RURAL WATER

AND

SANITATION PROJECT

LESOTHO, SOUTHERN AFRICA

SECOND ANNUAL REPORT

MAY 1982-APRIL 1983

USAID PROJECT NUMBER

632-0088

MORRISON-MAIERLE

PROJECT NUMBER

1427-03-03-03-47

MORRISON-MAIERLE/SHELADIA

CONSULTING ENGINEERS

HELENA, MONTANA
UNITED STATES

MASERU, LESOTHO
SOUTHERN AFRICA

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I. INTRODUCTION

It is difficult to separate USAID project activities within VWS as an organization having many donors. USAID resources many times are so incorporated into larger efforts that to try and segregate them would be confusing and misleading. We have attempted to specifically account for USAID sponsored activities in the various sections of the report while at the same time reporting VWS activities as a whole. This is easily done for construction where each project has assigned donors and for maintenance where USAID is the only donor (other than Government). Training is a joint USAID-Swiss effort utilizing Swiss personnel for construction training with USAID financial support. As an example, we report 66-masons trained. This is intended to mean that since the Project started two years ago, actual field training has been carried out by the Swiss but Project personnel and resources made possible an expansion of an already on-going program. The Project training specialist did assume responsibility for classroom training of foremen. In fact the USAID Project, while being the largest VWS donor, is also acting as a catalyst throughout the organization and is serving as a model for other donor aid.

Project team members have expanded and improved staff support functions (institution building) which in turn improves construction productivity. Most USAID sponsored projects are physically designed and supervised by engineers of other nationalities. The southern region is, however, under the direct control of a Project team member as is the drilling program. The people who actually build water systems are the VWS masons and foremen and rural villagers. The real success of VWS lies with the people of Lesotho.

The results of this joint effort speak for themselves (by calendar year):

1977 - 16 systems
1978 - 8 systems
1979 - 15 systems
1980 - 27 systems
1981 - 33 systems
1982 - 45 systems
1983 - 25 systems (through April)

The Morrison-Maierle Project team wish to acknowledge the efforts of our Basotho colleagues, the Swiss team and all of the volunteers that are making the USAID Project and VWS a success.

Joginder Bhutani - Construction Engineer
Allen Tudor - Training Engineer
Robert Johnson - Financial Specialist
William Arnold - Maintenance Engineer
Philip Howard - Health Coordinator

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May 20, 1983

II. SUMMARY

The USAID Project is now well into the implementation of all phases except for latrine construction (see Section VII, Health Education). All conditions of the Grant Agreement preliminary to distribution of funding have been met and all programs designed and approved. The major focus is now on construction, maintenance and improvingVWS as an institution.

Project resources have been integrated into a larger national plan. The distribution of these resources into transport, maintenance, salary and wages support and training as well as construction has been an example to other donors. This broad approach has provided VWS with the means to utilize USAID resources allocated to construction. In the past year two other major donors have been convinced of the validity of this approach and consequently have designed and approved aid packages that also provide the means to realistically utilize their construction funding.

VWS has submitted a 30-year implementation plan to Government, in compliance with the International Drinking Water Supply and Sanitation Decade, to supply water to 85% of the rural population within 30-years. Implementation, of course, depends on continued donor aid and the ability of Government to provide operating and some capital costs. For the short-term VWS designs annual construction priority plans consistent with donor and Government resources and gears its training programs accordingly. New donors are encouraged to design programs that complement these plans.

VWS must be seen as having greatly improved in the past two years, particularly in increased construction productivity and maintenance. It is a viable working organization capable of meeting Government and donor expectations. This is evident through increased donor interest and an awareness in Government and in rural areas that VWS is a responsive and responsible organization.

USAID Project progress is summarized in Table S-1 and Table S-2 tracks implementation scheduling.

TABLE S-1

PROJECT PROGRESS

- All Counterparts Identified and Assigned
- 6 Gravity Systems Completed: 5,700 People Served
- 20 Gravity Systems Under Construction
- 19 Hand Pump Systems Completed: 9,100 People Served
- 11 Hand Pump Systems Under Construction
- 27 Vehicles Purchased
- 4 Drill Rigs Purchased
- 900 Tons Pipe and Fittings Delivered
- 800 Tons Pipe and Fittings on Order
- 66 Masons Trained
- 18 Foremen Trained (10 Foremen in Training)
- 3 Engineering Students Placed in USA
- 217 Waterminders Trained
- 5 Maintenance Crews in Operation
- 6 Maintenance Centers in Operation
- Public Health Workshops Completed in 3 Districts
- 18 Mechanical Training Courses Completed

TABLE S-2

PROJECT IMPLEMENTATION SCHEDULE

D+0	June 79:	PP Submitted
D+2	August 79:	PP Approved
D+2	August 79:	Agreement Signed
D+22	March 81:	T/A Contract Signed
D+24	May 81:	T/A Team Leader Arrives
D+24	May 81:	Interim Work Plan
D+26	July 81:	T/A Team Complete
D+26	July 81:	Procurement Schedule No. 1
D+26-36	July 81-May 82:	Project Vehicles, Phased Procurement
D+27	August 81:	VWSS Organizational Structure
D+28	Sept. 81:	1st L.T. Training Participants depart for U.S.A. (MSU)
D+28	Sept. 81:	1st PIO/C Issued for U.S. Procured Commodities
D+28	Sept. 81:	System Maintenance Support Program Approved
D+28	Sept. 81:	B/H Construction Begins
D+29	Oct. 81:	Temporary Wage Labor Program Approved
D+29	Oct. 81:	1st Mason Training Program (10)
D+31	Dec. 81:	2nd Mason Training Program (10)
D+32	Jan. 82:	2-Year Work Plan Approved
D+32	Jan. 82:	System Construction Begins
D+32	Jan. 82:	1st Visit, Drilling Consultant
D+32	Jan. 82:	1st Foreman Training Class (10)
D+32	Jan. 82:	1st TTS Graduates Hired (2)
D+33	Feb. 82:	T/A Commodities Shipped
D+33	Feb. 82:	1st USAID Transfer of Local Procurement Funds
D+35	April 82:	1st U.S. Commodity Bid Opening
D+35	April 82:	1st PIO/C for Hand Pumps (250)
D+35	April 82:	Drilling Rigs Ordered (4)
D+35	April 82:	Maintenance Centers Opened
D+36	May 82:	1st Project Evaluation
D+36	May 82:	Recruited 6-TTS Graduates and 2-TTS Scholarships Awarded
D+36-45	May 82-Mar 83:	173 Waterminders Trained
D+36	May 82:	T/A Contract Refunded for 26 Months
D+37	June 82:	3rd Mason Training Course (10)
D+38	July 82:	GOL Established 43 Project Positions
D+38	July 82:	Recruited 1-Mosotho Construction Engineer
D+40	Sept. 82:	1st H/P's Delivered (250)
D+41	Oct. 82:	4th Mason Training Course (12)
D+42	Nov. 82:	1st Shipment of U.S. Procured Commodities Arrive (900 Tons)
D+43	Dec. 82:	All Project Counterparts Appointed
D+44	Jan. 83:	5th Mason Training Course (12)
D+44	Jan. 83:	2nd Foreman Training Course (10)
D+44	Jan. 83:	2nd Project Budget Revision
D+44	Jan. 83:	2nd PIO/C for U.S. Procured Commodities
D+47	April 83:	2nd PIO/C Commodities Bid Opening

PROJECTION OF IMPLEMENTATION ACTIVITIES

D+48	May 83:	2nd PIO/C For Hand Pumps (141)
D+49	June 83:	2nd Project Evaluation
D+52	Sept. 83:	2nd Shipment of U.S. Procured Commodities Arrive (800 Tons)
D+52	Sept. 83:	6th Mason Training Course
D+52	Sept. 83:	1st Supervisor Course
D+56	Jan. 84:	3rd Foreman Training Course

III. VWS AS AN INSTITUTION

The VWS organization structure is essentially the same as reported last year (see Appendix) with minor changes. Considerable progress has been made in filling out the organization and in improving efficiency. As an institution VWS is beginning to decentralize administrative, stores and financial functions to regional centers. Decentralization of construction and maintenance has essentially been completed.

Most construction design and supervision is still by expatriate staff and will, of necessity, continue to be for the next 3-4 years. The greatest obstacle to overcome is recruitment of Basotho engineers who are in short supply. We intend to at least partly relieve this problem through training of our TTS graduates as engineering assistants (supervisors) capable of taking over projects. This program is already underway in the districts and is to be supplemented by a 9 month supervisors training course. System maintenance has almost entirely been transferred to Basotho foremen and supervisors as has drilling and hand pump operations.

VWS is still weak in trained stores, accounting and administrative staff. However, this problem exists throughout Government. The constant transfer of personnel within and across ministries compounds this problem as VWS tends to lose trained staff to higher paying positions.

Financial management and budget control has been improved. A new policy of transferring funds and their management to regional headquarters has eliminated much of the frustrations and problems of day-to-day operations.

Transport management and control has greatly improved servicing of field crews. However, more control is needed to prevent abuse and unauthorized use. Driver training programs and decentralized vehicle maintenance has reduced down-time and improved efficiency. VWS, with 52 vehicles, has a remarkably low accident record when compared with other Government agencies.

System and vehicle maintenance capability has been significantly expanded. Regional maintenance teams are beginning to provide prompt and responsive service to breakdowns. A district system of reporting breakdowns has been initiated which is helping to overcome the problem of communication between VWS and villages.

Construction design has been standardized. All design is done by VWS at the district level with support from H.Q. Special mechanical design is the responsibility of the maintenance engineer and his counterpart. Prioritization of projects is a management function with technical advice from district engineers and health histories from Ministry of Health (when records exist).

Health education, including reorganization of rural resources across ministerial lines, has been a particular success. Human resources to implement health education at the village level, according to Project intent, simply did not exist, anywhere, and personnel of other ministries normally assigned in rural areas for other duties have been recruited and motivated. This is a prime example of the catalytic effect the USAID Project has had. Also, at the village level, VWS has started a program of water quality testing as a basis for eventually defining the effect of clean water on rural health.

The area showing less than satisfactory progress is the stores function. There are many inefficiencies due mostly to lack of a qualified senior storekeeper and cramped and inadequate storage space (an expanded store is under construction in Maseru). Regional and district stores are reasonably efficient and decentralization has helped to improve supply to job sites.

A summary of VWS staff is:

Local

3 Engineers
1 Chief Technical Officer
10 Senior Technical Officers
18 Foremen
66 Masons/Plumbers
15 Mechanics/Welders
1 Drilling Supervisor
11 Drilling Foremen
30 Drilling Assistants/Laborers
12 Drivers
20 Administrative Staff

Expatriate

6 USAID Project
8 Swiss
2 Peace Corps Volunteers
3 Danish Volunteers
2 British Volunteers (1 Irish, 1 New Zealand)

IV. PROBLEMS AND CONCERNS

1. First Project Evaluation

The first project evaluation (May 1982) listed a number of deficiencies. These, for the most part, have been corrected over the past year. The deficiencies and actions taken are:

A. Deficiency: Establish and select counterparts.

Action: Counterparts have been assigned.

D. Wadsworth: Project Manager
Counterpart: K.W. Lesaoana, VWS Senior Engineer

W. Arnold, Maintenance Engineer
Counterpart: B. Rafoneke, M.E. Graduate

A. Tudor, Design and Construction Engineer
Counterpart: M. Ntja, C.E. Graduate

R. Johnson, Financial Specialist
Counterpart: B.K. Sefako, Senior Accountant

P. Howard, Public Health Coordinator
Counterpart: T. Mosoang, Health Educator

(See Training Section for note on counterpart.)

With these appointments this deficiency has been corrected.

B. Deficiency: Improve financial management control.

Action: We note that the VWS stores system is less than satisfactory and requires improvement. While systems have been designed for inventory control, purchasing, requisitioning and distribution, fully effective implementation has not been completed. This work is to be the primary focus of the Project financial specialist during his third year.

A financial control and reporting system has been established for Project allotments and expenditures that is acceptable to USAID. These reports are made monthly and quarterly to the USAID Controller.

C. Deficiency: Establish and fill positions required for Project implementation.

Action: This relates to the System Maintenance Support Program as approved by USAID and the Ministry. On 13 July 1982, Cabinet Personnel approved the establishment of 43 new positions of which 36 qualify for Project salary support. Candidates were recommended from VWS established employees qualified to be promoted and from daily paid (temporary) employees qualified for establishment and/or promotion. After 8 months some promotions have been approved. However, to the best of our knowledge, no daily paid employees have yet been brought into establishment. We assume the time lag is due to administrative delays.

D. Deficiency: Implement a stronger budgeting system.

Action: This has been accomplished.

E. Deficiency: Implement a system to effectively use village monetary contributions for maintenance.

Action: No practical system has yet been devised owing, in part, to existing Government regulations. First, the Ministry is not authorized to collect revenues. Second, funds collected for spare parts would not automatically revert to VWS but would be channelled into the Government general fund. Ministry financial officers are investigating ways and means to comply but a direct reimbursement system may not be possible. VWS does have indirect access to these funds for major repairs (windmills, diesel engines, etc.) by direct billing by a supplier to the village water committee.

2. The problems and concerns noted in the first annual report have essentially been resolved. The only real problem facing VWS, and indeed Government in general, is adequate operating funds (recurrent udget). Only 52% of the FY 1983/84 recurrent budget has been granted to date. The alternatives to reduced funding is to close-down construction projects or to increase donor funding for salary support.

V. CONCLUSIONS AND RECOMMENDATIONS

1. Construction Productivity

We believe the Project to be well on its way to a successful conclusion however this is several years in the future. Water supply productivity is dependent on a few but critical conditions:

a. Adequate recurrent budget funding to retain trained construction and maintenance personnel.

b. Continued counterpart contributions.

c. Continuation of expatriate volunteer and contract engineers to maintain productivity until Basotho engineers can be recruited and trained.

2. Project Team Staff

Both the health coordinator and financial specialist have been extended for 1 year at request of Government. We believe that the health coordinator position could be further extended since practical application, resulting from work now being done, has only started in three districts out of ten. In the coming year we can expect to only cover a further three districts. In addition the Project health coordinator will become involved in the rural sanitation project (UNDP) just getting underway. We do not intend recommending a further extension of the financial specialist position.

3. Reallocation of Project Funding

Specifically, we recommend extending the handpump program from 400 to 1000 pumps plus the possible addition of 3 more drill rigs. Support for this recommendation can be found in Section VI.

VI. DESIGN AND CONSTRUCTION

1. Summary

VWS has engineers and construction crews in all districts except Mokhotlong and Qacha's Nek. Regional maintenance centers are in operation in Maputsoe (north) and Mohale's Hoek (south) with district centers at Quthing, Mafeteng and Teyateyaneng. Maseru serves all districts and functions as central regional maintenance center.

Production for calendar year 1982 was 45 systems serving 24,000 rural villagers; the most productive year on record. Expectations for 1983 are for 50-55 systems serving 30-35,000 people. VWS balances its construction personnel among donors according to the level of financial aid. To meet donor expectations in 1983 the breakdown is:

USAID:	25-30 Systems
UK:	7 Systems
EEC:	8 Systems
Misc. Small Donors:	5-10 Systems

In 1982 approximately 2.1% of the rural population was served for an accumulate total of 16.2% of the 1981 estimated rural population.

TABLE C-1

POPULATION SERVED BY DISTRICT AT END OF 1982

District	Number of Projects	Total Population Served	Total Rural Population (1981)	% Served
Butha-Buthe	41	19,300	76,400	25.3
Leribe	61	36,300	201,800	18.0
Berea	58	24,100	140,900	17.1
Maseru	64	27,900	202,600	17.1
Mafeteng	54	23,000	153,800	15.0
Mohale's Hoek	35	10,900	137,700	7.9
Quthing	36	10,500	89,000	11.8
Qacha's Nek	47	12,900	74,000	28.9
Thaba Tseka	27	8,500		
Mokhotlong	53	12,400	75,400	16.4
TOTAL	476	185,800	1,151,600	16.2

2. Village Selection Procedure

It is VWS policy that all applications for rural water supplies be processed through the District Rural Development Officer (DRDO). Conditions of accepting an application are the willingness of the village to elect a water committee, collect contributions for a maintenance fund and provide free labor. Each year VWS reviews applications for prioritization according to approved selection criteria. The number of villages selected depends on availability of skilled and technical personnel, geographical considerations and financial limitations. Once approved by the Ministry, the priority list becomes the construction work plan for the coming 12 to 18 months.

Villages on the list are organized by the DRDO and District Engineer. A "pitso", a local village meeting, is called to discuss all aspects of the project, establish a level of contribution and motivate villagers. It is important no funds be collected prior to prioritization and a commitment by VWS to a construction schedule. In the past applications, with collections already made, have far exceeded the construction capacity of VWS creating disappointment and loss of confidence in the rural areas.

3. Village Contributions

As a condition to construction villagers must contribute to a maintenance fund through the local water committee. It is not Government policy to use these funds for capital development. There is no established guidelines to contribution limits but commonly M1.00 per capita or M5.00 per family is considered reasonable. These funds are placed in a bank account controlled by the water committee for future maintenance.

A second and greater village contribution is volunteer labor. It is difficult to place a value on total labor provided by a village for a given project since specific records are not kept. VWS is estimating M25.00 per capita per average gravity system based on an individual labor rate of M2.50 per day. On one project (a village of 350) where records were kept labor averaged 20 villagers per day for 26 weeks which approximately equalled the value of materials used in construction. Labor for handpumps, which is less intensive than for gravity systems, is valued at M200 per pump.

The Project Grant Agreement places an in-kind value of M368,000 on village labor through the life of the project. For 23 USAID projects completed through March 1983, we estimate the value of village labor at M244,000 or an average of M16.00 per capita. This seems reasonable but will be subject to review as better data becomes available.

Commonly, labor is provided by village women at a ratio of 85/15 to men. The reasons will not be discussed here. Types of work include: trench digging, collecting stone, sand and water, mixing and carrying concrete and excavation of structure foundations. The village water committee assigns work according to instructions by the project foreman and is responsible for continued motivation. Generally, labor is freely given since women, who are the water collectors, understand the benefits of an improved system, at least in terms of labor and time saved in collection.

4. Construction Activity and Project Goals

Government of Lesotho is considered a donor for all projects undertaken by VWS regardless of the source of donor aid. Government provides funding for construction salaries and wages (in whole or in part), administrative costs, fuel for transport, clothing and small tools and some, or all, local construction materials. USAID directly funds total wages of 33 masons and shares in funding salaries and wages of 36 foremen, supervisors and engineers. Other donors now, also, have policies of refunding to Government wages for masons.

VWS capital funds are used primarily for local construction materials and tools with donors providing major materials and equipment. This sharing creates flexibility in funding sources and, as in the case of USAID, relieves pressure on Project funds for local purchases.

Tables C-2, C-3 and C-4 show VWS and USAID sponsored activity through April 1983. Project construction dates from January 1982, however, the first shipment of pipes did not arrive until November 1982. A second shipment is due to arrive in September 1983. USAID projects are under construction in 7 of the 10 districts in Lesotho. The three remaining districts will be included as the Project expands.

The Life-of-Project budget for imported pipes and fittings is $3,933,000 planned in 4 equal shipments of approximately 900 tons (300 kilometers) each. Favorable prices on the first two shipments totalling $1,207,000, or 31% of planned imports, will provide for construction of 60-80 systems serving approximately 60,000 people. Assuming equally favorable prices for 2 subsequent shipments over the next 2 to 3 years, approximately 150 gravity systems can be constructed serving 120-140,000 people. We estimate that $1,000,000 from this budget line item can be re-allocated into other activities and propose that consideration be given to expanding the hand pump program.

The Project goal is 210 projects serving 180,000 people. With an additional 600 hand pumps added to the 400 authorized, Project construction expectations are:

A. 150 Gravity Systems serving 120-140,000 people.

B. 1000 Hand Pumps serving 75-100,000 people.

5. Borehole and Hand Pump Program

In the two year period ending 30 April 1983, VWS has installed 126 hand pumps of which 90 are USAID supplied "Moynos". In addition, 21 boreholes are ready to receive hand pumps. VWS currently has 11 cable tool drill rigs all of the same manufacture with spare parts readily available in RSA. Six rigs were on hand at the start of the Project, 4 were purchased by USAID and 1 by USC (Canada). Forty people are employed on drilling rigs including foremen. At the start of the Project each rig had 6 men which was subsequently reduced to 4 with plans now underway to further reduce a crew to 3 men. Current cost of drilling inclusive of labor, tools, maintenance, transport and running costs is M23.21 per meter. Drilling efficiency is 70% with an average borehole depth of 50 meters. The completed cost of a usable borehole is M1658. Total cost of a hand pump installed is M1,100. The per capita cost of a borehole-hand pump combination serving 75 to 100 people is M34.00 to M28.00. This compares to M50.00 per capita for an average gravity system.

Boreholes are feasible only in the lowland areas where approximately one-third of the rural population live, and are the only viable option available for serving these areas due to lack of high level springs (for gravity systems). By policy windmills and diesel-pumped boreholes are not encouraged because of maintenance problems and running costs, therefore most people in the lowlands will be served by hand pumps. We estimate that 2000-3000 will be required in the long term to meet this need. USAID is the only major donor addressing this need, however, the success of this program has drawn the interest of other donors. The present drought, now in its second year, is particularly affecting the lowlands and the need to expand the rate of hand pump installation has become urgent. The most appropriate method to expand the rate of installation is through contract drilling. One small private donor organization has started such a program hiring private drill rigs with VWS providing and installing hand pumps. A second and larger donor has approved a similar program to start immediately with the potential of yet a third donor interested in contracting drilling. USAID is supplying the hand pumps for these programs.

Another possibility is to expand VWS drilling capability from 11 to 15 rigs which is the limit that can be staffed by the VWS cadre of trained drillers. If this is done additional support staff and equipment will be needed. One small private donor has indicated a willingness to purchase one or two cable tool rigs depending on availability of funding. The other two or three rigs would be requested from USAID.

We estimate that over the next three years minimum requirements for hand pumps will be 160 per year with a definite possibility of rising to 200 as the full potential of this program is realized. While the USAID Project cannot meet the full need it can, and is,

TABLE C-2

SUMMARY OF VWS CONSTRUCTION ACTIVITIES
FOR CALENDAR YEAR 1983

	Previous Total	April	Total For 1983
NATIONWIDE			
Projects Completed	19	6	25
Population Served	9,155	2,950	12,105
Major Repairs Completed	0	0	0
Projects Under Construction	-	57	-
USAID PROJECT ACTIVITY (Included Above)			
Projects Completed	10	3	13
Population Served	5,450	2,050	7,500
Major Repairs Completed	0	0	0
Projects Under Construction	-	32	-
BOREHOLE DRILLING ACTIVITIES			
Total Meters Drilled	1,614	628	2,242
Usable Meters Drilled	1,171	330	1,501
Drilling Efficiency (by meters drilled)	72.6%	52.6%	66.9%
Usable Boreholes	25	6	31
B/H Redeveloped	4	0	4
B/H Yield Tests	3	1	4
Hand Pumps Installed	39	12	51

FOR CALENDAR YEAR 1982

	Total For 1982
NATIONWIDE	
Projects Completed	45
Population Served	24,060
Major Repairs Completed	11
USAID PROJECT ACTIVITY (Included Above)	
Projects Completed	13
Population Served	7,300
Major Repairs	3
Handpumps Installed	75

TABLE C-3

PROJECTS FINANCED IN WHOLE OR IN PART BY USAID

RURAL WATER AND SANITATION PROJECT

Type of System, Abbreviations:

H/P = Hand Pump; G = Gravity; WM = Windmill; PP = Power Pumped;
R = Rehabilitation; E = Expansion.

Donor Abbreviations:

UNDP = United Nations Development Program; CIDA = Canadian Government;
RCM = Roman Catholic Missions

PROJECTS COMPLETED FROM MAY 1981 THROUGH DECEMBER 1982

Name	Type	Code	Popl.	Donor	Date	Remarks
Letsoara	H/P	MAF-137	300	USAID/UNDP	Mar. 82	3 H/P
Qalabane	H/P	MAF-136	600	USAID/UNDP	Mar. 82	6 H/P
Patsa	H/P	MAF- 20	500	USAID/UNDP	May 82	5 H/P
Ramohajane	H/P	MAS-151	300	USAID/UNDP	Feb. 82	3 H/P
Katu	H/P	MAS- 67	400	USAID/UNDP	Mar. 82	4 H/P
Lihanela	H/P	MAS-179	300	USAID/UNDP	Apr. 82	3 H/P
Mphoto	H/P	MAS-154	300	USAID/UNDP	Feb. 82	3 H/P
Mokhakaso	H/P	MAS-167	200	USAID/UNDP	Mar. 82	2 H/P
Kotisephola	G	MAF-	800	USAID	Sep. 82	
Ha Chaka	H/P	MAF-	300	USAID/CIDA/RCM	Nov. 82	2 H/P
Lechesa	H/P	MAF-	400	USAID/CIDA/RCM	Nov. 82	4 H/P
Thoahlane	H/P	MAF-188	1,100	USAID	Nov. 82	13 H/P
Matelile	G	MAF-144	1,800	USAID	Nov. 82	

TOTAL: 13 Villages, 7,300 Population

PROJECTS COMPLETED IN 1983 (through April)

Maputo	H/P	MAF- 19	300	USAID	Jan. 83	4 H/P
Ha Paki Phase I	H/P	MAS- 48	200	USAID/CIDA/RCM	Jan. 83	3 H/P
Khatleng	G	MAF-191/1	350	USAID	Feb. 83	
Bakhomi	H/P	MAF- 90	1,100	USAID	Feb. 83	18 H/P
Shoeane	H/P	MAF-	300	USAID	Feb. 83	3 H/P
Van Rooyen's Gate-Phase I	PP-P	MAF- 5	100	USAID	Feb. 83	
Boluma Tau	H/P	MAF- 50	700	USAID	Mar. 83	8 H/P
Motholo	H/P	MAF-140	300	USAID	Mar. 83	4 H/P
Thabana Mohlomi	H/P	MAF-150	900	USAID	Mar. 83	10 H/P
Tsekelo	PP	B - 89	1,200	USAID	Mar. 83	
Qobete	H/P	MAF-131	600	USAID	Apr. 83	5 H/P
Tlebere	G	BB - 9	100	USAID	Apr. 83	
Motloheloa	PP	MAS- 52	1,350	USAID	Apr. 83	

TOTAL: 13 Villages, 7,500 Population

Life of Project Totals Through April 1983: 26 Villages, 14,800 Population

TABLE C-4

SUMMARY OF USAID DONOR PROJECTS UNDER CONSTRUCTION

(USAID-Financed in Part or in Whole)

Abbreviations:

G = Gravity; H/P = Hand Pump; PP = Power Pump; R = Rehabilitation; E = Expansion; WM = Windmill

Name	Code	Population	Donor	Percent Complete
BUTHA BUTHE				
Bokoro Khukhune (G)	BB -4/8	1,600	USAID	55
Matsatsaneng (G)	BB - 9	100	USAID	0
BEREA				
Salemane (Hydroram)	B -164	70	USAID/CARITAS	95
Ha Ntlama (G)	B - 47	900	USAID	5
Ha Koali (G)	B -134	3,000	USAID	5
Ha 'Matholoane (R.E.PP)	B - 81	1,500	USAID	5
MASERU				
'Mantsebo (G)	MAS- 24	1,700	USAID	15
Lithoteng (H/P)	MAS	500	USAID	90
Rothoko (H/P)	MAS	270	USAID/CIDA/RCM	50
Sepeke (H/P)	MAS- 49	500	USAID/CIDA/RCM	10
Lerata (H/P)	MAS- 53	200	USAID	30
Mathinya (H/P)	MAS	150	USAID/CIDA/RCM	50
Pomela (H/P)	MAS	230	USAID/CIDA/RCM	50
MAFETENG				
Joele (H/P)	MAF-194	600	USAID	10
Qobete (G)	MAF-191-2	1,050	USAID	50
Makhalong (G)	MAF-144	500	USAID	80
Makhakhe (G)	MAF- 69	1,200	USAID/US EMBASSY	95
Ramakhooa (H/P)	MAF-150/1	200	USAID	50
Motanyane (H/P)	MAF-195	500	USAID	20
Lempheche (H/P)	MAF-162	500	USAID	75
Tsakholo (A) (Hydroram)	MAF- 97/1	330	USAID	20
Tsakholo (B) (G)	MAF- 97/2	150	USAID	30
Khibiliting (G)	MAF- 65/1	300	USAID	0
Makhonofane (H/P)	MAF-134	400	USAID	90
Matsaba (H/P)	MAF	400	USAID	20
'Maliepetsane (G)	MAF- 23	250	USAID	10
MOHALE'S HOEK				
Blue Gums (G)	MH - 84	500	USAID	90
Liphiring (PP)	MH - 10	1,000	USAID/DUTCH	35
Mohalinyane (G)	MH - 17	1,600	USAID	95
Mpharane (PP)	MH - 42	300	USAID	10
QACHA'S NEK				
Matebeng (G)	QN - 27	550	USAID/DANIDA	25
QUTHING				
Basieng (G)	Q - 4	500	USAID	5

acting as a model for other donors. Our estimate for 1983 installations is:

VWS; 11 rigs at 10 B/H's per year:	110 H/P's
Contract Drilling:	40 (possibly up to 90 in 1984)
Replacement (of old style pumps):	10
	160 H/P's

It is on this basis that we recommend USAID consider adding an additional 600 hand pumps to the Project. They would be purchased in lots of 200 annually or as demand dictates. Cost per unit, delivered, is approximately $1,000 including drop pipe. Therefore, $600,000 would have to be re-allocated from the imported pipes budget. This proposal has the support of VWS and the Ministry which have been given a directive by Government to place particular emphasis on draught areas in the lowlands of Mafeteng, Mohale's Hoek and Quthing districts.

VII. HEALTH EDUCATION

1. Summary

To date districts in the southern region have been the focus of health education activities. Plans are made to expand into other districts as time and resources permit. Activities include:

- Completion of district health education and coordination workshops
- Implementation of village health education and information pitsos
- Implementation of preliminary Knowledge, Attitude and Practice (K.A.P.) survey
- Continuation of training programs

  Village health workers
  Ministry of Rural Development - foremen
  Ministry of Health - health assistance

- Coordination of other projects

  Rural Sanitation Project
  Bureau of Women Affairs - Prime Minister's Office
  Rural Health Project - Medex

- Water quality testing
- First stages of developing educational and informational materials

2. District Health Education and Coordination Workshops

Since there are not sufficient health personnel at district and village levels to conduct health education programs, workshops were devised as a means to develop a cadre of facilitators from people already employed in the field in other capacities. These workshops provide a setting for understanding health education in context with water and sanitation development, promote an exchange of ideas, encourage team development and increase skills and performance of workshop participants. Invited were extension workers and field personnel from the Ministries of Rural Development, Health, Agriculture, Interior and Education and also personnel from the Bureau of Statistics. Individuals were chosen who work in or near villages having, or selected to have, improved water systems. A summary of participants is:

District Workshop Date	MINRUDEV	MOH	MOA	MOE	MOI	STAT	Total
Mafeteng (May '82)	13	21	8	14	0	0	56
Mohale's Hoek (Sept. '81)	12	15	14	11	1	1	54
Quthing (Dec. '82)	7	13	23	13	1	1	58
TOTAL	32	49	45	38	2	2	168

Follow-up workshops were held to find out in what activities extension workers had been involved regarding water and sanitation and to learn of successes and problems experienced in team building

3. Village Health Education and Information

There have been several health education and information pitsos held in villages in the southern region. Within health education plans it is our intention that health education teams, along with district field personnel and rural development staff, organize and implement health education and information programs on water-related diseases and sanitation in villages once water systems have been completed.

Once a village has an improved system, the focus is on the villagers. A pitso is held to inform the villagers about water and sanitation related diseases, about their roles in preventing diseases and how they can best make use of the new system.

The topics covered are:

a. Water related disease (typhoid, cholera, dysentry), cause, symptoms, prevention and control, with special emphasis on personal and food hygiene.

b. Importance of latrines as a control measure for the spread of some water and excreta related diseases; construction of latrines and user education.

c. Environmental sanitation (rubbish pits vs rubbish heaps).

d. Infectious worms: cause and prevention.

e. ORT - Oral Rehydration treatment.

During the past year pitsos were held in the following villages having new water systems:

Village	District	Date	Attendance
Thabana Morena (Kotisephola)	Mafeteng	Aug/82	120
Ha Raprong	Mohale's Hoek	Oct/82	70
Ha Monyake	Mohale's Hoek	Nov/82	470
Qalabane	Mafeteng	Feb/83	465
Sekemeng (Ha Thoahlane)	Mafeteng	Mar/83	1,368
Matelile	Mafeteng	Mar/83	900
Ha Makhakhe	Mafeteng	Mar/83	322
Ha Letsoara/Bolumatau	Mafeteng	Apr/83	510
TOTAL			4,225

Pitsos are conducted in Sesotho and for each topic there are informational pamphlets given each attendant to reinforce the ideas discussed and for sharing with other village members not attending. In villages with health workers and/or waterminders we have the opportunity of motivating further small group discussions for intensifying the lessons learned.

4. Preliminary Knowledge, Attitude and Practice Survey (K.A.P.)

In collaboration with students from the National University of Lesotho (NUL) K.A.P. surveys on water supply and sanitation were completed in eight villages in the southern region. The purpose was to test a questionnaire before developing a final instrument; to provide more data on village knowledge, attitude and practice regarding safe water and sanitation, and to provide an evaluation instrument for "pre" and "post" health education experiences.

The students each spent 2-weeks living in a village in order to become acquainted and to be able to make personal observation regarding water collection, storage, use and defecation habits.

The villages chosen were:

Mafeteng District	Mohale's Hoek District	Quthing District
Ha Thoahlane	Ha Monyake	Ha Setsomi
Thabana Mohlomi	Ha Raporong	Ha Tsekong
	Mohalinyane	
	Siloe	

5. Training Programs

The health education team of MOH has participated in other training programs. It was invited to participate in several village health worker programs to help improve the knowledge and skill level of workers and to encourage involvement in water and sanitation education. The team also conducted 10-weeks of health classes as part of the VWS foremen training course to augment technical instruction. The team organized the first three month field training course for health assistants trainees in the environmental health section of MOH. The course emphasized on-the-job training for spring protection, pit latrine construction and health education delivery in rural communities. This was the first such course in MOH.

6. Coordination With Other Projects

A. Rural Sanitation Project (UNDP): As a pilot project its focus will be to test different types of rural sanitation disposal. It is our intention that the USAID Project coordinate its sanitation activities with those of this project. USAID funding has been approved for construction materials.

B. The USAID sponsored Rural Health Project (Medex) has invited participation in several of their nurse clinician orientation courses. In addition nurse clinicians in the field have requested participation in village health workers programs. These nurses have also been preceptors for some of the health assistants trainees.

C. The Bureau of Women's Affairs within the Prime Minister's Office has requested participation in a series of district workshops for women in development. Along with members of the Rural Sanitation Project we will be conducting water and sanitation training activities.

D. The USAID sponsored Instructional Materials Resource Center (IMRC) Project is working to develop health education and informational materials on water and sanitation to be used by village health workers and school teachers. Some preliminary sketches have been developed. They will also assist with the development and printing of posters to emphasize health education messages in water and sanitation for distribution on a mass basis to villages throughout Lesotho.

7. Water Quality Testing

Preliminary water quality testing on a limited scale has begun. Several villages in Maseru and Mafeteng Districts with completed hand pump systems have had their traditional sources of water and water from hand pumps tested. The initial results have shown that traditional sources are highly contaminated with fecal matter compared to no evidence of contamination from hand pumps.

VIII. TRAINING

The Project Training Engineer position will be terminated in June with the Swiss training engineer taking over all VWS training activities. We believe this position has been most useful in organizing, coordinating and administering training as well as providing a qualified instructor for the VWS foremen training program. In two years VWS has been able to expand field training into the classroom through the efforts of the Swiss project team and the USAID Project training officer. This joint cooperation has allowed VWS to establish, in fact, a policy of offering in-house training to all masons, foremen and (in 1983) supervisors. Our goal is now to have the program officially recognized by Ministry of Education. VWS is also in a position to offer mason training to Non-Governmental Organizations (NGO) as a means to extend rural water supply construction outside of, but coordinated with, VWS.

The basic VWS construction training program is founded on on-the-job experience coupled with formal classroom training for those who qualify. Except for engineers and Lesotho Technical Trades School (TTS) graduates, all construction personnel are promoted "through the ranks" as follows:

Mason: Entry level candidates must have a grade "B" or "C" trade certificate. Three-month on-site training.

Foreman: Training candidates are drawn only from VWS masons having at least one-year experience after successfully passing an examination. Nine-month course; 6-month classroom, 3-month fieldwork.

Supervisor: Drawn from VWS foremen having proven field experience with an acceptable academic background. TTS graduates (3-years) are also qualified after at least one-year experience on construction projects. Nine-month course.

This training philosophy has produced skilled construction personnel in sufficient numbers to allow doubling of construction since 1980 largely through the efforts of the Swiss who have provided three construction supervisors/journeyman masons as field training officers. The Project has provided financial support and expanded this effort through its training engineer. Training production since May 1981 is noted below.

Category	Trained	In-Training	Scheduled For 1983
Waterminders	217	0	100
Drivers	6	1	0
Mechanics	7	1	0
Masons	66	2	15
Foremen	18	10	0
Supervisors	0	0	5
Engineers	0	3	0
Senior Tech. Officers (TTS Graduates)	6	2	2

Village waterminder training is conducted by a former VWS employee, now retired, but on contract to VWS. His skill and knowledge of system maintenance is largely responsible for the success of this program. USAID provides major financial support.

New programs are being considered. VWS is planning to offer a training course in simple spring protection included as part of waterminder training. The purpose is to motivate villagers to protect their own springs as an interim measure to VWS constructing a water system. The Bureau of Women's Affairs will be sponsoring village workshops where the Project health coordinator will give short courses on water/ sanitation in a village setting and demonstrate spring protection techniques. We hope these programs will further rural water and sanitation goals in Lesotho.

Through the USAID Project VWS is offering scholarships to the Technical Trades School in Maseru. Currently two students are enrolled with the possibility of more depending on TTS capacity. This program, along with in-house training, has precluded the need to send construction students outside Lesotho. This philosophy has considerably reduced training expenses and provides for better control over end results.

The position of counterpart to the training engineer has not been filled. Since field training of construction personnel requires specialized knowledge of masonry and plumbing techniques this aspect of VWS training requirements will remain with the construction section. Classroom instruction (foremen-supervisors) can be carried out by qualified VWS engineers supplemented by hired teachers for non-technical subjects such as English, public health and first aid. Administrative duties and recruitment and hire is the responsibility of the VWS Personnel Officer. Specialized training (drivers-mechanics) can be accomplished by appropriate section heads. Opportunities offered by donors for overseas training is managed through the Ministry training officer. We therefore propose that the training officer counterpart requirement be dropped from the Project as being redundant.

In summary, the VWS training program has proved very successful. It will continue basically unchanged as long as Government has funding to support salary and wages for new construction personnel. Expanding beyond current construction capability is a matter of policy tied to Government recurrent budget support and continued donor aid.

IX. MAINTENANCE

1. Summary

VWS maintenance section is fully operational providing responsive service for vehicle, equipment and system repair. A counterpart to the Project mechanical engineer was assigned in December, 1982, who is now taking over responsibility for many activities of the section. VWS mechanical workshops at regional centers are operational and are capable of routine maintenance and servicing

vehicles and equipment. The success of VWS vehicle maintenance has prompted Ministry to request that VWS provide vehicle maintenance for all donor vehicles of the Ministry both in Maseru and at the regional level. The facilities now available to VWS will allow this plan to be implemented.

Progress Summary

- 52 VWS vehicles including 27 purchased by USAID
- 3 Regional system maintenance teams
- 1 National preventive maintenance team
- 1 Drill rig maintenance team
- 3 Regional workshops
- Mobile radio system
- Construction underway on Maseru workshop expansion
- Counterpart appointed December 1982
- Engine analyzer installed
- Best Driver Award Program implemented
- Workshop jobcard system designed
- Transport officer appointed
- Vehicle repair and service extended to another USAID project
- 18 Training courses completed

2. System Maintenance

Three regional system maintenance crews have been organized and, with training and supervision, have become effective in providing prompt and reliable repair service. In most cases a system is repaired and back in service within days of notification of a problem. A preventative maintenance team has been developed to inspect and repair mechanical pumping systems nationwide. Typical repairs performed are windmills, broken water lines, defective taps, rebuilding spring catchments and silt boxes, water tanks both steel and masonary and diesel and electric powered pumps. Maintenance section is also responsible for design and installation of new power pumping equipment.

A survey of all the known mechanical water systems has been completed and categorized by district into: (A) maintenance, (B) rehabilitation, (C) redesign and/or major reconstruction. VWS has scheduled work on category (A) by the preventive maintenance team as they travel through the districts on their routine circuit.

TABLE M-1

SUMMARY OF MAINTENANCE ACTIVITY

Month	Vehicles	Drill Rigs	Windmills	Engines	Water Systems
May, 1982	54	16	14	6	15
June	41	30	8	1	27
July	56	20	3	3	41
Aug.	46	13	8	4	34
Sept.	53	29	22	2	22
Oct.	51	24	26	4	29
Nov.	51	16	13	3	41
Dec.	27	19	11	1	36
Jan, 1983	59	19	15	4	45
Feb.	73	19	21	2	40
Mar.	71	26	11	1	30
Apr.	61	22	13	5	30

3. Equipment Maintenance

Drill rig maintenance continues to improve as the two-man repair crew gains experience both in preventative work and in breakdown repairs. They are learning the vulnerable areas on the rigs and are able to initiate some repairs prior to actual breakdown. A spare parts inventory has been developed allowing, in most cases, 1-day breakdown service. Repair of small equipment is done in Maseru due to better access to spare parts. Standardization of equipment for spare parts availability, maintenance efficiency and operator familiarity is VWS policy.

4. Transport

The Project has furnished 27 of the total VWS fleet of 52 vehicles (see Appendix 1). The VWS transport officer monitors fuel consumption and kilometers travelled by all vehicles on a monthly basis and prepares a statement which is used as a control to reconcile fuel charges from Government garage. The T.O. is in charge of all drivers. Each new driver, interviewed prior to employment, is checked for a safe driving record and experience. VWS is continuing

with the program started in July, 1982, of discipline/incentive through close monitoring of driver performance. Drivers that exceed the minimum performance level are eligible for a quarterly "Best Driver Award". This includes a letter of commendation, an award certificate and cash incentive presented by the Permanent Secretary of MCRD. We believe this program has been largely responsible for an improvement in driver morale, a reduction in the accident rate and a corresponding improvement in the care of vehicles.

5. Vehicle Maintenance

With the increase of the total number and diversity of VWS vehicles we have made special arrangements with various spare parts suppliers to place orders by telex/telephone. "Common" spares are not commonly available in Lesotho. Local distributors are not generally a reliable source and we must, and have, established supply links in RSA. A spare parts inventory control system has been designed and will be implemented when the new Maseru workshop is completed.

This year we have opened, equipped, and assigned a mechanic to the north and south regional workshops. While these workshops are not equipped to the same level as Maseru they do have the capability of performing routine services and minor repairs. The Maseru workshop expansion program is well underway with occupancy expected by the end of May, 1983, and when completely equipped will have front end alignment, wheel balancing, engine analyzer, engine overhaul and auto electric diagnosis services as well as a spare parts store and parts counter, and welding and carpentry shops. The jobcard system implemented last year has proven useful in scheduling repairs, recording services, tracking spare parts. The Maseru workshop manager (a Mosotho trained in the U.S.) will oversee vehicle and equipment maintenance.

6. Special Projects

The maintenance section has been acting as liaison between Village Water Supply and Ministry of Works in the office/stores/workshop expansion program. We expect occupancy of stores, workshop, welding shop and carpentry shop by the end of May, 1983. The first phase of the office expansion is expected to be done in June with the second phase to be completed by 1 October.

Testing the yield of boreholes has been a problem due to the lack of adequate equipment. Maintenance section has designed and is building a test unit utilizing the complete power and drive train from a wrecked car. It is mounted on a two wheel trailer easily moved and set-up at boreholes. When complete it will be able to drive the test pump through a range of speeds that will allow more accurate testing of borehole yields.

7. Training

Training of water system maintenance personnel has received high priority. Maintenance section now has two graduates of the VSW foreman training course with two other members having passed the examination for an "A" and "B" mechanical trade certificate. In the past year 18 short courses ranging from 1/2 day to several days have been arranged and completed. The majority of these courses were held in Maseru by instructors having specialized knowledge. A list of these courses is summarized in Table M-2

TABLE M-2

MAINTENANCE TRAINING

Course	Location
Preventive and general maintenance	International Harvester, Johannesburg
Air brakes	International Harvester, Johannesburg
Pionjar jack hammer repair	VWS, Maseru
Engine Analyzer	VWS, Maseru
Machine and hydraulics design	Stewarts & Lloyds, Molimo Nthuse, Lesotho
Hand pump installation	VWS, Maseru
Diesel engine borehole pump installation	VWS, Maseru
Diesel/electric - horizontal pump installation	VWS, Maseru
Vehicle minor service procedures	VWS, Maseru
Vehicle major service procedures	VWS, Maseru
Driver instruction	VWS, Maseru
Lister diesel engine repair	Stewarts & Lloyds, Water Branch, Maseru
Workshop jobcard procedures	VWS, Maseru
System maintenance scheduling/ organization	VWS, Maseru
Transport scheduling and control	VWS, Maseru
Workshop organization and set-up	VWS, Maseru
Spare parts inventory and order control	VWS, Maseru
Auto technology and workshop maintenance	West Germany

X. FINANCIAL CONTROL

1. Summary

VWS accounts staff has shown general improvement since the appointment of a counterpart in August, 1982. The constant turn-over of personnel (appointed by Ministry of Finance) and general lack of basic accounting training are still problems to overcome. Because of this the financial specialist is still spending too much of his time on routine matters.

Accounts clerks have been assigned to both north and south regional maintenance centers. It is now possible to distribute funds to regional engineers for local management and control. This has improved accountability and simplified problems associated with making local purchases and payments.

A new budgetary control system has been designed and implemented. Monthly reports are prepared for Ministry and monthly and quarterly reports for USAID.

Stores, as a financial function, requires improvement. The basic problems have been lack of a qualified senior storekeeper to assume responsibility and a less than adequate storate facility at Maseru H.Q. Stores procedural manuals have been written but implementation has been slow and will not be fully effective until the expansion of the Maseru stores is completed and the financial specialist can devote more time to organization and system improvement. Our plan is to turn over accounts to the counterpart so that the financial specialist can concentrate on stores during his final year with the Project.

2. Government Financial Support

Counterpart contributions to the USAID Project for Government fiscal year 1983/84 have been approved (but too late for inclusion in Table F-5) and can be summarized as follows:

1.	Maintenance Support Program (salaries):	M 43,500
2.	Administrative Support:	10,000
3.	Land and Utilities:	5,000
4.	Misc. (tools, rental, training):	42,500
5.	Vehicle Operation (for USAID vehicles):	
	Spare Parts	14,600
	Fuel and Lubricants	110,500
	TOTAL	M226,100

Project contributions to date equal or exceed Grant Agreement obligations. Particular note must be taken that excess USAID FAR funds granted to Government for construction of housing and maintenance centers has been returned to VWS for construction of new offices and workshops. The excess funding is approximately M200,000.

VWS capital funding approved by Government is approximately M250,000 which will be used to purchase local construction materials and tools. These materials will be used in support of USAID as well as other donor projects.

3. USAID Project Funding

The rate of Project expenditures is increasing. We noted in the First Annual Report the concern of USAID that Project funds were not being utilized according to expectations. The reasons for this were a late start-up and the requirement of a two-year work plan before release of funding. Another factor becoming apparent is that some funding is going further than expected in meeting construction goals. As previously mentioned, we expect approximately $1,000,000 savings in imported pipes and fittings. On the other hand we anticipate the need for more than 5-times the original Project Paper budget for local construction materials ($108,000 to $557,000). The PP estimate is simply too low for the number of construction projects stated as a Project goal (see Table F-1, item C-8b). Table F-1 is the latest revision of the Project budget. For convenience both budgets are compared in summary form.

Line Item	PP Budget	Revised Budget
A. Technical Assistance	$2,202,700	$3,576,000
B. Training	387,200	461,100
C. Commodities	7,602,200	6,086,400
D. Construction	476,100	994,400
E. Other Costs	1,473,900	1,382,800
F. Misc.	0	22,900
	$12,142,100	$12,523,600

The revised total compared to the PP budget does not mean an over-expenditure to meet Project goals, but rather that budget projections to 1988 cannot be made with any degree of reliability. After two years of implementation we do expect to meet, or exceed, Project goals within the total funding limit, however annual budget revisions will reflect changes in line items to meet changing conditions.

Shelf item expenditures to date total $100,000 of which $50,000 is for local construction materials. As previously noted we expect to spend over $500,000 on local construction materials and eventually will request that USAID raise the shelf item limit.

The following financial tables summarize Project activity:

F-1: Revised Two Year Work Plan Budget (as of January 1, 1983). This budget reflects expenditures and projects annual expenditures through 1988. Basic assumptions are:

- $1.00 = M1.00
- Material and equipment inflation at 10% per year
- Labor (salary) inflation at 5% per year
- Fuel inflation at 10% per year
- The USAID fiscal year is used

This budget can be generally compared to the Project Paper budget on an item by item basis.

F-2: Life of Project Expenditure Report. Includes all Project expenditures and commitments through April, 1983, excepted as noted.

F-3: Technical Assistance Contract Expenditure Report

F-4: USAID Local Advances Expenditure Report: Quarterly budgets are submitted to USAID with reimbursement based on monthly expenditure reports. Funds are channelled directly into a Government (VWS) account especially established for this purpose. Expenditures must receive approval of the Project team leader and financial controller with the concurrence of the VWS senior engineer.

F-5: Counterpart Contribution Expenditure Report: This report represents Government's contributions to the Project as established in the Grant Agreement. The G.A. schedule calls for a contribution level of M368.1 through March, 1983, including village self help labor. This compares to M740,708 committed or expended through April, 1983. The G.A. undervalued village self help labor (M55,200 compared to M244,000). Also, and with USAID approval, Government is credited with fuel and spare parts used by USAID funded vehicles. In summary, Government is meeting its obligations to the Project.

TABLE F-1

USAID PROJECT 632-0088
RURAL WATER AND SANITATION PROJECT

Recommended USAID Expenditure Schedule
Revision No. 1 To Two Year Work Plan
January 1, 1983

(in 000's of U.S. Dollars)

	Expense to Date	FY 82/83	FY 83/84	FY 84/85	FY 85/86	FY 86/87	FY 87/88	TOTAL
TOTAL:	3,253.2	3,369.2	2,521.8	2,230.4	799.0	346.0	4.0	12,523.6
A. TECHNICAL ASSISTANCE CONTRACT	990.4	932.1	753.5	450.0	300.0	150.0	0	3,576.0
1. T/A Services	907.8	852.1	738.5	450.0	300.0	150.0	-	3,398.4
2. Equipment and Materials	82.6	30.0	15.0	-	-	-	-	127.6
3. 2 Small Drill Rigs	0	50.0	0	-	-	-	-	50.0
B. TRAINING	55.0	123.4	127.3	114.4	22.0	19.0	0	461.1
1. Participant	36.5	46.9	50.3	63.4	-	-	-	197.1
2. In-Country		4.0	5.0	5.0	6.0	6.0	-	
3. In-Service	8.1	5.0	5.0	6.0	6.0	7.0	-	85.1
4. Water Minder		6.0	7.0	2.0	3.0	4.0	-	
4a. W/M Tool Kits	-	20.0	22.0	36.0	-	-	-	78.0
5. Public Health								
a. Education		33.0	36.0	-	-	-	-	
b. Equipment and Materials	10.4	5.0	2.0	2.0	2.0	2.0	-	100.9
c. K.A.P. Survey		3.5	-	-	5.0	-	-	

TABLE F-1 (Continued)

		Expense to Date	FY 82/83	FY 83/84	FY 84/85	FY 85/86	FY 86/87	FY 87/88	TOTAL
C.	COMMODITIES	1,578.4	1,513.0	1,345.0	1,399.0	235.0	3.0	4.0	6,086.4
	1. Drilling Equipment	97.0	77.0	69.0	53.0	58.0	0	0	354.0
	a. 4-Cable Tool Rigs	80.8	-	-	-	-	-	-	80.8
	b. 2-Small Rotary Rigs (see T/A contract)								
	c. 4-Caravans	0	24.0	-	-	-	-	-	24.0
	d. Tools and Spares	4.0	26.0	39.0	53.0	58.0	-	-	180.0
	e. B/H Casing (Import)	12.2	27.0	30.0	-	-	-	-	69.2
	2. Borehole Casing (see above)								
	3. Hand Pumps (450)	334.4	261.0	0	0	0	0	0	595.4
	a. 1982 Deliveries (250)	334.0	-	-	-	-	-	-	334.4
	b. Pumps Complete (200)	0	180.0	-	-	-	-	-	180.0
	c. Insurance & Shipping (45%)	0	81.0	-	-	-	-	-	81.0
	4. Repair Parts, System Maintenance (Major)	8.2	20.0	21.0	12.0	13.0	0	0	74.2
	a. Diesel Engine (Local)		10.0	10.0	12.0	13.0	-	-	
	b. Windmills (Local)	8.2	10.0	11.0	-	-	-	-	74.2
	c. Misc. Spare Parts	(Included in Item E.2b)							
	5. Vehicles	356.2	0	0	0	0	0	0	356.2
	a. Procurement (27)	350.2	-	-	-	-	-	-	350.2
	b. Replacement	(None Planned)							
	c. Insurance	6.0	-	-	-	-	-	-	6.0

TABLE F-1 (Continued)

		Expense to Date	FY 82/83	FY 83/84	FY 84/85	FY 85/86	FY 86/87	FY 87/88	TOTAL
6.	Tools and Power Equipment	38.1	40.0	15.0	15.0	15.0	0	0	123.1
	a. Construction & Maintenance (Local)	38.1	10.0	10.0	10.0	10.0	-	-	78.1
	b. Workshop Equipment (Local)	0	30.0	5.0	5.0	5.0	-	-	45.0
7.	Water Test Equipment	0	2.0	3.0	3.0	3.0	3.0	4.0	18.0
8.	Pipe, Fittings and Materials	744.5	1,113.0	1,246.0	1,316.0	146.0	0	0	4,565.5
	a. Pipe, Fittings (Import)	507.3	724.0	796.0	876.0	-	-	-	2,903.3
	b. Construction Materials (Local)	47.3	110.0	121.0	133.0	146.0	-	-	557.3
	c. Procurement and Shipping (35.1%)	189.9	254.0	279.0	307.0	-	-	-	1,029.9
	d. Sanitation Materials (Local)	-	25.0	50.0	-	-	-	-	75.0
9.	Cement/Rebar/Tanks	(Included in C.8b above)							
D.	CONSTRUCTION (FAR)	446.2	548.2	0	0	0	0	0	994.4
E.	OTHER COSTS	160.3	252.5	287.0	267.0	242.0	174.0	0	1,382.8
1.	Vehicle Maintenance (Spares)	9.2	27.0	30.0	33.0	36.0	0	0	135.2
2.	System Maintenance Support	75.2	93.5	119.0	88.0	53.0	14.0	0	442.7
	a. Salaries	64.9	75.5	104.0	76.0	46.0	12.0	-	378.4
	b. System Spare Parts (Minor)	10.3	18.0	15.0	12.0	7.0	2.0	-	64.3
3.	Temporary Wage Labor	75.9	132.0	138.0	146.0	153.0	160.0	0	804.9
	a. Masons	68.3	107.0	112.0	118.0	124.0	130.0	-	659.3
	b. Local Hire	7.6	25.0	26.0	28.0	29.0	30.0	-	145.6
F.	MISCELLANEOUS	22.9	0	0	0	0	0	0	22.9

TABLE F-2

USAID PROJECT 632-0088
RURAL WATER AND SANITATION PROJECT

Life of Project Expenditure Report

Two Years Ending: April 30, 1983

(in 000's U.S. Dollars)

Item	L.O.P.* Budget	Expenses Year 82/83 Committed	Expenses Year 82/83 Expended	Expenses To Date Committed	Expenses To Date Expended
A. Technical Assistance	3,576.0	1,818.4	540.2	2,784.8	1,281.3
B. Training	461.1	35.7	58.2	104.8	77.4
1. Participant (Overseas)	197.1	0	25.1	64.2	44.3
2, 3, 4. In-Ccuntry	85.1	19.9	20.9	21.6	20.9
4a. Water Minder Tool Kits	78.0	0	0	0	0
5. Public Health	100.9	15.8	12.2	19.0	12.2
C. Commodities	6,086.4	185.7	989.2	1,581.8	1,317.5
1. Drilling Equipment	354.0	24.8	109.6	114.8	109.6
2. Bore Hole Casing (Included in C.1)					
3. Hand Pumps	595.4	0	8.7	261.4	20.1
4. Major Repair Parts, System Maintenance	74.2	14.0	8.8	14.0	8.8
5. Vehicles	356.2	25.5	71.1	356.3	355.0
6. Tools and Power Equipment	123.1	54.7	53.6	58.2	57.2
7. Water Test Equipment	18.0	.4	.4	.4	.4
8. Pipes and Fittings and Materials	4,565.5	66.3	737.0	776.7**	766.4
9. Construction Materials (Included in C.8)					

*Revised January 1, 1983.
**PIO/C 632-0088-4-10175 has been issued for $1,000,000 for the second pipe and fitting procurement but is not yet treated as a commitment by USAID.

TABLE F-2 (Continued)

Item	L.O.P.* Budget	Expenses Year 82/83 Committed	Expenses Year 82/83 Expended	Expenses To Date Committed	Expenses To Date Expended
D. Construction	994.4	4.4	159.2	992.9	596.4
E. Other Costs	1,382.8	206.1	201.9	234.6	221.9
1. Vehicle Spare Parts	135.2	41.6	37.0	47.6	38.1
2. System Maintenance Program					
a. Salaries	378.4	68.6	68.6	68.6	68.6
b. Repair Parts	64.3	18.1	16.7	21.6	18.7
3. Temporary Wage Labor					
a. Masons	659.3	66.5	66.3	83.5	83.2
b. Local Hire	145.6	13.3	13.3	13.3	13.3
F. Miscellaneous	22.9	9.1	13.0	32.4	25.4
GRAND TOTAL	12,523.6	2,259.4	1,961.7	5,731.3	3,375.2

TABLE F-3

MORRISON-MAIERLE TECHNICAL ASSISTANCE CONTRACT

Expenditure Report

Two Years Ending: April 30, 1983

		Project Budget	Amount Obligated	Expended To Date	Percent of Obligation
1.	Salaries				
	A. Field Staff Professional	422,132	359,770	197,499	55
	B. Home Office Professional	66,384	46,898	17,415	37
	C. Home Office, Non-Professional	35,883	34,097	9,544	28
	D. Field Office Admin. Asst.	24,395	13,600	0	0
	TOTAL SALARIES	548,794	454,365	224,458	49
2.	Overhead				
	A. Field Office	327,327	299,741	150,277	50
	B. Home Office	132,272	116,466	34,868	30
	TOTAL OVERHEAD	459,599	416,207	185,145	44
3.	Subcontracts				
	A. Technical	1,411,468	1,170,957	549,734	47
	B. Well Drilling	17,150	17,500	8,400	48
	TOTAL SUBCONTRACTS	1,428,618	1,188,457	558,134	47
4.	Allowances				
	A. Post Differential	43,019	31,187	19,446	62
	B. International Per Diem	7,081	2,875	2,326	81
	C. Domestic Per Diem (D.C.)	2,944	1,350	811	60
	D. Domestic Per Diem (H.O.)	1,526	300	926	307
	E. Lesotho Per Diem	63,278	57,218	7,607	13
	F. Lesotho 1st Arrival Per Diem	7,050	0	1,612	-
	TOTAL ALLOWANCES	124,898	92,930	32,728	35
5.	Travel and Transportation				
	A. Domestic	3,500	2,975	893	30
	B. International	68,630	63,180	18,984	30
	C. Unaccompanied Baggage	9,900	18,125	5,228	28
	D. Shipment HHE	29,490	30,745	16,124	52
	E. Storage HHE	5,350	3,953	2,956	75
	F. Local Transportation	4,000	4,000	3,078	77
	G. R&R Travel	28,800	34,260	11,113	32
	TOTAL TRAVEL & TRANSPORTATION	149,670	157,238	58,376	37

TABLE F-3 (Continued)

	Project Budget	Amount Obligated	Expended To Date	Percent of Obligation
6. Other Direct Costs				
A. DBA Insurance	18,510	14,634	10,550	72
B. Medicals, Passports, etc.	9,000	9,335	4,608	49
C. Utilities	8,500	8,721	5,094	58
D. Telex and Telephone	16,545	23,630	13,318	56
E. Vehicle Insurance	400	1,993	287	14
F. Guard Service	20,400	33,512	14,006	42
TOTAL OTHER DIRECT COSTS	73,355	91,825	47,863	52
7. Equipment and Materials				
A. Power Tools & Field Equipment	175,697	215,365	85,177	40
B. Office Equipment & Supplies	24,076	27,905	14,407	52
C. Household Furnishings	20,970	20,970	20,867	99
TOTAL EQUIPMENT & MATERIALS	220,743	264,240	120,451	46
TOTAL COST	3,005,677	2,665,262	1,227,155	46
Fee @ 8% (Excluding 3A)	126,165	119,544	54,194	45
TOTAL PROJECT	3,131,842	2,784,806	1,281,349	46

TABLE F-4

USAID PROJECT 632-0088
RURAL WATER AND SANITATION PROJECT

Life of Project USAID Local Advances Expenditure

Two Years Ending: April 30, 1983

Administered Through Government of Lesotho Vote 715/001/53211

(In U.S. Dollars)

Sub Vote	Item	L.O.P. Budget	Expenses To Date	L.O.P. Budget Balance
1	B.2,3,4: Training (In-Country)	163,100	20,889	142,211
1A	B.5: Training (Public Health)	100,900	12,232	88,668
13	C.1: Drilling Equipment & Tools	180,000	16,200	163,800
4	C.4: Major Repair Parts (System Maintenance)	74,200	8,804	65,396
	C.6: Tools & Power Equipment	123,100	0	123,100
14	C.7: Water Test Equipment	18,000	355	17,645
6-12	C.8b: Construction Materials (Local)	557,300	61,540	495,760
	C.8d: Sanitation Construction Materials (Local)	75,000	0	75,000
5	E.1: Vehicle Maintenance	135,200	38,053	97,147
3	E.2: System Maintenance Support (Salaries)	378,400	68,551	309,849
2	E.2: System Maintenance Support (Spare Parts)	64,300	18,731	45,569
8	E.3a: Temporary Labor (Masons)	659,300	83,242	576,058
7	E.3b: Temporary Labor (Local Hire)	145,600	13,301	132,299
		2,674,400	341,898	2,332,502

USAID Advances to Date	$354,403
Less Expenses	341,893
Unexpended Balance	12,505
Less Commitments	37,057
Funds Available	$(24,552)

TABLE F-5

RURAL WATER AND SANITATION PROJECT

GOVERNMENT OF LESOTHO COUNTERPART CONTRIBUTION

Counterpart Contribution Expenditure Report

Two Years Ending: April 30, 1983[1]

(In Maloti)

		Year 82/83		To Date	
		Committed	Expended	Committed	Expended
1.	MAINTENANCE SUPPORT PROGRAM	M 31,223	M 27,545	M 33,680	M 30,001
	A. Salary[2]	16,491	16,491	16,491	16,491
	B. Spare Parts	14,732	11,054	17,189	13,510
2.	ADMINISTRATIVE SUPPORT	9,325	9,325	19,368	19,368
3.	LAND AND UTILITIES[3]	225,182	44,524	273,112	92,454
4.	MISCELLANEOUS	59,257	57,024	112,972	110,739
	A. Tools, Equipment & Spare Parts	28,315	26,082	79,193	76,960
	B. Furnishings	22,156	22,156	22,506	22,506
	C. Housing Rental	8,241	8,241	10,728	10,728
	D. Training	545	545	545	545
5.	VEHICLE OPERATION	46,774	46,774	57,576	57,576
6.	VILLAGE SELF-HELP LABOR	244,000	244,000	244,000	244,000
	GRAND TOTAL	M615,761	M429,192	M740,708	M554,138

(1) Does not include GOL FY 1983/84 contributions since the figures have not yet been released.

(2) GOL salary contributions calculated from beginning date of USAID salary contributions to the Maintenance Support Program (April 1, 1982).

(3) Includes excess USAID FAR funds originally granted to Government for construction of houses and maintenance centers.

APPENDIX 1

VWSS VEHICLE ROSTER

As of April 30, 1983

Vehicle Type		Registration	Donor
Landrover	P/U 4WD	Y 6101	USAID
Landrover	P/U 4WD	Y 6102	USAID
Landrover	P/U 4WD	Y 6169	USAID
Landrover	S/W 4WD	Y 6031	USAID
Landrover	S/W 4WD	Y 6082	USAID
Datsun	P/U 4WD	Y 6053	USAID
Toyota	P/U 4WD	Y 6168	USAID
Toyota	P/U 4WD	Y 6234	USAID
Toyota	P/U 4WD	Y 6254	USAID
Toyota	P/U 4WD	Y 6255	USAID
Toyota	P/U 4WD	Y 6235	USAID
Toyota	P/U 4WD	Y 6335	USAID
Toyota	P/U 4WD	Y 6336	USAID
Toyota	P/U 4WD	Y 6337	USAID
Toyota	P/U 4WD	Y 6338	USAID
Toyota	P/U 4WD	Y 6339	USAID
Toyota	P/U 4WD	Y 6500	USAID
Toyota	P/U 4WD	Y 6501	USAID
Toyota	P/U 4WD	Y 6502	USAID
Toyota	P/U	Y 6099	USAID
Toyota	P/U	Y 6100	USAID
IH	8T	Y 6315	USAID
IH	8T	Y 6316	USAID
IH	8T	Y 6317	USAID
Dyna	2.5T	Y 6256	USAID
Dyna	2.5T	Y 6257	USAID
Dyna	2.5T	Y 6258	USAID
Toyota	L/C	Y 6098	SWISS
Toyota	L/C	Y 6154	SWISS
Toyota	L/C	Y 6246	SWISS
Toyota	L/C	Y 6247	SWISS
Toyota	L/C	Y 6378	SWISS
Toyota	L/C	Y 6381	SWISS
Toyota	L/C	Y 6492	SWISS
Toyota	L/C	Y 7605	SWISS
Toyota	L/C	Y 7606	SWISS
Toyota	L/C	Y 9294	SWISS
Toyota	L/C	Y 9969	SWISS
Landrover	P/U	X 7779	GOL
Landrover	P/U	X 7781	GOL
Landrover	P/U	X 7972	GOL
Toyota	P/U	X 7881	GOL
Toyota	P/U	X 9560	GOL
Leyland	8T	X 7660	GOL

VWSS VEHICLE ROSTER (Continued)

Vehicle Type	Registration	Donor
Toyota P/U	Y 7940	UNICEF
Toyota P/U	Y 7941	UNICEF
Toyota P/U	Y 9984	UNICEF
Leyland 8T	Y 9309	UNICEF
Landrover P/U 4WD	y 7965	E.E.C
Leyland 8T	Y 7967	E.E.C
Toyota P/U 4WD	A 5604	DANISH
Toyota P/U 4WD	A 5640	DANISH

USAID	27
SWISS	11
GOL	6
UNICEF	4
E.E.C	2
DANISH (DVS)	2
Total:	52

APPENDIX 2

USAID is reimbursing Government for salary and wages for the following personnel - masons are 100% supported (Temporary Wage Labor Program); foremen and supervisiors are supported 65-80% (System Maintenance Support Program) depending on length of time in the program.

Masons

T. Moorosi
E. Ramokotjo
J. Masenkane
B. Thulo
S. Matsoso
L. Thamahane
P. Majoro
M. Lekoala
N. Bohloa
J. Xakani
Abia Mohlomi
Thabiso W. Masitha
Liotlo Thelingoane
Makoanyane Kelebone
Morahanye Leeu
Mokemane Makhoebe
Tsikoane Raohang
Mofosi Hloai
A.M. Nyai
A. Matsinyane
S. Ramokoatsi
E.N. Moeketsi
M. Mothibi
G. Ngonnahali
R. Majoro
E.M. Chaole
R.S. Mothiri
D. Mosala
H. Monyake
T. Bulane
M. Mafantiri
M. Matela
M. Pheko

Foremen

L. Tjabane
M. Jobo
L. Sekhesa
G. Thokoa
K. Mahalefele
M. Mpitso
T. Nthunya
P. Khampepe
L. Setlai
B.T. Mohapeloa
N. Bohloa
T.K. Moima
B. Fusi
E.K. Mosuhli
P. Mhlweni
M. Mafika
A. Setumo
L. Leboela
S. Molemane
S. Thakholi
G. Namoli
P. Nthabane
P. Roomane
W.M. Majoro
T. Matsoara
T. Sekonyela

Supervisors

F. Moto
R. Sepamo
M. Motselebane
T. Sengoai
R. Matete
K. Chedi
T. Marikimane
T.J. Mpiti
M. Moshabesha.

Appendix 3

Project Source Documents, Studies, Reports and Papers

Multi-Sectorial Approach to Health Education and Coordination for Water Supply and Sanitation

Analysis and Evaluation of Hand Pumps: Three village field reports by NUL students.

Knowledge, Attitude and Practice (K.A.P.) (Preliminary) Studies. Eight village field reports by NUL students.

Two-Year Project Work Plan (1982-83)

Temporary Wage Labor Program

System Maintenance Support Program

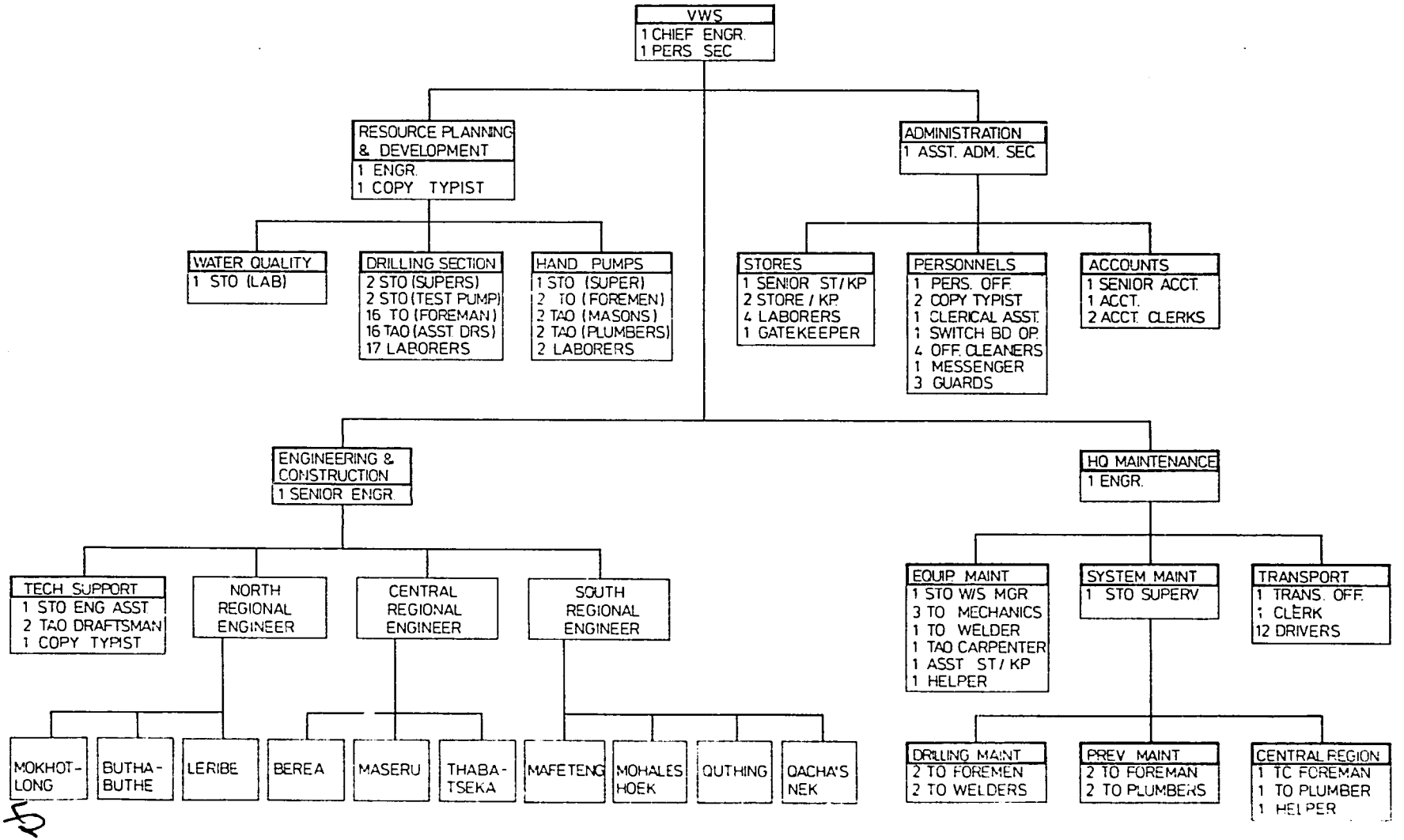
Borehole and Hand Pump Program

VWS priority construction program (1983-84)

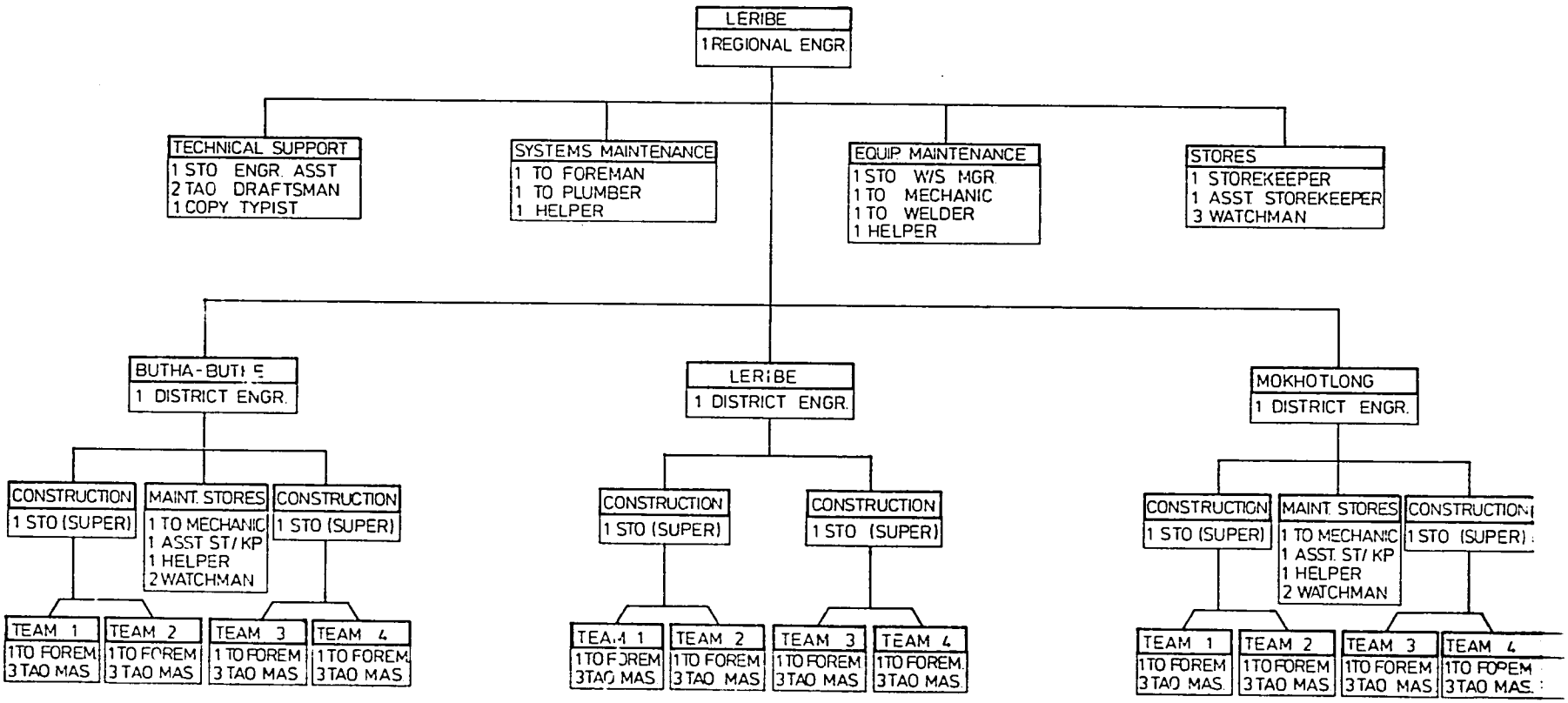
APPENDIX 4

VWS Organization Charts

VWS ORGANIZATION STRUCTURE APRIL 1983

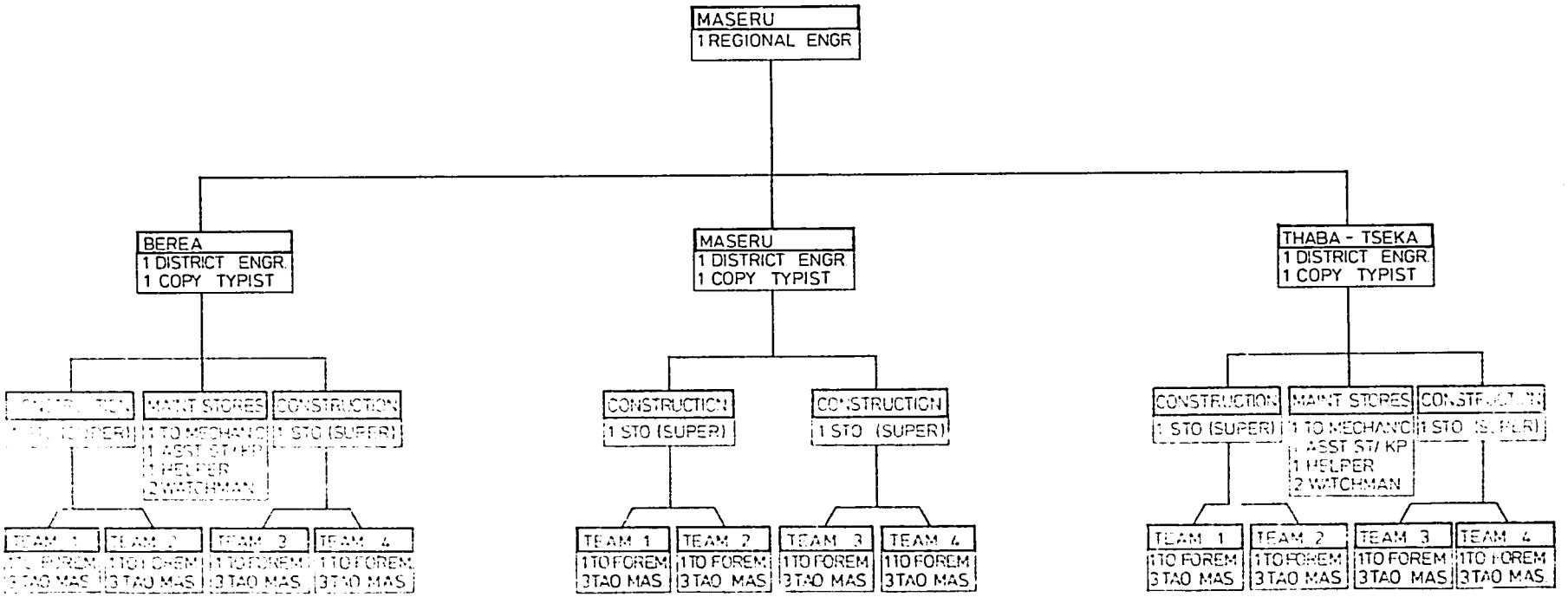


VWS REGIONAL ORGANIZATION NORTH APRIL 1983

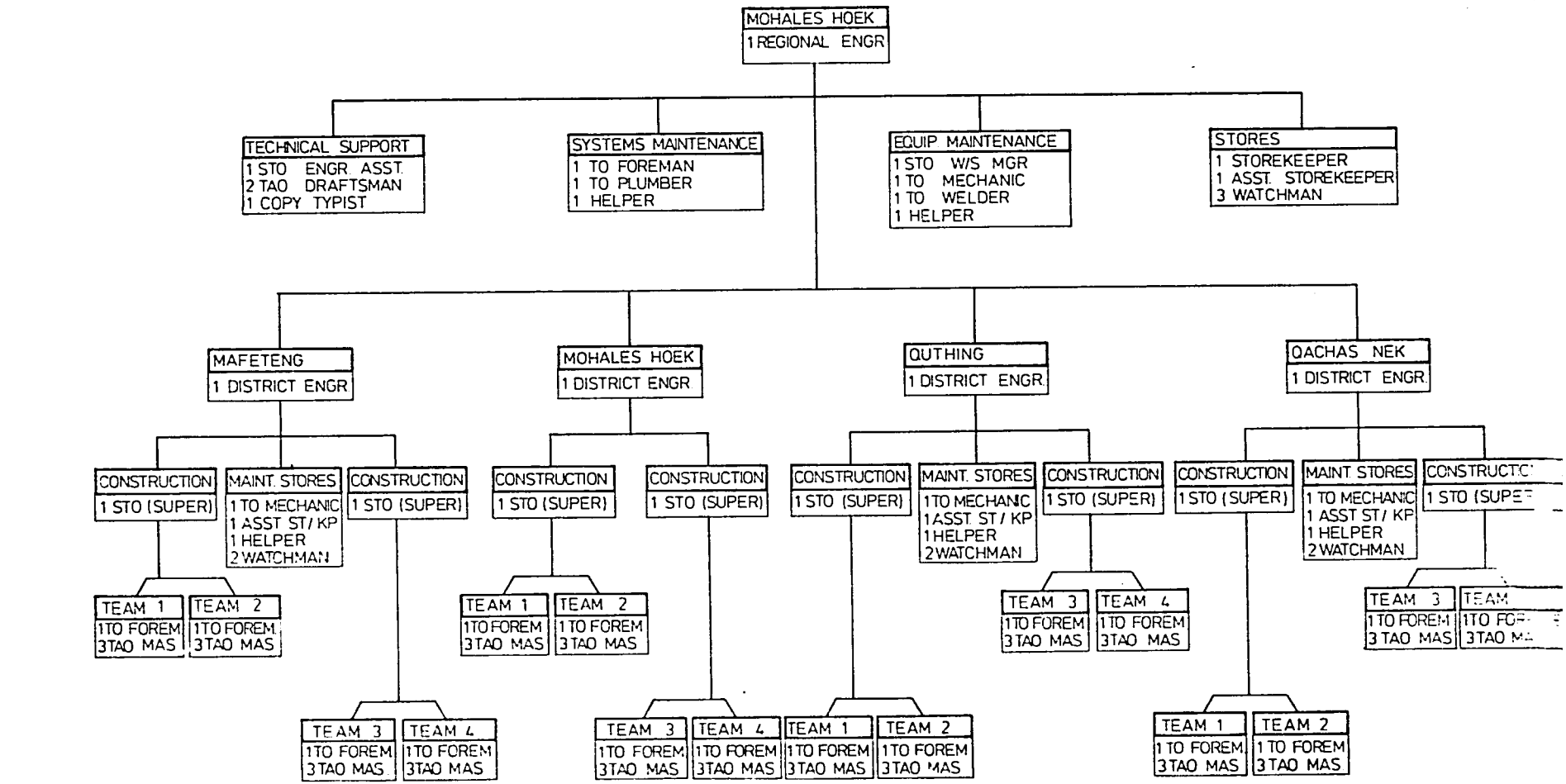


42

VWS REGIONAL ORGANIZATION CENTRAL APRIL 1983



VWS REGIONAL ORGANIZATION SOUTH APRIL 1983



APPENDIX 5

Project Pictures

TYPICAL TRADITIONAL SOURCE

VILLAGE "SPRING" SERVING 800 PEOPLE

DROUGHT IN MAFETENG DISTRICT

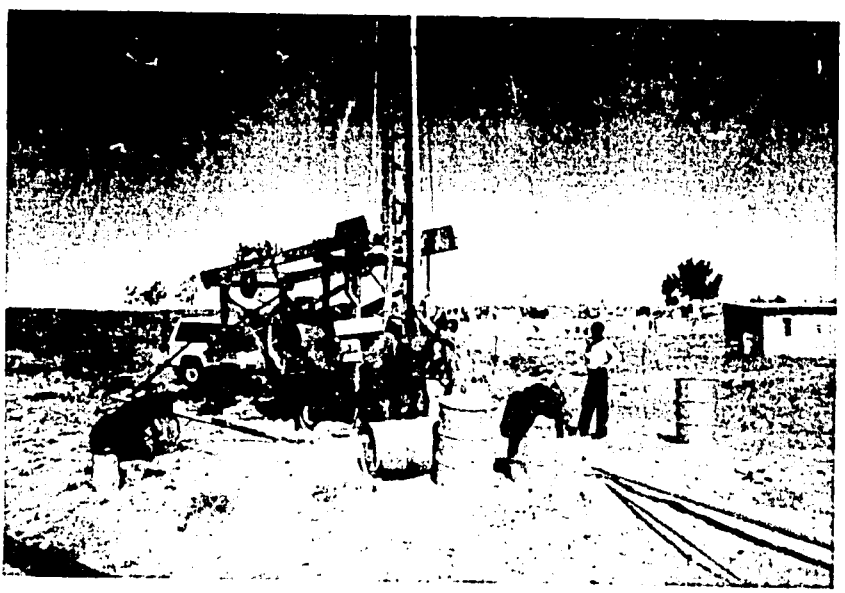
TYPICAL TRADITIONAL SOURCE, HIGHLY POLLUTED.

QUALITY:

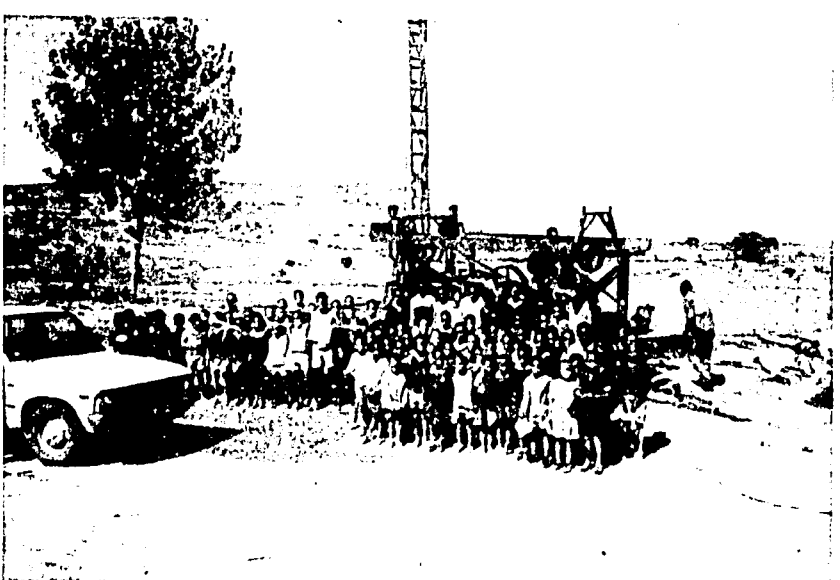
5000 FECAL COLIFORM/100 ML

TRADITIONAL SOURCE CLOSED BECAUSE OF TYPHOID. FIVE DEATHS IN VILLAGE.
6300 FECAL COLIFORM/100 ML

VWS DRILLING FOREMEN. SIGN READS: 80 BOREHOLES IN 1982



TYPICAL DRILL RIG IN OPERATION



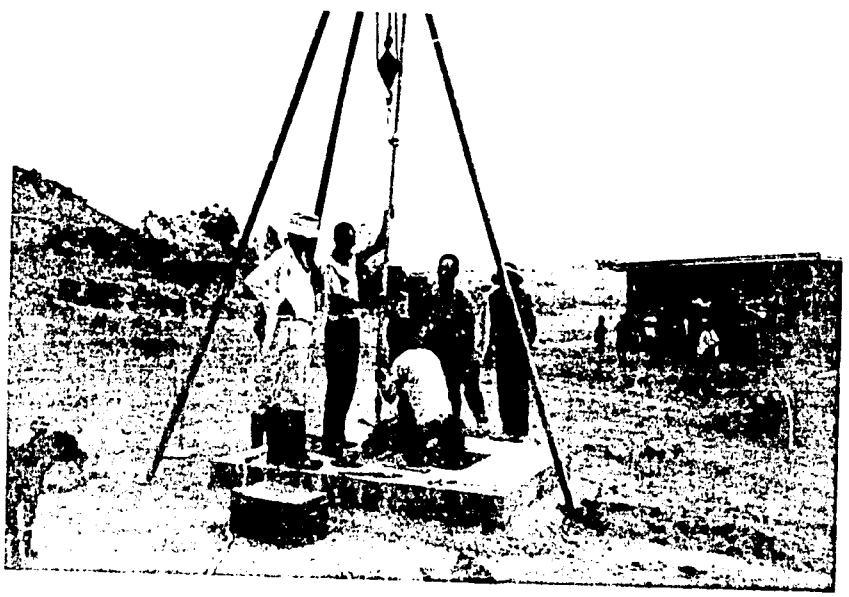
WATER FOR A SCHOOL OF 300

WOMEN SUPPLY DRILL RIGS WITH WATER.

WOMEN IN ACTION TO KEEP A DRILLING RIG SUPPLIED WITH WATER.

THE END PRODUCT: A USAID SUPPLIED "MOYNO" HAND PUMP

SELF-CONTAINED DRILL RIG BEING RELOCATED. A WELCOMED SIGHT IN ANY VILLAGE.

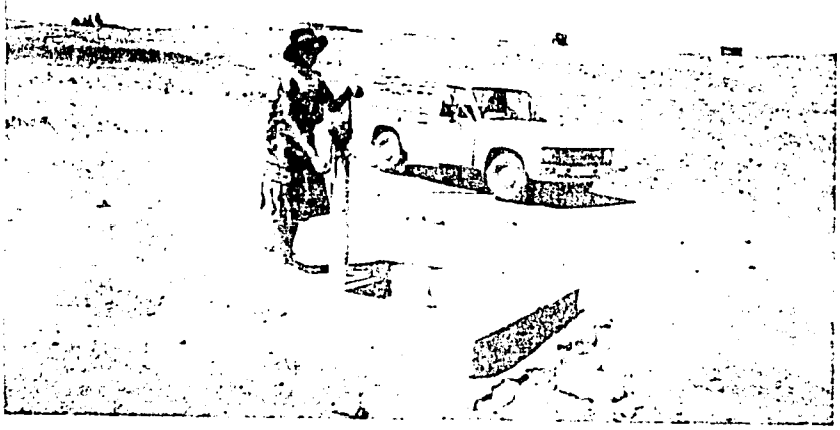


HAND PUMP BEING INSTALLED 1 - VWS FOREMAN; THE OTHERS ARE VILLAGERS.

VILLAGE WOMEN EXCAVATING DRAIN PIT FOR HAND PUMP

TYPICAL
HAND PUMP
INSTALLATIONS.

126 INSTALLED
TO-DATE.

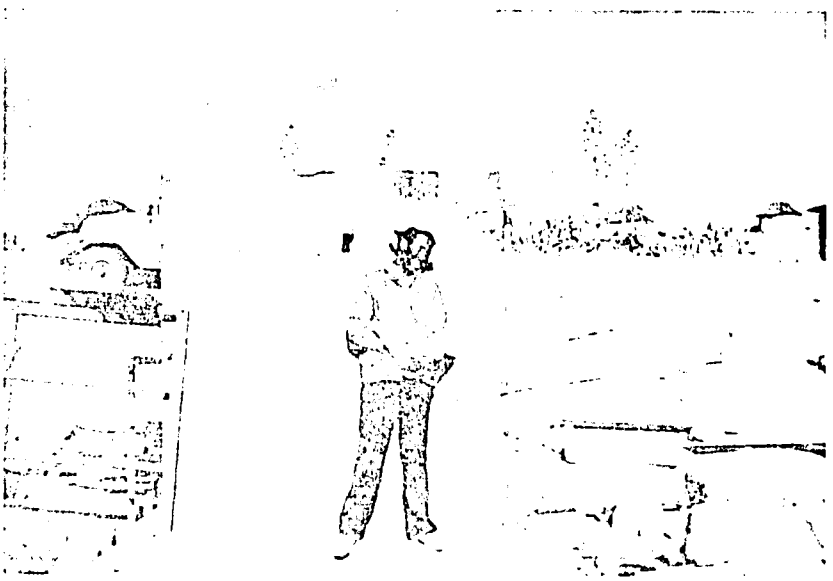


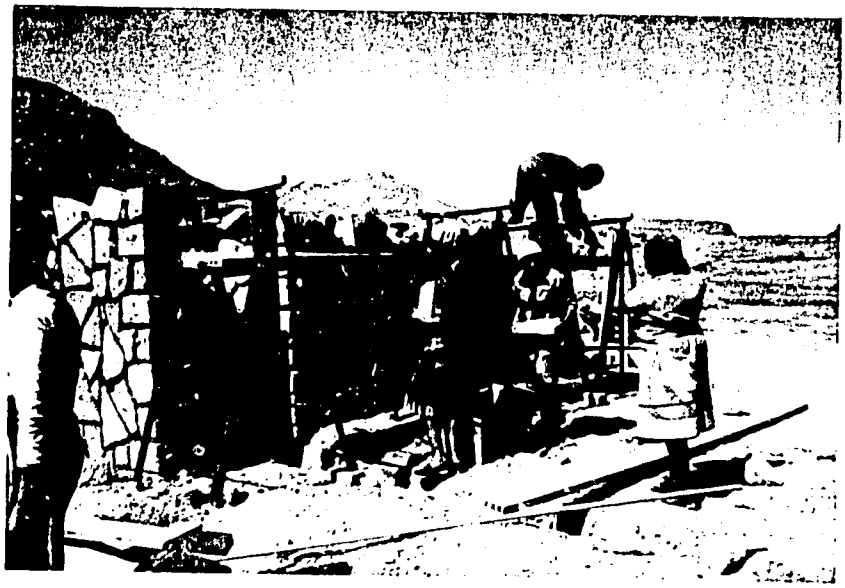
GRADUATING CLASS, 2ND FOREMEN TRAINING COURSE

TYPICAL $10 M^3$ RESERVOIR. NOTE QUALITY OF MASONRY WORK. ALL LOCAL ROCK, CUT & SHAPED

LOCAL VILLAGE TAP SUPPLIED FROM RESERVOIR SHOWN ABOVE.

VWS MASONS AND EXAMPLES OF THEIR WORK.

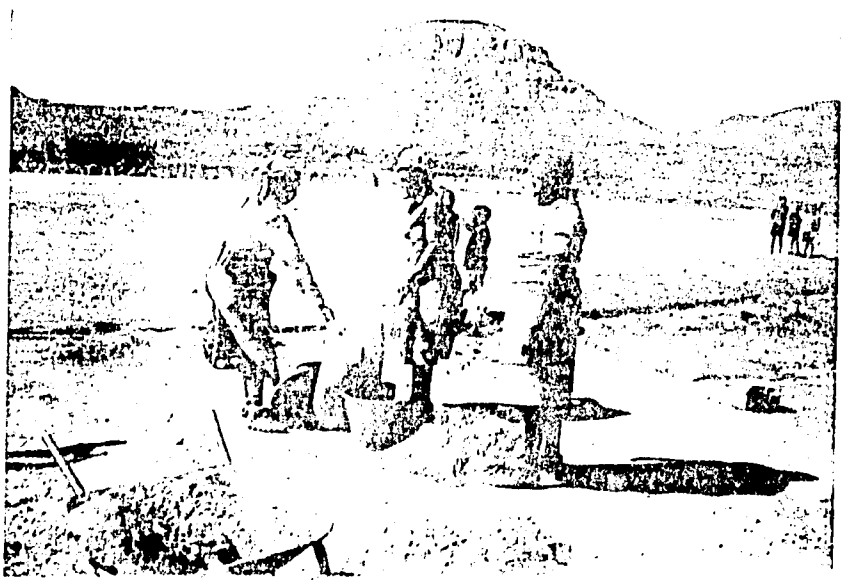


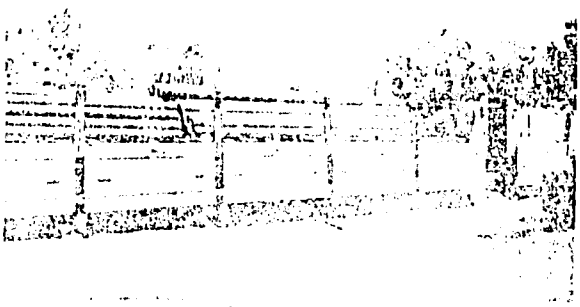


TYPICAL EXAMPLES OF WORK BY WOMEN ON A GRAVITY FEED SYSTEM

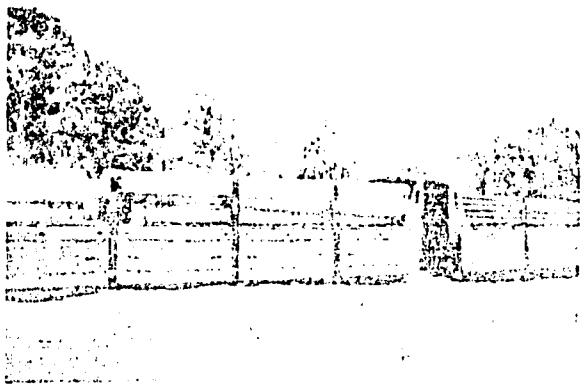
DIGGING PIPE TRENCHES

MIXING CONCRETE

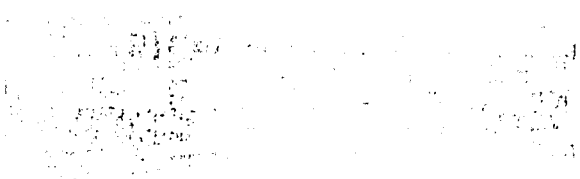




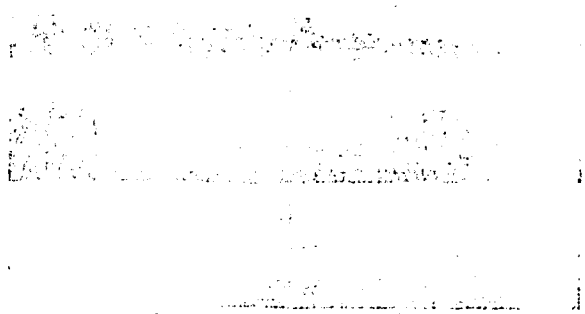
USAID PIPE, ZASTRON
10 NOV 1982



USAID PIPE, ZASTRON
10 NOV, 1982



USAID PIPE UNLOADING
MONALES HOIST, 10 NOV 82



USAID PIPE, MONALES HOIST
FINAL DELIVERY, 19 NOV 82

HEALTH EDUCATION WORKSHOP

SAMPLE OF VILLAGE LATRINE

SAMPLE OF VILLAGE LATRINE