

I. EXECUTIVE SUMMARY**Final Report (Oct 2003- Dec 2004)**

Organization:	Pact, Kenya.	Date:	April 6, 2005
Mailing Address:	Dennis Pritt Rd. PO Box 76390-00508 Nairobi Kenya	Contact:	Marv Koop
Telephone:	254 571 615	Fax:	254 570 775
Email:	mkoop@pactke.org		

Program Title: Increasing Water Access in Southern Sudan (IWA)
 Cooperative Agreement/Grant No: DFD-G-00-03-00107-00
 Country (ies)/Region(s): Bahr el Ghazal, southern Sudan
 Disaster/Hazard: Civil strife
 Period Covered by This Report: October 2003 – December 2004

Activities Summary

This report covers the annual program cycle from October 2003 to September 2004, plus a no cost extension to December 2004 of the OFDA program "Increasing Water Access in Southern Sudan" (IWASS) implemented by Pact. The main objectives of the IWASS program programme were to: (1) Increase water accessibility at community level, 2) Establish a programme for sustainable water management,3) Improve the hygiene and sanitation of the community,4) Enhance SUPRAID's capacity and competence for effectively supporting community based water management in an environmentally sensitive manner.

The activities undertaken were program planning with partners, procurement, mobilization and actual field based implementation which mainly happened in the third and fourth quarters (April – October 2004). All required drilling equipment, vehicles, radios, camp and workshop equipment (see List - Annex 1) were procured through Pact and moved to Bahr el Ghazal by May 1, 2004. All required technical staff were recruited, given training and orientation to Supraid and the Sudan humanitarian context, and mobilized to Twic County along with the equipment. A camp was established at Panliet as the HQ for the Supraid Water Program. Pact facilitated training for Supraid water team in February, using Rural Focus in Loki to deliver a WES TOT course to key team members. This training was followed with two field training sessions in March and May. 1 borehole in Gogrial County and 15 in Twic County (see Table – Annex 2 and Map – Annex 3) were completed by the end of June, providing water for 6 primary schools and 1 PHC Center, as well as the resident populations, a total of about 4,660 households (30,285 persons). In each of these communities, the Supraid social mobilization staff were involved in organizing community contributions and participation. Community Water Committees were established (if not previously existing) and received training and orientation to support community ownership and management of the water point, based on the Pact TOT process. A social environment survey was conducted by Pact and Supraid in April in Twic County, identifying issues that were later incorporated into the

community water program, as well as an environmental assessment of the existing and planned community water points which further informed the implementation of the Supraid drilling program. A week long Capacity Building and Organizational Development training was provided to the Supraid water team in June, and all Social Mobilization team members were trained in community empowerment skills and approaches in Loki (March) and in Nairobi (June). SUPRAID then developed organizational plans, policies and procedures using the skills acquired from the capacity building training in a follow up workshop after the OD training.

Program Impact

The distances required for women, girls to obtain clean and safe drinking water became substantially reduced, in many cases to within 10 – 20 minutes walk. This has also increased the daily consumption of potable water.

The girls are able to attend school and still be able to fetch water early in the morning or in the evenings. Some cattle get water near the homesteads and therefore more milk becomes available for the family thereby improving on the diet especially for the children

Access to water increased from about 20 liters to an estimated 40-60 liters per household per day. The number of trips per house household to the water source has increased from 1 to 2-3 trips per day to water source per household, but decreasing actual time spent on this critical activity.

For each of the 16 boreholes drilled in this programme, a new Community Water Committee (also referred to as Village Level Committee –VLC) was created with six members each, thus a total of individuals comprising of about 48 men and 48 women, were trained in community management and ownership issues, environmental aspects, and health and hygiene issues.

Objectives Summary

Objective #1: Increase Water Accessibility at the Community Level

At its completion, this project is expected to provide increased access to potable water for approximately 20,000 people in Bahr el Ghazal, by drilling 20 boreholes with hand pumps in Twic and Gogrial Counties.

Indicator: The indicators for this objective are the number of boreholes completed, average distance traveled for water collection, liters of water available per household and community, and the percent of the population with access to safe drinking water.

Progress towards Objective: Following Pact support for procurement and transport of equipment, set up of Water Drilling Camp in Panliet, recruitment and training of staff, Supraid Drilling team commenced operations in Gogrial County as the Commissioning for the equipment, and then proceeded to implement priority drilling in 15 locations in Twic County. Sites were selected throughout Twic and Gogrial Counties through consultation and dialogue with a community mobilization team and the SPLM/A. The sites were chosen with consideration to both equity and access, taking into account existing disparities in the allocation of boreholes within the two counties. At the end of the project 16 boreholes had been drilled; 15 in Twic County and 1 in Gogrial. An additional estimated 30,285 people (4,660 households) which includes recent returnees from northern Sudan, have increased access to potable water as a result of this program activity. The water points also provide new access to potable water to students and teachers (estimated 3,000 persons) at six schools and one health center.

The average time traveled for access to potable water has been reduced from 4 and 2 hours to between 10-20 minutes walk in most cases as the number of boreholes in Twic County has increased. The access to water increased from 20 liters to about 40-60 liters per household per day. The number of trips per house household to the water source has increased from 1 to 2-3 trips per day to water source per household.

Borehole Locations and estimated population served

No	Payam	Borehole Location	Drilling Team	Dates Drilled	No. of Households	No. of People
1	Ajak	Atuong Pry School	PAT 301	10- 13/5/04	321	2086
2	Kuac	Aguoc Pry School	PAT 301	14 - 15/5/04	730	4745
3	Turalei	Ayen Pry School	PAT 301	18 - 19/6/04	405	2633
4		Lilil Pry School	PAT 301	16 - 17/6/04	375	2438
5	Aweng	Wuncuei	PAT 301	21 - 22/5/04	347	2256
6		Maper	PAT 301	30 - 31/5/04	224	1456
7	Wunrok	Mayen Abun Pry. School BH3	PAT 301	11 - 12/6/04	166	1079
8		Kurum Pry School	PAT 301	21 - 22/6/04	400	2600
9	Wunrok	Mr. Diom Cyer	PAT 301	March 04	80	520
10	Riau (W. Gogrial)	Maluil	PAT 301	30/4- 2/5/04	218	1417
11	Aweng	Malual Gon	PAT 301	16 - 18/5/04	342	2223
12		Bulyom	PAT 301	19 - 20/5/04	138	897
13		Pan - Ruel	PAT 301	29 - 30/5/04	350	2275
14	Wunrok	Goal PHC BH3 Mayen Abun	PAT 301	12/6/04	250	1625
15		Agaar	PAT 301	15 - 16/6/04	153	995
16		Ring Bol (Abindau)	PAT 301	23 - 24/6/04	160	1040
Cumulative depth drilled with the new rig (PAT 301) 970 m					Total 4,659	30,285

The table assumes an average of 6.5 people per household

From the above Table it is noted that:

- | | |
|--|--------|
| ✓ The total number of boreholes drilled with PAT 301 | 16 |
| ✓ Total No households served by new boreholes | 4,659 |
| ✓ Total population served by boreholes | 30,285 |
| ✓ Schools with new water points (est 500 students per school) | 6 |
| ✓ Health center with new water point | 1 |

Objective #2: Establish a Program for Sustainable Water Management

This project is expected to contribute towards promotion of sustainability of water points in rural communities by equipping Supraid Water Team and Community Water Committees with capacity for sustainable community based water management.

Indicator: Indicators for this objective are the number of training sessions held with Supraid and communities; community water managers trained; and development of an environmentally sound water management policy for the region.

Progress towards Objective: Pact supported Supraid to address this objective through initial recruitment of a Social Mobilization and Governance Officer and six other Social Mobilization officers. Pact funded the attendance of SUPRAID staff to a Water and Sanitation Training of Trainers (TOT) session in Lokichoggio, Kenya, prior to the inauguration of the construction component of the IWASS project. Topics addressed at this training session included: health/hygiene education; community mobilization and awareness creation; environmental protection awareness; dependency and self-reliance; cost-sharing; gender, access and controls; leadership; operation and maintenance; and community participation. The session also included a field work/practical training component; a community mobilization and participation training (including guidance on site selection); and a study of borehole access issues and community needs in Mayandit, Koch, and Leer Counties.

SUPRAID advocates extensive collaboration between the beneficiary communities and the drilling crew. Among the services provided by the communities are manual labor (for road clearing, moving equipment and collecting materials); food and assistance with cooking for drilling teams; and participation in the Village Level Committee, which coordinates community participation. SUPRAID also clearly explains the ownership and responsibility of the boreholes to the communities in which it works, with the assistance of the Village Level Committees.

In April 2004, SUPRAID and Pact Kenya conducted a social environment survey in Twic County to identify those social conditions and issues that need to be considered in the design and implementation of the community water points from a feasibility and impact perspective. Specific components of the survey included: assessing the potential impacts of water drilling on the environment, improving service delivery by SUPRAID, assessing sanitation condition (90% of hhs lack basic access) and strengthening the Operations & Maintenance system and project management. From an environmental aspect, specific issues considered were the vulnerability of the county to annual flooding and other climactic conditions, the predominant vegetation, water borne diseases, and water source distribution. For each of the 16 boreholes drilled in this programme, a new VLC was created with usually about six members each, thus a total of 96 VLC members comprising of 48 men and 48 women. These committees have organized their respective communities and have developed by-laws to undertake:

1. Fencing round the new boreholes. Maintaining cleanliness around the borehole.
2. Control of watering of the animals with the spillage water from the borehole.
3. Control people coming to bathe with water from the borehole.
4. Resolving of any conflict arising from the usage of the borehole
5. Collection of funds from the borehole users for operations and maintenance of the borehole

Objective #3: Improve Hygiene and Sanitation in Bahr el Ghazal

This project is expected to contribute towards promotion of hygiene and sanitation through training of Supraid team members and community based health promoters for hygiene education and education / mobilization of participating communities to construct household pit latrines.

Indicator: Indicators for this objective will be number of community health promoters (CHPs) trained, number of training sessions for Supraid and CHPs and number of new pit latrines constructed by Supraid and the communities benefiting from the Water Drilling Project.

Progress towards Objective: The SUPRAID WES and Social Mobilization staff were provided training through a Water and Sanitation Training of Trainers (TOT) session in Lokichoggio, Kenya, prior to the inauguration of the construction component of the IWASS project. Topics addressed at this training session included: health/hygiene education; community mobilization and awareness creation; environmental protection awareness; dependency and self-reliance; cost-sharing; and gender. Supraid staff utilized training to ensure hygiene awareness was included in all social and community mobilization activities supporting the borehole drilling in 16 communities.

The H&S message the team focused on was that it is of paramount importance to improve on hygiene both around the borehole (and in their homes) in order prevent the newly developed water-points from becoming part of the water-borne diseases transmission routes. At the end of the program a total of 1092 household members had been targeted and are now practicing and observing hygienic habits. To achieve this, the community was sensitized on:

1. Protecting the water-point by fencing around it so as to avoid animals from accessing the hand-pump platform.
2. To drain any stagnant water ponding within less than 30 metres radius of the borehole.
3. Using clean containers to ferry water home.
4. Avoiding bathing and washing of clothes within immediate vicinity of the hand-pump.

Objective #4: Enhance the Capacity and Competency of SUPRAID

A key objective of this project will be to enhance national Sudanese capacity for water drilling by improving SUPRAID technical and management capacity to implement a water drilling program. A secondary objective is to promote Supraid capacity to effectively support community based water management in an environmentally sensitive manner.

Indicator: Indicators for this objective include quality, efficiency and timeliness of Supraid program activities, quality and timeliness of Supraid planning and reporting processes, (e.g. the number of boreholes completed according to the original plan, number of community water committees formed, trained and effective),

Progress towards Objective: Supraid constructed and equipped a permanent camp in northern Bahr el Ghazal, with workshop, drilling equipment and stores to facilitate longer term Sudanese capacity to respond in timely and efficient manner to water needs in a geographic area with high

water needs. Through mentoring and organized training (by Pact) and regular monitoring (both in the field and in Nairobi), Supraid Drilling and management team has been exposed to theory and practice in support of efficient management related to water drilling. A new WES coordinator was employed during this period which resulted in training of drilling staff in drilling techniques.

Pact facilitated training for SUPRAID drilling team (by Rural Focus) in borehole drilling, equipping, operation and management then followed by three weeks of field training

Pact Kenya organized and conducted a week-long training in June, covering organizational development and technical skills for 11 Supraid Management and Water Drilling staff. This training addressed topics such as NGO management; facilitation skills; strategic planning; gender mainstreaming; resource mobilization; project monitoring, evaluation, and reporting; environmental management; and disaster management. The workshop was followed by development of requisite organizational plans, policies and procedures (financial, information and communication, travel, property management. These skill priorities were identified through SUPRAID's Self-Assessment activity, undertaken with collaboration from Intermon Oxfam undertaken in June 2003.

All newly-hired Social Mobilization and Governance (SM&G) officers attended a training session in Lokichoggio, Kenya, in March where they learned practical skills and implementation approaches for community empowerment. SUPRAID has now in place Financial Management policies and Procedures, human resources policy, and travel and vehicle use policies, drilling rig and accessories management procedures and information and communication policies.

Establishment of the Social Mobilization and Governance (SM&G) team

SUPRAID WES database is now working after taking inventory of the borehole data in the field Pact supported the recruitment of a new Water, Environment and Sanitation Coordinator, (WES Coordinator), a Hydrogeological Engineer. In addition, SUPRAID now has new 7 – member team of Social Mobilizers (SM&G).

A. Program Success Stories

Mayen Abun Mixed Primary School

This is the only school in the entire Twic County with upper primary classes. The school hosts about 3000 pupils from the 6 payams of Twic County. This boarding school was depending on one borehole at a distance of 20 minutes walk as the old borehole had failed in the school. ADRA, SUPRAID and the local authorities agreed to allocate one borehole near the school as a priority. Now pupils can access water round the clock without having the difficulty of walking long distances and having to compete with local community households for water.

Goal Primary Health Center, Mayen Abun

"You can now see patients walking easily to collect water from the borehole inside the center. The nearness of the borehole helps them to avoid walking in direct sunlight and heat to fetch water"
Deng Atem Barach, Medical Officer with ADRA.

Kurum Primary School

"Now the elderly and even the children can walk to fetch water using small utensils. In the past women had to walk for 4 hours to collect water from the toic (surface water). Women now have access to water from this school in the village" Said a mother in Kurum Village.

High Demand for Safe Drinking Water

Spiritual Leader, Bold Giir of Turalei Payam in his appeal for water point said: *"My village is located in the Gok Zone of Turalei Payam, our attempts at hand drill for water failed for several years, and women have been spending most of their days and nights fetching drinking water. Those who are breast feeding usually have their children suffering from diarrhea as the children are breast fed in between long intervals"*.

Technical successes

Some of the boreholes that were drilled had yield of 5 m³/h. This remarkable improvement in borehole yield is attributed to improved technical capacity of SUPRAID.

Information on existing hydrogeological maps has been updated and can be used in planning future water programming. This will improve in planning and reduce dry boreholes due to lack of sufficient data.

B. Problems in Achieving Program Objectives

Problems with procurement and equipment delivery caused delays at the start of the project. The program work plan, including site selection for the boreholes, was completed in November 2003 after participatory consultation with SUPRAID staff and community members. However, equipment ordered at this time and necessary to begin borehole construction was not received in Nairobi until March of 2004. Transportation of equipment from Nairobi to the SUPRAID field office in Rumbek was hampered by equipment registration requirements and the need to transfer the equipment via road through Uganda, as well as heavy rains and impassable roads in Equatoria. Construction of the boreholes was also delayed pending the recruitment of a qualified water coordinator. While these delays have resulted in a slower borehole construction than expected, the project has been reasonably successful. SUPRAID's access to drilling equipment will allow for expedited construction as future sites are chosen.

CONCLUSION

Despite initial logistical challenges, the program has contributed significantly to increasing access to safe, potable water for more than 30,000 persons in Twic and Gogrial Counties. The increased local Sudanese capacity for construction of sustainable water points will be available over the next years, and will significantly contribute to post CPA benefits coming on stream in an area faced with integrating a high number of returnees. Additionally, Community water committees have been formed that taken control of managing the water sources using bylaws and codes of conducts while SUPRAID has become a mentor organization for other Sudanese organizations purchasing rigs.

RECOMMENDATIONS

- a) Future water program should also consider alternative water sources e.g rainwater harvesting options
- b) Consider rehabilitation of non-functioning water sources preceded by proper diagnosis.
- c) All water programming have to consider Sudan seasonal operational calendar (November - June)

**Annex 1:
Summary List of Equipment for Supraid Drilling Program**

S/N	EQUIPMENT	SOURCE
1	<p>New Drilling Rig (PAT 301)</p> <ul style="list-style-type: none"> • 2 sets of drilling rods (pipes) each measuring 3 metres long, to drill a total of 100 metres (thus 33 pieces) • 2 sets mud-pumps • 1 set drill bits and sub-adaptors • 1 set drilling tools • 1 set pneumatic tools • Basic lubricants • Spare parts for rig • Foam pump with spares • Down the hole (DTH) hammer with accessories • Air compressor with spare parts and accessories 	Thailand
2.	<p>Purchase of New Support Cars: Three pick-ups</p> <ul style="list-style-type: none"> - 2 Toyota Landcruisers - 1 Toyota Hilux. 	Gibraltar
3	New Massey Ferguson MF5355, 4-WD tractor with a canopy.	Nairobi
4	6 – ton trailer	Nairobi
5	2 Water bowsers	Nairobi
6	10-KVA generator	Thailand
7	5 set of Codan Radios with all accessories	Nairobi
8	Mobile workshop	Nairobi

Annex 2: Sample Baseline Characteristics of Payams in Twic County

Payam	Population	% of Population Accessing Water from Boreholes	Average Distance for Water Access	Sanitary Situation
Panyok	90,058	50%	>.5kms: 36% >1km: 27% >5kms: 37%	99% lack sanitary latrines
Wunrok	83,425	45%	<500m: 27.3% >500m: 27.3% >1km: 36% >4kms: 9.4%	No access to pit latrines
Aweng	79,971	60%	<500m: 40% >500m: 6.7% >1km: 20% >4km: 33.3%	Minimal access to pit latrines

**Annex 3:
Detailed Map of Water Provision Project Area**

SUPRAID DRILLING SITES

