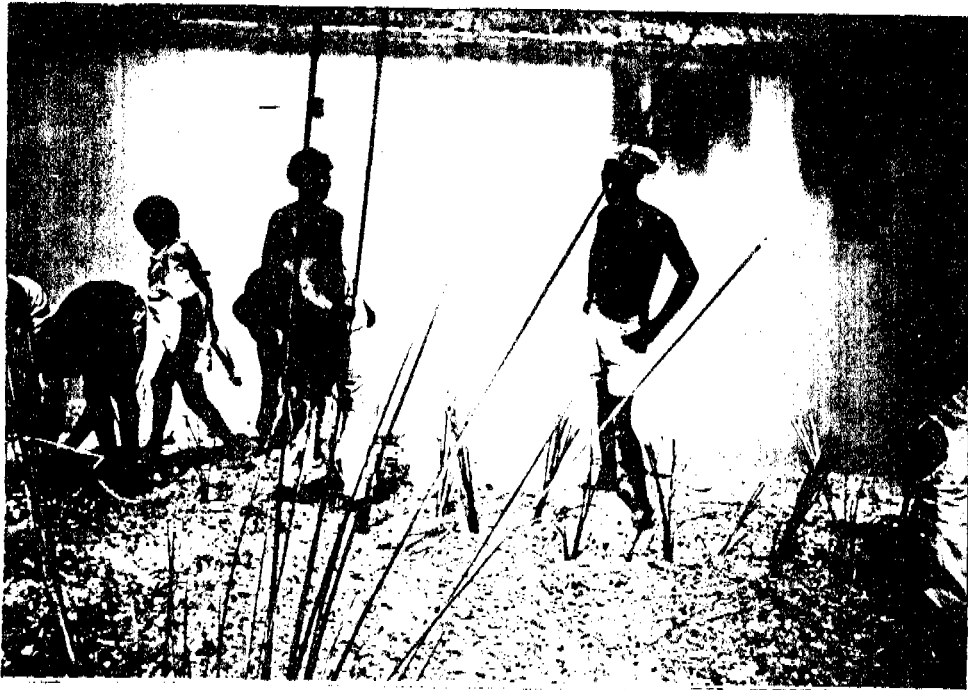


824 GHTA90

halfyearly report
june 1990

tamale
archdiocesan
development
secretariat

village water
reservoirs project
tamale
ghana



cebemo
the netherlands

sawa
tamale, ghana

 sawa
Schoolplein 7
3581 px Utrecht
the Netherlands

824-GHTA90-10305

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I N T R O D U C T I O N

This halfyearly report, third in order in this set up, invites you to take a look in the events and developments from 1-1-1990 till 1-7-1990. Although this report is published in October 1990, the report treats only the above mentioned period. It is difficult to complete this type of report based on the reporting of the different sections in the project, in the month of July. This however would be the ideal.

The purpose of this report is to lay down what has taken place during this period and meant for general interested public, CEBEMO/DGIS officials, Archdiocesan officers, Government officials. Reading this can give in + 3hours a general overview of the project.

Specialists wanting to have more detailed information can find their satisfaction in the sectional halfyearly and quarterly reports. The most detailed information can be found in specific reports on certain issues like Village Water Supply Reports, description of Animation programmes and research reports made by the project. Interested readers can apply for those reports by filling in (do not forget your name please) the annexed charts at the back of the report. (annexed III)

PROJECT EXECUTION

1.1 Programme

Since 1987 the Village Reservoirs has been working in the Northern Region of Ghana in order to improve the water supply of the villages situated in the so called horse shoe, a circle of approx. 50 km radius around Tamale to the west, north and east. The southern limit is formed by the Volta Lake. The past semester was marked by the construction activities of new reservoirs and the completion and improvement of the former ones. The head of the Technical section Mr. A. Kuypers came to the end of his contract and was replaced by Mr. K. Hufen in May.

The workshop operated fully on the main yard workshop and the container workshop on the site. The fleet of motorcycles extended considerably the motorcycle maintenance.

The Animation section continued its educational work, adapted and improved its programme. During this semester the activities were more in step with the execution speed of the project. The section's main target will be to be able to work ahead of the Technical section so that enough village reports are available at the beginning of the new working season in order to have a possibility of a flexible response concerning where to start or where to continue.

The project proposal 1990-1994 and its budget have been refined and discussed with the Water Steering Committee(WSC) and CEBEMO, Although the final proposal has not been published during this semester, agreement on the global policy has been achieved with CEBEMO. One of the major tasks for the project in the nearby future will be the establishment of a policy on the middle term concerning its targets, working procedure and personnel planning.

We are very happy to be able to state that 5 new senior staff started their work at the project; 2 engineers in the technical section, a senior animator, a senior mechanic and an accountant. The total number of senior staff is now eight. Except for the project manager's assistant, the senior staff is now complete.

After the repairs of Chirifoyili and Gbirimani and the completion of Dimabi, new reservoirs were built in Garisiegu, Buyili, Kpachiyili and Yong-Dakpemyili providing better water for 11900 people in total in 1990. The administration was occupied with the normal activities and additionally it assisted the technical section with preparation of an updated version of the costcalculation document. During this semester we received 29 applications for a dam and 232 applications for employment. In total 16 people were employed in the different sections, but also 7 left the project increasing the project staff with 9 people.

The well digging programme organised several training sessions of welldiggers in the GTZ/NORRIP Programme for rural action and the construction of four wells in the Salaga district. As far as information is available the programme was self supporting.

1.2 Area and Population

The villages where construction took place are mainly in the Tolon/Kumbungu district but two villages were situated in the Tamale district (Garisiegu and Yong-Dakpemyili).

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The inhabitants are all Dagomba. In one "old" village Cheshe and five new villages social and technical surveys were started and/or carried out. Table 1 gives an overview of the villages the project worked in.

Table 1: Project villages and population

Village	Population		Activity 1st semester 1990	Remarks
	1989	2000		
Chirifoyili	4730(16)	6930	finishing aprons	100% finished
Gbirimani	1700(2)	2500	reshaping spillway, filling, maintenance training.	100% finished
Dimabi	1721(3)	2500	fencing, maintenace	HRF remains
Aseyili	530(2)	700	maint. training	
	1990	2002		
Buyili	225	360	compl. constr, animation programme	clay core not yet made.
Gariziegu	950(3)	1520	compl. constr.,animation progr.	Shigu wells not finished
Kpachiyili	337	450	digging dug out, wells, anim. progr. wateruse. observation	aprons not made yet
Yong Dakpem yili	1344	2150	compl. constr+animation progr.	100% finished
Cheshe	753	1205	social survey, waterhygiene education, soil survey and design	doubtfull
	1990	2010		
Nafram	175	384	animation programme tech. surv.+design	trad problems
Yepeligu	950	2081	soc. survey+discussions top, survey	trad problems
Kunguri	780	1710	social + tech. surveys part anim. progr.	
Tolon Ches- shegu	600(2)	1315	?soc. + techn. surveys	
Kukulun } Jakpahi }	825(2)	1807	soc + tech. surveys	
Gizaa	990(3)	2170	soc + techn surveys.	

NB In brackets the number of subvillages concerned, the population growth of the first four villages are calculated with approximately 3% per year. The other villages with 4% per year. Figures are based on the population census of 1984 but adapted after the results of the social surveys.

The project has worked for the past three years mainly in the Tolon/Kumbungu district and the major part of the requests for dam building are coming from this area. However the WSC decided in 1989 that the project should shift from time to time to other areas within the horse shoe. This will mean that at the next selection an attempt has to be made to start working elsewhere, probably Salaga district.

1.3 Approach and procedures

In order to outline the actual policy of the project, the project formed a committee of three members; Mrs Murre (head AS), Mr. Kuypers (head TS) and Mr. Honkoop (head Administration). They prepared a manual for the implementation of the various programme components. The final version is not yet ready but will soon be published.

In short the following approach is implemented;

- 1 The village sends an application letter
 - 2 The project makes an orientation visit
 - 3 If positive, the WSC selects the village
 - 4 The village has to pay the first 40% of its financial contribution
 - 5 Social and technical surveys are carried out and in dialogue with the villagers a design is made, meanwhile the animation section (AS) continues its programme. The results are laid down in Village Water Supply Report.
 - 6 The village has to pay the remaining 60% of their contribution before the construction will start.
 - 7 During construction the village offers free labour, shelter and food for the project workers staying in the village. A system of penalties is agreed upon with the village to ensure regular attendance to work.
- The amount the villages pay as financial contribution has been increased from Ø300 pp to Ø1000 pp. This is not yet the 10% we strive at. We have to see the coming season if this amount is affordable to the villagers. The present average cost per inhabitant is for the dams of Dimabi, Garisiegu, Kpachiyili, Buyili and Yong Dakpemyili Ø 28,300 for the present population and Ø 18,600 for the designed population in 12 years.
- 8 The village selects a maintenance team that is trained.
 - 9 Regular follow-up visits are paid to the villages to monitor the construction and the water-use.

1.4 Rural engineering activities

In the two following sub-paragraphs the activities which respectively concern technical surveys and designs and constructions in the village are reviewed.

1.4.1 Survey and design

The Technical section makes surveys in the field of topography, soil, water quality and hydrology in order to gain data to make proper designs.

Topographical

The survey unit did fieldwork to ascertain the future work in Cheshe, Kunguri, Tolon Cheshegu and Jakpahi (part of Kukulun project). Drawings were made from (previous) surveys for the following projects; Gbirimani, Garizegu, Cheshe, Kpachiyili, Yong Dakpemyili and Kunguri. A topographical survey of the catchment area of Dimabi was done after construction.

The survey unit also assisted in setting out the works in Gbirimani, Dimabi, Buyili, Garizegu and Yong Dakpemyili. In the last week some surveys were carried out to improve drainage of the compound.

Soil

Testpits were dug and analyzed for the following village reservoirs; Cheshe and Kunguri. Testpits were also dug in Tolon Cheshegu and Jakpahi and soil samples taken and stored for further analysis.

Water Quality

Since July 1989 samples of reservoirs and wells have been taken to monitor the turbidity, pH, bacteriological quality and counts of guinea worm cyclops. This is done on a monthly basis. The cyclops count has not been very regular this semester. This is due to the fact that we started to collaborate with the MOH's Laboratory for parasitic diseases and a first round of sampling in all reservoirs was performed in order to choose four villages for regular sampling.

The sampling was done in Chirifoyili, Aseyili, Adumbliyili and Gbirimani from the drinking water dam, the cattle dam (if any), and the dam wells. In Chirifoyili and Gbirimani samples have been taken from traditional wells of which some are improved in Gbirimani.

The main conclusions are:

The turbidity in the fenced dams is lower than in the cattle dams except; Adumbliyili average values of 55 - 100 NTU (AD 600 NTU), with lowest values of 10 - 35 NTU and highest values of 150 - 200 NTU (AD 1000 NTU). The values of the cattle dams (2) range from 200 - 500 NTU as lowest to 1000 NTU as highest values with an average of 600 NTU.

The wells directly connected with the reservoirs at Adumbliyili and Aseyili have slightly lower turbidities than the supplying dams. The wells fed by filter systems in Gbirimani and Chirifoyili have considerably lower turbidities than their supplying reservoirs.

Concerning the colliform counts the following conclusions have been made:

The fenced dams have considerably less colliforms than the cattle dams. The averages are respectively 100 and 300 colliforms per 100ml. The dam wells have considerably less colliforms than the dams which supply them. The filter fed ones have the best performance. The traditional wells do not have such good results. Even the improved traditional wells have high colliforms counts at the end of their waterbearing period which are near to the quality of the cattle dams.

No conclusions can be drawn yet about the cyclops and the risk of GW-infection. Of the several tens of thousands of cyclops counted only once were three infected cyclops found.

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Hydrology

In Dimabi and Yong Dakpemyili an automatic raingauge has been installed. An automatic level recorder should also have been installed but due to some technical and organisational problems it has not been done yet. John Addy, Siaw Awuah follow the rain recordings and level recordings in the constructed dams.

The water levels of Chirifoyili, Gbirimani and Adumbliyili were recorded at an intermediate interval. A total of 12 staffgauges in six different sites were installed at the end of this semester. In all reservoirs staff-gauges will be installed and people approached to take the levels.

Designs

During this semester the final design-dam report for the reservoirs in Chirifoyili, Gbirimani and Aseyili were finalised. Also the VWSR (Village Water Supply Reports) of Dimabi, Garisiegu, Buyili, Kpachiyili and Yong Dakpemyili were made but the social paragraphs not yet included.

1.4.2 Constructions

Work took place in the following villages:

Dimabi

The cattle dam was repaired, the mainstream diverted and the spillway finished. The villagers repaired gullies that had been formed during the rainy season as part of the maintenance training.

Of the drinking water dam the main part of the fillings were executed, the spillway and evacuation channel made, the fencing erected. Excluding for the filtering system and water tap points, the drinking water dam is now ready. On base of work of C.v.d. Boogaert it was decided to conduct here an experiment in future with alternative watersupply systems.

Gbirimani

The damages of the floods were repaired by some fillings. The aprons remade as well and the backfillings redone. The main vallley was blocked partly by the heaped material from the cattle pond. This problem is solved by widening the natural spillway in the main valley.

Chirifoyili

Reconstruction of the aprons was necessary and with the new plate compactor the qualities of the backfillings improved. Also the spillway was improved and some gabions were covered with concrete to avoid the gabion boxes being cut open for catching fish. The downstream slopes of the embankment were covered by topsoil.

Garisiegu

The work started in January and was interrupted twice. The first time was for one day because one of the subvillage, Shiegu, did not cooperate. The second time was for several weeks because the engine of a concrete mixer was stolen, and the village accused the project mechanics of theft.

Investigation discovered that the mechanics had not stolen it and the village had to pay the value of the engine which they did.

Shigu village withdrew completely at the end of the construction because of this problem and lack of interest in health education. So the project locked their well.

The reservoir with the connected cattle dam is now finished. The remaining work is to finish the aprons for the four wells and fence the dam.

Buyili

The work started in February and lasted until May 1990. The construction has now been completed. The designed clay core against the upstream slope of the dug-out has not been realised. Careful and intensive monitoring will take place to decide if it will be necessary to make the clay core next year.

Kpachiyili

The work on this dam started in March and stopped in June. This dug-out with a cattle pond is nearly finished except for the aprons around the two wells. The design is such that the waterlevel when filled is 1.1mtr. higher than the natural surface behind the embankment. The embankment is not compacted but is at that place 20mtr. wide. It has to be observed in the coming season to see whether any seepage will occur. If this is the case a clayblanket has to be made.

Yong Dakpemyili

Work started in April and finished completely in the first week of July. The following were constructed; a fenced drinking water reservoir with a cattle trough, 6 wells with a trough for small animals and a soak-away. It was foreseen that an automatic level recorder would be installed but rains filled the pit in which the recorder had to be placed and the installation became impossible. During a ten week period, the Horizontal Roughening Filter had its first testing in this village. The results have been worked out in a document which will be published in the next months.

Houses

The access road to Mr. Kuper's house was improved with several loads of gravel and drinking water has been supplied to his house with our truck. This house is the only project house without a town water supply.

Compound

Many loads of sand, aggregate and gravel have been delivered to the compound for storage reasons. This enables the project to have access to it when the gravel and sand pits are still inaccessible either at the beginning of the working season or at its end.

Well digging programme

In total 4 wells have been started and finished in Salaga district. A great part of the period was occupied with training sessions for the GTZ/NORRIP programme for the programme for rural action. Training has also

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been given to well diggers of the Anglican Church. In April and May, during a six week period wells were deepened through blastings for GTZ/NORRIP. No exact results are known yet but until July the programme was selfsupporting. However, until November/December no income will be generated.

The WSC decided to evaluate the programme so far by asking its members to check the list of wells made in the last ten years and to see if they still perform. A list will be made after the project manager comes back from leave and will be distributed among the WSC-members.

In Table 2 the costs of the different constructions are given.

Table 2 Investments in projects
1st halfyear of 1990

Name of project	Cost of Equip. & welldigging units	Consume materials	Extra costs village	Labour input	Total
Housing Compound	389,750 (4) 2,898,700	n.a n.a	- (4) 454,600	- -	389,750 3,353,300
Gbirimani	2,888,400	704,350	20,050	132,100	3,764,900
Dimabi DWD	537,900	346,720	16,500	173,700	1,074,820
" CWD	3,568,500	-	-	-	3,568,500
Chirifoyili	3,319,000	748,735	30,000	408,600	4,506,335
Garisiegu	17,296,450	(2) 1,799,373	51,700	146,400	19,293,923
Buyili	6,761,800	1,267,813	70,600	279,300	8,397,513
Kpachiyili	7,331,250	1,164,022	(1) 16,500	247,200	8,758,972
Yong Dakpemyili	14,623,100	2,198,720	311,500	266,700	17,400,020
Measurem. Scheme*	n.a	n.a	?	?	
Cheshe	-	-	-	24,000	24,000
Kunguri	-	-	-	42,000	42,000
Jakpahi	-	-	-	19,350	19,350
Kukulun	-	-	-	19,350	19,350
Tolon Cheshego	-	-	-	34,500	34,500
Yepiligu	-	-	-	41,100	41,100
Nafram	26,550	-	-	-	26,550
Welldigging Progm.	70,000	6,120	-	-	76,120
Aseyili	?	1,860	-	?	
Rentedout to 3rd parties	295,100	-	-	-	295,100
	59,711,400	8,237,713			

- 1) No costs for aggregates included
- 2) spillway elements at 10,000 is too low
- 3) 2nd quarter is very low
- 4) cost are mainly made for sand/aggregates deliveries for storage purposes, payment of chippings not included.
- 5) payments are made for this thus income.

* 2 automatic W.L. recorders
" " rainfall recorders
+ small money gauges .

1.5 Animation Activities

This paragraph is subdivided into two parts, 1.5.1, in which a description is given of the major developments in and on the preparation and development of the animation programme; 1.5.2. gives an overview of the activities in the villages. In this report the major outlines are given. For more detailed reading I refer to the Animation section Halfyearly Report.

1.5.1. Programme preparation and development

Social survey

The last halfyearly report mentioned that an elaborate social survey was tested out and made in a final version. This version is more condensed than the original because some questions proved to be unnecessary.

During the discussions about the technical alternatives it became clear that there is a differentiation of priorities amongst men and women (especially young women). The men are more interested in the quantity and the women in the distance of the source. Also exists a marked differentiation of priorities between the project and the villages. The project gives a much higher priority to the water quality than the latter. The alternatives provided were not many up till now. In the field of additional installations wells, troughs and filter systems would be especially appreciated by the AS. The reinforcement of the TS with two senior officers makes it more possible to calculate alternatives. Part of this activity is to visit other reservoirs with some men and women from the new village. This is much appreciated and very effective.

A water quantity survey of five days was done in April in Kpachiyili. The result was that an average = 20ltr. per person per day was brought to the village. The washing of clothes was done at the damsite and is not included herein. The survey covered 10 households with in total 179 persons a day as the average.

In two villages the animals were counted in order to calculate the number of cattle and small animals.

Construction Animation

The new system of site animation to assist the construction teams was not satisfactory. An older animator who yields more respect from the elders took this task upon himself in April and visited each site one afternoon per week. As long as the participation gives no problems this is a good system.

Water hygiene

The water hygiene component saw the following developments:

Close cooperation with Health Institutions in order to develop the existing programme. The GW-slide show is continued. Instead of story telling, a discussion about the prevention of Guinea Worm is held.

In Kpachiyili the elders and traditional healers were invited to participate which succeeded very well. It is not yet decided whether this method will be continued.

The talks of the Health Educator of the Tolon post continued unchanged, but much emphasis was put on the discussion as to how the villagers can support the VHWs and TBAs.

Bayili villagers requested for a talk on diarrhoea and two talks were prepared and done.

The slide show on the use of wells and buckets is finalised.

The conclusion of the past halfyear is that slide shows are a success in the villages. The villagers now know what normally causes Guinea-Worm and how it can be prevented. Implementing this is more difficult, but there is a high awareness that the protection measures by fencing etc. are useful.

Maintenance Training

The villagers are stimulated to form maintenance committees which are often the same people as the vhw's and tba's. These people make regular complaints of a lack of support from the village. The VHWs are normally young men and they complain that they are given little attention. To improve their effectiveness the AS with Tolon health post (MOH) and the womens coordinator of the Archdiocese prepared a pilot training programme. A small part of the activities are held in the villages and the main part at the Tolon health post. From end of May into July a session takes place in Tolon every Friday. Transport for and lunch was provided by the project for organisers and villagers. Nine villages, of which 8 are already in the VWR programme, participated in the course. Although the cooperation with the health post was good, a take over by the health post is not likely in the short term.

In the villages a technical and practical training has been given of repairs of gullies and grass planting. In Gbirimani also a training was given in the cleaning of the sloping sand filter. It became clear that a regular follow-up is necessary to maintain the motivation of the villagers.

1.5.2. Activities in the villages

In this paragraph a summary is given of the activities performed by the animation section in each village in the period January-June 1990. The villages are clustered according to the constructed reservoirs. Those readers wanting a more elaborate description and discussion of these activities and particulars about the construction should refer to the "Village Water Supply reports" or the Animation Section halfyearly report.

1. Chirifoyili
 - construction animation.
 - CW-slide show at the school.

2. Gbirimani and Tibogu
 - construction animation
 - training course for maintenance committees
 - dam and filter maintenance
 - grass planting

Gbirimani

 - slide show on well and bucket use.

- Tibogu
- tba training at Tolon health post(not VWR).
3. Dimabi
 - construction animation
 - training course for maintenance committees
 - dam maintenance (cattledam)
 - tba training at Tolon health post(notVWR).
 4. Aseyili and Adumbliyili
 - dam maintenance and grass planting
 - training course for maintenance committees.
 5. Buyili
 - discussion of technical alternatives
 - visit to sample dams
 - construction animation
 - talks on diarrhoea
 - slide show on well and bucket use.
 6. Garisiegu
 - discussion of technical alternatives
 - GW-slide show and discussion
 - construction animation.
 7. Kpachiyili
 - GW-slide show and discussion(with trad. healers)
 - Health educator talk
 - counting of cattle
 - discussion on technical alternatives
 - visit to sample dams
 - construction animation
 - water quantity estimative survey.
 8. Yong Dakpemyili
 - GW-slide show and discussion
 - visit to sample dams
 - discussion of technical alternatives
 - construction animation
 - counting of cattle.
 9. Cheshe
 - tba's participated in a phc course
 - social survey(old type)
 -
 10. Nafram
 - GW-slide show and discussion
 - Health educator talk
 - discussion of technical alternatives
 - visit to sample dams
 - tba training at Tolon health post(not VWR).
 11. Yepililgu
 - new social survey.

12. Kunguri
 - new social survey
 - GW-slide show and discussion
 - training course for maintenance committees.
13. Tolon Cheshegu and Gunda
 - new social survey
 - T Cheshegu
 - GW-slide show and discussion.
14. Kukulun, Jakpahi
 - new social survey
15. Gizaa, Kukuo and Bagon
 - new social survey.

1.6 Workshop

The activities can be divided in four sections:

- 1 Maintenance and repairs (of which the latter becomes more and more frequent).
- 2 Iron and wood constructions for all sections
- 3 Improvement of compound infrastructure
- 4 Ordering and reception of project goods.

Ad 1 Through experience some remarks can be given on the different plants and also the handling of the machines by their drivers.

The Bulldozers had oilcooler problems which were solved by replacing the old one with new urgently ordered spares. It might be possible that we can get improved versions under warranty.

The DAF tipper has a tipping system that is not appropriate for the working conditions in our project. The Edbro tipping system can better be replaced by a Lee-bur tipping system like that installed on the multipurpose trucks. Several times the bottom ram shaft got seriously damaged and had to be replaced.

All the DAF trucks have an air inlet that is too low behind the cabin. The inlets will be extended now to prevent dust entering. One of the drivers is handling the truck too roughly and has had three major breakdowns.

The Bomag plate compactor had several major breakdowns and has served not more than 450 working hours. It seems that we have not made a very good choice with this compactor although it is very useful in the field. We need more than one compactor of this size and another type will be ordered for the next season.

The other plants like the wheelloader, excavator, compressors, compactor and motorpumps did not have any major problems.

Ad 2 Several constructions were made for the project.

For the site a fuel storage tank with accompanying equipment was made on a multi-purpose(MP)-frame. For the water transport, a tank was reconstructed and placed on an MP-frame.

The workshop manager made the technical design for the HRF, placed on an MP-loading platform. The blacksmiths welded the filter and it was tested in Yong Dakpemyili. The total time spent on this work was about 100 hours.

For the workshop a mobile overhead crane of 3 tons capacity was constructed and is useful for all lifting work at the compound. Several well rings, covers, water intake filters and galvanised steel t-joints for the sites were also made.

Ad 3 The electrical phases division has been revised in order to have a more equal charge on each phase. The louvers in the gate house have been installed and the containers rearranged. In the parking shed the floor will be cemented by the project masons so that the welding activities will be transferred from the main workshop to the parking shed. To extend the office space on a temporary basis for the Animation section a container has been transformed into an office. Three windows, a door, electricity and a thatch roof to combat the heat were either made or installed.

In the big store an extra platform was made to increase its capacity.

AD 4 Several containers arriving at the Christian Council and TASC plus container 11 for the project brought in ordered goods from Holland. Some orders were issued to local suppliers for goods such as fuel and lubricants. In chapter 4 par 7 this issue is worked out. The complete list of orders is given in Annex II.

The performance of the plant is given in the following table 3: Utilisation of equipment 1st semester 1990.

Table 3 UTILISATION OF EQUIPMENT 1ST SEMESTER 1990

No of Equip.	T Y P E	Total shift hours	Total operation hours	Mech. available %	Eff. rate %	Mech. utilisation %
1	Wheelloader 936E	1081	722	98.1	67.7	67.7
2	Bulldozer D6H	1135	778	92.2	73.5	72.9
3	Bulldozer D6H	1092	681	92.4	66.3	65.7
4	Excavator 215	1172	995	99.7	66.3	65.7
5	Compactor Bomag	1048	522.5	100	53.3	49.9
6	Tipper DAF 1800	1118.5	911.5	96.6	84.4	83.9
7	MP-Truck DAF 1800	1110.5	731.5	74.8	85.3	84.7
8	MP-Truck DAF 1800	1169.5	984	98.2	85.8	85.5
9	Motor-pump Tr3/J156	1069	141	100	13.2	13.2
10	Motor-pump LV1/J70	1000	136.5	100	13.7	13.7
11	Compressor IR	993	161	100	16.5	16.2
12	Compressor IR	1031	318	95.2	31.3	31.3
13	Low Loader	1044	73	58.7	7.9	7.9
14	Compaction plate	1057	480	81.1	51.5	50.8
15	Motor-pump LV1/J70	662	44	100	6.7	6.7

Note-Mechanical availability is the rate between total work hours and total work hours plus break down periods.

- Efficiency rate is the rate between work hours and total of hours that it could have worked if it had not broken down or was standing idle because of weather or leaves, (work hours/total shift hours - breakdown-out of service due to weather
- Mechanical utilisation is the rate between total work hours and total shift hours minus break downs.

The mechanical availability is thus influenced by several factors such as

- 1 The handling of the plant by operators and drivers
- 2 The age and condition of the plant
- 3 The spare part stock available (own stores and dealers)
- 4 The quality of the repairs and maintenance of the workshop and their ability to have in time the right spares in stock.

The efficiency rate is influenced by factors such as

- 1 Work availability on the sites
- 2 Management of TS to plan the different work at the different sites.

1.7 Additional activities.

Mole conference

In Mole a conference on watersupply in the context of child survival was organised by the Nat. Serv. Scheme with the assistance of an NGO; Wateraid. The conference is the follow-up to a similar one of last year in March also in Mole. Several NGO's, GW & SC and some funding agents were present.

The project manager and a senior animator participated in this conference. In chapter 5 "Other inputs" a short resume of this important conference is given.

Visit to Mafi Kumase in May

The project visited the water supply system in this village with a rather large group. A special report on this has been made. Four members of the technical section and two members of the animation section spent three days in the village. On the first day the project manager led the delegation after which he had to attend business in Accra.

The water supply consists of a dam from which water is led through a double Horizontal Roughening Filter (HRF) and similar Slow Sand Filter (SSF). It provides water for nine villages with total of 3200 people. The villages are operating the system themselves.

Damongo dam

On the request of the parish priest Fr. Balemans the project manager sacrificed his free time in some weekends to assist Fr. Balemans to improve upon the spillway of a small dam at the west entrance of the town. Mr Charles Taylor assisted one day to make a succinct topographical survey and an action plan was developed. Fr. Balemans mobilised the

funds and Mr. Donkor of the Ghana Highway Authority supervised the works for more than four weeks partly during his leave and partly with the most appreciated cooperation of his department.

The fact that the Technical section was still not able to perform such services made me choose this option (see WSC decision of 24-5-89).

Hopefully in the future more time and manpower will be available to attend to this kind of service as a project activity.

PM visit to Cheriponi and Saboba

In connection with the well digging programme a trip to the Saboba and Cheriponi Parishes was made to make contacts and pick up some well digging materials from Saboba. At the same time Sun Sun and Yendi were visited.

Monitoring mission S. Dermijn SAWA

From 19th June till 11th July 1990 Mr. Simon Dermijn, project coordinator at the SAWA desk office in the Netherlands did his yearly monitoring mission to the project. The main topics of the mission are described in chapter 5. Other project inputs.

Visit CEBEMO delegation

From 22nd of June till 3rd of July the mission visited the Archdiocese consisting of Mr. Pieter Damen, Mrs. Martine Benschop-Jansen and Mr. Nico Keyzer. The latter will replace Mrs. Benschop-Jansen in the future. The mission has got a good impression of the activities of the project by visiting the different villages we are working in. Chirifoyili, Garisiegu, Gbirimani, Kpachiyili and Yong-Dakpemyili were visited.

The activities of the Animation section were thoroughly discussed during the visits and in the Water Steering Committee. Several issues were cleared out to the mission which helped them to better address certain remarks. The ins and outs of the development of policies on different levels such as:

- Long term planning personnel
- Long term water policy
- Long term Archdiocesan Development Policy
- Long term project planning.

were discussed.

The 2nd July the WSC met the mission and the 3rd July the mission met the ADC. The conclusions are mentioned in chapter 2 par.2 and 1 respectively.

1.8 Conclusions

The first phase of the project has a final achievement record of the following:

The compound is established by the building of a four room office, a building containing the laboratory, the main store and the parking shed, a workshop with three bays, and four rooms for office, part store, machine shop and battery/tyre shop, a washing bay, a ramp, a gate house, a latrine, a two-showers-house, a generator house, an example well, an underground water tank, an overhead water tank, a fuel dump with pump and two staff bungalows with water system.

The project compound is fenced for safety reasons and illuminated during the night for the same reason. The staff bungalows have a modest chicken wire fence.

For almost 12000 people a safe water supply has been established by making 4 Gully dams, 1 Hillside dam, 6 dug-outs, 4 cattle ponds, 31 cistern wells of which 9 are supplied by 9 infiltration galleries, 7 by a sand filter and the rest with a poly ethylene pipe to the dam and we improved 6 traditional wells.

In the well digging programme 4 wells were made, supplying ±1600 people. Employment for 59 staff making use of a large set of equipment for earth moving and accompanying cars and motorcycles having an possible yearly turn-over of ± 150,000,000 cedis

The project proposal for the next four years has been made and will be sent soon to the funding agency CEBEMO.

The senior staff, counting 7 men and 1 woman is almost complete except for the project manager's assistant.

In total more than 60 applications for a water supply have reached the project of which 8 only are satisfied. Some 10 applications were rejected because they were situated outside the horseshoe or within the reach of the Tamale GW&SC pipe system.

The Animation section is getting in pace with the construction capacity of the technical section and the animation programme is refined. However the development of new subprogrammes is ongoing. The animation section works in ±20-25 villages in one season(Oct-Aug).

A water quality and hydrological monitoring programme has been set up and is being fully implemented. Next year enough data will be collected to draw more definite conclusions. At this moment the impression is that the water quality reaches acceptable standards although still to the upper limit of the WHO standard.

The workshop is in full swing now. The maintenance of all equipment and vehicles is under their responsibility. Much metal construction work and electric work is performed by it, including the adaptation of containers for the worksite and for office extension.

The project tries to contact other organisations, working in the same field by visiting them and attending seminars or conferences. In the North the project is well known but less in the south of the country. In this last semester CEBEMO and SAWA visited the project to analyze its progress and discuss with the staff and the WSC and ADC.

2. RELATION ARCHDIOCESE - V.W.R. PROJECT

2.1 Archdiocesan Development committee(ADC)

The ADC met only on July 3rd this semester. This report is written after this meeting and because of the important issues affecting the project it will be summarized in this report.

- For the foreseeable future, the archdiocese will still require external financial support to realise VWR. It will be necessary to think about possible other financial resources. Some options were mentioned like:

- 1 Co-financing with donors sharing the same objectives/views
- 2 contracting but with conservation of our working policy which should be made clear to all parties involved.
- 3 An independent enterprise established by the archdiocese to serve communities at costprice. In such a venture it might be difficult to assure the actual policy or to better keep control of the enterprise.

These are thoughts which have to be worked out in the future.

- The ADC has to define a long term planning and objectives for the project. The project staff has to prepare them and the WSC will discuss them and then forward a proposal to the ADC.
- The ADC has to do the same concerning an overall policy for water activities of the Archdiocese.
- There is a need for an overall development policy and plan in the Archdiocese to see how the different development programmes fit into each other and how they can be integrated.
- The present size of the project should be maintained during the phase II.
- The recruitment of a Water Programme coordinator was agreed upon last year. The WSC will prepare a project proposal for the study of ADC during its next sitting.
- The Terms of Reference of the WSC must be extended to all water activities of the Archdiocese. The managers of the Bole and Yendi maintenance workshops and the water coordinator should be members of the WSC.
- In the coming period, SAWA expatriate assistance will remain necessary for the reason that the local senior staff have just been recruited. There is however the need for a manpower planning and a time-frame to phase in local senior staff.
- Accountability; there is more need for auditing and clear accounts for the donors. Development activities should have separate accounts and bookkeeping systems from that of the archdiocese. This is already the case with VWR but auditing has to be developed.

2.1 Water Steering Committee (WSC)

The WSC met 3 times this semester on 8/2, 20/3 and 19/6.

The following issues were discussed and decision taken where necessary.

- Health issue; it was clear now that VWR will execute the health education as part of the animation programme. The health institutions will be involved to the maximum depending on their specific working area. Also the maintenance education will be initiated by VWR and later on integrated in the different phc programmes. This issue has been made clear now to CEBEMO and has its approval. The secondment of a nurse to the AS who will later (2-3yrs) return to the health care unit is an accepted and hoped development, which has not yet been realised.
- Building; for the extension of office space a separate building has been chosen but it should not be a building that will later be suitable for accommodating staff. The plan and the equipment for possible senior staff housing was discussed and decided upon.
- The village of Yepiligu was also selected for this years implementation programme.
- Employment of senior staff was discussed several times and after discussion with the Archbishop the procedures were laid down. In connection with this issue the TOR of the WSC has been changed in that the official employer of senior staff is Archbishop and not the project. The project manager will normally sign appointment and confirmation letters in his name after consultation with the Archbishop.
- The working policy of the project was discussed but no major changes made.

- The progress of the welldigging activities were discussed and in June, a decision was taken to make an internal evaluation of the activities in the last years. The project will prepare a list of the dug wells so that the members of the WSC can evaluate their performance when they are in the particular villages,
- The draft proposal, sent by SAWA for comments, was discussed and the fact that CEBEMO had various observations made the WSC decide to send a delegation to CEBEMO. Lack of time by CEBEMO resulted in the discussion taking place during the CEBEMO mission to Tamale instead of in the Netherlands.
- Conditions of service of the personnel was discussed several times. Issues such as increment of salaries, extra benefits for junior staff in key positions, furniture allowance, type of employment contracts, extra senior post in the workshop section, possibilities of courses and training were on the agenda.
- The project has to set up a manpower planning for each section in which a time pattern for the phasing out of expatriates can be adapted if the need arises.

2.3. Primary health care (Holy Cross/HC PHC unit)

A continuous exchange of ideas exists between the project and the PHC Holy Cross unit. The training course for the maintenance committees is being discussed with them including a series of meetings. During the visit of the CEBEMO delegation the possibility of having a nurse seconded to the animation team cropped up again.

2.4. Parishes

Gradually there are more frequent contacts between the project and the basis of the Church, the parishes.

The well digging programme works through the parish priests, Salaga parish especially. Furthermore contacts were established with the parishes of Cheriponi, Saboba, Tatale and Damongo.

2.5. TASC

There have been no special events or activities between us. Regularly, we consult and advise each other on a variety of issues. The project has established the final bill for the supply of electricity. We proposed that they pay only one third of the consumed diesel instead of one third of the exploitation costs, which has been accepted and is being paid.

The water bills which come regularly from GW&SC to us are paid by the project. In turn, we charge TASC for the quantity they use against the same rate as we pay.

2.6. National Catholic Service Centre (NCSC)

Continued service in the field of clearing etc. is given by NCSC. The visitors visa of the Dutch student was extended for a five-month period through them. Because of the ongoing procedure in connection with the registration of churches, NCSC was not able to arrange the quota approval for Mr. Kees Hufen, the successor of Mr. Antoon Kuypers.

2.7. Tamale Archdiocesan Development Secretariat (TAMADEVS)

One of our major counterparts within the Church is this secretariat which is manned by only one person. Happily an assistant has been recruited to increase the capacity of this office. As mentioned in the former reports, valuable pieces of advice and rich discussions on every aspect of the project activities are undertaken and support given to the project staff to steer to the better interest of the project. This office has decided to write a proposal letter to GW&SC director in Tamale to seek his cooperation for a quota approval for Mr. Hufen, the TS head. So far, this issue is at stake. The development coordinator is investigating if channeling the quota approval through the church is possible now.

2.8. Others

The building unit of the Archdiocese, headed by Mr. BILL Brown, finished the construction work on the compound. The accountant sat with Mr. Brown to establish the final payment for the supervision fee on the work done. We have informed SAWA Utrecht of the amount to be transferred to the White Fathers.

The coordinator for women and development of the Archdiocese assisted the project with the set up of the training for maintenance committees.

2.9. Conclusions

The ADC met on 3rd July and the results are included in this report. Targets are set to establish policy plans in the field of overall development plan, sectoral plans and manpower planning. It was also decided that in the short term a project proposal for the TOR and a budget for the water coordinator have to be established and forwarded to CEBEMO.

The three issues on policy plans can be worked out at the same time but the most logical is that the overall development plan is first to be defined before the water supply policy. However the project and WSC must not sit back and wait for an overall development policy before they start to work on the more detailed water supply policy.

The WSC met three times and discussed on selection of villages, employment procedures, conditions of service, furniture allowance, project document with budget for the next phase and well digging activities.

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In future the membership of the WSC will be extended to the managers of the borehole maintenance projects.

The contacts with the parishes increased this semester. Relations with several sectors of the development activities within the church are good and cordial.

3. EXTERNAL CONTACTS

3.1. Ministry of health (MOH)

A series of meetings were held to establish the training programme for the maintenance committees at the Tolon health post. The final programme was established and the course started (see par. 1.5.1.)

The cooperation with the Guinea Worm laboratory became with some delay effective in February. A first round of sampling was done in all the dams and wells containing water at that time. A selection was made later to determine three villages where the sampling continued on the presence of cyclops. We sat twice together to discuss the modus operandi of our cooperation.

3.2. G.W. & S.C.

From time to time contacts exist on the following issues; exchange of ideas about the ERF experiments; our pilot plant and their pilot scheme in Damongo. We invited them to discuss the first results of the test in Yong Dakpemyili with the HRF. Furthermore we contacted them in relation with the quota approval for Mr. Kees Hufen.

3.3. A.C.D.E.P.

Members of the Animation section regularly attend meetings organised by this association. Although the meetings are often interesting nothing has been done in the training of the social sector which the project belongs to. Hopefully in this coming season, training sessions will take place. The communication on invitations to the project is not yet 100% but we hope that it will improve.

3.4. PNDC secretaries

Actually we worked in the districts of Tolon/Kunbungu, Tamale and Salaga. On a regular base the DS of Tolon has been contacted especially in the case of the problems that occurred in the villages of Nafram and Yepiligu,

3.5. Norrip

Through the Norrip delegate, Mr Ben Anamoh, the information flow between Norrip and the project is unchanged. In January the regional PNDC secretary called a meeting of several NGOs at his office. Norrip will act as the secretary of what should become a regular meeting schedule. The different NGOs introduced themselves but no further specific actions have been discussed or under taken. No further meetings took place.

Through the well digging programme regular contacts exist with GTZ/Norrip Programme For Rural Action. Besides some training sessions of in total 6 weeks, during four weeks the well digger deepened wells by blastings.

3.6. Others

In February the Dutch Chargé d'affairs and his wife from the Royal Embassy of the Netherlands came for a three-day visit to Tamale. The project organised the visit. Visits were paid to the Bishop, The Regional PNDC Secretary, Christian Council (CAP), Presby Church of Tamale, TASC and the project. Also the villages of Gbirimani and Garisiegu were visited. The visits were crowned with a dinner for all Dutch in the Northern Region offered by the Chargé d'affairs.

The project visited a village, Mafi Kumase, in the Volta Region to see how this group of villages has built a water filter plant with a Horizontal Roughening Filter (HRF) and Slow Sand Filter (SSF). A short outline of the internal special report will be given in Chapter 5.

For the Anglican Church, a well diggers training of one week was guided by Mr. Albert Monkonsoh, the well digger.

The Animation section had contacts with The Institute of Adult Education in Tamale to have a DELES course and the Wa-cultural animation team for a two-day training.

The workshop section contacted Tractor & Equipment and Leyland/DAF in Accra to organise training for its personnel.

Through an advertisement in the newspapers we were brought into contact with the Management Development and Productivity Institute in Accra. One of the Seniors of the WS section will go for a one-month course.

An Oxfam hand-dug well project was visited in the area called "overseas", to exchange ideas on animation and well digging.

3.7. Conclusions

A wide variety of organisations have been in contact with the project. It will be important to strengthen the contacts with the different District Secretaries. Looking back into these contacts it shows that the frequency is too low. Before starting the work in a district and as soon as we select a number of villages we should write a letter to the DS concerned. This has not always been done.

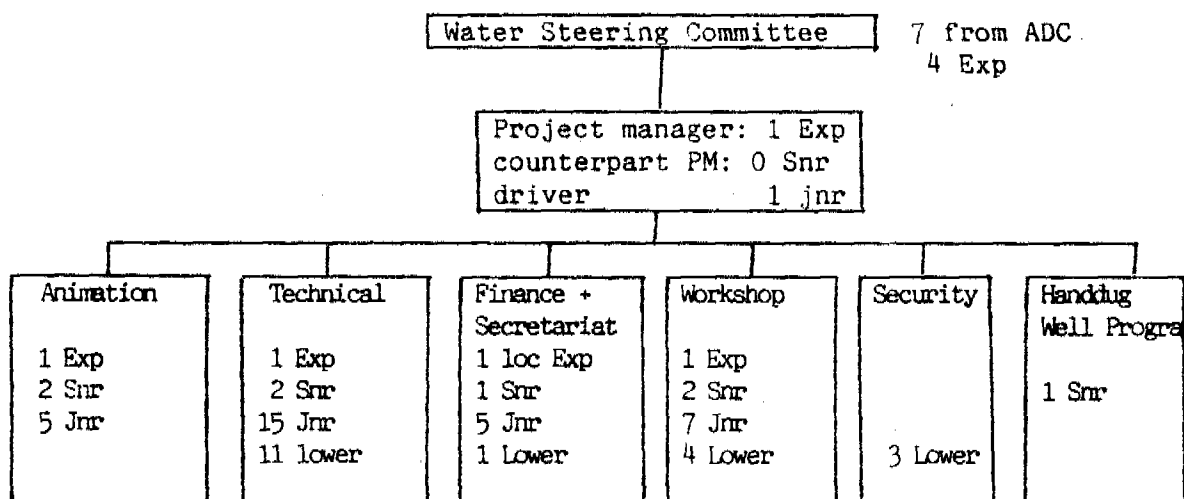
In general the contacts are very cordial and good.

4. PROJECT ORGANISATION

This chapter deals with the internal organisation of the project. The organisation charts will be all given in this report, so that once a year the complete picture of charts are given. Each paragraph deals with a section of the project.

4.1 Management

The organisation chart is unchanged but the present number of personnel is. The chart is as follows:



The actual staff is	5 expatriates and in future	0 expatriates
	8 seniors	9 senior
	33 juniors	37 juniors
	19 lower	21 lower

65

67

In comparison with the former halfyearly report, number of personnel required in future changed in junior and lower staff. The juniors foreseen and not yet fulfilled are two juniors in the animation section and one in the Technical section. The lower staff foreseen and not yet fulfilled is also in the Technical Section. The difference of more staff than foreseen in the last report is caused by changes in the

Workshop: two extra mechanics; one motorcycle mechanic and an assistant mechanic was offered a job by mistake but we did not want to withdraw.

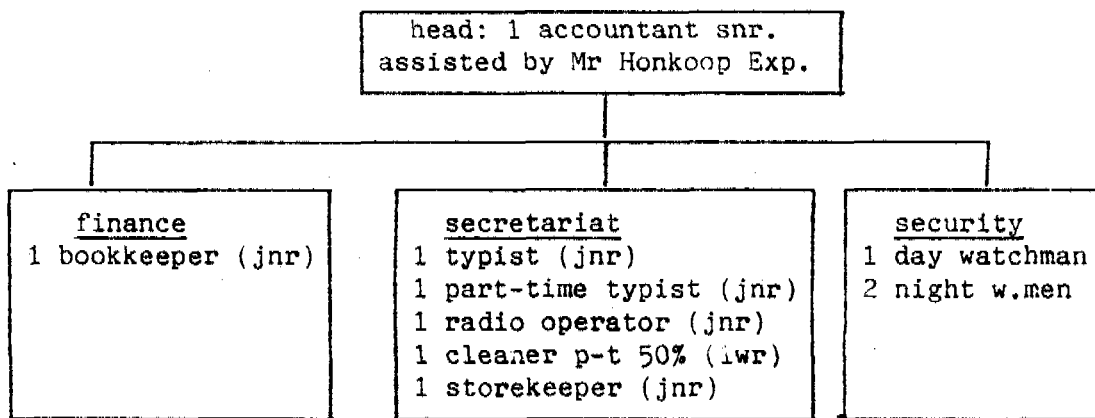
Technical Section: the compressor operators were not counted in the foreseen extension in the last January report. the well digger was not counted in the last report.

4.2. Administration

This section is headed by the project accountant, secretariat, finances, security and the main store are included.

The radio operator has been employed and a Ghanaian accountant in a senior position. Mr. Maarten Honkoop will reduce his contribution to the project to two days per week after he has initiated the new accountant up till August ending.

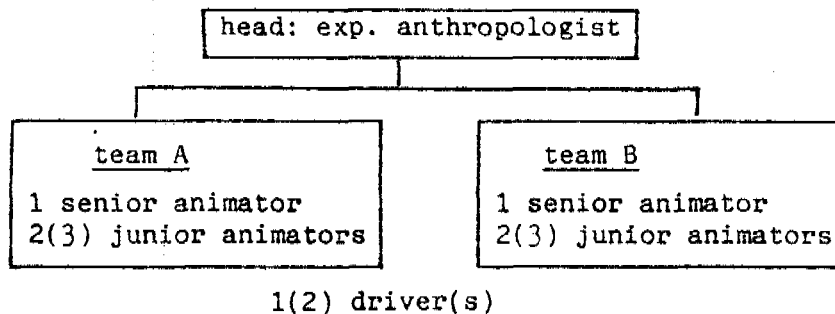
The organisation chart is as follows:



Mr. Honkoop will advise the coming months the Ghanaian accountant and do several specific jobs which were left over in the past because of lack of time.

4.3. Animation section

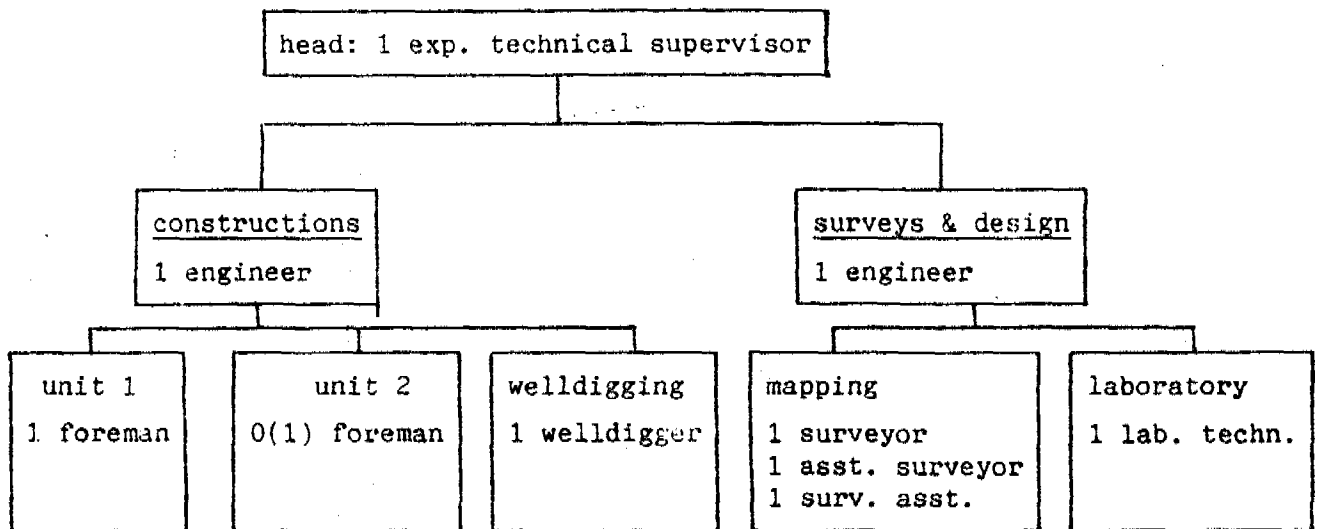
The organisation chart is unchanged in set up. The number of personnel increased with 1 and will be given below. Two seniors were employed and 1 senior left the project.



If the foreseen nurse will come soon then only one additional junior animator has to be recruited. The reason that the past half year no people have been employed in this section was that the four new people had to be trained. In the coming period new personnel will be looked for.

4.4. Technical section

The organization chart did not change in the past period. Some vacancies have been filled. Especially the two rural engineers are warmly welcomed. For the post of the second foreman two candidates were consecutively recruited but during their probation period the results were not satisfactorily and they were laid off. A sad event was the death of one of the masons who died in January after a short illness.



both units will make use of fieldstaff and equipment as below:

3 drivers + 3 asst. drivers of 3 trucks

5 operators of 2 D6 bulldozers

1 excavator

1 wheelloader

2(3) masons + 2(3) asst. masons

2 pump operators of 3 motorpumps in total

1(2) compressor operators

1 plate compactor operator

1 compactor operator with sheepfoot comp.

1 labourer

NB. one of the pump operators acts also as a driver for the section vehicle.

The numbers between brackets is the required number of personnel when implementation is at full speed, except the foreman post which has to be filled a.s.a.p.

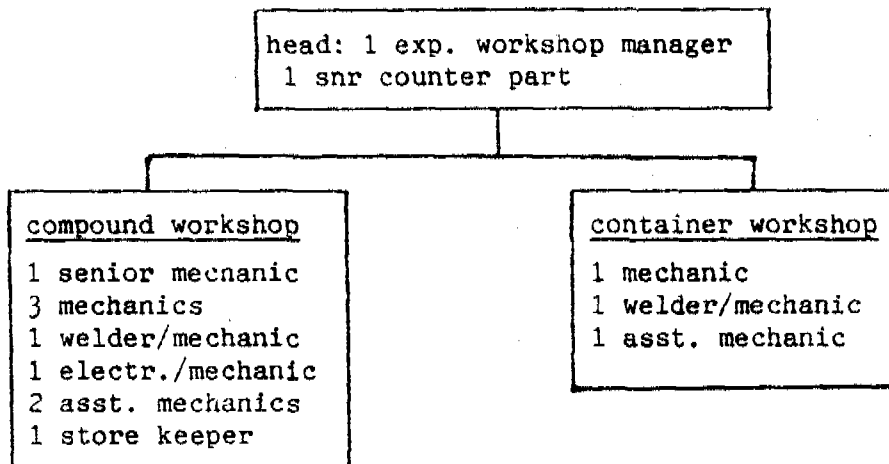
The welldigger was supervised by the project manager but will in future fit into the technical section.

4.5. Workshop

Five staff have been employed in the workshop in this semester. A senior mechanical engineer on a traineeship contract started in March. The senior mechanic who joined the project in 1989 has been confirmed and will be the assistant to the workshop manager.

In the January report three vacancies were mentioned and have been filled. The arrival of nine more motorcycles since August '89 led to the need to employ an extra motorcycle mechanic. Furthermore an extra assistant mechanic has been employed.

The organizational chart is now as follows:-



Almost constantly the Nandom Vocational Training School attaches 2 or 3 trainees to the project in order to acquire practical skills. They are paid an allowance.

4.6. Infrastructure

In this semester the ramp has been finished and an attempt made to put in a water tight floor in the pit of the workshop. The attempt failed and an electric pump will be installed to keep it dry. Because of the unstable underground, the ramp is executed with a stronger foundation and some more diagonal supports to be able to take the weight of the bulldozers.

The gutters around the workshop roof have been installed. The workshop will make a shelf for storing galvanised steel pipes and other items under the parking shed. During the rainy season the gutter in front of the main store will be made and the floor under the parking shed will be cemented by our own masons.

The rain water gutters around the compound which were started last year will be extended and finished.

4.7. Purchase of project goods

The workshop manager handles and coordinates the ordering and taking the delivery of goods. A review is given in annex II.

Goods are coming in regularly and no major problems have been encountered with the goods coming from the Netherlands. A problem still exists with the delivery of parts, ordered in 1989 at Japan Motors. Order No. 70 for the NISSAN pick-ups, ordered in November 1989, arrived at Japan Motors in Tema. Several items were missing and correspondence about this matter is still going on.

This halfyear we received our project goods with the following containers:

TAAP - 19 - Arrived	8 - 1 - 90
CAP - 69 - "	18 - 1 - 90
CAP - 70 - "	1 - 2 - 90
TAAP - 20 - "	9 - 2 - 90
TAAP - 21 - "	23 - 3 - 90
TAAP - 23 - "	30 - 4 - 90
TAAP - 22 - "	9 - 5 - 90
VWR - 11 - "	28 - 5 - 90
CAP - 71 - "	11 - 6 - 90

Furthermore we twice had the urgent need for spares which were ordered by telex or telephone and delivered by DHL and Airfreight.

A comprehensive list of orders for this year and the incoming ones ordered earlier on, is given in Annex II.

4.8. Transport and Equipment

No new equipment or vehicles arrived this semester. Three new motorbikes arrived from the Netherlands.

The use of the equipment has been listed in paragraph 1.6 table 3.

Below a list of the rolling fleet and plant is given:

Table 4: List of rolling fleet and plant as at 1:7:1990

Description	brand	type	quantity
wheelloader	caterpillar	936 E	1
bulldozer	"	D6H	2
excavator	"	215 C	1
compactor	bomag 172 d	1	
tipper truck	DAF	1800	1
Multipurpose truck	DAF	1800	2
motorpump	lister	TR3/J156	1
"	"	LV1/J70	2
generator	"	27,12,7KVA	3(1 TASC)
"	yamaha	4.7 KVA	2
airecompressor	ingersollrand		2(2 TASC)
4WD pick-up	nissan	patrol	2
4WD station wagon	"	"	3
motorbike	honda	100	7
motorbike	"	125XL	6
concrete mixer	briggs & stratton		3
plate compactor	bomag	BPR 50/55D	1

If the project wants to continue increasing its construction capacity and at the same time continue to give a good after construction monitoring and training for the maintenance committees, it is necessary to extend the number of cars. In the project proposal it has been worked out that in the third quarter an extra vehicle, double cabine pick-up 2WD, is a must. The arrival of senior engineers means that a better supervision on the site will be possible. However transport with vehicles is necessary numerous times as well as for the water quality monitoring. The motor cycles will also be used in many cases. In 1991 the maintenance monitoring and animation activities will increase further making extra vehicles needed. Hopefully the budget will be agreed upon soon, so that the ordering and arrival of these vehicles will not delay. We do realise ourselves that the increasing number of vehicles makes the overhead higher and very critically will be examined if and when extra vehicles are really unavoidable.

4.9. Conclusions

Minor changes in personnel needs occurred during this semester. In total - 3 new jobs have been created, 16 staff have been employed, 9 vacancies filled and 7 staff left the project of which one because he died. Some places are still vacant and will be filled in the future. The Animation section has trained its members and new staff can be trained and will be employed in the coming semester. Most likely one of the new staff will be a trained nurse coming via the Archdiocesan health coordinator.

In spite of the fact that in the last halfyearly report a projection of the total needed staff has been made and a figure of 62 staff was mentioned the review made clear that seven more staff are expected to come but 5 expatriates will leave. This will bring the total staff to 67. It will be standard procedure to see if by shifting tasks and responsibilities and/or training the present staff can do the job. If this is not possible vacancies have to be filled.

The senior staff has increased from one to seven at the end of the period. This is a very satisfactory development. Two seniors have been confirmed in their appointment and we hope to be able to confirm the five others in the coming semester.

5.

OTHER PROJECT INPUTS

5.1 Back stopping from the Netherlands.

From the SAWA Head Office the following backstopping came to the project:

- sending related articles and reports in the field of participation, animation, some technical subjects and sent also study books for the sections.
- notes on water filters in connection with the HRF in design at the project.
- Composition of the project proposal and budget for the next phase.
- A SAWA publication "Biological control of the Guinea-worm disease by using fish, A literature review by Winfried Overbeek, January 1990.
- Answer on the back stopping request concerning sun resistance of polyethylen pipes.
- the financial summary of the 2nd semester 1989.

Monitoring mission S. Dermijn SAWA

The project coordinator in the Netherlands, Mr. Simon Dermijn, made his annual monitoring mission to Ghana from 19th of June to 11th of July.

The main conclusions of the mission were:

- more regular visits are necessary or a planning in a way that face to face contacts are possible with the project staff.
- employment of Mr. M. Honkoop must be under different conditions
- astonishing high work pressure
- handing-over of Mr. K. Hufen was too short and overwhelming.
- the post of water coordinator is necessary and a contribution was made to define his Terms of Reference.
- the project staff should make a manpower planning.
- version when back in the Netherlands.
- the contracts with the expatriates were discussed and finalized.
- the role of the project manager was discussed in a open and frank exchange of ideas.

5.2 Training

Training is a very important on going activity of the project. In this paragraph, only the training of the project staff is mentioned. The training of the target group, the villagers, has been described in chapter one, Project Activities.

On-the-job training is constantly given in all sections. Since the past period is the most intensive period of the year, no staff went for training courses. In the workshop and Animation section training has been prepared for the coming period.

The following table n° 5 gives a review of the planned training.

Table n° 5 training sessions in preparation

Approx. dates	Section/person involved	subject
July/August	animation section	a two-day course on animation approach
August	animation section	DELES course on leadership
August	workshop section	two-week course T & E Accra maintenance of caterpillar equipment.
August/Sept.	workshop section	two-week course at DAF/Leyland on truck maintenance
September	R. Anesigre snr	one-month course at MDPI in Accra, Practice of supervision.
August/September	masons TS	various masonry issues
August/September	survey draughtsmen	draughtsman course.

5.3 Seminars and conferences

Mole conference

In Mole a conference on watersupply in the context of child survival was organised by the Nat. Serv. Scheme with assistance of a NGO; Wateraid. The conference is the follow-up of a similar one of last year March also in Mole. Several NGO's GW & SC and some funding agents were present. The theme of the meeting was treated by several speakers the first two days. The later part of the 2nd day and the third day were more generally directed. Some major recommendations are the following:

5.3

MOLE 2

OVERALL PRINCIPLES

Water is not simply a technical intervention. It is a means to achieving better health for all. It would be short sighted to plan for water without taking into account sanitation, education, resource mobilization, community organization and community participation.

Priority in selection of sites for rural water projects should be given to areas least served by existing water and sanitation facilities.

All water and sanitation projects should be organized in such a way as to provide a training ground for technical personnel and local artisans and should also be used to improve the organizational levels in communities to facilitate future development programmes.

COMMUNITY PARTICIPATION

The principle of ensuring maximum participation of local people in the planning, implementation and maintenance of any project must be accepted upon by all involved in the water provision process.

The Government of Ghana and all its agencies should reserve the right to refuse to sign contracts for rural water projects unless the project contains a specific provision for human resource mobilization.

PRACTICAL STEPS

The community must provide the land for every project and a realistic contribution of labour, practical support and locally available materials.

Before a project begins the following must occur:

- A baseline study must be done
- The people should be consulted, educated and priorities identified.
- Project implementors should prepare a plan of action setting out sponsorship, logistics, training, technology transfer and terms of contract.
- A local management body must be established at village level including opinion leaders(both informal and formal leaders), political organs and women.
- Existing opinion leaders must be supported and given training.

CO-ORDINATION

The district assembly and its chief executive, the District Secretary (DS), play a very important co-ordinating role in the districts. The DS is an ideal entry point and should not be bypassed.

The Department of Community Development (DCD) has a crucial role to play in co-ordinating community animation and education in the field. In the same way that NGOs at MOLE 1 agreed to support and network with CWSC, NGOs should work with DCD (providing technical support and helping to mobilize finance) to enable it to play this co-ordinating role.

For DCD to function more effectively it has to:

- ° review its role and practices
- ° increase its staffing levels
- ° set up a research and development unit to look at community animation
- ° draw up an ongoing and countrywide programme for community animation in order to create favorable conditions for agencies to undertake development projects.

At the beginning of every project the district level DCD must be contacted to provide information on the social environment.

DCD should compile information from agencies working on the ground about strategies and successes in community mobilization.

NGOs should make use of DCD's already existing in rural training centers (information about which will be appended to the MOLE2 report).

WOMEN'S PARTICIPATION

The crucial role of women as water managers and users must be recognized and concrete steps taken to ensure their full participation in the water provision process.

The provision of water must be seen as an entry point to be used to encourage conditions which involve women in the general decision making of a community.

The aim of broadening women's roles is not to provoke conflict. However it must be recognized that conflict will occur when men's traditional power is challenged. It is important that conflict is handled in a constructive way and cultural sensitivities taken into account.

PRACTICAL STEPS

Women's participation can be boosted by:

- ° building upon and enlarging women's traditional roles
- ° strengthening existing women's groups
- ° using women as trainers and animators, thus providing positive role models
- ° building women's confidence through training, especially in technical skills
- ° allotting women specific tasks in the water project
- ° making sure training materials avoid gender role stereotyping
- ° accepting affirmative action (taking steps to promote women's representation in decision-making bodies and in some cases favoring the appointment of women to high decision-making offices) as a legitimate method of redressing past imbalances which have disadvantaged women.

FUTURE GOALS

Traditional rulers and men in general must be educated on the need for changes in women's position in society and the positive benefits of change.

Broadening the concept of women's roles and increasing the range of girls's skills must be addressed at the school level.

Organizations participating in conferences such as MOLE 2 should think more carefully about making sure women are represented on the conference floor not just in the kitchen.

WATER QUALITY

Ghana needs to establish its own standards of drinking water quality. This should be done through the Ghana Standards Board in consultation with GWSC and WRRI.

It should be mandatory for water providers to disinfect wells after construction.

Water needs to be tested by the water provider at the start of use of a well, then over time to measure change. Testing must take place more regularly in the case of open hand-dug wells than pump-enclosed ones.

Funding should be mobilized to bring in bacteriological field test kits so that water testing can be decentralized to Regions. To this end GWSC should also draw up equipment list for Regional laboratories.

A less costly back up measure is to make sure communities can monitor visible signs that pollution of water source is likely to be occurring. Jan Davies of Oxfam, Hans Vos and Fati Mumuni of Village Water Reservoirs should write a checklist of these visible signs. Jan Davies is also charged with writing an explanation of water quality testing for the report.

In order to prevent pollution, communities should be encouraged, wherever possible, to put hand pumps on hand-dug wells or at least design a structure which allows a pump to be added at a later stage.

FUTURE CONFERENCES

GWSC should contact the Ministry of Works and Housing (MWH) to ask that NGOs be invited to the June conference at which the World Bank rural water sector review is being launched. Although it is primarily a donor conference, it is a unique opportunity to bring together multilaterals, bilaterals, government agencies and NGOs. It is also an ideal forum for mobilizing funds (eg. for bacteriological field test kits, land map production and DCD strengthening).

MWH should be encouraged to organize two yearly national meetings of all organizations involved in rural water provision.

In the meantime until the Ministry holds these regular meetings, MOLE-type conferences should continue annually, seeking to network a broad spectrum of players in the rural water sector. More effort should be put into making sure the Secretary for Works and Housing is aware of the MOLE meetings.

National MOLE-type meetings should be held in the first week of March and invitations sent out well ahead of time to make sure that people working on the ground can plan to take time out from dry season construction.

6. PLANNING

6.1 Animation Section

The section will continue in the different villages to implement its programme.

In the new villages that pay their contribution the social survey and discussion will take place. From the seven selected villages 3 only paid their first 40%. The other villages will be contacted to find out why they did not pay.

Orientation visits will be done in 23 villages. A new round of selection from these and villages that still wait will be prepared.

The water quantity survey will be repeated to have a second set of observations in another period of the year.

Training sessions are organised with the Wa Animation team and a DELES course on leadership.

The step by step discussion of technical alternatives during the social survey in group meetings after visits to sample dams will be continued.

The organisation of the labour during construction will be closely monitored but continued in the way of the end of the season, not on a permanent basis but on two fixed days in the week.

Also the hygiene education and maintenance programme is not likely to change much. It has to become clear if part of the programme will be included or not in the MOH VHW's and tba's training.

In the villages where construction is ended this training should not be postponed too long.

The maintenance training at the dam itself will be reviewed.

The senior staff should get more time available for literature study.

Tale 6 Planned activities

Village	A C T I V I T Y				
	Preparation Social survey discussion alternative	Construction	Water hygiene education	Maintenance training/ follow-ups	Monitoring
Gbirimani				x x	x
Tibogu				x x	x
Aseyili				x x	x
Adumbliyili				x x	x
Dimabi				x x	x
Gariziegu				x x	x
Chanayili				x x	x
Buyili				x x	x
Kpachiyili				x x	x
Nafram	x	x	x	x x	x
Yong Dakpemyili				x x	x
Cheshe	x		x		
Yepeligu	x		x		
Kunguri	x	x	x	x	
Tolon Cheshegu	x	x	x		
Gundaa	x	x	x		
Kukulun	x		x		
Jekpahi	x		x		
Kukuo	x		x		
Gizaa	x		x		
Bagon	x		x		
New Villages	x	x	x		

6.2 Technical Section

The section has 2 senior staff and the work force is thus increased. The planning is roughly that until November 1st, work will be concentrated at the compound.

If not enough funds are available the site works will start at a low scale. (no overtime, no work on Saturdays).

Planned activities are:

Compound: Cementing the floor of the parking shed.

- : construction of gutter in front of big store and parking shed.
- : finishing gutters around compound.
- : making gabions by a core-group of 4 persons (2 1/2 pcs. per pp/day)
- : making of concrete pillars and tiles for aprons.

Office : Writing the following papers/documents.

- Training papers on concrete, earth and spillways and establishing design criteria and construction standards.
- revision of cost estimate document
- selection of new foreman
- reorganisation and checkup big store
- Design of gravel stone sieve in cooperation with WS
- Design of Nafram, Yepiligu, Cheshe, Kukulun, Tolon Cheshegu, Kunguri, Jakpahi and possible some new villages that pay in time their 40% contribution.

In the field:

- Hydrological monitoring
- water quality, bacteriological and g.w. cyclops 1x/month.
- some soil surveys
- some topographical surveys (esp. new villages in Nov/Dec)
- Assistance to maintenance training of villagers
- Training of Animation staff in dam maintenance
- Monitoring leakage in Buyili, Kpachiyili and Aseyili.

First work to be carried out in November are:

- Gariziegu: fencing, aprons
- Kpachiyili: Aprons.

Also a training arranged for draughting and topographical survey assistants. Further training for the masons will be investigated.

6.3 Workshop

The plant will get their general inspection and big annual maintenance. The low loader will be reinforced and improved, and the bulldozers will get an extra protection bar on top of their blades to avoid big stones to damage the radiator.

A shelf for galvanised iron pipes will be made.

Design and construction of a gravel stone sieve.

Several improvements at the compound such as:

- adding more lights armatures
- hooks and grips on several doors. etc.

Make platforms on dirty water tanks for placing motorpumps.
Construction of a radiator protection grid on Nissan Pickups.
Extending air intakes of DAF trucks.
And many other things. For a complete list I refer to the W.S. halfyearly report.

Training is arranged for Mr. Anasigre the senior mechanic at the MDPI in Accra for a one-month-course on "The Practice of Supervision" in September.

Also is asked to Tractor and Equipment to organise a training but it was not possible this year. DAF/Leyland has been approached for the same reason but no reply has been received.

6.4 Management

The main focus will be laid in this semester on the development of various policy plans as mentioned in chapter 2.

Also the auditing must be worked out.

The housing problems of senior staff is not yet solved and we hope to find them at reasonable rents.

Before the end of the year the TOR and requirements of the successors of Mrs. Murre and Mr. Thiecke have to be analysed and might be revised.

Also the employment of an assistant project manager is foreseen .

The WSC has to discuss his TOR and requirements.

6.5 Administration

This section has mainly ongoing routine activities such as correspondence, bookkeeping, payments etc.

A combined bank-cashbook will be taken into use.

Mr. Honkoop will do the following tasks:

- revision of cost calculation document.
- Improvement of after-construction calculation.
- set up monitor system for stores.(items/value)
- Refining method of running cost estimates of equipment.
- If possible determining the economic efficiency of the investment in the villages by building reservoirs as we build.
- A review to point out which amount of project money of the 1st phase has been spent on buildings, reservoirs in the villages, remaining value of plant and equipment and the value of stored materials as at 1-7-1990.

Halfyearly report VWR January - June '90

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ANNEX 1

PROGRAMME VISIT CHARGE D'AFFAIRES
MR. S H BLOEMBERGEN

26 - 2	13.00hrs 15.30hrs	Kumasi - Tamale Visit TASC
27 - 2	9.00hrs 10.30 14.30 20.00	Audience with the Bishop Presby Dev Activities Christian Counsel Dinner at Guest House given by Archbishop
28 - 2	8.30 10.00 10.30 12.00 12.30 18.00	Village Water Reservoirs Compound Visit District Secretary Tamale Gariseigu reservoir under construction Visit District Secretary Tolon Visit Gbirimani reservoir and village back to Tamale.
29 - 2	9.30	Visit Regional Secretary NR.

Date	Order	Description	Codes	Section	Remarks	Amount (DFL)
9-1-90	154	Trammel plate, bar, Isle creeper	4201	WS	TAAP 20	679.00
10-1-90	155	Slides, magazine, cassettes	4201	AS	TAAP 23	288.00
10-1-90	156	Book: Health Workers	2900	"	TAAP 23	34535
10-1-90	157	Bouw Steel Matton	4203	TS	TAAP 22	5990.00
13-1-90	158	Stationary	5100	Office	TAAP 23	2300.00
13-1-90	159	Stationary	4201	"	TAAP 23	514.00
13-1-90	160	Stationary	5100	"	In Proces	100.00
22-1-90	161	Square Mesh	4203	TS	TAAP23	477.00
24-1-90	162	Oil cooler D6 Cat	5203	WS	TAAP 23	1400.00
24-1-90	163	Monster spares	5203	WS	TAAP 23	868.00
25-1-90	164	Spares Refridge	5203	WS	TAAP 23	80.00
26-1-90	165	Set of gas jet	2116	Office	"	54.00
30-1-90	166	Outenna Radio Kenwood	4201	Tech.	In Proc.	800.00
2-2-90	167	Urgent Spares Clutch	5203	Work	DHL(12-2)	300.00
	167A	" " "	5203	"	Air	1568.00
2-2-90	168	Spares Pick-up(Japan Motors)	5203	"	Tamale	900.00
2-2-90	169	Sealant repair kit, gasket etc.	5203	"	Cont.II	1445.00
5-2-90	170	Spares DAF clutch etc.	5203	"	"	11084.51
5-2-90	171	Fuel Coil	5201	All Sect	Tamale	1,472.850.00
11-2-90	172	Deep Frezer	-	B.Brown	CAP 72	812.00
16-2-90	173	Solution hacksaw blade monster	5203	WS	Cont.II	3442.99
16-2-90	174	Brink & Co. Spares & Parts Book	5203	WS	"	970.00
6-2-90	175	Vacuum Cleaner	4201	All Sects	Cap72	100.00
16-2-90	176	Unatrac spares excavator	5203	WS	Con.II	500.00
27-2-90	177	Spares Bomag Compactor	5203	"	"	1962.00
27-2-90	178	Spares Cat Dozer D6H	5203	"	"	1528.00
27-2-90	179	W.W: Consumables Monster	5203	"	n/Cap72	1432.27
28-2-90	180	DAF Spares	5203	"	"	2626.33
28-2-90	181	Lubricants Mobil	5202	"	Tamale /	1,479.044
28-2-90	182	Spares IR Compressor	5205	"	Cont.II	
26-2-90	183	Construction Materials Monster	4203	TS	Cap71,72	20,736.70
26-2-90	184	Tents Zippers. Jofie Dum	4204	TAAP 23		2500.00
26-2-90	185	Construction Materials Monster	4203	"	CAP 71	9093.00
26-2-90	186	C.M. Polyethelene pipe etc.	4203	"	Cont.II	3835.00
26-2-90	187	Concrete Mixer. Pick axes etc.	4202	"	Cont.II	3551.50
					Cap 71	4000.00
"	188	Container Frames	4202	"	Cont.II	4662.00
26-2-90	189	I.R. Tampers	4202	"	Cont.II	4000.00

Date	Order	Description	Codes	Section	Remarks	Amount (R)
8-3-90	190	Secondhand 20ft. containers	4202	AS	TASC	200.00
8-3-90	191	Spares for Ramp DAF Tipper	5203	WS	Cap73	3500.-
26-3-90	192	Fuel 30,000Ltr. Coil	5201	ALL	Tamale	2000000.-
4-4-90	193	Spares Honda 100XL	5203	WS	In Proce	5000.-
9-4-90	194	Spares Caterpillar Unatrac	5203	WS	Cap73	10500.-
9-4-90	195	Spares for Eeca Compr Tester	5203	WS	Cap73	613.-
9-4-90	196	Spares for Daf & Nissan	5203	WS	Cap72	6500.-
9-4-90	197	Spares for IR Compr/Somag Compat.	5203	WS	Cap72/	3000.-
9-4-90	198	Suction line Big motorpump	4202	TS	In Proce	1500.-
9-4-90	199	Hekla BV spares battery filter	5203	WS	"	100.-
9-4-90	200	Monster Spares Welding Electr.	5203	WS	"	2000.-
10-4-90	201	CBM DAF Spares Axleshafts	5203	WS	Cap72	11000.-
12-4-90	202	Spares parts for Honda 125XL	5203	WS	In Proce	5000.-
18-4-90	203	Laboratory Consumables	5100	TS	"	75.-
18-4-90	204	Items for Brother Trevor	-	-	"	9000.-
2-5-90	205	Fuel 30,000Ltr. Coil	5201	ALL	"	2000000.-
11-6-90	206	3 Cassettes about asking, listening/speaking	2142	All.	"	130.-
20-6-90	207	Spares for Gen. I-II-III	523	WS	"	3500.-
20-6-90	208	Monster tools Workshop	420	WS	"	3500
20-6-90	209	Monster materials & consumables	550/560	WS	"	4000.-
20-6-90	210	Nissan Patrol 160 <i>spares</i>	533	WS	"	2500.-
20-6-90	211	Somag Plate Compactor Spares	523	WS	"	1500.-
20-6-90	212	Spares Wheelloader & Excavator	523	WS	"	20000.-
20-6-90	213	Spares DAF 1800(Air compressor)	523	WS	"	8500.-
25-6-90	214	Office consumables	540	OFF	"	1000.-
25-6-90	215	Video apparatus	420	AS	"	13000.-
26-6-90	216	Calculators Blomenstein	420	OFF	"	500.-
27-6-90	Roller	Vibrator Compactor Vibromax with spares.	420	TS	"	25000.-
27-6-90	218	Proforma Invoice Hekla BV. spares				
5-7-90	219	Hekla;tyres Daf,tyres pickup	523	WS	"	1500.-
10-7-90	220	Lubricants Mobil	520	WS	Tamale	
12-7-90	221	Fuel	521	W/S	"	

-halfyearly report January - June, 1990 -

VILLAGE WATER RESERVOIRS

TAMALE GHANA

I am interested to receive the following documents:

- Technical halfyearly report semester
- Animation " " " " "
- Workshop " " " " "
- Water Supply Report of Village
- Others

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VILLAGE WATER RESERVOIRS

TAMALE-GHANA

I am interested to receive the following documents:

- Technical halfyearly report semester
- Animation " " " " "
- Workshop " " " " "
- Water Supply report of village
- Others

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