1979 and stated somewhat more generally, the expected outputs for 1980. A significant inclusion was a manpower assessment and the development of a long-term program for Abyei. Unfortunately, this document did not clarify the more general objectives it stated, and while the authors recognized that education and training did not constitute an autonomous program, but served as an integral part of all developmental activities, this statement doesn't make it any easier to evaluate the training activities.

Nevertheless, formal instruction in practical skills was expected to begin in 1980 with the completion of a multi-purpose center. The 1979 document differentiates between: (1) types of apprenticeship to ongoing projects in brick making construction, tractor maintenance, carpentry, ox training, vehicle maintenance, welding, and (2) "programs (which) will lead to improved community services and to better job skills." (Harvard Institute of International Development 1979a: 25). The latter, according to the document, is "planned for the next several years." Additionally, ADP was to utilize an European Development Fund (EDF) grant for school construction in the four group farm locations. Primary school structures were envisioned using local materials labor.

PRESENT STATUS

The initial set of objectives was clearly beyond the level of resources made available during the project period. With the exception of some training in health, and on-the-job apprentice training in selected skills in beehive making and bee keeping, oxen training, and brick making, little was achieved in the period from March 1978 to December 1979. Moreover, unlike brick making, the bee keeping and ox training have not been sustained following the departure of the initial adviser.

As noted in the revised project paper (Agency for International Development, 1979) a carefully conducted manpower assessment of available skills and skill needs in the Abyei area could have provided some needed focus to the project's education/training program. Specifically, given the limited project staff available for the activity, a manpower assessment could:

- Identify and establish priorities for training needs by the people;

- Identify training resources in the community (teachers, health, workers, administrators) who through a "training-of-trainers" approach, could extend the outreach to dispersed farming communities; and

- Ascertain appropriate time periods for training, so as to be matched with seasonal community activities.

Unfortunately, a manpower assessment has not been carried out. Project staff have a substantive appreciation of the above factors, but have not formalized them in establishing a training curriculum, timetable, or specified training resources for local outreach. There are exceptions which would support the above approach. Four group farm health workers have been identified and have been trained in both preventive and curative first aid and health care. These health workers have been given incentive payments of LS 5.00 (US$10.00) per month for their activities. According to reports, the health care given has been successful.

Beginning in late 1979, an overall reassessment of the training function was carried out by the project team. It was decided: to emphasize on-the-job training among all staff employed by the project; to identify specific skill classifications; and to try to assess levels of skill among project employees. Reportedly, reassessment was necessitated by the inability of HIID to recruit both a vocational trainer and a project mechanic in December 1979. The present training adviser ?r?rhas subsequently performed both functions.

While tending to limit vocational training to a fixed group related to the project, it made the training function more manageable. Training became an integral part of the project's activities with autonomous heads for different components such as ?r?rconstruction, mechanics and repair, well-drilling, brick making, gardening, and performing the training. All staff therefore become a part of an on-the-job training effort. Skill areas for training are based on specific project needs. Staff are selected and placed according to demonstrated skill initially, and promoted based on skill enhancement. This method also implies that some skill transfer occurs down-the-line from senior level workers in one category to assistants and apprentices.

Table G-1 lists the job functions, classifications, and wage levels of local project staff. With one or two exceptions (a welder who decided to return to his home area on hearing of the project and a masonry foreman) virtually none of the skills were reported to have been available in Abyei at the time the project started.

Table G.1 Manpower Classification and Wages, 1981

Functional category	Classification	Number	Wage (LS/day)[a]
Carpentry	Carpenter	1	2.50
	Assisstant carpenter	2	1.50
	Go-Boy carpentry	3	1.00
	Apprentice carpenter	3	.90
	Casual laborer[b]	10	.90
Metal Working	Welder--Electrode	1	2.80
	Brazing	1	2.80
	Assistant welder	2	1.75
	Go-Boys welder	3	1.00
	Apprentice welder	3	.90
	Metal bender	1	2.00
	Blacksmith	1	1.75
	Assistant blacksmith	1	1.00
Mechanics/ transport	Mechanic	2	2.75
	Assistant mechanic	2	1.50
	Go-Boy mechanic	3	1.00
	Casual worker	1	.90
	Driver--tractors	4	2.75
	Driver--Land rover	3	2.75
	Driver--Heavy truck	2	2.75
	Assistant driver	6	1.25
Masonry	Foreman--mason/layout	1	3.00
	Masons--bricklaying zir maker	2	2.50
	Assistant mason	6	1.50
	Casual laborer	10-16	.90
Brick making (3 Teams)	Molder	3	
	Runner	9	
	Casual laborers: (stacker firefeeder transporter)	45	
Agriculture	Ox driver/trainer	8	1.50
	Senior gardener	1	3.00
	Assistant gardener	2	1.50
	Casual laborer	1	

(Continued)

Table G-1. (Continued)

Functional category	Classification	Number	Wage (LS/day)[a]
Construction & administration	Storekeeper	1	2.00
	Senior timekeeper	1	2.00
	Timekeeper	2	1.50
	Watchman	5	1.25

Notes: a) 1LS = US$2.00

b) With the exception of casual labor under each classification and the three brick making teams, the remainder represent a core of locally trained skilled and semi-skilled labor available to the Abyei Project, and to the local community.

ANALYSIS

During the division of staff into functional work groups, workshop training was being held under a tree. The completion of the workshop (about 1000 square feet) and project stores (about 400 square feet) in May 1980 allowed for more orderly skill training, instruction with tools, and other on-the-job activities. The on-the-job training method has some advantages and disadvantages. The advantages include:

- Instead of an amorphous group of construction workers, support staff are related to functional skill areas;
- Other project expatriate staff are more integrated into the training function;
- There is skill transfer within functional groups (informal group instruction);
- Most importantly, actual work gets carried out concomitant with training; and
- The training adviser's time is more efficiently used in moving from group to group, in managing tools, supplies, and overall construction support.

Among the disadvantages are:

- Training activities are largely limited to project local staff with little or no outreach to the community;
- There is no formal work plan for multidisciplinary training;
- There has been no assessment of the long-term use of the skills transferred within the local community;
- The full range of training and education activities as stated in project documents is not being met; and
- Local elites do not cite and may be unaware of training and education as a basic component of the project.

Under an EDF grant the ADP was to initiate and supervise construction (through self-help participation) of four schools in areas outside Abyei Town. Initial activities were carried out in the Banthon and Anangadil areas in February and March 1980. No school rooms have been constructed, and the school building program can be considered to have been a failure to date. Failure can be attributed to several reasons:

- Techniques of brick production with variable clay soils were insufficient;

- Staff supervision of self-help was hampered by distances and competing construction priorities of the project; and

- Security problems in the area were also cited by ADP staff as contributing to their unwillingness to work in the area.

From the perspective of local leaders (omdas), the lack of self-help cooperation was attributed to the large amount of work and people needed for brick making. Subsequent firing of brick kilns failed due to inadequate techniques and supervision. This caused a loss of momentum for participation which was difficult to regain. The EDF school construction was cited as an especially disappointing event, since this was one of the few activities having direct impact on the people.

CONCLUSION

The level of achievements expected by the project under this component has not been matched in actuality. To a large extent, the evaluation team feels that insufficient attention was given in initial documents to planning and assessment of educational needs in a formal sense, so as to:

- Differentiate educational needs--school construction, school equipment--from training needs;

- Carry out a manpower assessment of available skills as a preliminary activity; and

- Ascertain skill needs.

The training/education program was too nebulous with no clear perception of client groups and no realistic programming of inputs.

The criticism should not demean the substantial achievements in the on-the-job training that has been given to more than 180 project support staff workers. The kind of training currently being done is perhaps as attuned to the Abyei environment as is possible, with the major exception of its limited outreach to local people not directly associated with the project. As an initial step in extension of the training effort, skill needs and clientele must be identified in the community. For example, the rural council is sorely in need of training for its mechanics, carpenters, and maintenance workers. The Abyei hospital and schools could also benefit from the type of training currently given project staff. Regrettably, delays in the project's construction activities, its limited financial resources, and overworked advisory staff have tended to lower the overall significance of training as a distinct project output.

ANNEX H

LOCAL ORGANIZATIONS

ANNEX H

LOCAL ORGANIZATIONS

OBJECTIVES

The agreement "Memorandum of Understanding," (1978) between HIID and GOS at the initiation of the project called for establishment of an Abyei People's Development Organization (ADPO), (annex B-1). This new locally-based organization was to operate under the guidance of coordinating committees at the national and provincial levels,[1] but it would have substantial autonomy in the management of resources and the implementation of specific project components.

The memorandum stated that the APDO would function as an agency of the Abyei rural council, which would solicit popular opinion, mobilize local support, and advise the APDO on development needs and priorities. The APDO itself would have a three-tiered structure:

- A Board of Directors would be formed under the direction of the assistant commissioner with representatives of hospital staff, the SSU, the Abyei Rural Council, the People's Court, and other local institutions. The board would formulate policy for the APDO, review performance of its staff, and be held "accountable" (presumably by the national coordinating committee) for project performance;

- The managerial staff would organize manpower, funds, and other resources to carry out the program formulated by the rural council and the APDO's board of directors. Administrative functions, communication links with provincial and national authorities, and financial management of all donor and GOS project funds would be carried out at this level; and

- The technical staff would consist of Sudanese technicians seconded from GOS ministries or hired directly by the APDO. They would report to the APDO's managing director and would receive supplements equivalent to 50 percent of their salaries, with this incentive pay being derived from the APDO's budget.

The memorandum anticipated that the APDO's performance would be reviewed after two years by the National Coordinating Committee, in order to determine how its operations might be improved, and whether it provided a model for replication in other rural areas of Sudan.

This revised project paper (Agency for International Development, 1979) drafted in March 1979 but only approved by AID in August 1979, noted that little progress had been made in developing a local organization during the first year of the ADP. The APDO had not been formally constituted, and neither the national nor provincial

coordinating committees had been formed. The revised project paper committed HIID and the Sudanese counterparts assigned to the project to explore organizational options at the local level and to formulate specific proposals by January 1980. As a first step, an advisory committee representing "clans, organizations and people of the Abyei area" would be created to advise the ADP staff. The name, structure and characteristics of the formal organization to be created were left open, but HIID gave this task a high priority:

> We feel that by January of 1980 it should be possible to come up with a concrete set of proposals that would be acceptable to the Provincial Commissioner, to the National Government and to the people of Abyei. It will be important to move ahead with the creation of a formal organization at that time so that it can take possession of the equipment and facilities that will have been provided by then under the Abyei Development Project. (Harvard Institute for International Development, 1979b: 39-40).

This timetable assumed that the ADP as presently designed (representing the first phase of a long-term project) would terminate in mid-1980. However, the revised project paper, when finally approved in August 1979, added sufficient funds to carry the project through June 1981. By deferring the phase-out of HIID assistance, this provision allowed an additional year for identification, creation, and support of an appropriate local development organization in Abyei.

PRESENT STATUS

As of January 1981, the plan of action described in the revised project paper has not been implemented. The administrative linkages between the ADP and national institutions have not been formalized to the degree anticipated in 1979. The reasons for this are analyzed in annex K of this evaluation. At the local level, no proposals have been generated for discussion with the Abyei rural council, and the project advisory committee has not been established. (Agency for International Development, 1979: 39).

There is no evidence indicating substantive progress towards the stated objectives of this project component. Although the research coordinator of HIID (Khartoum) was expected to guide initiatives in this area during his 18-month tenure in Sudan (early 1979 through mid-1980), no written output from his work is at the disposal of the project field team, with the exception of a discussion paper (Huntington, 1980) circulated by HIID in May 1980. That paper deals primarily with the obstacles to generating broadly based local participation in the Abyei area, rather than with specific steps that might enable the project to overcome those obstacles.

The project's relationship with the group farms, which is analyzed in annex C, depends on contact wih committees elected by the farms' membership. The chiefs (omdas) of Ngok Dinka tribal sections whose

lands are affected are represented on the committees by their subordinates (shaikhs), and the four existing farms have been organized along selectional lines. To date, project staff have dealt separately with each group farm committee (no two farms are territorially contiguous), and have not attempted to set up a central committee with representation from each farm.

Contact with local residents at Banton and Anangadil in the school construction program for 1979-80 was channeled through the omdas of the Ngok sections in those areas. (See annexes F and G). The attempt to mobilize self-help labor in these localities met with limited success: the turnout was very low in the early months of the dry season, when many people were occupied with harvesting activities; and when participation increased, the project's brick making program experienced technical failure, effectively terminating the program.

In an interview with the evaluation team at Anangadil on January 20, four of the omdas expressed the hope that the school construction program would resume, and pledged that adequate labor would be mobilized on a self-help basis. Current project plans assume, however, that project employees will play a significantly larger role in this year's school construction program, diminishing reliance on local voluntary labor.

ANALYSIS

Resource Levels

The memorandum and revised project paper made no provision for sustained technical assistance to this project component, with the exception of the research coordinator's involvement, described in very general terms in the latter document. Neither HIID nor Sudanese staff time was specifically programmed for this activity, nor were any funds budgeted for training, equipment, or office facilities in support of the APDO. It was assumed that the ADP staff would act as a group in exploring potential organizational vehicles and formulating a specific proposal.

While the original conception of the APDO envisioned a policy-making role for the rural council and the new organization's board of directors, no assessment was made of decision-making functions and capabilities at the council level.

Strong emphasis was placed on the assistant commissioner in Abyei (at that time, an energetic Ngok Dinka strongly committed to the area's development), but this position has since been downgraded and the incumbent (now titled Inspector of Local Government) has far less authority within the administrative hierarchy, and within the community as well.

This evidence suggests that the magnitude of the task in building an effective local development organization was underestimated at the design state. In the intervening years, the resources that would have

been needed to launch a sustained effort--particularly senior HIID and Sudanese staff time--have been utilized elsewhere. The result is that no further learning has occurred on the issues of local organization that were posed at the start of the project.

Techniques

An issue that divided the initial field team, and has continued to hinder efforts to identify an appropriate local organization, involves representation and coverage of the population in the project area. The choice of a strategy for organizational development depends on the responses to these key questions:

- What are the benefits and costs of extending project services to nomadid Messiriya groups and including their representatives in the local organization(s) that the project might create?

- How can local organization(s) either neutralize or transcend the strong factional divisions among the Ngok Dinka (which were not fully understood at the time the project began)? and

- To what degree should the project serve the interests of merchants, "intellectuals" (such as teachers and civil servants) and others who are not exclusively engaged in agriculture?[2]

To pose these questions is not to imply that simple answers exist; on the contrary, each involves significant tradeoffs and value judgments, so that no purely "technical" formula can be applied. The issues are highlighted here to show the intermediate steps that must be taken in defining the ultimate direction a local organization program for Abyei.

The prospects for positive local response to development initiatives are influenced by the nature and extent of a project's "outreach" capabilities. In the case of ADP, activities to date have been focused on establishing a base of operations, including the construction of physical facilities, with an employment function representing a large resource transfer into the community--almost all of this accruing to the Ngok Dinka. While some on-the-job training benefits have been provided to project staff (see annex G), "action research" implies a process of broad participatory learning with extensive two-way communication between local residents and project staff. Group interviews with farmers, omdas, "intellectuals," and others indicate that little such shared learning has taken place, and ADP staff tended to agree with this assessment.

In situations where viable local organizations already exist, they offer obvious advantages in facilitating the kind of two-way communication mentioned above. But when no such organizational base exists, there usually are alternative ways of enlisting local involvement in "action research." Several opportunities that appear to exist in Abyei have not been exploited:

- Group farm leaders and members have not been fully exposed to the agronomic trials conducted at Duop, and have not been directly involved in selecting the production "packages" that are to be tested on the group farms;

- Traditional Dinka specialists with a reputation for identifying water sources at shallow depths have not been sought out for the input they might give to the ADP's water program; and

- Greater use could be made of local knowledge on stock movements and diseases in developing a design for an animal health program.

While none of these methods offers a panacea for the serious technical questions that must be addressed by specialists on the ADP staff, they might strengthen support for the project by enhancing the credibility and popular comprehension of "action research." Individuals respected for their local knowledge would simultaneously contribute to the project and act as its spokeperson--rather than viewing it from the outside, as they now do for the most part.

Constraints

Any effort to develop a viable local organization capable of sustaining development activities in Abyei, as foreseen in the original project documents, must confront several major constraints that appear unlikely to change in the near future:

- The security situation in and around Abyei remains very unsettled, with incidents of violence (shootings and destruction of property) occurring steadily through the current dry season, and with strong political differences dividing Messirya and Ngok Dinka on the subject of Abyei's future status (specifically, transfer of the Ngok Dinka territory to the Southern Region);

- The political significance of the project, due to its sponsorship by a national figure of local origin (Dr. Francis Deng), appears to be a dividing rather than a unifying factor in conditioning the response of factions and interest groups among the Ngok;

- The limited stock of administrative and managerial expertise at the rural council level, conditioned by a system which transfers very few development resources from the province level to Abyei, poses a major task of capacity building, with attendant costs, if the original conception of a local development organization is ever to be realized; and

- Settlement patterns, seasonal migration, and problems of access in the rainy season all suggest that a centralized multifunctional organization may be inappropriate for the kinds of development activities included in the ADP, which would signal a fundamental change in the strategy for this component of the project.

CONCLUSION

The local organization objectives of the ADP have not been met, and project records do not indicate that these objectives have been systematically pursued. The task was never carefully assessed in relation to the specific constraints affecting the proposed program, the information available on social and cultural processes among the Ngok Dinka[3] and the skills and experience of project staff, including the competing demands on their time. The result was that no plan emerged for either action or research that would lead towards the stated objectives.

In terms of a strategy for generating participation in project activities, leading to the evolution of formally constituted local organization(s), the views of project staff are impressionistic and hypothetical. The staff based in Abyei demonstrate a recognition of the theoretical and practical importance of such a strategy: several have cited it as a key missing element in the project as it now stands. In the absence of any structure or timetable, the project's outreach initiatives have been localized, sporadic, and uncoordinated, they have also been compromised by the technical problems encountered in the specific services that were to be extended, such as water, brick making, and so forth.

While some minor modifications in the project's existing mode of operations would probably improve credibility, a fair and thorough test of the potential for sustained local participation would require a major redesign of the entire project, with a much more rigorous application of "action research" than has occurred in the ADP.

Notes to Annex H

[1] Provisional membership of these committees is specified in annex B-1 of the memorandum.

[2] In the case of the group farms, a deliberate decision was made by HIID and Sudanese staff to exclude those who had regular non-agricultural occupations.

[3] The 1977-78 Socio-Economic Survey did not provide a critical analysis of the potential for and constraints to participation, and did not provide much data on the Messirya, in part because several violent incidents occurred immediately before and during the survey.

ANNEX I

COMMUNICATIONS, LOGISTICS, AND PROCUREMENT

ANNEX I

COMMUNICATIONS, LOGISTICS, AND PROCUREMENT

OBJECTIVES

The "Memorandum of Understanding" (1978) between HIID and GOS calls for the "provision of year-round communication links (between Abyei) and external administrative and financial institutions." The supporting document, "A Development Program for Abyei" (Cole and others, 1977a) treats communication more elaborately, describing the remoteness of the Abeyi area and the seasonal nature of air and road travel, and discusses several alternatives for increased communications within the area and means to promote external linkages.

By mid-1979, the critical factor of communication and virtual inaccessbility of Abyei during the rainy season, both from outside and to some extent within the area itself, was a well-learned lesson. Considerable attention was given in the revised project paper (Agency for International Development, 1979) to exploring alternative routes for bringing supplies into Abyei. Specifically, the communication program was intended to explore alternative routes and means, focusing on the period of inaccessibility during the rainy season lasting from mid-May through mid-November. Early documents suggested Unimogs or bladder-wheeled mud-water vehicles--currently in use in Sudan--as well as hovercraft and airboats. Cost, maintenance and repair, complexity of operation, and expanded use in the area were factors bearing on the proposed "action research" on communications.

The attempt to provide an airboat as a means of rainy season communication is described below in detail, since many lessons were learned which are applicable to the project as a whole. More significant, however, may be the many minor successes achieved, particularly over the last 18 months, in planning supply delivery, establishing procurement linkages, and setting up equipment stores and inventory procedures so as to provide sustainability to the development operations in such a remote area.

This annex treats communication in general terms, combining radio links and various modes of travel with logistics and procurement, describing the method used over the past three years to supply the project with basis inputs, including staff, finance, and supporting, as well as infrastructure, equipment.

PRESENT STATUS

One of the earliest problems arose due to the failure to specify clearly the source and institutional mechanism for disbursing initial Sudanese supporting services to the project in March 1978. The "Memorandum of Understanding" (1978) called for the GOS to provide tractors, spare parts, fuel, health supplies, and so forth. This commitment, without written clarification, drifted within the GOS for several months before responsibility was acknowledged and assumed. Consequently, the early placement of expatriate advisers in Abyei immediately prior to the rainy season in March-April 1978 appears, in retrospect, to have been precipitous. Other than some of the hard lessons of isolation and its impact on an expatriate team, little of substance was learned during the 7-8 months. The initial rainy season could perhaps have been better used in setting up a system for supply and logistics.

Tansportation and Logistics

Reportedly, the only equipment available to the project team on arrival in Abyei in March 1978 was a duplicating machhine, engine oil, a winch, tractor tires, and two inoperable tractors remaining from the provincial mechanization program. For two months transport within Abyei was provided by two Land Rovers on loan from the provincial commissioner, which were returned in May 1978, prior to the rainy season. In July 1978, the project purchased three Massey-Ferguson tractors which were used for both transport and tillage in the area. Two Land Rovers were purchased in November 1978 and arrived via Nairobi in December 1978. A DAF heavy-duty truck was made available in the same month by the GOS.

Air transport was erratic and undependable, relying on occasional air charters and a UNDP supply plane. Approximately 10 flights were chartered, principally to accommodate the movement of staff into Abyei. The privation, isolation, and lack of mobility in 1978 contributed to problems of staff morale and stimulated subsequent activities to plan for and establish more reliable transport and procurement links.

A key factor in 1979 was an inventory and projection of needed equipment and supplies carried out by the construction consultant, Peter Parr, and subsequently by Dick Fuller, the team leader. This allowed for some leeway to overcome the severe local constraints. Additional funding allowed for the purchase of two DAF trucks through the GOS, an additional tractor, and several trailers for the tractors. Approximately 20 souk lorries were hired to supply the project during the year.

The two DAF trucks were in fact purchased to provide the supply linkage between Abyei and Khartoum. At the time of purchase these were the only vehicles available through the

Gvoernment stores and were purchased with local currency on a no-option basis. The gearing ratio has been found to be inappropriate to Abyei conditions, proving to be too high. One DAF has been overturned and both have been subject to axle breakage. Spares are available only through Khartoum, and demand for them exceeds supply. The two DAFs have had to be confined to local work in the area.

Many alternatives to improve logistics and procurement were initiated in 1979, some of which were successful. The successful lessons which might be applicable to projects in equally remote areas include:

- Prepacking or containerizating to fit the standard souk lorry. Such containers would also be useful for temporary storage;

- Placing a full-time purchasing officer or clerk in the closest points of access to international transport (Khartoum). This person must have sufficient skills to make independent decisions regarding the interchangeability of parts;

- Avoiding the railway. The tendency for shunting, off-loading, and delay has almost invariably resulted in shortage; and

- Allowing considerably greater time for ordering, reordering, and managing the movement of goods then is usually anticipated. This represents a relatively large portion of scarce staff time when compared to the size and funding of the Abyei project.

The remoteness of the project and inputs of short-term staff consultants have also pointed out particular problems. Until the establishment of a regular biweekly USAID flight which stopped at Abyei, flights were difficult to arrange and overland travel might require up to five days. Consultatns were also required to bring with them any specialized equipment, or order it considerably in advance, since availability could not be assured in Sudan. Consultants with prior experience in remote areas usually were knowledgeable enough to have everything they needed prior to arrival.

Considerable lessons have been learned through trial and error, both at the project and in Cambridge, to anticipate future needs and prepare for them. Delivery times range from two weeks to three months for goods available in Sudan and one to six months for goods obtained from abroad. A constraint at present appears to be lack of funds to hire souk lorry merchants to travel to Abyei except on an irregular basis. At present, souk lorries must travel from Muglad to Abyei in convoys accompanied by military personnel, due to the security situation.

Stores and Procurement System

Beginning in mid-1979, the project was given its own radio frequency which allowed daily checking and reconfirming of orders with Khartoum, and via telex to Cambridge or London. By January 1980, following the arrival of the vocational training adviser, a catalogue system was established by the team with identical reference volumes of major suppliers (Granger, Langley, Broadhead, Garrett, McMaster, Carr) in Khartoum, the London procurer (Lifeline) and HIID. This allowed for crossreference of purchase order by page, item number, name, description or catalogue description, with fewer errors, greater speed, and interchangeability. The system was supplemented by parts books and workshop manuals for all pieces of heavy equipment, vehicles, and appliances.

Especially commendable is the establishment of a stores inventory system based on index card procedures. All supplies in Abyei, except for minor household consumables, are inventoried on arrival, indexed on cards, and stored by class of goods: administrative, agricultural, construction, health, transport, workshop, and waterwells. All supplies are released only through a stores requisition form as authorized by an appropriate local or expatriate manager. The storekeeper can thus account by index card for turnover, seasonal use rates, and ascertain fixed levels for resupply. The abilities of the storekeeper are a key factor to the system's success. In this instance the required skills are not formal training but a facility for speaking English, Arabic, and Dinka. The storekeeper, a local, is, of course, assisted by the vocational training adviser and the two project managers in the field.

Purchase of the Airboat

One of the more controversial decisions of the project was the purchase of an airboat as a test of alternative transport modes during the rainy season. The reported reasons for the purchase include:

- To test the feasibility of supply by river via Bentiu;
- To provide local transport to outlying areas during the rainy season;
- To provide access to a rail connection on the Bahr el Arab (River) upstream; and
- To provide an assured means of removing staff from the area during the rainy season in the event of hostilities, sickness, or accident.

The last reason should not be underestimated as a major factor in the decision. The project had only recently experienced the 1978 rainy season with no transport, only twice weekly radio

contacts to Khartoum, and little opportunity for outside communication. The prevalance of hostile actions (three shooting incidents were reported during the two-week visit of the evaluation team), posed a genuine concern to HIID for the well-being of its staff.

The decision to purchase the airboat was quickly taken in early 1979, in order to ensure its arrival before the start of the rainy season in June/July 1979. Consequently, little time was given to examining alternatives modes. While Unimogs, Hovercraft, and airboats are all reportedly used in the Sudan, the Harvard team did not witness an actual demonstration. The airboat was selected on the basis of its lower cost, high carrying capacity, and successful experience in Florida. In retrospect, there were several unanswered questions:

- During what period of the year was the airboat of practical use and for how many weeks; months?
- What kind and quality of fuel was required?
- Who was to operate the equipment? and
- Was there an investigation of the navigable channels and/or constraints to its use in the area?

It has subsequently been found that the local people build small dams (bunds) or fish traps (weirs) on nearby watercourses which would have limited the airboat's usefulness had it been operable on arrival.

Initial problems were faced in delivering the airboat. It was proposed to truck the airboat to Kosti and then proceed via river nagivation to Bentiu and then to Abyei. This idea was abandoned, since it was not known how much fuel would be required for the trip, or was there any local knowledge of which channels to take to reach Abyei. It was subsequently decided to ship the boat via rail to a station near the Bahr el Arab River and come down river to Abyei. A rail strike stopped the boat some distance from the Bahr el Arab. Nevertheless, the consultant attempted to truck the boat to the river in August 1979, but found insufficient water to float the boat. It was later transferred to Muglad and stored with Chevron.

In the following dry season (February 1980), Chevron agreed to transport the airboat to Bentiu to test its feasibility. It was tested by project staff over a period of seven days. The test showed the fuel consumption higher than factory specifications, although an appropriate fuel mixture was found. Moreover, the airboat had features that would have to be adjusted to local river conditions in order to ensure constant visibility. Operation was sufficiently complex to question the capability of training local

staff to reasonable safety levels. The project decided to sell the airboat. Negotiations with Chevron were unsuccessful and the airboat was transferred overland to Abyei. The airboat consultant returned in August 1980 to test the airboat in local conditions but found that the crankshaft was broken and the airboat inoperable.

The airboat saga is one of inexperience and misfortune. Nevertheless, it is also an example of how "action-research" should not be conducted:

- The decision was taken in Cambridge with little consultation with field project staff;
- There was little or no participation by local (Sudanese) staff in the research or decision;
- Investigation of alternatives were cursory and, in retropesct, inadequate;
- The appropriateness of the technology and its use under local conditions appears not to have been investigated; and
- The special consultant advising the project, while perhaps technically competent, was inexperienced in operating in a foreign environment.

CONCLUSIONS

The airboat alternative and its failure should not overshadow the many successes the project has achieved in the area of improved logistics and procurement. The airboat perhaps reflects more on how decision were taken, on the project management situation between Cambridge and the field, and on some of the misconceived applications of "action-research," than as a test of improved communication.

The remoteness of the project area is in fact a crucial variable within the "action-research" methodology for each of the project's major components. Delays or failure in project outputs can be attributed to delay in the delivery of health supplies, construction materials, tools and hardware, agricultural implements, and staff with technical expertise. Decision to proceed with a given development strategy are at best based on an expected probability of equipment delivery within a given time range.

The project team has greatly increased the probability of delivery, decreased the time, and limited the number of intervening constraints over the last three years. Even so, many constraints remain. It should be noted that initial delays can be attributable to Harvard's inexperience in field project implementation and overseas procurement.

It has been learned that advanced planning is essential. At present, the field project team leader is attempting to order supplies six months in advance of actual use and recommends as much as a year for certains items, given the unique situation in Abyei. This implies adequate inventory and storage which has been established in Abyei. In addition, noteworthy achievements over the past 18 months have been made in:

- Ascertaining local availability of goods and their limitations;
- Increasing knowledge of the range of technical equipment available and variable types of equipment;
- Increasing knowledge of procurement in Sudan, including billings, customs, language, systems, transport availability, and for lack of a better term, "local color"; and
- Knowledge of the maintenance records and dependability of various types of equipment.

This has been achieved at some cost to project staff time, and more importantly to the focus of attention on major project objectives. That communications, logistics, and procurement have been improved to relatively adequate levels over the past year given the constraints of funding and the environemtn is no mean achievement. As a basic conclusion, one foundation for project continuity has been established as a result of these sustained efforts.

ANNEX J

MONITORING AND EVALUATION

ANNEX J

MONITORING AND EVALUATION

OBJECTIVES

The "Memorandum of Understanding" (1978) calls for semiannual progress reports to be submitted to the GOS and to USAID/Khartoum. The reports are to include the status of work, progress made, difficulties encountered, and recommendations on future project activity. Recognizing the experimental nature of the project, the scope of work calls for careful evaluation of results, including relative achievements of specified objectives, positive and negative social effects, and evaluation of the social economic, and organizational factors which hindered or promoted program operations.

In the "Progress Report and Request for Grant Amendment" it is stated that "from the time this project was conceptualized, it was understood that its research and experimental mode was to produce a design for a major development undertaking in the area," (Harvard Institute for International Development, 1979: 54). It would have been useful for subsequent evaluations if this "understanding" had been specified, and a format, schedule, and phasing of design activities formally established. Nevertheless, the revised project paper gives considerable attention to the "generation of specific information on the rural development problems and opportunities in the project area" (Agency for International Development, 1979: 52).

Information on the Abyei region and data to support development strategies for agriculture, health, nonformal education, construction, and forming of local participatory organizations were to be gathered through:

- Trip reports of project-related USAID and HIID personnel;
- Project review and evaluation memorandums and reports;
- Anthropological and socioeconomic baseline and project evaluation studies by Khartoutm University and HIID researchers; and
- Consulting reports of specialists related to particular components of the project.

The revised project paper cites as a specific output of the information system the publication of accumulated data and insights through the Abyei Special Studies Series (HIID). Suggested topics for attention included:

- Socioeconomic profile of the Abyei district;
- Potential for draft animal use;
- Preventive health strategies;
- Improved strategies for rural development;
- Local organization and participation; and
- A manual for locally based construction.

In addition, each project component had specific requirements for monitoring, evaluation, and analysis. For example, the health program was intended to "monitor the health status of the population both as a way of assessing the impact of other project activities on the well being of the community and to explore opportunities for increasing beneficial health effects." (Agency for International Development, 1979: 22). Record-keeping systems for collection of basic data on visits, services, and activities were prescribed as essential.

Critical too any evaluation effort is the interface of raw data with definitions of research purposes. The research strategy and philosophy of inquiry are discussed in the revised project paper (Agency for International Development, 1979: 44-51). The strategy envisions a research coordinator located in Khartoum who will analyse primary data, offer comments on their quality and utility, and elaborate on methods and strategies to follow in gathering data. Indicate questions for each component of the project are outlined as a separate annex of the 1979 document.

PRESENT STATUS

For a project of relatively limited scope and duration, limited funds, and limited staff inputs, a large amount of written material has been generated. Attention is given here to material designated by HIID project staff or USAID as having special significance. Interestingly, threading through most all reports and papers is a concern for project continuity: a kind of self-justifying argument for the relevance and importance of the issue dealt with. This is a distracting feature when a reader wishes to asses how the data might be used as a technical basis for design options.

GOS Team Reporting System

A counterpart system of monitoring is practiced where the Sudanese codirector reports monthly to the Ministry of Agriculture about activities, difficulties, and problems confronted in implementation and requests supporting actions, if required. These reports are prepared in Arabic, but are made available to the HIID team and USAID for translation.

The GOS monthly reports follow a standard format and cover such topics as administrative activities and problems, the health program, construction, the EDF school program, water drilling activities, agriculture, financial status, and general problems. Copies of the reports are distributed to: the Ministry of Agriculture, Dr. Francis Deng, the provincial commissioner (Kadugli), the Council of Ministers, and the Abyei Rural Council. Formal feedback from the monthly reports is not expected.

If specific action is required the codirector writes a separate letter detailing the nature of the problem and support required. The Technical Advisory Board consisting of central agency representatives which was initially expected to review such reports has not met since May 1978. No regular system for continuing review of the Abyei Development Project's status has been established.

Sudanese project staff have not been involved in the writing of research analyses of technical data. When questioned about the research aspects of "action-research," they acknowledged that this was more the function of the expatriate team, but that data results and the interpretation of data were discussed collaboratively.

In spite of the lack of a formal information-sharing system, informal feedback is extensive. Based on responses to the evaluation team's questions, officials at both local and provincial levels are informed to a surprising degree about what is happening in Abyei.

The HIID Reporting/Evaluation/Research System

The scope of information gathering and the methods of data collection and analysis can be characterized as extensive. Written materials about the project's status, activities, and meaning have been produced in:

- Diaries of field staff giving initial impressions and chronological changes;
- Files, memorandums, and correspondence, much of which deals with the substance of action-research as an implementation approach;
- Monthly reports prepared by all expatriate staff;
- Consultants' reports including field notes, analyses, and recommendations;
- Agricultural trials;
- Internal evaluations by HIID staff;

- Published reports compiling and synthesizing data from project activities; and

- Reports which attempt to tie in secondary literature with data from Abyei.

Several published studies have been generated by the project's staff. Studies reviewed were: Cole and Vail, 1980; Huntington, 1980; Hayes, 1980; and Larson, 1980. Preliminary studies and draft papers have been prepared covering the following topics:

- The mixed husbandry agricultural economy, (Payne and Niami, 1979);

- The commercial, service and small industry support system (Cole, 1980);

- The design and implementation of rural development in remote areas (Cole and Cohen, 1980); and

- HIID self-evaluations (Thomas, 1980; Maybury-Lewis, 1980).

The studies vary in terms of quality, level of generality or specificity, and usefulness. Usefulness might be defined in terms of a prescription quality. That is, whether the data are presented and organized in such a way as to guide action as a consequence of the research. Judged in this way, the conclusion is mixed but in the aggregate the research output to date has been more descriptive than prescriptive. Many lessons have been learned and are cited, and knowledge gaps have been filled in some instances. However, there is a desire that more could have been said about what to do instead of what not to do.

Using the benchmark of usefulness, it should be noted that many of the research outputs have not been finishhed, which raises the issue of timeliness. The seasonality of the area's activities, remoteness, and the fact that synthesis and analysis are carried out in Cambridge raise the question of whether analysis and action are linked sufficiently so as to generate timely modification or response to research activities. While it has been agreed that "action-research" is a unique approach to guiding decisions in the field, the case of Abyei is not strikingly different from day-to-day modification of plans and processes in any rational implementation strategy.

Progress reports are prepared by the HIID team on both a monthly and semiannual basis. Monthly reports prepared by each team member are thorough, generally accurate, and contain fascinating descriptions of some of the frustrations of field implementation. Particularly interesting were the observations by each newly arriving expatriate team on what was "programmed" in the project's formal documents and what would reasonably be accomplished, in his/her professional opinion, in the Abyei

environment. In almost all cases the team member rejected as unachievable much of the rhetorically stated purposes and outputs, and selected a work program more consistent with available resources and skill levels. These "inception reports" one or two months after arrival could have formed the basis for formal discussions between HIID and USAID/Khartoum to establish a more realistic work plan and a set of criteria with which to evaluate achievements. But such formalization of a concensual work plan was consistently resisted by HIID's project coordinator.

In the absence of any formal agreement of what is reasonable, the only basis for project accountability is a subjective assessment of each professional's judgment.

ANALYSIS

Resource Levels

One cannot describe the information system of the ADP in terms normally associated with project management, feedback and response, and staff accountability and control. The separation of project coordination functions in Cambridge from field project management in Abyei is so great, that few precedents exist. Moreover, there was no clear specification of the managerial responsibilities of the team leaders in Abyei.

In theory, the frequency of progress reporting is linked to the time required for management response. This makes little sense when written communication may not occur for months at a time. One would have expected a person with project management skills and experience to have been placed in the field with broad discretionary authority, if not control, over project inputs. Such skills and experience were conspicuously lacking in the initial year. While this has been improved over the past 24 months there are few controls to insure that field decisions are in line with overall strategy. The inaccessibility of Abyei gives a certain freedom of action in the field, but in the absence of timely response from the HIID coordination team, little guidance or control.

The introduction of a research coordinator in Khartoum during the period from January 1979 to September 1980 appears to have been an effort to provide the guidance and direction lacking in the initial year. However, this was not a full-time position. There is little written evidence that the research coordinator provided the appropriate formats, the research methods, the design of explicit criteria of success or intermediate benchmarks, the prescriptive focus for each technical component, or the management reporting means to improve the field team's capability to correct errors and anticipate delay. Field staff were recruited and placed based on technical functions: agriculture, health, construction, and training. No long-term staff had specific information skills.

Techniques

Perhaps the most glaring weakness of the ADP as a design effort has been the virtual absence of data relating costs to outpupts (see, for example, annex F relating to construction activities). The budgets prepared for yearly operations are broken out by line-items, with amounts allocated for salaries, commodities, travel, and so forth. To ascertain the costs associated with the introduction of a given technology and to recommend this over an alternative "low cost" technology requires comparative cost data. These data are absent. A program budget would imply a detailed work plan with specific outputs related to available financial resources. Even if poorly administrated, this type of budgeting exercise might have shown project expectations to exceed project resources.

As noted previously, the research output is generally more descriptive than prescriptive. Considerable emphasis is given to the extraction of lessons learned, with somewhat less emphasis on the meaning and interpretation of these lessons. In view of the stated understanding that the research mode was to produce a design for a major project in the area, the evaluation team has noted an overall lack of technical data in support of trials, baseline data for surveys, or maps and charts for land use analyses. Reportedly, these are maintained in Cambridge, but are not physically available in Abyei for use by the field team. In some instances, variables influencing experiments are not stated and there is a general lack of rigor and control of data generated during agricultural field trials. Casual experimental design, loose control over inputs, and an inadequate basis for costing, decrease the level of confidence in the analyses and their usefulness for design.

No formal evaluation of the impact of the project on the Abyei community has been undertaken. Impressions of how the project is perceived by the local community are gleaned from local staff feedback. This system appears to operate well given the size of the community, there are inherent weaknesses as a consequence of multiple roles and interests among staff. A local development organization has not been established to date (see annex H).

Field project management has been the subject of considerable controversy between the donor and the grantee. What is most obvious is that little thought has been given to management objectives, or why one would want to be concerned with the records, controls, information formats, work plans, timetables, schedules of inputs, and so forth as crucial variables that bear on the replicability, sustainability, and design of future projects. The absence of work plans, program budgets relating cost to outputs, or readily available records of staff inputs appears symptomatic of the fact that management was consistently underrated as a factor in project implementation.

On arrival, the evaluation team made an effort to reconstruct a schedule of staff inputs over the project's life. This is attached as table J-1). That these data were not readily available in the field was surprising. Of course, the team leaders and codirectors of the project know what has happened, who came when, and what they did where. Meetings are held weekly, and daily interaction would preclude the need for formal management interaction on a project of this size. It would, however, be useful for future design if the basis for decisions regarding project priorities and phasing of inputs would had been specified and recorded. At present, it appears that the phasing of activities was premised almost solely on logistical support. While this may be a legimate constraint on project-based decision making, a schedule with anticipated constraints and obstacles would perhaps allow one to more systematically assess the importance of the logistic/transport bottleneck.

Constraints

Effective management reporting and project monitoring were greatly influenced by the distance, remoteness, and inaccessibility of the Abyei project area. The "action-research" project strategy with its built-in flexibility was at times subject to varying interpretation at Cambridge and in the field. The distance and lack of communication served to exacerbate the varying perceptions of what was of importance, the order of priority of certain actions, and what was expected as the project unfolded.

The pastoral nature of the target group, transport availability, limited access to outlying areas due to insecurity and hostilities, and the range of skills of staff also served to constrain management's prerogatives in carrying out the project's stated aims.

CONCLUSION

Monitoring and evaluation, and the establishment of management systems and controls were not necessarily constrained by the funding levels of the project. These functions required greater attention than was allocated. Guidance for research design, attention to the phasing of action-research activities, and more systematically scheduled work plans would have alleviated a situation in which too much was attempted with two few resources.

The research products were expected to be a major and important output of "action-research." Many have not been completed. The overall research effort has not as yet achieved a common focus that could be used as the foundation for a major phase-two design. An organizing and synthesizing study of the disparate research inputs represents at present an unfulfilled opportunity.

Table J-1 Abyei Development Project - Schedule of Project Inputs

Functions/Staff	1977	1978	1979	1980	1981
Design & Pre-Project					
L. Gorden	May 1976				
S. Joseph	May 1976				
D. Cole					
R. Cash					
R. Huntington					
J. Villaume					
D. Sharry					
Socio-Econ. Survey Team					
Harvard Inst. Intl Dev.					
Project Coordinator		D. Cole			
Agricultural Specialist		C. Wynn		R. Fuller	
Health Specialist		Larson		A. Byerly	
Training Specialist		Gulick	Fisher	W. Donovan	
Construction/Logis.-Admin.			P. Parr	J. Sharp	
Drilling Adviser			Eaton	Claybaugh	Eaton
Research Coordinator			R. Huntington		
Topo-Geographic Survey				Hayes	
Trad. Agric. Survey				J. Ackroyd	
Livestock Surv. Anthro. -Husbandry				M. Naimir	W. Payne
Mech. Agri.		Seals			
Air Boat Operator				Brodie	
Radio Commun.		Patterson			
Sudanese Staff					
Project Director		Sidig Abdallah Abdul Aziz			
Deputy Director		Alor Deng		Kvol Arob Kuol	
Training Officer		Mariano Awet Ayong			
Finance Officer		Bagat Minyan Chan			Shafi Amed
Agricultural Officer		Kuol Arob Kuol		Also Dep. Dir.	
Comm. Dev. Officer		Abdel Nasser Dav Alei			
Livestock Officer		Aquek Ngor Kual			
Health Officer			Salvatore Atem		
Forestry Officer		Fathei El Sedig Jamil			
Anthro. Research			Mohd. Abusabah		
Process Evaluation					
HIID (Cole)		Cole	Cole	Cole	Cole
HIID (Other)		Cole, Yail	Cash, Cohen, Yail	Thomas, Maybury-Lewis	
AID			Weaver	Weaver	Wooton, Mudge
External					DAI
Finance					
USAID US$	$170,000	^ $495,000	^ $702,000		^ $105,000
Sudan Govt £S		^ £S 30,000 ^ £S 75,000	^ £S 50,000	^ £S 27,500	
Local Curr. £S		^ £S 225,000	^ £S 300,000		
Budget/Expend.					

Code: Abyei; Khartoum; Elsewhere

On a more positive note, the monitoring, evaluation, and research effort has produced a wealth of interesting data on working in a remote rural community. Several lessons have been learned, some rather significant, and knowledge about the area has been expanded. There is an opportunity to do much more with the data. Monthly reports show conscientious concern of stafff to constraints and illustrate several good ideas. The overall research effort has generated some interesting and potentially useful descriptive studies, but the level of confidence in the research analyses for the design of a second phase to the ADP is not yet present.

ANNEX K

ADMINISTRATIVE LINKAGES

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ADMINISTRATIVE LINKAGES

OBJECTIVES

Preliminary studies by HIID emphasized that "any development program that bypasses the local administration will fail in its ultimate objective of providing stability in this meeting-ground of North and South." (Cole and others, 1977a: 4). The overall organizational arrangements for the Abyei project were expected to achieve the following aims:

- To demonstrate a national commitment to rural demonstration in traditional areas. Additionally, Abyei had a symbolic role in support of a national policy of solidarity and unification between the north and the south;

- To establish a permanent institutional base to insure continuity of the government's commitment for rural development, in Abyei in particular, and in the traditional sector in general; and

- To provide an organizational framework to test a new approach to rural development that linked policy planning, technical support, local mobilization and participation to identifiable institutions at the national, provincial, and local levels.

The proposed organizaional arrangement represented a new approach to rural development that did not fall within the normal range of responsibility of the existing ministries and governmental bodies. Organizations would have to be created, roles and responsibilities identified, and institutional structures supported in order for these aims to be realized.

The "Memorandum of Understanding" (1978: annex B-1) envisioned three coordinating and oversite bodies to facilitate the implementation of the project and to monitor its progress:

- A national coordinating committee--comprised of high level representatives from the several ministries involved, including the Minister of Agriculture, Minister of Planning, Minister of State for Foreign Affairs, the Provincial Commissioner for South Kordofan, and high level representatives from other ministries;

- A provincial coordinating committee--to be established by the provincial commissioner and comprising those assistant

commissioners and other agencies who were most concerned with the channeling of personnel and resources to the Abyei Development Project; and

- An Abyei Peoples Development Organization (APDO)--consisting of a board of directors, managerial staff, and a technical staff. This advisory body was to provide a mechanism for soliciting popular opinion concerning development needs and priorities, and help to mobilize community resources in support of project activities (see annex H).

By mid-1979, the progress report and grant revision (Harvard Institute for International Development, 1979b) sought to more clearly identify roles and organizational responsibilities for the project. Supervisory responsibilities were identified and charted for each institution and coordinative functions were outlined. The National Coordinating Committee (then termed the Supervisory Committee) was to be supplemented by a national technical committee, incorporating representatives from USAID/Khartoum, HIID, and representatives from the ministries and agencies involved in support of the APD.

PRESENT STATUS

Few of the organizational arrangements and administrative links originally envisaged for the ADP have been established or are functioning in the manner originally expected. The Supervisory Committee of Ministers was convened in May 1978. The meeting appears to have been instrumental in legitimizing the project, securing the release of Sudanese funds, allocating staff for execution, and demonstrating a high level of political commitment to the project area and its activities. The Supervisory Committee met only once, however, and was not successful in generating support for the ADP at the provincial level.

The functions originally intended for the technical committee for the ADP are presently carried out as needed by the director general of planning in the Ministry of Agriculture. The committee has met infrequently and does not, in fact, review the status and progress of the ADP on a continuing basis.

The mid-1979 progress report notes that "the role of the Provincial Commissioner in Kadugli in relation to the project is not well defined," and that "there is a continuing need for close contact and consultation with the provincial authorities." (Harvard Institute for International Development, 1979a: 58). Subsequent reports suggest that responses by provincial authorities requests for assistance and material support in the areas of well drilling, provision of health supplies, and education were not forthcoming. At present, workable

administrative linkages have not been defined and there is little information to suggest that South Kordofan Province can, or is willing to, support the project on a sustained basis.

The creation of an APDO as a participative and mobilizing institution for generating local initiatives has been frustrated (see annex H).

The difficulties encountered in establishing arrangements and linkages for continuing adminstrative support can generally be attributed to both structural and attitudinal factors within the Sudanese bureaucracy. Abyei is viewed as a "national" as opposed to a "provincial" agricultural project. Its high level of political sponsorship and overriding policy objectives in an area of ethnic tension give it a political visibility, and a "special" status not necessarily compatible with the small scale of the effort.

Organizational features have evolved that fall outside of the range of normal administrative activities. For example, technical staff for implementation are seconded from central ministries. Also, project funds are allocated directly into a project account without disbursement through the provincial government. This occurred after initial difficulty in gaining release of funds for the project at the provincial level.

From the perspective of provincial authorities, the integrated rural development approach of the ADP, especially its participatory, and flexible mode using action-research, is untried and little understood. The local administrative norm is one of functionally discrete project activities, such as mechanized farming, with little integration of social service delivery. Provincial developmental needs are normally determined by the availability of financial and technical resources as ascertained from above.

The distance and physical isolation of the Abyei project from the South Kordofan provincial system presents a major barrier to communication, and consequently to both understanding and support for the project. There has been little official contact between Abyei and Kadugli concerning the project and little exchange of reports or expectations on the part of both. The provincial coordinating committee which has been established to review all agricultural projects in South Kordofan views Abyei as a relatively minor project in light of its small size relative to other projects in South Kordofan and its external source of financial support.

The lack of close or continuing contact has resulted in conflicting views. South Kordofan authorities view the ADP as "being taken care of" by national authorities and resources. The ADP on the other hand perceives itself as deliberately ignored and deprived of expected provincial support.

ANALYSIS

Resources Levels

Much of the literature on agricultural development in the Sudan emphasizes the limited administrative capabilities available for the coordination, planning, budgeting, and implementation of plans. South Kordofan Province is not an exception in this regard. It lacks both staff and funds commensurate with the size and developmental needs of the area.

The ADP was also lacking in funds and experienced staff to accomplish the broad scope of objectives planned. It was initially budgeted as a pilot effort, with a specific area focus and an innovative approach. Given its mandate, little staff time was devoted to creation and strengthening of supporting administrative linkages.

Techniques

In retrospect, it appears that much of the concern over provincial level support occurred after the ADP design and its objectives were set and approved at the highest political levels. The "special" political objectives of the project were perceived as precluding tradeoffs or compromise to achieve mutual administrative interests and commitment. Yet, discussions with provincial officials suggest that the ADP was perceived from its inception as failing to give adequate attention to incorporation of the Messirya population in its activities.

The organizational assymetry in terms of the level of governmental responsibilities, power, and administrative prestige envisioned for overall administrative supervision suggests that there were major weaknesses in the organizational design. It cannot reasonably be expected that a committee of ministers would devote continuing attention to the implementation problems of what is a very small project in the national context. Moreover, the "top-heaviness" perhaps stifled initiatives and objections from lower-level administration officials.

The process approach to integrated rural development in Abyei was not, and still is not, understood at the provincial level (and in large measure even at the local level in Abyei). The process model implies that intermediate administrative supports and commitment are incorporated into the design and understood prior to execution. One must question whether the initiatives to build support in Kadugli were not both late and inadequate. Instead of attempting to generate an understanding of the Abyei model and its objectives at the provincial level, a radically new approach appears to have been imposed and support subsequently sought.

In retrospect, there are few administrative incentives provided by the Abyei project as a basis for building national-provincial-local linkages. The major incentive is national political commitment and high level support for an overriding policy objective. On the other hand, in bureaucracies high political visibility means high political risk. Disincentives are many: little money, an untried approach, new organizational arrangements, and little prior knowledge about what the ADP intended to accomplish.

Constraints

Given the distance from Kadugli to Abyei, seasonal inaccessibility, and limited provincial administrative capability, it is problematic whether closer administrative ties and provincial commitment to the project's aims could have substantially increased the level of material support. On the other hand, closer contact and continuing efforts to keep the provincial government informed would probably have highlighted for the ADP the importance of trying to achieve a more balanced approach among the contending ethnic groups (Dinka/Messirya).

CONCLUSIONS

The present administrative situation should be examined in view of the overall aims--to develop a national commitment to rural development in the traditional sector, to establish a permanent institutional base for continuity, and to test a new approach linking national, provincial, and local levels. Lack of success in building viable and sustained administrative linkages has led to a situation where there is little understanding of the objectives and purposes of the integrated rural development model tested in Abyei. Lacking at provincial and local levels is the conception of rural change as evolutionary, continuing, and incremental. The ADP was not built upon a complementary program of provincial investments or commitment in the Abyei area, and there is little likelihood that the project could survive without the infusion of resources, both technical and financial, from national levels. Therefore, if the ADP were to continue under the supervision of South Kordofan one could expect that the traditional model of high capital inputs for mechanized agriculture, with little integrated service delivery, would be the development model chosen.

ANNEX L

USAID/KHARTOUM MANAGEMENT OF THE ABYEI PROJECT

ANNEX L

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The previous annexes have focused on the roles of HIID and the Government of Sudan in project implementation. The purpose of the annex is to analyze USAID/Khartoum's management performance in the ADP. The first part examines USAID's involvement in the preimplementation process of project identification, design, and approval. The second part describes the performance of USAID in its subsequent implementation; the third part notes inadequacies in that performance.

PREIMPLEMENTATION

To a newly reestablished (August 1976) mission with very few personnel, the Abyei Development Project seemed appealing for several reasons:

- The project promised national visibility and an opportunity for rapid start-up;
- The low-budget approach created an opportunity to avoid delays in the AID/Washington approval process (at the time, projects funded for less than $500,000 were authorized for mission approval);
- USAID/Khartoum was presented with a ready-made proposal by HIID and Francis Deng, demonstrating high-level political support and a link to a prestigious university;
- The proposal fit the "New Directions Mandate" guidelines--beneficiaries were in a poor, disadvantaged area not previously supported; and
- The project's small scale seemed to indicate limited risk by not locking the mission into a major multi-year commitment. Thus USAID could retain program flexibility.

Countering these apparent advantages, the Abyei project presented several potential disadvantages:

- Almost all the information on the potentials and problems of the project area had been interpreted for the project planners by parties with vested political and economic interests;
- HIID had no track record in the implementation of integrated rural development projects;

- Operating program grants (OPGs) are usually awarded to institutions with established records in the execution of previously tested and "proven" activities. The Abyei project proposed multiple activities which were open-ended, due to gaps in information and technological uncertainties;

- Such a project imposed serious budgeting problems for USAID, problems which were not successfully analyzed at the time. In the six months between the submission of the design and the approval of the project paper, the mission did not make appropriate adjustments in the scale or scope of the project activities to a level more consistent with available resources; and

- Even assuming that the Abyei project would be relatively trouble-free (a dubious assumption at best), standard OPG arrangements do not provide for the type of reporting, monitoring, and evaluation procedures that would have maximized the payoff to USAID's emerging country program from what was learned at Abyei.

On balance, the perceived advantages of the ADP's start-up mode were substantially outweighed by the disadvantages. This conclusion does not depend on hindsight. Greater forethought could and should have been exercised by USAID before any implementation funds were committed. Although HIID has emphasized that initial funds were released months later than originally planned, the interval was not used to correct weaknesses in the strategy of funding a loosely defined "ready-made" project through an OPG.

IMPLEMENTATION

Field operations at Abyei began late in March 1978. At that time, USAID had only six direct-hire staff, and its country program was on the treshhold of rapid expansion. The ADP was the first significant rural development effort in USAID's portfolio, and it received greater attention from the onset than its size and funding level normally would have warranted.

In May 1978, two months after the HIID team was placed in the field, USAID's general development officer called the team to Khartoum in an attempt to establish a work plan for the forthcoming rainy season. No firm agreement was reached, and HIID's project coordinator later disavowed the results of the meeting.

Subsequent correspondence during 1978 and 1979 between the mission, AID/Washington, and Cambridge illustrates that problems were recognized early. Some specific issues that arose during this period include:

- Concern over the lack of clear articulation of the project's purpose;
- Inadequate communication by the Abyei field staff with the GOS in Khartoum;
- Difficulties with logistics;
- Poor project accounting; and
- Poor coordination of project activities with those of other agencies active in the region.

A rural development officer (RDO) was specifically assigned to monitor the Abyei project in April 1979. At that time, the RDO and the mission director requested a work plan specifying the project's outputs and linking these to current activities. This was not forthcoming. In mid-1979, HIID posted a research coordinator for the project in Khartoum. Although this position was a part-time one, it afforded USAID more opportunities to discuss project plans, activities, and accomplishments with a HIID representative.

During 1979, some of the project's implementation problems and perceived shortcomings of HIID's approach were broached by Dr. Francis Deng to the assistant administrator for Africa in AID/Washington. As a consequence, the amount of project-related communication between Washington and Khartoum increased significantly.

The mission RDO visited Abyei in January 1980 to carry out a midterm project evaluation. The project evaluation summary (PES) that resulted was never formally approved and was not circulated outside the mission. It raised concern that:

- The indicative output targets set in 1979 would not be met;
- The trials and research would not produce reliable and valid data;
- The structure and style of HIID's management of the project was weak; and
- The appropriateness of the research methodology for meeting the needs of the local beneficiaries was questionable.

While the controversial PES was being reviewed in January 1980, the mission offered to provide outside (non-HIID) assistance, together with additional funding, to strengthen the research dimensions of the project. This offer was turned down by HIID'S project coordinator. No satisfactory resolution of the

work plan issue was achieved, and HIID-mission relations remained on an adversary basis over the subsequent year. This problem is reflected in the tone and argument of the HIID reports authored by Dr. David Maybury-Lewis (1980) and Dr. John Thomas (1980) following their visits to Abyei in May 1980.

One consequence of this estrangement was the withdrawal of both USAID/Khartoum and HIID/Cambridge from active roles in the current (January 1980) evaluation.

ADEQUACY OF USAID'S MANAGEMENT

The record indicates that USAID recognized the implementation problems in the ADP at a relatively early date, and that the mission attempted to intervene by claiming ultimate management responsibility for the project. The OPG framework, however, provided minimal leverage on the grantee, because it was predicated on the assumption that a mission would never need to take an active role in project management. The grant arrangements that were agreed to have partially insulated the project, and HIID, from USAID's intervention.

Given the grant structure that was adopted in 1978, how well did USAID use subsequent opportunities to influence the course of the project? Despite the appearance that its hands were tied, three serious criticisms can be made of the strategy that was pursued.

First, the greatest leverage that existed after March 1978 was in the consideration of the 1979 "Progress Report and Proposal for Grant Amendment" (Harvard Institute for International Development, 1979). The review process was lengthy but fruitless; the revised project paper (Agency for International Development, 1979) that was finally approved in August 1979 was identical to the proposal submitted in March. Neither USAID/Khartoum nor AID/Washington capitalized on the opportunity to require changes in project design and to insist on the reporting, monitoring, and evaluation procedures that were lacking in the original grant. A system to ensure greater accountability should have been a precondition to the approval of additional funds.

Second, in light of USAID's failure to change the "rules of the game" for the ADP, the six-month delay in additional funding is very difficult to justify. It substantially reduced the ADP program during the 1979 rainy season and gives some legitimacy to HIID's claims that the project was never given a fair chance. Further delays in the release of $105,000 for the water program (pending since mid-1980 and approved by AID/Washington in February 1981, but not negotiated by HIID) also reflect poorly on USAID's capacity to support the project.

And third, the infrequency and generally short duration of visits to Abyei by USAID staff were not determined by the fact that the project was funded by an OPG. The mission had the option of allocating more staff time, and the payoff from more direct interaction with the field team in the project area might have been substantial. Instead, the ADP feel victim to a syndrome of "management by anecdote," in which typically strong judgments were made on the efforts of the field team, with little direct evidence or contextual information to support the judgments. The significant damage that was done to team morale not only weakened the project, but further diminished the prospects for constructive dialogue between USAID and HIID.

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