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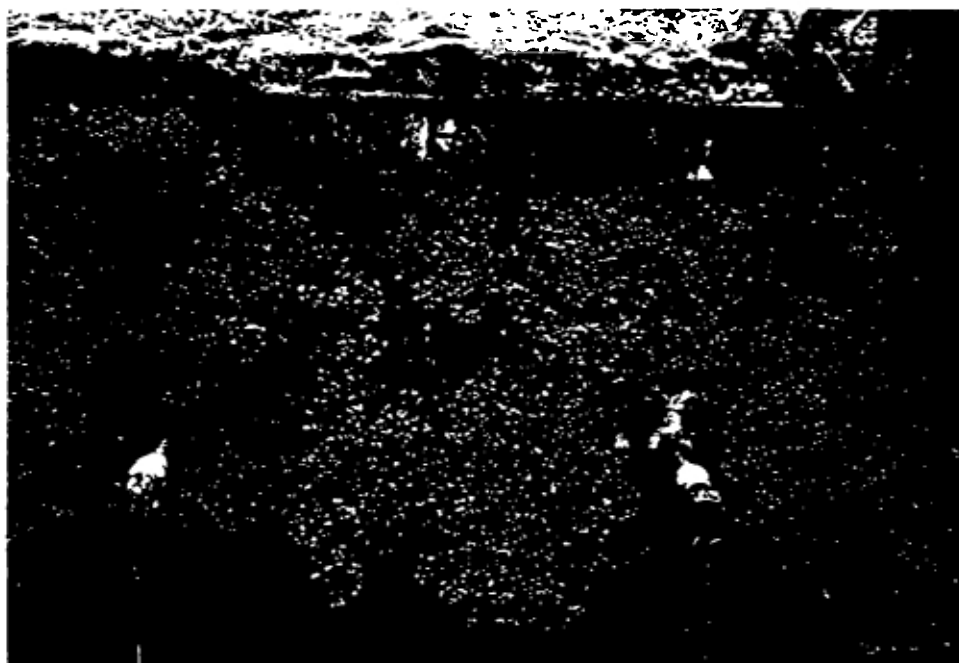
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CD/HELVETAS CO-OPERATION IN CAMEROON
1964 - 1989

SUMMARY
INTERNATIONAL REFERENCE CENTRE
COMMUNITY WATER SUPPLY AND
SANITATION (IRC)

EVALUATION OF
WATER POINTS AND WELLS,
CONSTRUCTED FROM 1964 TO 1989

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BAFUT NJIBUJANG: One of the oldest water points,
still in relative good condition (rating 2; No.64)

NP 89 in this report represents the personal opinion of the author
Mr. Otto Conson (Director HELVETAS Cameroon 1986-89), and do not
necessarily coincide with the opinion of the organisation HELVETAS



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1. GENERAL

1.1. Definition

A water point (WP) consists usually of

- a catchment (spring or stream),
- a sedimentation tank in case of a stream catchment and, if necessary, also for springs,
- a storage tank, sometimes combined with sedimentation tank,
- one or more taps and a washplace, attached to the tank,
- necessary hydraulic installations (supply line catchment-tank, outlets, drainage and overflow for tank).

In the project descriptions of this report we have defined this as **standard** equipment of a water point.

A few water points have an **extension**: one additional standpipe some distance away from the tank (e.g. TSOPIA, West Province; ref. No. 138). Such an extended WP could already be considered as a small water supply distribution system. We included "extended water points" with not more than one additional standpipe in the list of WPs.

Any deviation from the "standard WP" is mentioned in the project descriptions under "construction details".

A WP was usually built for a small settlement (100 to 300 inhabitants), a school or a health centre. Some larger settlements or villages have several WPs instead of a real water supply system, e.g. MMEN (North West Province, ref. Nos 82-86). In earlier reports, this was sometimes called water supply with water points and included in the list of water supplies. Here we considered each as a separate WP and named them accordingly MMEN 1, MMEN 2 or BU "A", BU "B" etc.

Construction details of groundwater wells are always in the project descriptions, e.g. depth, pump, cover, drainage.

1.2. Number of projects

We found altogether

- 126 water points and
- 19 wells

constructed by CD/HELVETAS from 1964 till 1989 within the three Provinces North West (NW), South West (SW) and West (W). 122 WPs and all 19 wells were visited during 1988/89 either by CD technicians/engineers and/or by a HELVETAS engineer. Information on the present state of 141 WPs/wells out of the total number of 145 projects is therefore included in this evaluation.

In earlier reports (e.g. "20 YEARS CO-OPERATION, A STATISTICAL REVIEW") 6 additional water points were mentioned. Below project names and reasons why we did not include them in this report:

- BAMENDA NKWE (NW, Mezam): not found; was probably earlier called MANDANKWE and afterwards by mistake considered as another project.
- 3 wells NDOP (NW, Mezam): not constructed by CD/HELVETAS; partly repaired in 1978 (not all work planned was finally carried out).
- BU (NW, Menchum): only part of construction done by CD/HELVETAS; after several years, completed by Génie Rural.
- MODELE (NW, Menchum): same as BU.
- MBESENAKU: in earlier reports by mistake mentioned under Bui Division as "MBESINAKU" and at the same time under Menchum Division as "MBESENAKU". In this report the WP is called MBESINAKU (ref. number 74, Menchum Division).
- FAI NKIM TASHWER (NW, Bui Division): not found; WP is probably existing under another name.

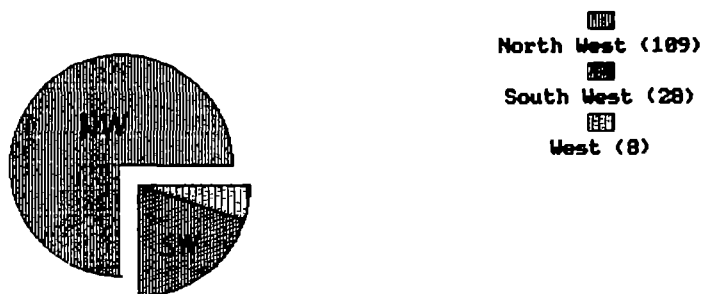
The few projects constructed and completed with the assistance of HELVETAS within the Central and Littoral Provinces are not included in the present report: MELEN water point and evtl. one or two wells (KIKI/MBAM).

1.3. Location of projects

75% of all WPs/wells built by CD/HELVETAS are within the NW Province. Such an uneven distribution reflects

- our general preference for the NW Province as zone of intervention (see also watersupplies and roads/bridges).
- the different population patterns within NW and SW. NW is densely populated with a large number of small settlements and villages, whereas SW still has extended forest covers with few villages in between.
- different periods of intervention. HELVETAS had engineers residing within W-Province only from 1978 to 1988.
- personal reasons or preferences. Some engineers favoured the construction of smaller systems, WPs or wells.

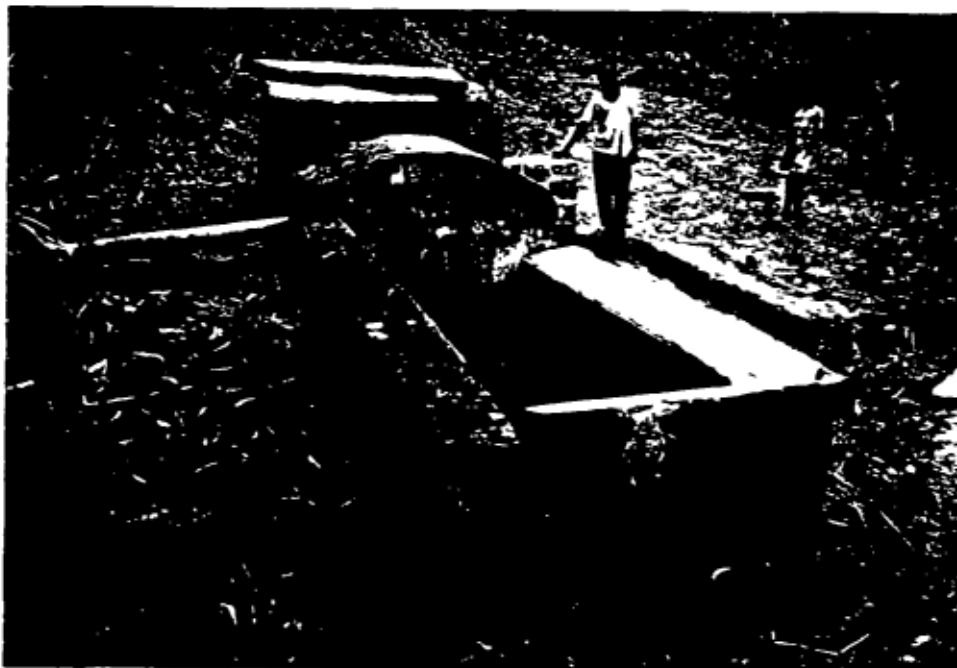
See also annex: "Map of SW-, NW- and W-Province"



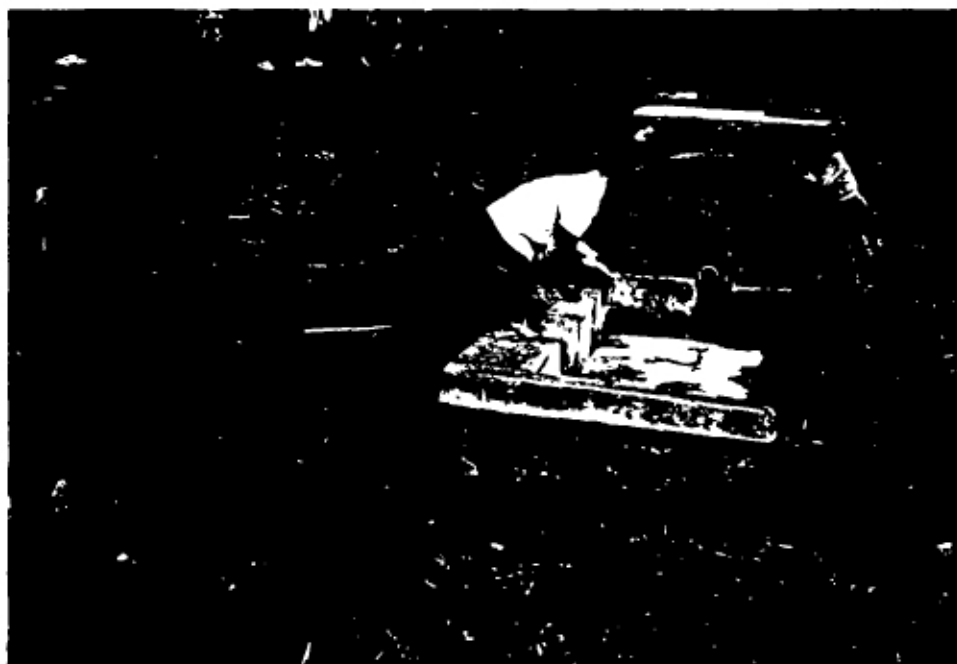
Location of WPs according to provinces

1.4. Benefitting population

The WPs and wells still in use are serving around 50'000 people. Figures received for 87 projects are ranging from 100 to 3000 people with an average of a little over 500 per WP or well. Details are given in the following list with general information about each project. There are no exact figures available (no census carried out). The numbers are therefore only estimates which varied a lot according to persons involved in filling in the questionnaires.



BAFUT NFOYA: Built 1966; gen.rating 3; ref.no. 63



WVEM: Built 1971; gen.rating 3; ref.no. 91.
Both WPs are widely used and should be overhauled.

1.5. List of projects and its characteristics

The projects are arranged according to Provinces and Divisions. Within a Division they are listed in alphabetical order. Only the four WPs with ref. numbers 41-44 have not been visited till completion of this report (no questionnaires filled).

Name	DIVISION Sub-Division	Ref. No.	Popul. 1988	Year of constr.	Overhaul/ repairs	Cost Mio CFA	Water source	Gen. rating
SOUTH WEST Province:								
FAKO:								
BIMBIA BONUNGAMBE	Limbe	1	200	1974		,20	spring	1
BIMBIA CHOP FARM	Limbe	2	400	1974		,20	spring	1
DIKOLO	Limbe	3	300	1976		not known	spring	1
MISELLELLE	Tiko	4	not used	1974	1983	,20	spring	5
MUNGO wells 1 + 2	Tiko	5	500	1987		2,95	well	1
MEME:								
BABENSI 1	Nguti	18	500	1965 rep.		,01	spring	3
BANGA HEALTH CENTRE	Kumba	7	not used	1977		,18	well	5
BUTU	Kumba	8	700	1965 rep.		,02	spring	4
ELUM	Bangem	6	400	1965		not known	spring	4
KOMBONE HEALTH CENTRE	Kumba	9	h. centre	1980-1985	1988	* 7.27	well	1
KOMYE	Kumba	10	not used	1965	1966	,16	spring	5
MALENDE RCH	Kumba	11	1000	1965	1971 new	,15	spring	3
MALENDE VILLAGE	Kumba	12	unknown	1971	1977	,10	well	3
MAMBANDA	Kumba	13	500	1970	1977	,28	spring	2
MASAKA	Kumba	14	1000	1965 rep.		,01	stream	4
MUFAXOM	Kumba	15	not used	1965 rep.		,01	spring	5
MUKETE FARM	Kumba	16	100	1968		not known	well	3
NGOLO BOLO	Kumba	17	1500	1973	1976	,47	spring	2
TALANGAYE	Nguti	19	500	1965 rep.		,02	spring	4
NDIAN:								
BANUSSO	Banusso	20	not used	1972	1980	,15	well	5
BEKORA	Ekondo Titi	22	not used	1973	1978	,18	well	5
EKOMBE LIONGO	Banusso	21	300	1986		* 4.62	spring	1
EKONDO TITI	Ekondo Titi	23	500	1975	1978	not known	well	3
MANYU:								
EYANG	Mamfe	25	not used	1965		,03	well	5
EYOMOJOK	Eyumo Jok	24	3000	1968	1985	not known	spring	3
FOTABE SCHOOL	Mamfe	26	not used	1965		,31	spring	5
OKOYONG	Mamfe	27	500	1966		,15	spring	3
TALI HEALTH CENTRE	Mamfe	28	not used	1968		,09	well	5
WEST Province:								
BAMBOUTOS:								
TSOPIA	Batcham	138	400	1987	1989 new	* 5.09	spring	4
MENOUA:								
BANEHANG (QUARTER WELL)	Penka Michel	139	300	1988		* 1.56	well	4
BANSOA (AD LUCEN HOSPITAL)	Penka Michel	140	hospital	1987		* 2.86	well	1
BANSOA (QUARTER WELL)	Penka Michel	141	300	1988		* 2.32	well	1
MIFI:								
FANTCHOUET 1	Bafoussam	142	500	1988		* 5.20	spring	1
NDE:								
BANTOUM 2	Bangangte	143	500	1982		* 1.79	spring	2
MOUM:								
FOUTOUM (Nkeutlieu)	Foumbot	144	500	1979		,66	spring	1
MAKIKI	Foumbot	145	550	1987		* 2,86	well	1

(cont. next page)



Name	DIVISION Sub-Division	Ref. No.	Popul. 1988	Year of constr.	Overhaul/ repairs	Cost Mio CFA	Water source	Gen. rating
NORTH WEST Province:								
NONO:								
AMBOMBO	Batibo	29	500	1967		,10	spring	3
ANDEK	Mbengwi	45	700	1968		,09	stream	4
ASHONG	Batibo	30	not used	1968		,10	spring	5
ASHONG SCHOOL	Batibo	31	not used	1967		,09	spring	5
BIFANG "A"	Batibo	32	200	1966		,10	spring	3
BIFANG "B"	Batibo	33	not used	1966		,10	spring	5
DICHE	Batibo	34	250	1965		,06	spring	4
DINKU	Batibo	35	1500	1965		,05	spring	3
EKA SCHOOL	Batibo	36	school	1967		,10	spring	3
EKA VILLAGE	Batibo	37	250	1967		,10	spring	3
ENYOH RCM	Batibo	38	250	1967		,08	spring	3
ETWII CBC	Mbengwi	46	500	1970		,23	spring	3
HENKA	Batibo	41		1966		,10		
HENKA TOWN	Batibo	42		1966		,10		
NGALLA	Batibo	39	250	1966		,10	spring	3
NGNAM		43		1968		,73		
OSHUM HEALTH CENTRE	Batibo	40	200	1976		,80	spring	3
TABUNCHIN		44		1967		,10		
MEZAM:								
ALATENENG	Santa	58	200	1967	1978+1988	,09	spring	1
AMING	Santa	59	400	1967	1978	,08	spring	4
BABA 1	Ndop	50	not used	1970-1972		,58	spring	5
BABUNGO	Ndop	51	not used	1965		,11	spring	5
BAFUT MAMBU	Tuba	62	350	1966		,09	spring	2
BAFUT NFOYA	Tuba	63	400	1966		,08	spring	3
BAFUT NJIBUJANG	Tuba	64	300	1965		,11	spring	2
BAFUT NJINTEH	Tuba	65	not used	1965		,12	spring	5
BALI BANGU	Bali	47	400	1979-1983		not known	spring	3
BALIKUBAT (BANGOLAN)	Ndop	52	400	1965		not known	spring	3
BALIKUBAT BABA	Ndop	53	200	1965		,12	spring	3
BAMBILI MBEYAH "A"	Tuba	66	300	1965		,11	spring	3
BAMBILI MBEYAH "B"	Tuba	67	not used	1965		,08	spring	5
BAMBILI SMALL MARKET	Tuba	68	200	1965		,09	spring	3
BAHESING	Ndop	54	unknown	1967		,50	spring	3
BAHESING PRESB.SCHOOL	Ndop	55	unknown	1968		,12	spring	4
BAHUNKA	Ndop	56	not used	1968	1973	,35	spring	5
BANGOLAN	Ndop	57	h. centre	1982		* 1.54	well	2
BANKOM ALAMANTU	Tuba	69	not used	1967		,10	spring	5
BANKOM NTINKAY	Tuba	70	200	1966		,05	spring	4
MBU PRESBYT.SCHOOL	Santa	60	not used	1970		,08	spring	5
MBU RCM	Santa	61	250	1970		,09	spring	4
MENDANKWE	Bamenda	48	300	1963	1965	,08	spring	4
MKWEH HILE 4	Bamenda	49	1000	1978		,80	spring	2
MENCHUM:								
BEFANG (BAIFANG)	Wum	78	100	1969		,33	stream	2
BELO	Fundong	71	not used	1965		,12	spring	5
BOCHAIN (NJINIKOM)	Fundong	72	300	1966		,10	spring	3
BU "A"	Wum	79	not used	1973		,30	stream	5
BU "B"	Wum	80	250	1973		,30	stream	2
ESSU HEALTH CENTRE	Wum	81	not used	1968		,19	stream	5
FONFUKA	Fundong	73	not used	1966	1978	,15	spring	5
MBESINAKU	Fundong	74	750	1974		,20	spring	3

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Name	DIVISION Sub-Division	Ref. No.	Popul. 1988	Year of constr.	Overhaul/ repairs	Cost Mio CFA	Water source	Gen. rating
MEMCHUM: (cont.)								
MMEN 1 (BAFMENG, old town)	Wum	82	not used	1982		not known	spring	5
MMEN 2 (BAFMENG, new town)	Wum	83	not used	1982		not known	spring	5
MMEN 3 (BAFMENG, IPA INU)	Wum	84	not used	1967		,12	spring	5
MMEN 5 (BAFMENG)	Wum	85	500	1979-1981		not known	spring	3
MMEN 6 (BAFMENG, INU)	Wum	86	800	1977-1979		,45	spring	2
NJINKFIM (NJINIKOM)	Fundong	75	not used	1967		,13	spring	5
SU BUM (Health Centre)	Fundong	76	not used	1965		,11	spring	5
TINIFOMBI (NJINIKOM)	Fundong	77	200	1967		,11	spring	3
WEN XGEH	Wum	87	not used	1968		,14	spring	5
BUI:								
KAI	Kumbo	93	150	1967		,08	spring	3
KIKAINFU	Kumbo	94	not used	1966		,14	spring	5
KISHONG 2 (TSEM)	Kumbo	95	120	1973		,25	spring	2
KISHONG VILLAGE	Kumbo	96	unknown	1970		,21	spring	3
MBAM NKUM HEALTH CENTRE	Kumbo	97	1000	1972		,15	spring	3
MBIAME HEALTH CENTRE	Kumbo	98	200	1975		not known	spring	3
NDZERU	Kumbo	99	200	1976		,34	spring	3
NOI	Jakiri	88	not used	1967		,07	spring	5
SHIY	Jakiri	89	250	1973		,26	spring	3
TABESOB (SOB)	Jakiri	90	not used	1965		,07	spring	5
WYEM	Jakiri	91	550	1971		,11	spring	3
WYEM (HAUSSA)	Jakiri	92	not used	1971		,13	spring	5
DONGA MANTUNG:								
AKWETO	Ako	100	250	1970	1979	,16	spring	3
BERABE HEALTH CENTRE	Ako	101	h. centre	1973	1979	,18	spring	1
BINKA	Nkambe	104	not used	1966		,07	spring	5
BINKA CBM	Nkambe	105	not used	1966		,08	spring	5
BINKA HEALTH CENTRE	Nkambe	106	not used	1970	1980	,19	spring	5
BINKA MAYO	Nkambe	107	400	1971	1978	,18	spring	3
CHUP	Nkambe	108	not used	1969	1979	,09	spring	5
DUMBO	Ako	102	400	1971	1979	,23	spring	3
KAMINE	Ako	103	not used	1971		,25	spring	5
KUNGU	Nkambe	109	not used	1966		,09	spring	5
LUS (SCHOOL)	Nwa	130	250	1973		,15	spring	4
MBANDE	Nkambe	110	250	1971	1979	,18	spring	3
MBIYEH	Nkambe	111	1100	1966	1973+1979	,08	spring	3
MBIYEH (STATION)	Nkambe	112	100	1966	1979	,08	spring	3
MBOT MATERNITY (MBIKOP)	Nkambe	113	500	1969		,19	spring	2
MOOH	Nkambe	114	400	1968		,10	spring	3
NDU MBACOURT	Nkambe	115	1000	1965	1974+1979	,16	spring	3
NGARUM MARKET	Nkambe	116	850	1971	1979	,18	spring	4
NJIFOR	Nkambe	117	not used	1973	1987	,42	spring	5
NJIPTOP 1	Nkambe	118	250	1977	1987	,20	spring	2
NJIPTOP 2	Nkambe	119	300	1980	1986	1,17	well	2
NTEM	Nwa	131	not used	1970	1983	,18	spring	5
NTONG (KER)	Nwa	132	1000	1979		,48	spring	3
NTONG (NDEM)	Nwa	133	1000	1979		1,08	spring	2
NTUMBAN	Nkambe	120	1500	1970	1979+1984	,18	spring	3
NTUNDIP	Nkambe	121	500	1967	1977	,13	spring	3
NWA	Nwa	134	1000	1971	1978	,18	spring	3

(cont. next page)

Name	DIVISION Sub-Division	Ref. No.	Popul. 1988	Year of constr.	Overhaul/ repairs	Cost Mio CFA	Water source	Gen. rating
DONGA MANTUNG: (cont.)								
SABONGARI	Nwa	135	not used	1971	1975	,14	well	5
SABONGARI MARKET	Nwa	136	1600	1979	1987	,70	well	2
SABONGARI SCHOOL	Nwa	137	1000	1979		,60	well	2
TABENKEN	Nkambe	122	not used	1965	1979	,13	stream	5
TABENKEN	Nkambe	123	not used	1968	1971	,08	spring	5
TAKU CBM	Nkambe	124	not used	1968	1973+1979	,11	spring	5
WAT CBM	Nkambe	125	1300	1969	1979	,15	spring	2
WOWO (CHIEF'S QUARTER)	Nkambe	126	500	1974	1979	,50	spring	2
WOWO (NFORMI QUARTER)	Nkambe	127	300	1975	1979	,45	spring	1
WOWO (NJIMNSA QUARTER)	Nkambe	128	200	1975	1979	,20	spring	2
WOWO (SCHOOL)	Nkambe	129	900	1970	1979	,15	spring	3

Total population approxim. 50'000

Explanations:

Ref. No.	For further details see corresponding project No. (computer print-out).
Popul. 1988	Number of people benefitting from WP/well in 1988; figures not reliable.
rep. (Year of constr.)	Only repaired and improved (original construction 1961-64).
*	Inclusive "supervision" (approxim. 23% of cost) for projects completed after 1980.
Gen. rating	"general rating" = overall state of project in 1988/89 (5 categories). Definition of ratings see chapter 4.



NJINKFIN (NJINIKOM): Built in 1967; gen.rating 5; ref.no. 75.

2. CONSTRUCTION DETAILS

2.1. Year of construction

Over 50% of all WPs and wells were constructed during the first five years of our stay in Cameroon. During the following years, preference was given more and more to the construction of medium and large water supply distribution systems. Only recently, HELVETAS emphasized again the construction of smaller units: 3 WPs and 5 wells from 1986 to 88, mainly within the West Province (2 WPs, 4 wells).



1965-69	(76)
1970-74	(37)
1975-79	(16)
1980-84	(8)
1985-89	(8)

Number of water points constructed

2.2. Water sources

Out of the 141 projects visited,

- 115 WPs have spring catchment(s),
- 7 WPs have stream catchments and
- 19 are wells

All WPs built after 1973 have spring catchments. Out of the 7 WPs with stream catchments, only 2 were functioning in 1988 (general rating "2").

2.3. Overhauls and repairs

Not much details are available regarding repairs and overhauls of water points. The need for overhauling of earlier constructed WPs was mentioned several times in CD/HELVETAS reports. Special efforts were taken from 1977 to 1980 (e.g. overhauling of over 20 WPs within Donga Mantung Division), but the HELVETAS engineers usually did not keep proper reports about work done, total cost and contribution of villagers for repairs.

Limited information about repairs and overhauls of 45 WPs/wells with the assistance of CD/HELVETAS could be traced (see list of projects, column "overhaul/repairs"!). For the other projects we have either no information or they were not overhauled.

Repair programmes on projects were usually initiated by CD/HELVETAS. Village contributions towards work carried out was generally limited to the supply of local material (stones or sand, if needed). Major part of expences were covered with Government grants (e.g. FONADER, repair-programme 1977-1980) or allocations from HELVETAS. In some cases the local Council paid for the material, or the villagers contributed a certain amount in cash (e.g. ALATENENG, overhaul 1988; ref.No. 58).

2.4. Cost

For the most of the WPs/wells constructed before 1980, we had only the figures mentioned in the 20 years Co-operation report. More detailed information was available for projects completed after 1982. Below average cost of WPs/wells constructed till 1970, from 1971 to 1980 and a list with additional details from 7 projects, completed 1982 to 1988. We always included 23% "supervision". For earlier projects, contribution of villagers (locally supplied material and labour) was often not included in the final cost. The average cost are therefore not fully comparable, but the value of local material and labour are usually not exceeding 10% of the other expences.

Results:

- Average cost of a WP/well built from 1965-1970: 174'000 CFA
ranging from around 40'000 to 950'000 CFA
for 77 projects.
- Average cost of a WP/well built from 1971-1980: 459'000 CFA
ranging from around 130'000 to 1.5 Mio CFA
for 41 projects.
- Average cost of a WP/well built from 1981-1988: 3.17 Mio CFA
ranging from around 1.54 to 5.2 Mio CFA
for 10 projects.

List: 7 WPs/wells, built from 1982-1988

Name	Ref. No.	Popul. 1988	Year of constr.	Total cost CFA	Contribution %		Water source	Gen. rating
					Village	Cameroon		
BANTOU 2	143	500	1982	1.790.000	21	0	spring	2
EKOMBE LIANGO	21	300	1986	4.632.000	6	0	spring	1
MAKIKA	145	500	1987	2.860.000	4	60	well	1
TSOPIA	138	400	1987	5.090.000	8	20	spring	4
BANECHANG (QUARTER WELL)	139	300	1988	1.560.000	6	0	well	4
BANSOA (QUARTER WELL)	141	300	1988	2.320.000	4	0	well	1
FANTCHOVET 1	142	500	1988	5.200.000	6	0	spring	1

Total approx: population = 2.800 cost = 23,5 Mio / 7% village contribution

Total expences of the 7 projects divided into 2800 (benefitting population) is giving around 8400 CFA cost/person. However, this figure does not represent actual cost of such projects. In our cost calculation we only added 30% "supervision" to the expences for material and paid labour (mainly masons and plumber). This "supervision" represents 23% of the total cost. But 23% do not even cover transport and office expences for HELVETAS/CD employees which are not booked under individual project accounts. Other expences not included are e.g. salaries of CD and HELVETAS employees (annual expences for such unaccounted salaries are exceeding total project grants for a year!), rents (CD/HELVETAS offices), investments for general project equipment (instruments, machineries etc.).

By considering also unaccounted expences, we have to assume that actual average cost for the construction of the above listed 7 WPs and wells would have come to at least 20'000 CFA, probably closer to 30'000 CFA per inhabitant.

2.5. Contribution of villagers and distribution of cost

Average village contribution in kind and cash towards WPs/wells constructed after 1980 was below 10% of the total cost. In some cases the villagers contributed only in kind (e.g. EKOMBE LIANGO, ref.No. 21), in others only in cash (e.g. BANSOA, ref.No. 141) or in kind and cash (e.g. TSOPIA ref.No. 138). The Cameroonian Government contributed only towards MAKIKA well and TSOPIA WP (ref. Nos 138, 145).

Figures about contribution of villagers and distribution of cost for WPs/wells built before 1980 are only available from few projects. General indications:

- For the first few projects, villagers contributed in average and percent more to the total cost than after 1969.
- For a major part of projects constructed after 1969 till 1980, villagers contributed only in kind (supply of sand, stones and to some extend with unskilled free labour).
- Major part of expences for material and paid labour were covered with Government grants (e.g. CD budget contributions) or local council grants for projects constructed before 1980.
- If sufficient funds were available (Government grants or foreign aid), WPs and wells were sometimes also built by CD/HELVETAS without any contribution from the benefitting communities.

3. STATE OF WATER POINTS AND WELLS STILL USED IN 1988

3.1. Summary: state of water points in use (1988)

On 96 places out of 141 WPs/wells visited by CD/HELVETAS engineers and technicians, water was still used. Below a summary about the state of these 96 projects at the date of visit in 1988/89, followed by some details and explanations.

<u>Catchment:</u>		<u>Construction:</u>		<u>Hydraulic installations:</u>	
good	25	in good condition	25	in good condition	19
medium/improvements nec.	50	repairs/improvements nec.	62	repairs/improvements nec.	44
not acceptable	19	not used/broken down	9	not working/not used	33
Total:	94	Total:	96	Total:	96
<u>Water source:</u>		<u>Water quantity:</u>		<u>Water quality:</u>	
stream	4	sufficient	49	good in colour and taste	74
spring(s)	79	shortage dry season	39	medium	19
well	13	always shortage	5	not acceptable	1
Total:	96	Total:	93	Total:	94

3.2. Catchment

Main defects or problems stated in the questionnaires are:

- not or no longer protected, farming around catchment, people living close by or above (toilets!), trees cut down.
- not cleaned, overgrown, roots entering catchment.
- leaking, part of water escaping, catchment too high (water level of spring below catchment).

3.3. Construction

Major problems or necessary improvements are:

- tank and/or sedimentation tank leaking, replastering necessary (due to aggressive water or age of tank), cracks in walls.
- roof or slab(s) of tank(s) broken, tank not or only partly covered, slabs removed to fetch water with buckets.
- no possibility to enter tank for inspection, cleaning or repairs (e.g. WP EKOMBE LIANGO and BANEGHANG well, both recently built; ref. Nos 21 and 139).
- replastering of washplace necessary.

3.4. Hydraulic installations

Hydraulic installations are obviously the most vulnerable parts of water points and wells, but repairs would usually not be expensive.

- Water points: No or broken taps, broken or corroded pipes (in some cases replacement of asbestos pipes necessary), supply line blocked (roots or mud).
Broken taps are rarely repaired or replaced, which means that water is constantly flowing (storage tank not filled).
- Wells: Handpumps installed on public wells are not working longer than around 3-4 years, irrespective of their make or the availability of spare parts. Even the most solid and simple construction needs a minimum of regular maintenance which the communities are unwilling or unable to ensure. Once a handpump is no longer working and not repaired on the expenses of CD/HELVETAS or another donor (e.g. mission), the people just remove the slab or the whole cover of the well and start fetching water with bucket and rope.

3.5. Water quantity

Figures mentioned in the questionnaires aren't very reliable. CD technicians had often difficulties in measuring the quantity of water (mistakes by checking the time to fill a standard bucket of 10 liters and specially by calculating afterwards liter per minutes). The water quantity depends of course also on the date (month or season) when measurements are taken.

To get an idea about the daily consumption of water, we compared two samples of projects:

- a) Water points with "sufficient" water during dry season:
Measurements done from February till May (peak of dry season and following period with low water flow); figures available from 13 projects.
Average water quantity: 34 liter/day (dispersion: 5-80 l/day)
- b) Water points with "shortages" during dry season only:
Measurements done during March/April; figures available from 16 projects.
Average water quantity: 12 liter/day (dispersion: 4-58 l/day)

Remarks: Unreliable figures regarding population and wrong water measurements are main reasons for wide dispersion.

By looking at the average quantity of water for projects with "shortages during dry season", we have also to take into account the relative bad state of the projects. Out of the 16 WPs within sample b), 13 are in a bad state: rating 3 or 4; various repairs necessary on general construction and hydraulic installations. These are important reasons for water shortages!



3.6. Water quality

The water quality was mainly determined according to taste and colour and the surroundings of catchments (possible sources of pollution). At more than half of the projects within SW-Province, water tests were carried out (Millipore test set). Results of these tests confirmed general judgements (colour, taste, catchment).

Reasons given for "medium" or "not acceptable" water quality:

- high iron content (8): so called "reddish matter", often from catchments within raffia palm groves.
- avoidable pollution (6): surface water, catchment no longer protected.

For 6 projects (out of 20) no specific reasons were given.

3.7. Maintenance

Minimum maintenance and regular cleaning is done on around 10% of all WPs/wells still in use. The other projects are not maintained at all or only very little (e.g. occasional cleaning).

Water points are sometimes good mosquito breeding places and spots for other undesirable creatures (flies, worms etc.): catchment and tank overgrown with grass and bushes; waterpools, mud and dirt around outlets; drainages blocked.

Remarkable exceptions are 3 water points in Fako Division, South West Province, built in 1974 respectively 1976:

- BIMBIA BONUNGAMBE (ref.No.1)
- BIMBIA CHOP FARM (ref.No.2)
- DIKOLO (ref.No.3)

People are getting water from these WPs since 12 to 14 years. The places are regularly cleaned and all constructions are still good (rating 1). No repairs had to be done upto 1988. Even the original taps are still in place and functioning!

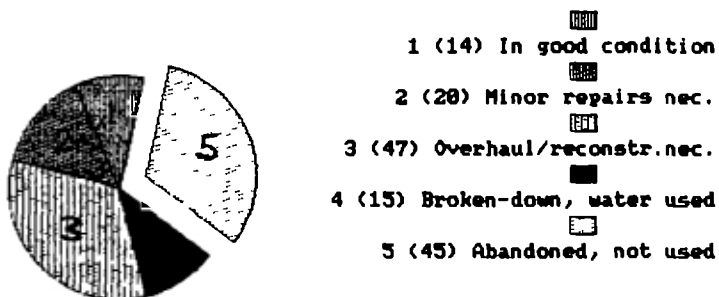
4. GENERAL RATING

4.1. Criteria

Ratings were given to projects according to the following criteria:

- 1 = in good working condition, no repairs necessary.
- 2 = minor repairs/improvements necessary (e.g. new taps, new slab, replastering of tank), but still in relative good condition.
- 3 = major repairs, general overhaul or partly reconstruction necessary; flow and quantity of water affected.
- 4 = water still used for human consumption, but project fully broken down; complete reconstruction necessary.
- 5 = WP/well no longer in use; place abandoned.

4.2. Rating distribution of all WPs and wells



General rating of all WPs and wells

Around half of the projects with rating "5" have been abandoned after construction of a water supply system (CD/HELVETAS, SNEC, Génie Rural or SCANWATER) within the village. If properly maintained, most of these WPs would still serve well the people living in proximity - specially in cases of break-downs of the water supplies and during water shortages (both not uncommon!).

4.3. Rating distribution of wells

The 19 wells built with the assistance of CD/HELVETAS were rated as follows:

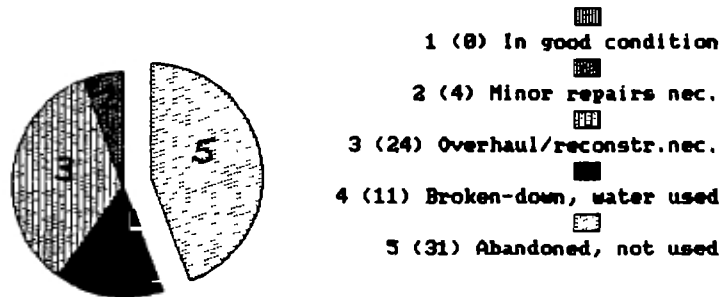
- rating 1: 5 (all built 1985-87).
- 2: 4 (2 overhauled 1986/87; one built 1982, one 1979).
- 3: 3 (2 overhauled 1977/78; handpumps not working).
- 4: 1 (built 1988; water not used for drinking because of high iron content - ref No. 139).
- 5: 6 (built or overhauled in 1965, 68, 75, 77, 78 and 1980)

All wells were equipped with handpumps (various types); some pumps were at least once replaced or several times repaired by HELVETAS.

Out of the 9 handpumps working in 1988, eight were installed between 1985-88. The handpump for BANGOLAN project was installed in 1982 and always maintained by Bansoa Babtist Hospital (only handpump working over 5 years; ref. No.57).

4.4. Rating distribution of old WPs and wells

To get an idea about the average life-span of our WPs/wells, we selected all projects built before 1974 (age 15 and more years) and not overhauled or reconstructed after 1974 (respectively: no information received about such repairs).



General rating of old WPs and wells

Out of the 70 projects, only 4 or around 6% are still in relative good condition. All others are either abandoned, broken-down or in bad state.

Of special interest regarding "motivation for development" or "self help spirit" of the benefitting population are the projects with rating 4: the people are now fetching water practically the same way as they did before the WPs were built!



5. APPROACHES OF MOTIVATION, TWO SAMPLES

By going through the project reports, we found some interesting and informative samples how different engineers had a different approach towards motivating the villagers for "self-reliance" or "self-help":

ELUM WP, South West Province, Fako Division (ref.No.6):

Construction of this WP started May 1965. At the beginning, people contributed 10'000 CFA, brought material for the catchment and did necessary manual work. But soon their interest ceased. The HELVETAS engineer was unable to motivate the villagers again. As soon as he approached the worksite in his car, "the people went hiding into bushes" (KREIDLER, report No.7, July 65). The catchment was completed and part of the tank built.

Nevertheless, Mr Kreidler decided to stop the work and wait till the villagers would bring the balance of their contribution (cash, material and labour). This never happened. People still collect their drinking water in 1988 as they did in July 1965: from the pipe coming out of the catchment! The whole area is muddy, dirty and overgrown.

For this engineer, the motivation of the people was more important than the completion of a project. He was only ready to continue with the assistance of the villagers.

Overhaul of 3 wells in NDOP PLAINS (NW, Mezam Division; projects not included in this evaluation: wells built by PWD):

Public Works Department (PWD) constructed before 1970 with foreign assistance around 50 wells in NDOP plains. Our engineer visited the wells and wrote 1977 a report about their state: no single hand pump working; slabs removed; people fetch water with buckets; places muddy and dirty. The engineer proposed an overhaul programme which included repairing or replacing of the hand pumps and improvements around the wells (pavements, proper drainages).

In 1978, the first 3 wells were overhauled with a grant from FONADER and further financial assistance from HELVETAS (purchasing new hand pumps). The work was done without any community participation. Our engineer justified the decision as follows: "Since these 3 wells should afterwards serve as samples (for the overhaul of the other 47 wells), the communities did not have to contribute" (MUGGLI, report No.11, January 1979).

This engineer was more concerned about the bad state of the projects than the participation or motivation of the people. If he insisted on a reasonable village contribution beforehand, he most probably could have never repaired the 3 wells. By repairing the projects, CD/HELVETAS first of all rewarded 3 communities for neglecting the wells and motivated others to wait till we or someone else would also repair and improve their projects free of cost.

The first approach or attitude towards unmotivated villagers (ELUM WP) is rather seldom, the second one more common. In the most of the cases it's something between: if the motivation of villagers isn't sufficient for bringing in their contribution, the engineers "negotiate" a lower share till the projects can be completed.

Such a reaction is understandable. We have enormous difficulties to leave projects uncompleted and to see old ones falling into ruins. The longer the villagers wait, the more we are ready to "compromise". In such a way we are effectively teaching the people to do as little as possible, just the opposite of what we would like to do.

PS: The 3 new handpumps bought with HELVETAS money for the NDOP wells only arrived in Cameroon after Mr Muggli left. They were never installed by his successors and are still laying in Bamenda!



BALI BANGU: Completed 1983; gen.rating 3; ref.no. 47.
Bad village participation during construction. Standpipe broken; no drainage; surroundings dirty; WP still used.

6. SUMMARY - CONCLUSIONS

6.1. Number of projects completed

126 water points (WPs) and 19 wells were constructed with the assistance of HELVETAS from 1964 till 1989 within the Provinces South West, North West and West. In addition 1 WP and probably 2 wells were built outside these 3 Provinces.

At least 45 of these projects were once or more overhauled and/or reconstructed by CD/HELVETAS.

Over 50% of all WPs/wells were built during the first five years of our collaboration with CD, 25% during the following five years and the rest within the past 15 years.

75% of all projects are situated within the NW Province.

6.2. Cost and distribution of cost

Approximate average cost (including 23% "supervision") per project built from

- 1965-1970: 174'000 FCFA;
- 1971-1980: 460'000 FCFA;
- 1981-1988: 3'170'000 FCFA.

Average cost per person from 1981-1988 = 8'400 FCFA.

By taking into account also "hidden expences" (salaries CD/HELVETAS employees, general project equipment, rents for offices etc.), average cost per person for a WP or well built from 1981-1988 was probably between 20-30'000 FCFA.

Average contributions of villagers (in kind and cash) and cash-contributions from other Cameroonian sources (CD, FONADER etc.) decreased in percent of the total cost during the years. From 1981-1988, villagers contributed in the average 7% of the accounted cost; other Cameroonian sources 12%.

The contribution of villagers is therefore far below the 20-30% envisaged and propagated by HELVETAS.

6.3. Benefitting population and water consumption

In 1988, approximately 50'000 people were taking water from around 100 WPs/wells still in use.

Average water collection per person per day for WPs/wells is probably not more than 10, maximum 15 liters.

If a WP or well is giving around 10 liter water/person/day during dry season, it can be considered as sufficient.

Present water shortages during dry season are mainly the result of damaged constructions (catchments, tanks) and hydraulic installations due to lack of maintenance.

6.4. State of projects and maintenance

Out of 141 WPs/wells, visited and evaluated during 1988/89 by CD and HELVETAS technicians/engineers,

- 24% are in good working condition or need only minor repairs (general rating 1 and 2). Another
- 44% are still in use, but in bad state or broken-down (general rating 3 and 4). The rest of
- 32% are abandoned (general rating 5).

The water is good for human consumption in around 75% of projects still in use. In the other projects, the water has a high iron content (mainly from catchments within raffia palm groves) or might be partly polluted by chemicals (farming around catchments) and faecal matter (catchments inhabited).

Around 10% of WPs/wells still in use are regularly cleaned and maintained by the benefitting population. The other projects are not maintained at all or only very little (occasional cleaning).

6.5. Lifespan of WPs/wells and handpumps

A water point or well built by CD/HELVETAS has under the present conditions of maintenance (respectively: no-maintenance!) a lifespan of 10-15 years.

Only 6% of projects over 15 years old and not overhauled or reconstructed by CD/HELVETAS during the past 15 years are still in an acceptable state (general rating 2). The others are either in a bad state (34%), broken-down or abandoned (60%).

Handpumps installed on wells are usually working 2-4 years. Once broken-down, people remove the slab and fetch water with buckets.

We therefore suggest that HELVETAS is no longer installing handpumps for wells in Cameroon, unless their maintenance is ensured (e.g. by a private hospital or mission). Instead of pumps, arrangements on wells should be made to facilitate taking out water with buckets.

6.6. Acceptance and general benefits

With a few exceptions, WPs and wells are widely and regularly used by the population.

If additional water supply distribution systems are installed, WPs are usually abandoned, even by the people living in proximity of them.

The relative low participation of the villagers towards the construction of WPs/wells and specially the lack of interest in maintenance might be interpreted as follows:

- Low direct benefit: the direct benefit for villagers is in their opinion relative meagre.
- High assistance from outside: the villagers don't do more for their projects because they expect us to do the most and to take care of them afterwards, or they hope at least that we will do so.
- Low communal spirit, lack of leadership: the direct benefit for individuals is high, but the families within a community are unable or unwilling to organise themselves for contributing towards maintenance of a project on communal basis (purchasing of spare-parts, cleaning of tanks etc.).

6.7. Long-term effects

The long-term effects of these projects seem to be very limited and much lower than expected.

We were specifically unable (with a few exceptional cases)

- to motivate villagers to take once completed projects in their own hands and care for them (maintenance),
- to strengthen self-help efforts and
- to make communities more independant from outside assistance (self-reliance).



BANGOLAN WELL: Built in 1982; gen.rating 2; no.57.
Only handpump working over 5 years; maintained by mission.

