

「資料」

1. 調査団員氏名、所属（敬称略）

官団員

氏名	専門	所属
丸尾 裕治	団長	国際協力専門員
栗栖 昌紀	計画	国際協力事業団、無償資金協力部 業務第1課

コンサルタント団員

川崎 良一	業務主任/給水計画	三祐コンサルタント
近藤 達	給水施設計画	三祐コンサルタント
木村 茂美	水理地質	三祐コンサルタント
田中 栄治	物理探査	三祐コンサルタント
浜田 巖	調達・施工計画/積算	三祐コンサルタント
岩田 繁喜	施設設計	三祐コンサルタント

2. 調査日程

表-資-2 に示す通り。

3. 相手国関係者リスト

表-資-3 に示す通り。

4. 当該国の社会・経済事情

表-資-4 に示す通り。

5. 議事録及びテクニカル・ノート

資料-5～資料-10

6. 参考資料リスト

表-資-11 に示す通り。

7. その他の資料・情報

- 7.1. CWSA 公認ハンドポンプ一覧
- 7.2. IEE 結果（表-資-12）
- 7.3. 対象村落リスト
- 7.4. ソフト・コンポーネント導入提案書

8. 別添

- 8.1 設計計算書
- 8.2 数量計算書
- 8.3 設計図面集
- 8.4 概算事業費積算概要資料
- 8.5 デジタル写真集
- 8.6 ビデオテープ

表-資-2

現地調査計画行程

日順	月	日	曜日	主要訪問先	業務主任 (移動日)	給水施設計画	水理地質	物理探査	調達・施工計画/積算 (移動日)	官ペース調査団 (移動日)
1	2	26	土	移動日(成田-フェール)	(移動日)				(移動日)	(移動日)
2	2	27	日	移動日(フェール-アクラ)	(移動日)				(移動日)	(移動日)
3	2	28	月	大使館、JICA事務所、他	表敬、打ち合わせ				表敬、打ち合わせ	表敬、打ち合わせ
4	2	29	火	CWSA, DANIDA, CIDA, GIZ 他	I/R提出・協議、他				I/R提出・協議、他	I/R提出・協議、他
5	3	1	水	現地調査(西部州)	西部州踏査				物探再委託準備	西部州踏査
6	3	2	木	現地調査(西部州)	西部州踏査				測量班準備	西部州踏査
7	3	3	金	現地調査(西部州)	西部州踏査				積算関連調査	西部州踏査
8	3	4	土	現地調査(東部州、大7州)	東部州他踏査					東部州他踏査
9	3	5	日							
10	3	6	月	(独立記念日)、団内会議	団内会議					団内会議
11	3	7	火	CWSA	議事録協議					議事録協議
12	3	8	水	CWSA	議事録協議					議事録協議
13	3	9	木	CWSA、大使館、JICA	議事録協議、署名					議事録協議、署名
14	3	10	金	調査開始	他ドナーの動向、上位					帰国
15	3	11	土		計画レビュー等					
16	3	12	日	第2次団員出発						
17	3	13	月		資料収集	移動日(フェールへ)	同左	同左		
18	3	14	火	CWSA, JICA事務所、他	表敬訪問、団内会議	移動日(アクラへ)	同左	同左		
19	3	15	水	CWSA, 西部州事務所	西部州にて全員協議	表敬訪問、団内会議	表敬訪問、団内会議	表敬訪問、団内会議	表敬訪問、団内会議	表敬訪問、団内会議
20	3	16	木		詳細打ち合わせ	西部州にて全員協議	西部州にて全員協議	西部州にて全員協議	西部州にて全員協議	西部州にて全員協議
21	3	17	金		詳細工程策定	詳細打ち合わせ	詳細打ち合わせ	詳細打ち合わせ	資料収集	資料収集
22	3	18	土		資料収集	資料収集	資料収集	機器テスト	資料収集	資料収集
23	3	19	日		現地調査準備	現地調査準備	現地調査準備	現地調査準備		
24	3	20	月	各調査班対象地	Nzima-E (Takoradi)	同左	同左	同左		
25	3	21	火		Wassa-W/A (Askg)	同左 (5郡10村)	同左	KIKAM (Takoradi)		現地業者レベル調査
26	3	22	水		Aowim-S (-)	同左 から5村	同左	KIKAM (Tarkwa)		
27	3	23	木		Wassa-A/BAB (Takd)	同左 へのしほ	同左	合同演習 (Tarkwa)		標準単価、規格、
28	3	24	金		R.Ofc. → Accra	同左 りこみ	同左 (Takoradi)	NSUAEM (Tarkwa)		法律、制度等調査
29	3	25	土		資料整理	資料整理	資料整理 (Takoradi)	MANSO A. (Askrq)		
30	3	26	日		資料整理・測量打合	資料整理		DADIASO (Askrq)		
31	3	27	月	Census Day (臨時休日)	国家計画、上位計画、	Accra → R.Off.(Tako)	R.Off. → Tarkwa	SUBRI (Bibiani)	Accra → R.Off.(Tako)	Accra → R.Off.(Tako)
32	3	28	火		CWSAの組織、予算、	KIK/NSU/Other(Tar)		BIB → Tarkwa	KIK/NSU/Other(Tar)	KIK/NSU/Other(Tar)
33	3	29	水		活動等調査	MA/DAD (Askrq)			MA/DADI (Askrq)	MA/DADI (Askrq)
34	3	30	木	CWSA西部州	対象村落再調整	SUB → Accra	水理地質調査	物理探査	SUB → Takoradi	SUB → Takoradi
35	3	31	金		他ドナーの動向調査	資料整理		(VLF, GEP for	R.Off. → Accra	R.Off. → Accra
36	4	1	土	Tarkwa	物探班、地質班と会議	資料整理		Level-1 comm.)	資料整理	資料整理
37	4	2	日							

日	曜	日	曜日	主要訪問先	業務主任	給水施設計画	水理地質	物理探査	調達・施工計画/積算	官ベース調査団
38	4	3	月	CWSA	CWSAと工程調整	資料整理			調達・施工計画/積算	
39	4	4	火	西部州	Kikam, Tarkwa	測量指導	水理地質調査	物理探査	住民啓蒙活動調査	
40	5	5	水		Dadieso, Asnkrangwa	測量指導(現地)		(VLF、GEP for Level-1 comm.)	調査結果打合せ	
41	6	6	木		Kumasi, Accra	設計基準Study			資料整理	
42	7	7	金		JICA, CWSA, Labo				帰国準備	
43	8	8	土	調達・施工計画団員帰国	帰国前打合せ	帰国前打合せ			帰国前打合せ/帰国	
44	9	9	日			測量指導(現地)				
45	10	10	月		住民啓蒙活動実態の調査	Phase-III地区視察			成田着	
46	11	11	火							
47	12	12	水		水質試験結果の検討					
48	13	13	木	CWSA	CWSAとの協議	CWSAとの協議				
49	14	14	金		測量作業視察	測量指導(現地)				
50	15	15	土				資料整理、			
51	16	16	日		資料整理	資料整理	井戸データベース			
52	17	17	月		チームミーティング	チームミーティング	チームミーティング			
53	18	18	火		物探班と合同作業	測量指導(現地)		物理探査		
54	19	19	水					(VLF、GEP for Level-1 comm.)		
55	20	20	木	JICA、CWSA	表敬、CWSAと協議	表敬、CWSAと協議				
56	21	21	金	イースター休日(24日まで)	維持管理体制の検討	施設設計案作成				
57	22	22	土			資料整理・帰国準備				
58	23	23	日	給水施設団員帰国	帰国前打合せ	帰国前打合せ/帰国				
59	24	24	月	Western Region			水理地質調査			
60	25	25	火		Phase-II 施設	成田着				
61	26	26	水	Brong Ahafo Region	視察					
62	27	27	木							
63	28	28	金							
64	29	29	土		協力の規模、内容と効果、妥当性の検討					
65	30	30	日		Technical Note原案					
66	5	1	月	May-Day休日	他のドナーとの情報交換					
67	2	2	火		Technical Note協議					
68	3	3	水	全Field Works完了	州事務所と最終協議					
69	4	4	木	CWSA	資料整理					
70	5	5	金	CWSA西部州	帰国準備					
71	6	6	土							
72	7	7	日		表敬訪問/帰国					
73	8	8	月	大使館、JICA事務所、他	表敬訪問/帰国					
74	9	9	火	チューリヒ中継(機中泊)	(移動日)					
75	10	10	水	成田着	(成田着)					

資-表-2'
現地調査工程表 (第2次現地調査)

月日	曜	行程	主たる活動	滞在地
7月 25	火	NRT-LDN	移動日、BA008 (13:05)	ロンドン
26	水	LDN-ACR	アクラ着、BA2081 (20:20)	アクラ
27	木	in Accra	JICA表敬	アクラ
28	金	→Takoradi	Takoradiへ移動、CWSA、西部州事務所で会議	タコラディ
29	土	→Kikam	Kikamにて啓蒙活動	タコラディ
30	日	→Nsuaem	Nsuaemにて啓蒙活動	タコラディ
31	月	→M. Amenfi	Amanso Amenfiにて啓蒙活動	アサンクラングア
8月 1	火	→Dadieso	Dadiesoにて啓蒙活動	アワソ
2	水	→Suburi	Suburiにて啓蒙活動、後Accraに戻る	アクラ
3	木	in Accra	林団長と合流、大使館及びJICA表敬	アクラ
4	金	in Accra	CWSAとの協議	アクラ
5	土	in Accra	市場価格調査、現地資料整理	アクラ
6	日	in Accra	市場価格調査	アクラ
7	月	in Accra	CWSAとの協議 (2)	アクラ
8	火	in Accra	CWSAとの協議 (3)	アクラ
9	水	in Accra	CWSAとの協議 (4)、M/Dへの署名	アクラ
10	木	Accra→	JICA及び大使館へ報告、帰国	機内泊
11	金	-LDN-	Londonでストップオーバー	機内泊
12	土	→NRT	成田着	

現地調査工程表 (第3次現地調査)

月日	曜	行程	主たる活動	滞在地
10月 21	土	NRT-ZRC	出国、(SR 169)	チューリッヒ
22	日	ZRC-ACR	ガーナ着 (SR 264)	アクラ
23	月	in Accra	JICA、大使館、及び CWSA表敬	アクラ
24	火	in Accra	Drfat Final Reportの説明・協議	アクラ
25	水	in Accra	CWSAとの協議	アクラ
26	木	in Accra	CWSAとの協議	アクラ
27	金	in Accra	M/Dへの署名、大使館への報告	アクラ
28	土	in Accra	団内会議	アクラ
29	日	in Accra	資料整理	アクラ
30	月	in Accra	CWSAとの協議	アクラ
31	火	in Accra	CWSAとの協議	アクラ
11月 1	水	in Accra	CWSAとの協議	アクラ
2	木	in Accra	市場価格調査	アクラ
3	金	ACR-	CWSAとの協議、ガーナ出国 (SR 265)	機内泊
4	土	-ZRC-	Zurichでストップオーバー	機内泊
5	日	-NRT	成田着	

表-資-3

面会者リスト

訪問先	面会者	職位	日付
Embassy of Japan	Mr. Takanobu KURODA	First Secretary	2月28日
JICA	Mr. Siroh NABEYA	Resident Representative	2月28日
	Mr. Fumio MIYAGAWA	Dep. Resident Representative	3月9日
	Mr. SANJOU	Co-ordinator	
	Mr. Kazutomo HIHARA	Asst. Resident Representative	
Ministry of Finance	Mr. Agues M. BOTSA	Chief Economic Officer	2月28日
	Mr. Edmond Kwabena NKANSAP	Japan Desk Officer	
Ministry of Works and Housing	Mr. Alex B. AKUFFO	Deputy Minister	2月28日
	Mr. Stanley Q. BARNOR	Director	
	Mr. S. A. DAKKINA	Chief Hydrologist	
	Dr. Thomas F. AGYAPONG	Deputy Director, Water Sector	
CWSA	Mr. Peter O. SACKY	Ag. Chief Executive	2月28日
	Mr. R. K. D. VAN ESS	Director, Technical Services	
	Mr. S. OPOKU-TUFFOUR	Regional Director, Wstern Region	
	Mr. Yau Asante SARHODIE	Zonal Planner	
	Mr. Fay EPHRIM	Zonal Planner	
	Mr. Ernest Kwame DOE	W&S System Co-ordinator	
DANIDA	Mr. Kurt KLITTEN	Coordinator, Water sector development	2月29日
CWSA, Regional Office	Mr. D. Amankwa BOATENG	Zonal Hydrogeologist	3月1日
	Mr. Kwesi BROWN	Water and Sanitation Engineer	
	Mr. Joseph JONAH	Water and Sanitation Engineer	
	Ms Beba Adam MUSAH	Regional Accountant	
	Mr. Ethelbert KOMULADZEI	Extention Service, Higiene	
	Miss Esinu Ama ABBEY	Management Information System Specialist	
igip	Mr. Wilfried MAYER	Project Manager, RWSP	3月8日
	Mr. Mawuene DOTSE	Project Co-ordinator	
	Mr. Claus RIEXINGER	Technical Adviser	
CIDA	Mr. Baljit S. NAGPAL	Premier Secetaire (Development)	3月8日
Wassa Amenfi D/A	Nana TANDOH	District Chief Executive	3月2日
	Mr. GAISIE	District Coordinating Director	
	Mr. Peter ANDIH-BAIDO	DWST	
	Mr. Redemer TAY	DWST	
	Mr. Robert OBRI-TEBOAFF	PO's manager	
PHASE III Project Site	Mr. E. F. BOATENG	Regional Director, Eastern Region	3月4日
	Mr. Kweku TOMPSON	Extention services Speciallist	
Water Research Institute	Dr. Dapaan SIAKWAN	Cfief Hydeologist, Groundwater Div.	4月7日
	Mr. Solomon K. MENSAH	Droundwater Div.	
Survey Dept.	Mr. K. M. ARKU-LAWSON	Chief Cartographer	3月17日

訪問先	面会者	職位	日付
Meteorological Service Dept.			
	Mr. Godson K. ANAGLATE	Dep. Director, Climo Div.	3月17日
	Mr. Abraham Ari AYITEY	Climo Div.	
Wassa West D/A			3月21日
	Mr. Clement DANDORI	District Co-ordinating Director	
	Mr. Felix OFOSU-TEYE	PWD Engineer	
	Mr. Summuel NDUR	Works Chairman	
Aowin Suaman D/A			3月22日
		District Chief Executive	
	Mr. Isaac ADDEI	District Dev't Planning Officer	
Bibiani A. Bekwai D/A			3月23日
	Mr. F. ASANTE-MENSAH	District Chief Executive	
Sefwi Wiawso D/A			4月25日
	Mr. Alhaji Ishaq ASUREE	District Coordinating Director	
	Mr. Dominic Kofi DANSO	DWST	
Juabeso Bia D/A			4月26日
	Mr. Frank E. ODRO	Dep. Distric Coordinating Director	
	Mr. Johon Kingsford SAGOE	DWST	
	Mr. Sanfo B. ADAMUKWAH	DWST	
CWSA, Brong Ahafo Region			4月27日
	Mr. Ofori MACCARTHY	Regional Director	
	Mr. Johnson O. APPIAH	Extension Service Specialist	
	Mr. Drameni SEIDLE	Mechnics	
Berekum D/A			4月27日
	mr. Komla AGBEDRA	District Coordinating Director	

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一般指標				
政体	共和制	*1	首都	アクラ (Accra) *2
元首	大統領/ジェリー・ジョン・ローリングス	*1,3	主要都市名	クマシ、タマレ、テマ *3
独立年月日	1957年3月6日	*3,4	雇用総数	8,676千人 (1998年) *6
主要民族/部族名	アカン人44%、モレ・ダク・コハ人16%、エウェ人	*1,3	義務教育年数	8年間 (年) *13
主要言語	英語、アシャンティ語、ファンティ語	*1,3	初等教育就学率	78.7% (1997年) *6
宗教	キリスト教42.8%、イスラム教12%、伝統宗教	*1,3	中等教育就学率	% (1997年) *6
国連加盟年	1957年3月8日	*12	成人非識字率	29.8% (2000年) *13
世銀加盟年	1957年9月	*7	人口密度	81.13人/km2 (1998年) *6
IMF加盟年	1994年2月	*7	人口増加率	3.0% (1980年) *6
国土面積	238.53千km2	*6	平均寿命	平均 60.00 男 58.30 女 61.80 *6
総人口	18,460千人 (1998年)	*6	5歳児未満死亡率	96/1000 (1998年) *6
			カロリー供給量	2,560.0 cal/日/人 (1996年) *10

経済指標				
通貨単位	セディ (Cedi)	*3	貿易量	(1997年)
為替レート	1 US \$ = 7,150.00 (2000年12月)	*8	商品輸出	1,489.9百万ドル *15
会計年度	Dec. 31	*6	商品輸入	-2,128.2百万ドル *15
国家予算	(1993年)		輸入カバー率	(月) (1997年) *14
歳入総額	657,581百万セディ	*9	主要輸出品目	金、カカオ豆、木材 *1
歳出総額	813,526百万セディ	*9	主要輸入品目	石油、自動車、食料品 *1
総合収支	26.7百万ドル (1997年)	*15	日本への輸出	百万ドル (年) *16
ODA受取額	700.9百万ドル (1998年)	*18	日本からの輸入	百万ドル (年) *16
国内総生産(GDP)	7,500.78百万ドル (1998年)	*6		
一人当たりGNP	390.0ドル (1998年)	*6	粗外貨準備額	0.0百万ドル (1998年) *6
GDP産業別構成	農業 10.4% (1998年)	*6	対外債務残高	6,883.5百万ドル (1998年) *6
	鉱工業 6.9% (1998年)	*6	対外債務返済率(DSR)	28.4% (1998年) *6
	サービス業 82.7% (1998年)	*6	インフレ率	30.4% *6
産業別雇用	農業 男 % 女 % (1992年)	*6	(消費者価格物価上昇率)	(1990-98年)
	鉱工業 % % (1992年)	*6		
	サービス業 % % (1992年)	*6	国家開発計画	
実質GDP成長率	4.2% (1990年)	*6		*11

気象 (1961年～1990年平均) 観測地：アクラ (北緯5度36分、西経0度10分、標高69m) *4,5													
月	1	2	3	4	5	6	7	8	9	10	11	12	平均/計
降水量	17.7	30.9	69.6	117.4	117.2	322.4	94.7	30.3	71.0	48.3	30.5	20.3	970.5 mm
平均気温	27.6	28.2	28.1	27.9	27.5	26.1	25.3	24.8	25.5	26.5	27.3	27.2	26.8 °C

- *1 各国概況 (外務省)
- *2 世界の国々一覧表 (外務省)
- *3 世界年鑑2000 (共同通信社)
- *4 最新世界各国要覧10訂版 (東京書籍)
- *5 理科年表2000 (国立天文台編)
- *6 World Development Indicators2000
- *7 The World Bank Public Information Center, International Financial Statistics Yearbook 1998
- *8 Universal Currency Converter

- *9 Government Finances Statistics Yearbook1998 (IMF)
 - *10 Human Development Report1999(UNDP)
 - *11 Country Profile(EIU),外務省資料等
 - *12 United Nations Member States
 - *13 Statistical Yearbook 1999(UNESCO)
 - *14 Global Development Finance1999(WB)
 - *15 International Finances Statistics 1999(IMF)
 - *16 世界各国経済情報ファイル1999(日本貿易振興会)
- 注：商品輸入については複式簿記の計上方式を採用しているため
支払い額はマイナス表記になる

ガーナ共和国
Republic of Ghana

我が国におけるODAの実績		(資金協力は約束額ベース、単位：億円)					*17
項目	暦年	1995	1996	1997	1998	1999	
技術協力		15.93	15.44	18.64	19.38		
無償資金協力		29.79	27.43	45.42	57.11		
有償資金協力		207.32	0.00	102.87	96.51		
総額		253.04	42.87	166.93	173.00		

当該国に対する我が国ODAの実績		(支出純額、単位：百万ドル)					*17
項目	暦年	1995	1996	1997	1998	1999	
技術協力		15.56	17.62	15.40	15.42		
無償資金協力		21.45	19.36	22.86	39.25		
有償資金協力		85.06	73.03	31.94	94.33		
総額		122.07	110.01	70.19	149.00		

OECD 諸国の経済協力実績		(支出純額、単位：百万ドル)					*18
	贈与 (1) (無償資金協力・ 技術協力)	有償資金協力 (2)	政府開発援助 (ODA) (1)+(2)=(3)	その他政府資金 及び民間資金(4)	経済協力総額 (3)+(4)		
二国間援助 (主要供与国)	290.0	84.5	374.5	26.6	401.1		
1. Japan	54.7	94.3	149.0	-18.8	130.2		
2. United Kingdom	82.7	-18.1	64.6	25.6	90.2		
3. Denmark	34.7	0.6	35.3	0.0	35.3		
4. United States	34.3	0.0	34.3	8.1	42.4		
多国間援助 (主要援助機関)	53.5	270.6	324.1	-23.9	300.2		
1. IDA			245.1	0.0	245.1		
2. EC			32.5	0.0	32.5		
その他	0.1	2.2	2.3	0.0	2.3		
合計	343.6	357.3	700.9	2.7	703.6		

援助受入窓口機関	*19
技術協力：大蔵省国際経済関係局二国間課 無償：大蔵省国際経済関係局二国間課 協力隊：大蔵省政策分析局社会セクター政策課	

*17 我が国の政府開発援助1999(国際協力推進協会)

*18 International Development Statistics (CD-ROM) 2000 OECD

*19 JICA資料

MINUTES OF DISCUSSIONS
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR RURAL WATER SUPPLY PHASE IV
IN
THE REPUBLIC OF GHANA

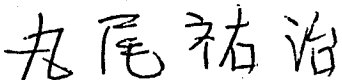
In response to a request from the Government of the Republic of Ghana (hereinafter referred to as "Ghana"), the Government of Japan decided to conduct a Basic Design Study on the Project for Rural Water Supply Phase IV (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Ghana the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Dr. Yuji Maruo, Senior Technical Adviser, JICA, and is scheduled to stay in the country from 27th February to 8th May, 2000.

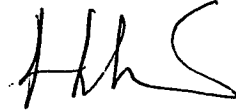
The Team held discussions with the officials concerned of the Government of Ghana and conducted a field survey of the study area.

-- In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to carry out further works and prepare the Basic Design Study Report.

Accra, 9th March, 2000



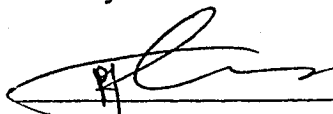
Dr. Yuji Maruo
Leader
Basic Design Study Team
Japan International Cooperation Agency
(JICA)



f Dr. William Adote
Director
International Economic Relations Division
Ministry of Finance

for  Deputy Minister

Mr. I-K. Adjei-Mensah
Hon. Minister
Ministry of Works and Housing



Mr. P. O. Sackey
Ag. Chief Executive
CWSA

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the health and living standard of the people who live in rural areas by providing potable water through construction of water supply facilities.

2. Project sites

The Project sites will be confined to 5 districts out of 11 districts in Western Region because the number of target communities for the basic study was reduced from initial requests of 1200 to 350 communities. These are Nzima East, Wassa West, Aowin-Suaman, Wassa-Amenfi, and Bibiani-Anhwiaso Bekwai Districts, as shown in Annex-1.

Out of 350 communities 340 were the candidate sites for Level 1 system, while 10 communities will be selected as an initial candidate sites for Level 2 system and during the course of the study the further selection will be done, eventually reducing the number into 5 communities, on which land survey and geophysical exploration will be carried out. The Ghana side recognized the necessity of assistance for the remaining 6 districts.

3. Responsible and Implementing Agency

The Responsible and implementing organization is Community Water and Sanitation Agency (hereinafter referred to as "CWSA"), under the Ministry of Works and Housing.

4. Items requested by the Government of Ghana

After discussions with the Team, the items described in Annex-2 were finally requested by the Ghana side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5.1. The Ghana side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-3.

5.2. The Ghana side will take the necessary measures, as described in Annex-3, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

6.1. The consultants will proceed to further studies in Ghana until 8th May, 2000.

6.2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in July, 2000.

6.3. Based on the results of discussions of the draft report, JICA will proceed to carry out further examination of the study results in Japan until October, 2000.

6.4. JICA will prepare the draft final report in English and dispatch a mission in order to explain its contents in October, 2000.

7. Other relevant issues

7.1. The Staged Study Schedule

The Team explained that the Study consisted of two stages, namely; Stage I and II. In Stage I, JICA will prepare the draft report which includes a basic concept of the Project and its basic design. In Stage II, JICA will prepare the draft final report which includes the engineering design on the basis of the study results of Stage I. The final report will be completed by JICA through integration of the study results of both Stage I and II.

7.2. Required yield and water quality for successful borehole

The yield must exceed 13 l/min, while the maximum pumping water level must be in the range recommended for installation of the standardized pumps. WHO standard will be basically applied for water quality.

7.3. Standard hand pumps

The following four hand-pumps have been standardized in Ghana. Nira pump will be installed to the boreholes in which the dynamic water level is less than 15m, while Afridev pump will be taken as a standard pump for the boreholes where dynamic water level is between 15 to 35 m. If the dynamic water level exceed 35m either modified India Mark II or Vergnet will be installed according to the circumstances.

-7.4. Animation activities

Both Japanese and Ghanaian sides recognize the importance of animation activity in order to facilitate the sustainability of the project. Japanese side explained that according to principle of Japan's Grant Aid, operation and maintenance of the donated facilities is totally the responsibility of the recipient's side. Ghanaian side understood the principle and confirmed to make every effort to incorporate animation activities, such as Training of Trainer, and initial part of mobilization stage.

7.5. Utilization of the 5% fund contributed by the communities

It is the general rule that amount of equal to 5% of drilling cost will be collected from the communities in order to facilitate the sense of ownership among the users before actual drilling work is initiated.

The Ghana side proposed to use the fund to cover part of animation activities and requested Japanese side to take remaining part of the animation activities.

7.6. Responsibility of CWSA

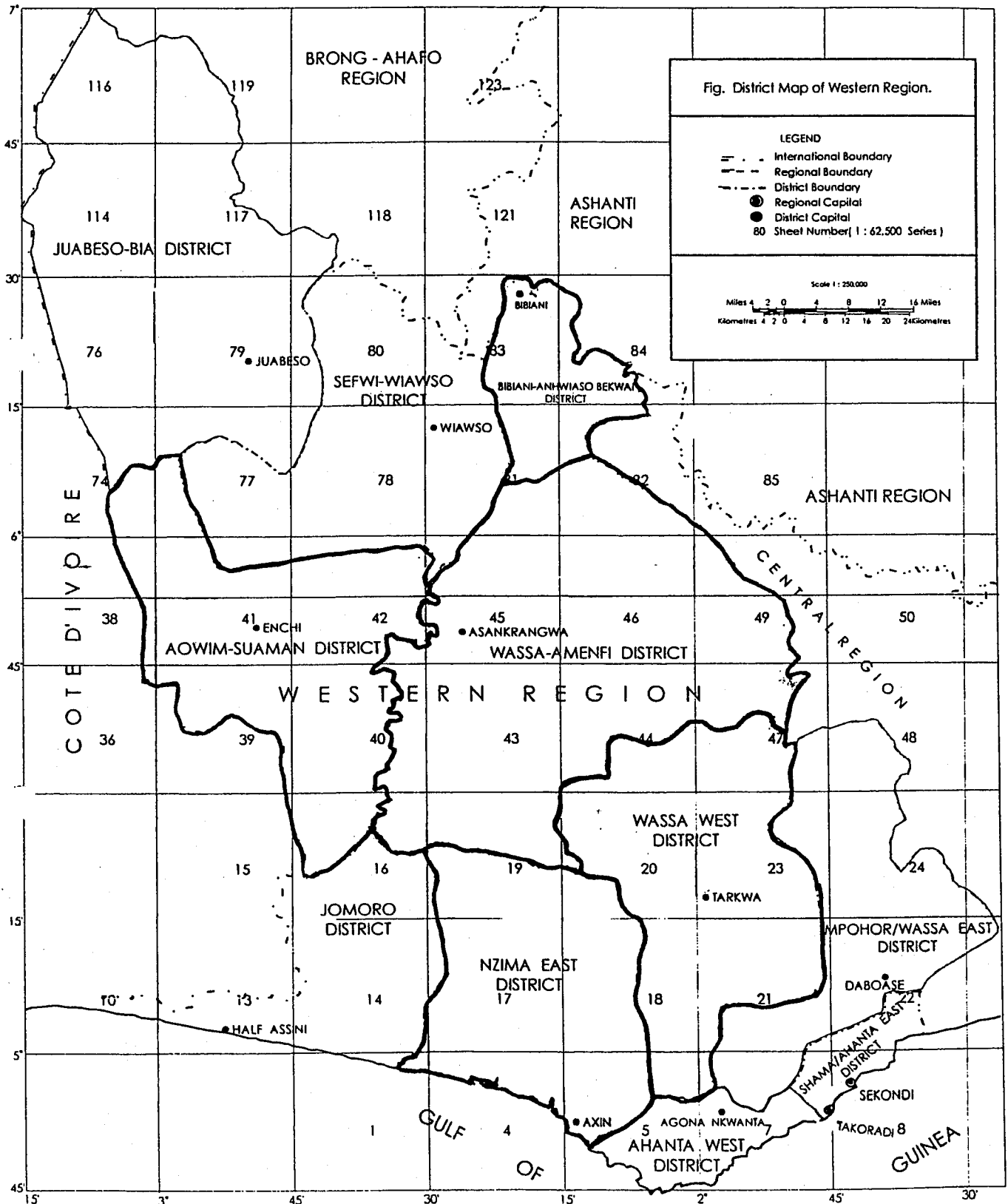
CWSA shall be responsible for the execution of the Project on the basis of all documents and drawings prepared as a result of the Study.

7.7. Major undertakings of both sides

Major undertakings to be made by each Government and those agreed to by each side are shown in Annex-5.

Annex-1

Location Map of the Project Site



ABA

MM

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Annex-2

Items requested by the Government of Ghana

1. Construction of proper number of boreholes with hand pump in five Districts in the Western Region, depending upon the results of the Study. The target communities for the Study shall be 340 communities
2. Construction of proper number of Level-2 water supply facility(s) with mechanized pump system in the Western Region.
3. A part of animation activity in the target communities.

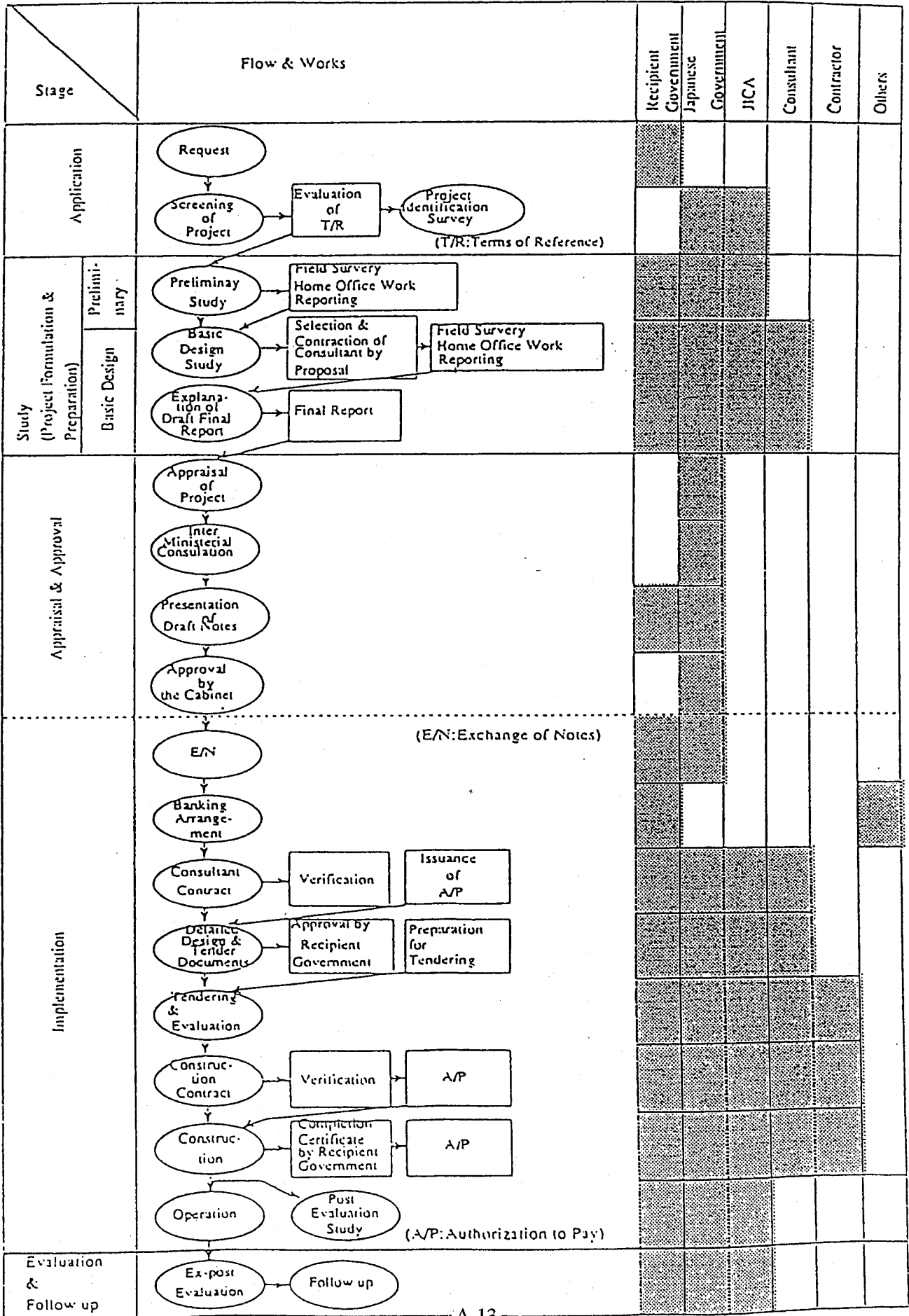
b

PT

~~ASA~~

APM

Flow Chart of Japan's Grant Aid Procedures



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Annex-5

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient side
1.	To secure land.		●
2.	To clear, level and reclaim the site when needed.		●
3.	To construct gates and fences in and around the site.		
	1) For hand pump wells		●
	2) For mechanized pump system	●	
4.	To bear the following commissions to a bank of Japan for the Banking services based upon the B/A.		
	1) Advising commission of A/P		●
	2) Payment commission		●
5.	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country.	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation.		●
	3) Internal transportation from the port of disembarkation to the project site.	●	
6.	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
7.	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract.		●
8.	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid.		●
9.	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities.		●

AB

ADH

MML

①

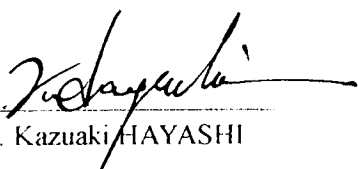
MINUTES OF DISCUSSIONS
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR RURAL WATER SUPPLY PHASE IV
IN
THE REPUBLIC OF GHANA
(EXPLANATION ON DRAFT REPORT)

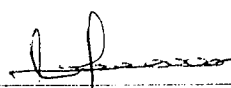
In February 2000, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Rural Water Supply Phase IV (hereinafter referred to as "the Project") to the Republic of Ghana (hereinafter referred to as "Ghana"), and through discussion, field survey, and technical examination of the study results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult the Ghanaian side on the components of the draft report, JICA sent to Ghana the Draft Report Explanation Team (hereinafter referred to as "the Team"), which was headed by Mr. Kazuaki HAYASHI, Deputy Director of General Affairs Division, Tsukuba International Center, JICA, from July 26 to August 10.

As a result of the discussions, both parties confirm the main items described in the attached sheets.

ACCRA, August 9, 2000


Mr. Kazuaki HAYASHI
Leader
Draft Report Explanation Team
Japan International Cooperation Agency
(JICA)


Mr. Kofi A. ASAMOAH
Ag. Chief Executive
Community Water and
Sanitation Agency (CWSA)
The Republic of Ghana

ATTACHMENT

1. Components of the Draft Report

The Ghanaian side agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The Ghanaian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Ghana as explained by the Team and described in Annex-3 and Annex-5 of the Minutes of Discussions signed by both parties on March 9, 2000.

3. Schedule of the Study

- 3.1. The Consultants will proceed to further examine the study results in Japan until October in 2000.
- 3.2. JICA will prepare the draft final report in English and dispatch a mission in order to explain its contents in October 2000.
- 3.3. Based on the results of discussions of the draft report, JICA will complete the final report and send it to the Government of Ghana by December 2000.

4. Other relevant issues

4.1 Engineering Design

The Team handed over five copies of the draft engineering design of the facilities to Mr. R. K. D. VAN ESS, Director, Technical Services of CWSA. Both sides agreed that this draft design is confidential and should not be duplicated or released to any outside parties.

4.2 Animation Activities

1) Animation by Ghanaian Side

The Ghanaian side agreed to conduct the animation activities for the mobilization phase at every target community to establish a WATSAN Committee and obtain a letter of acceptance, by the time the Draft Final Report Explanation Team arrives.

2) Animation by the Team

The Ghanaian side agreed to the results of the planning phase animation carried out in the target five small towns by the Team and RWST, Western Region, and this shall be fed into the Detailed Design of the systems.

3) Remaining Schedule

The study team will monitor the achievements of the animation activities to be carried out by the Ghanaian side. Both sides will confirm the contents of the Japanese technical assistance for animation during the final explanation mission.

4.3 Criteria of Prioritization for the Project

The Team explained the criteria for the prioritization of ranking the 1st and 2nd villages and the Ghanaian side agreed to it.

4.4 A half standpipe at Kikam

The Ghanaian side strongly requested to the Team to install a standpipe with only one tap at the northern side of the high way because of social situation of the town. The Team agreed to re-consider the allocation of standpipe in Kikam.

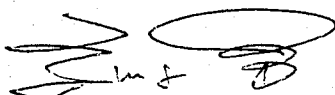
MINUTES OF DISCUSSIONS
ON BASIC DESIGN ON THE PROJECT FOR RURAL WATER SUPPLY PHASE IV
IN THE REPUBLIC OF GHANA
(EXPLANATION ON DRAFT FINAL REPORT)

In October 2000, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Draft Report Explanation Team on the Project for Rural Water Supply Phase IV (hereinafter referred to as "the Project") to the Republic of Ghana (hereinafter referred to as "Ghana"), and through discussion, field survey, and technical examination of the study results in Japan, JICA prepared a draft final report of the study.

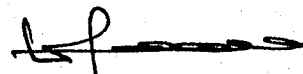
In order to explain and to consult the Ghana on the components of the draft final report, JICA sent to Ghana the Draft Final Report Explanation Team (hereinafter referred as to "the Team"), which is headed by Mr. Fumio Miyagawa, deputy resident representative, JICA Ghana Office, from 23rd October to 3rd November 2000.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

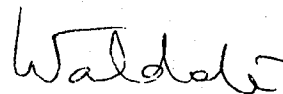
Accra, October 27th, 2000



Fumio Miyagawa
Leader
Draft Report Explanation Team
Japan International Cooperation Agency
(JICA)



Mr. Kofi A. Asamoah
Ag. Chief Executive
Community Water and Sanitation
Agency (CWSA)



Dr. William Adote
Director
International Economic Relation Div.
Ministry of Finance

ATTACHMENT

1. Components of the Draft Final Report

The Government of Ghana agreed and accepted in principle of the components of the draft final report explained by the Team.

2. Japan's Grant Aid scheme

Ghanaian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Ghana as explained by the Team and described in Annex-3 and Annex-5 of the Minutes of Discussions signed by both parties on March 9, 2000.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Ghana by the end of March 2001.

4. Other relevant issues

1) Soft-component

The Ghanaian side requested the consultant services for the animation activities to the communities as one of the components of the Grant Aid. Attached are the request letter and the description of the Soft-component.

2) Engineering Design

The Team handed one copy of the draft final engineering design of the facilities to CWSA. Both sides agreed that this draft design is confidential and should not be duplicated or released to any outside parties.

3) Exemption of VAT

The Ghanaian side confirmed that the VAT concerning the activities on the Project implementation shall be exempt under the E/N between the both governments. Listed items for tax exemption shall be provided before submittal of the final report.

4) Letter of Acceptance

Both sides understand that Basic Design will be finalized by checking the letter of acceptance submitted by the target communities. The communities which have not submitted the letter by November 8, 2000 shall be canceled.

5) 5% Contribution Fund

Both sides understand that amount of equal to 5% of standard drilling cost will be collected from communities in order to facilitate the sense of ownership among the users before actual drilling work is initiated. The Ghanaian side promised to use the fund to cover follow up animation activities and submit financial report to JICA, Ghana.

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COMMUNITY WATER AND SANITATION AGENCY

Head Office: Private Mail Bag, K.I.A., Accra - Ghana

Tel: 021-77 91 02, 77 94 79 Fax: 021-77 94 75 Email: cwsd@ncs.com.gh

Our Ref: CWSA/AR.117/0.3/22

Your Ref:

Date: 27-10-00

MR. MICHIO KANDA
MANAGING DIRECTOR
GRANT AID MANAGEMENT DEPARTMENT
JAPAN INTERNATIONAL CO-OPERATION AGENCY.

Dear Sir,

REQUEST FOR SOFT-COMPONENT OF PROJECT


Our national strategy for the delivery of water and sanitation facilities to the rural communities and small towns, requires that the beneficiary communities and small towns are taken through a process of community animation before, during and after the construction of the facilities.

This process is to prepare the communities and small towns for the ownership operation and management of the facilities as means of ensuring sustainability of the investment.

In the line with strategy therefore, we would like to request the Government of Japan to include a soft-component in the project for Rural Water Supply in Ghana Phase IV.

Attached^{*} is the detail description of the Soft-component to be introduced into the Project.

Yours faithfully,


KOFI ASAMOAH
CHIEF EXECUTIVE (AG.)

CC:

MINISTER OF WORKS AND HOUSING, ACCRA
MINISTER OF FINANCE, ACCRA
AG. DIRECTOR OF PLANNING & INVESTMENT
REGIONAL DIRECTOR, WESTERN REGION
DIRECTOR OF FINANCE
DIRECTOR OF TECHNICAL SERVICES.


*: ソフト・コンポーネント導入計画書は省略する。

MINUTES OF MEETING
ON
RURAL WATER SUPPLY PROJECT PHASE IV

(Technical Note No.1)

With regards to the captioned Project, the Community Water and Sanitation Agency, Regional Office in Western Region (hereinafter referred as "the CWSA, Western Region") represented by Mr. Stephen OPOKU-TUFFUOR, Regional Director, Western Region, and the Basic Design Study Team at the Project (hereinafter referred as "the Study Team"), dispatched by Japan International Cooperation Agency (hereinafter referred as "JICA") represented by Mr. Ryoichi KAWASAKI, Chief Consultants, held a meeting on the technical matters on the Project. Following the discussions, at the meeting, the items described in the Attachment have been mutually agreed upon.

Takoradi, March 20, 2000




Mr. Stephen OPOKU-TUFFUOR
Regional Director, CWSA Western Region

.....
REG. DIRECTOR

G. W. S. A.—W/R:

30/3/2000



Mr. Ryoichi KAWASAKI
Chief Consultants,
The Study Team, JICA

Attachment

1. Date and Place: on march 20, 2000 at CWSA Regional Office, Western Region

2. Attendants:	<u>CWSA</u>	<u>The Study Team</u>
	Stephen OPOKU-TUFFOUR	R. KAWASAKI
	Kwesi BROWN	H. KONDO
	D. Amankwah BOATENG	S. KIMURA
	Esinu Ama ABBEY	E. TANAKA
	Ethelbert KOMULADZEI	

3. Major Items discussed:

3.1. Survey schedule of the Study Team

- The Study Team explained the first survey schedule to select 5 target communities for Level-2 facility, and the CWSA, Western Region understood and agreed to the schedule.
- The CWSA, Western Region agreed to assign Mr. Stephen OPOKU-TUFFOUR, Mr. D. Amankwah BOATENG, and Mr. Kwesi BROWN, to the Study Team as counterpart personnel.

3.2. Candidate communities for the preliminary survey on Level-2 facility

- Based on the M/D agreed on March 9, 2000 in Accra, the Study Team requested to the CWSA, Western Region to propose 10 candidate communities for preliminary survey for the selection of 5 target communities for further survey.
- The CWSA, Western Region provided the following 10 communities as the proposed sites:

Aowin Suaman Distrcet	DADIESO
	OMANPE
Bibiani Anhwiaso Bekwai District	ASAWINSO 'A'
	SUBURI
Nzima East District	EWIEBO/BASAKE
	KIKAM
Wassa Amenfi District	ADJAKA MANSO
	MANSO AMENFI
Wassa West District	NSUAEM
	WASSA SIMPA

- The Study Team agreed to the list of proposed communities and explained the criteria for the selection of the 5 target communities for further survey and study, using a matrix sheet as shown in the Annex.
- The CWSA, Western Region agreed to the explanation on the criteria, and expressed the hope that the Study Team would select one community each out of two candidates in each District through the process.

SOT

R.V.

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District:)

	Item	Rank	Weight			
I	Size of the Community Population	(number)	3			
II	Accessibility Road condition	A - E	3			
III	Community Mobilization WATSAN Committee	A - E	5			
IV	Water Quality Results of water quality check	A - E	5			
V	Current Water Supply Condition Availability of potable water	A - E	10			
VI	Groundwater Availability Availability and quality	A - E	5			
VII	Security of the Site Security condition	A - C	1			
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5			
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10			
X	Number of Water Point		5			
	Dugwell	(number)				
	H.P Well	(number)				
	Communal Tap	(number)				
XI	Urgency of Need Population/water point	(value)	10			
XII	Construction Condition (power supply)		5			
XIII	Others		1			

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

SDT


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MINUTES OF MEETING
ON
RURAL WATER SUPPLY PROJECT PHASE IV

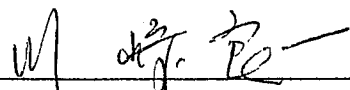
(Technical Note No.2)

With regards to the captioned Project, the Community Water and Sanitation Agency, Regional Office in Western Region (hereinafter referred as "the CWSA, Western Region") represented by Mr. Stephen OPOKU-TUFFUOR, Regional Director, Western Region, and the Basic Design Study Team at the Project (hereinafter referred as "the Study Team"), dispatched by Japan International Cooperation Agency (hereinafter referred as "JICA") represented by Mr. Ryoichi KAWASAKI, Chief Consultants, held a meeting on the technical matters on the Project. Following the discussions, at the meeting, the items described in the Attachment have been mutually agreed upon.

Takoradi, March 24, 2000



Mr. Stephen OPOKU-TUFFUOR
Regional Director, CWSA Western Region
REG. DIRECTOR
C. W. S. A.-W/R.
30/3/2000



Mr. Ryoichi KAWASAKI
Chief Consultants,
The Study Team, JICA

Attachment

1. Date and Place: on March 24, 2000 at CWSA Regional Office, Western Region

2. Attendants:	<u>CWSA</u>	<u>The Study Team</u>
	Stephen OPOKU-TUFFOUR	R. KAWASAKI
	Kwesi BROWN	H. KONDO
	Esinu Ama ABBEY	S. KIMURA

3. Major Items discussed:

3.1. Results of the preliminary survey

- The Study Team explained the procedures and results of the preliminary survey to select 5 target communities for further study for Level-2 facility. From the results, the following 5 communities were selected as the targets for further survey and study for Level-2 facility (refer to Annex):

Aowin Suaman District	DADIESO
Bibiani Anhwiaso Bekwai District	SUBURI
Nzima East District	KIKAM
Wassa Amenfi District	MANSO AMENFI
Wassa West District	NSUAEM

- The Study Team raised the concern that the population of the above listed communities given at the communities seem to be inaccurate, especially at DADIESO, and requested the CWSA, Western Region to check and notify the Study Team about reliable population figures.
- The CWSA, Western Region understood and agreed to the results, and promised to check and notify the Study Team about reliable populations of these communities later on.

3.2. Following survey schedule

- The Study Team explained that the Geophysical Party of the Study Team has already commenced geophysical prospecting at KIKAM, and the topo-survey works on those communities shall be commenced on 27th this month.
- The Study Team explained the second run of the field survey by the Study Team shall be conducted from coming Monday (27th), mainly for construction and work plan studies.
- The CWSA, Western Region understood the current and following study schedule, and agreed to Mr. Stephen OPOKU-TUFFOUR, Mr. Daniel Amankwah BOATENG, and Mr. Kwesi BROWN accompanying the Study Team as counterpart personnel.

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Annex-1

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District: NZIMA EAST)

	Item	Rank	Weight	EWIBO		KIKAM
I	Size of the Community Population	(number)	3	6,000	>	4,000
II	Accessibility Road condition	A - E	3	B	<	A
III	Community Mobilization WATSAN Committee	A - E	5	C	<<	B
IV	Water Quality Results of water quality check	A - E	5	C	<<	B
V	Current Water Supply Condition Availability of potable water	A - E	10	E	=	E
VI	Groundwater Availability Availability and quality	A - E	5	C	=	C
VII	Security of the Site Security condition	A - C	1	A	=	A
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5	C	=	C
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10	C	<	B/C
X	Number of Water Point		5			
	Dugwell	(number)		0		4
	H.P Well	(number)		6		1
	H.P Well (broken)			2		2
	Communal Tap	(number)		0		0
XI	Urgency of Need Population/water point	(value)	10	1,000	<<<	4,000
XII	Construction Condition (power supply)		5	need Fe- removal	<	
XIII	Others		1			
	RESULT				<	Selected

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

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R.V.

Annex-2

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District: WASSA WEST

)

	Item	Rank	Weight	NSUAEM		SIMPA
I	Size of the Community Population	(number)	3	>7,000	>	7,000
II	Accessibility Road condition	A - E	3	A	=	A
III	Community Mobilization WATSAN Committee	A - E	5	B	=	B
IV	Water Quality Results of water quality check	A - E	5	B	>>	C
V	Current Water Supply Condition Availability of potable water	A - E	10	E	=	E
VI	Groundwater Availability Availability and quality	A - E	5	B	=	B
VII	Security of the Site Security condition	A - C	1	A	=	A
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5	C	=	C
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10	C	<	B/C
X	Number of Water Point		5			
	Dugwell	(number)		0		1
	H.P Well	(number)		2		3
	H.P Well (broken)			4		1
	Communal Tap	(number)		0		0
XI	Urgency of Need Population/water point	(value)	10	3,500	>>>	2,330
XII	Construction Condition (power supply)		5		>>	need Fe removal
XIII	Others		1			
RESULT				Selected	>	

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

SOT

A.P.K.

Annex-3

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District: AOWIN SUAMAN)

	Item	Rank	Weight	DADIESO		OMANPE
I	Size of the Community Population	(number)	3	>8,000	>	2,000
II	Accessibility Road condition	A - E	3	B	=	B
III	Community Mobilization WATSAN Committee	A - E	5	A	>>	C
IV	Water Quality Results of water quality check	A - E	5	A	>>	C
V	Current Water Supply Condition Availability of potable water	A - E	10	E	=	E
VI	Groundwater Availability Availability and quality	A - E	5	A	=	A
VII	Security of the Site Security condition	A - C	1	A	=	A
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5	C	=	C
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10	B/C	=	B/C
X	Number of Water Point		5			
	Dugwell	(number)		(123) _{private}		3
	H.P Well	(number)		1		2
	H.P Well (broken)			1		3
	Communal Tap	(number)		0		0
XI	Urgency of Need Population/water point	(value)	10	>8,000	>>>	1,000
XII	Construction Condition (power supply)		5		<<	no power ye
XIII	Others		1			
	RESULT			Selected	>	

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

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Annex-4

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District: WASSA AMENFI)

	Item	Rank	Weight	A. MANSO		M. AMENFI
I	Size of the Community Population	(number)	3	2,000	<	5,000
II	Accessibility Road condition	A - E	3	B	=	B
III	Community Mobilization WATSAN Committee	A - E	5	B	=	B
IV	Water Quality Results of water quality check	A - E	5	B	>>	C
V	Current Water Supply Condition Availability of potable water	A - E	10	E	=	E
VI	Groundwater Availability Availability and quality	A - E	5	A	=	A
VII	Security of the Site Security condition	A - C	1	A	=	A
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5	C	=	C
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10	B/C	-	C
X	Number of Water Point		5			
	Dugwell	(number)		2		0
	H.P Well	(number)		2		4
	H.P Well (broken)			3		1
	Communal Tap	(number)		0		0
XI	Urgency of Need Population/water point	(value)	10	1,000	<<<	1,250
XII	Construction Condition (power supply)		5	no power yet	<<	power suppl
XIII	Others		1		<	Hospital
	RESULT				<	Selected

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

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A.K.

Annex-5

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District: BIBIANI ANHWIASO BEKWAI)

	Item	Rank	Weight	ASAWINSO		SUBURI
I	Size of the Community Population	(number)	3	1,000	<	1,200
II	Accessibility Road condition	A - E	3	C	=	C
III	Community Mobilization WATSAN Committee	A - E	5	B	>	C
IV	Water Quality Results of water quality check	A - E	5	B	=	B
V	Current Water Supply Condition Availability of potable water	A - E	10	E	=	E
VI	Groundwater Availability Availability and quality	A - E	5	A	=	A
VII	Security of the Site Security condition	A - C	1	A	=	A
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5	C	=	C
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10	C	=	C
X	Number of Water Point		5			
	Dugwell	(number)		0		0
	H.P Well	(number)		3		3
	H.P Well (broken)			2		1
	Communal Tap	(number)		0		0
XI	Urgency of Need Population/water point	(value)	10	330	<<<	400
XII	Construction Condition (power supply)		5			
XIII	Others		1			priority
	RESULT				<	Selected

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	no problem
B	Hard but accessible through year	Fund is not enough	
C	Easily accessible in dry season	Committee established but fund	inc. Fe, Mn
D	Hardly accessible in dry season	on the course of animation	
E	Foot-pass only	No committee	inc. Poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

SOT


D.P.K.

MINUTES OF MEETING
ON
RURAL WATER SUPPLY PROJECT PHASE IV

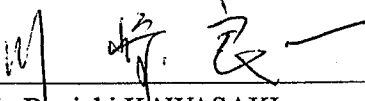
(Technical Note No.3)

With regards to the captioned Project, the Community Water and Sanitation Agency, Regional Office in Western Region (hereinafter referred as "the CWSA, Western Region") represented by Mr. Stephen OPOKU-TUFFUOR, Regional Director, Western Region, and the Basic Design Study Team at the Project (hereinafter referred as "the Study Team"), dispatched by Japan International Cooperation Agency (hereinafter referred as "JICA") represented by Mr. Ryoichi KAWASAKI, Chief Consultants, held a meeting on the technical matters on the Project. Following the discussions, at the meeting, the items described in the Attachment have been mutually agreed upon.

Takoradi, March 30, 2000



Mr. Stephen OPOKU-TUFFUOR
Regional Director, CWSA Western Region



Mr. Ryoichi KAWASAKI
Chief Consultants,
The Study Team, JICA

.....
REG. DIRECTOR
C. W. S. A.-W/R.

Attachment

1. Date and Place: on March 30, 2000 at CWSA Regional Office, Western Region

2. Attendants: CWSA The Study Team
Stephen OPOKU-TUFFOUR R. KAWASAKI
Kwesi BROWN I. HAMADA

3. Major Items discussed:

3.1. Replacement of some selected communities for study target

- Since the commencement of actual field survey, the Study Team pointed out some confusion on the target community list for Level-1 facility such as repetition of same name or duplication with the list for Level-2 facility.
- Responding to the points, the CWSA, Western Region checked the list and found out that the list for Wassa West District was quoted from old database and attached to the requested community list by accident when Wassa West and Nzima East Districts were added to the project district after Sefwi Wiauso and Juabeso-Bia Districts were dropped out, as well as some simple mistakes in the lists of other districts.
- Thus, the CWSA, Western Region explained the situation and process of the confusion, and presented the revised target community list on Wassa West District, together with the community lists on the other districts modified.
- The Study Team understood the situation and agreed to modify the target community list with the conditions that the replaced communities should have low priority than the original ones because they were treated as additionally requested.
- The CWSA, Western Region agreed the conditions. Finally, the Study Team requested the CWSA, Western Region to send a formal note indicating those communities that had to be substituted. The old and the new lists for Wassa West is here attached.

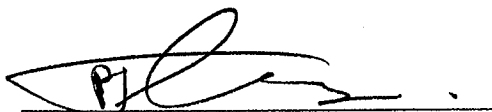
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MINUTES OF MEETING
ON
RURAL WATER SUPPLY PROJECT PHASE IV
(Technical Note No.4)

With regards to the captioned Project, the Community Water and Sanitation Agency, (hereinafter referred as "the CWSA") represented by Mr. Peter O. Sackey, Ag. Chief Executive, and the Basic Design Study Team of the Project (hereinafter referred as "the Study Team"), dispatched by the Japan International Cooperation Agency (hereinafter referred as "JICA") represented by Mr. Ryoichi KAWASAKI, Chief Consultant, held a meeting on the technical matters on the Project. Following the discussions at the meeting, the items described in the Attachment have been mutually agreed upon.

Accra, April 20, 2000



Mr. Peter O. Sackey
Ag. Chief Executive, CWSA



Mr. Ryoichi KAWASAKI
Chief Consultant,
The Study Team, JICA

Attachment

1. Date and Place: On April 20 at CWSA, Headquarter

2. Attendants: CWSA The Study Team
R. K. D. Van Ess R. KAWASAKI
H. KONDO

3. Major Items discussed:

3.1. Design Criteria

3.1.1. For Borehole with Hand-pump

- CWSA standard designs on borehole and platform shall be applied.
- Hand-pump shall be selected from the CWSA standard, depending on the characteristics of the borehole.

3.1.2. For Pipe-system

- As a rule, Design Criteria prescribed in Appendix 1 attached herewith (which is an Appendix of the "Small Town Water and Sanitation Policy" prepared by CWSA in April 2000) shall be applied.
- However, projection shall not be considered because 45 lcd of the design water demand is based on the demand of 10 years later.
- Each stand pipe shall have two taps and serve around 600 people.
- Further details and/or the matters not described in the above Criteria shall be determined through discussions between the designers of both sides.

3.2. Environmental Assessment

- In the case of small town water supply development project, an environmental impact assessment is obliged.
- However, in the case of JICA Project, the JICA standard assessment (IEE: Initial Environmental Estimation) can be applied.

APPENDIX 1

DESIGN CRITERIA

DESIGN CRITERIA

- Per capita water consumption to be applied to current population 45 l/c/d¹
- Storage reservoir volume 50% of the average daily demand
- Peak hourly factor 2.5
- Residual pressures
 - min. 10m head in the distribution system
 - 3 m head at outlets at peak hour flow
 - max. 60m head

- Design period 10 years
- Pumping time 16 hours
- Population growth rate as per regional average
- Physical losses 10%
- Pipe sizes
 - min. 50mm mains
 - min. 19mm for house connection
 - uPVC pipes to be used in the distribution system, and galvanized steel for exposed piping

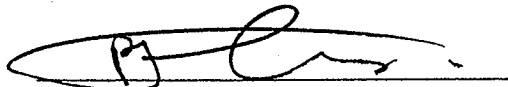


¹ This is based on (i) 20 l/c/d for 80% of population, (ii) 60 l/c/d for 20% population (house connection), (iii) 10% physical losses, (iv) 3% population growth rate for 10 years, and (v) 10% of domestic consumption allowed for institutions and commercial consumers.

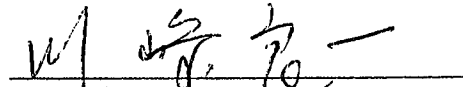
MINUTES OF MEETING
ON
RURAL WATER SUPPLY PROJECT PHASE IV
(Technical Note No.5)

With regards to the captioned Project, the Community Water and Sanitation Agency, (hereinafter referred as "the CWSA") represented by Mr. Peter O. Sackey, Ag. Chief Executive, and the Basic Design Study Team of the Project (hereinafter referred as "the Study Team"), dispatched by the Japan International Cooperation Agency (hereinafter referred as "JICA") represented by Mr. Ryoichi KAWASAKI, Chief Consultant, held a meeting on the technical matters on the Project. Following the discussions at the meeting, the items described in the Attachment have been mutually agreed upon.

Accra, May 8, 2000



Mr. Peter O. Sackey
Ag. Chief Executive, CWSA



Mr. Ryoichi KAWASAKI
Chief Consultants,
The Study Team, JICA

Attachment

1. Date and Place: On May 3 at CWSA, Headquarter

2. Attendants: CWSA The Study Team
R. K. D. Van Ess R. KAWASAKI

3. Major Items discussed:

3.1. Priority Index for Target Communities

3.1.1. For Level-1 Communities

- A rural community has high priority over a small town.
- A community without any good water supply system has higher priority over a community with at least one borehole with hand-pump, working or not working.
- A community with only one borehole with hand-pump has higher priority over a community with two or more hand-pump wells.
- Borehole with broken down hand-pump shall be counted as 0.5 facility.
- In the same condition, a community with large population has higher priority over a community with less population.
- However, a community with poor accessibility for heavy equipment shall be neglected.

3.1.2. For Level-2 Communities

- Priority on construction of Level-2 facility shall be determined by the estimation matrix attached herewith.
- On the population, the figures shown by CWSA, Western Region on April 18 shall be applied formally.

3.2. Index to set Iron-removal Facility

- Considering the maximum benefit of rural inhabitants, a borehole yielding groundwater with high Fe contents shall be installed with an iron-removal facility.
- The level of Fe contents for installation of an iron-removal facility shall be more than 1.0 mg/l.
- The borehole yielding groundwater of more than 13.0 lit/min with Fe content of the water less than 1.0 mg/lit shall be completed as a successful well.

SELECTION OF TARGET COMMUNITY FOR LEVEL-2 SYSTEM

(District:)

	Item	Rank	Weight			
I	Size of the Community Population	(number)	3			
II	Accessibility Road condition	A - E	3			
III	Community Mobilization WATSAN Committee	A - E	5			
IV	Water Quality Results of Water Quality Check	A - E	5			
V	Current Water Supply Condition Availability of potable water	A - E	10			
VI	Groundwater Availability Availability and quality	A - E	5			
VII	Security of the Site Security condition	A - C	1			
VIII	Guinea Worm Endemic Occurrence of disease	A - C	5			
IX	Existing Water Supply Facility Existing Water Supply Facility	A - E	10			
X	Number of Water Point		5			
	Dugwell	(number)				
	H.P Well	(number)				
	Communal Tap	(number)				
XI	Urgency of Need Population/water point	(value)	10			

Reference of the ranking

	II	III	IV
A	Easily accessible through year	Committee and Fund established	No problem for quality
B	Hard but accessible through year	Fund is not enough	Less than WHO index
C	Easily accessible in dry season	Committee established but fund	High Fe, Mn contents
D	Hardly accessible in dry season	On the course of animation	Contaminated
E	Foot-pass only	No committee	Include poison
	V	VI	VII
A	No proper water source	Enough yield and quality	Safe
B	Surface water source in wet season	Enough yield but quality	Fair
C	Groundwater source in wet season	Fair yield, normal quality	Not safe
D	Surface water source through year	Small yield or worse quality	
E	Groundwater source through year	Not available	
	VIII	IX	
A	High incidence	no proper facility	
B	Fair incidence	dugwell only	
C	Low incidence	Hand pump well only	
D		Level-2 system	
E		Level-3 system	

表-資-11

DATA COLLECTED

No.	Name of Data	Get from	Style	Cost
1	GHANA'S WATER RESOURCES Management Challenges and Opportunities	MOWH	Report	
2	CORE WELFARE INDICATORS QUESTIONNAIRE SURVEY 1997 MAIN REPORT	GSS Ghana Dtatistical Service	Report	
3	Demographic and Health Survey 1998	GSS	Report	
4	ANALYSIS OF DEMOGRAPHIC DATA Vol.1 Preliminary Analysis Report	GSS	Report	
5	CONSUMER PRICE INDEX NUMBERS March, 2000	GSS	Print	
6	CWSA Organization Chart	CWSA	Copy	
7	Standard Design of Handpump Borehole	CWSA	Copy	
8	Standard Design of Pipe System	CWSA	Copy	(Borrow)
9	Industrial Relation Act, 1965	CWSA	Print	
10	Workmen's Compensation Law, 1987	CWSA	Print	
11	Community Water and Sanitation Agency Act	CWSA	Copy	
12	Community Water and Sanitation Agency ANNUAL REPORT 1999, Western Region	CWSA	Copy	
13	Policies and Guidelines for The National Community Community Water and Sanitation Program	CWSD	Copy	
14	GHANA-VISION 2020 Programme of Action for the First Medium-term Development Plan (1997-2000)	GoG	Report	
15	The Budget Statement and Economic Policy of the Government of Ghana for 1999 financial year	MoF	Report	
16	The Budget Statement and Economic Policy of the Government of Ghana for 2000 financial year	MoF	Report	
17	1999 First Quarter Progress Report	CWSA	Copy	
18	1999 Second Quarter Progress Report	CWSA	Copy	
19	1999 Third Quarter Progress Report	CWSA	Copy	
20	1999 Forth Quarter Progress Report	CWSA	Copy	
21	Human Geography for West Africa	GED LEWIS	Book	C. 12,000.

No.	Name of Data	Get from	Style	Cost
22	HISTORY OF GHANA	S. K. Gadzekpo	Book	C. 24,000.
23	History of African Civilisation	S. K. Gadzekpo	Book	C. 16,000.
24	No Worriws! The Indispensable Insiders' Guide to Accra	NA. Women's Association	Book	C. 18,000.
25	GHANA Understabding the People and Their Culture	J.K and Y. Chachan	Book	C. 15,000.
26	Guide to Ghana	Bradt	Book	C. 45,000.
27	10 years record on diseases occurrence at Wassa Saa Health Center	W. S. Health Center	Copy	
28	10 years Climetrogical Record	M. S. dept.	Copy	
29	1/50,000 Topo-sheet for mast of Western Region	Survey Dept.	Copy	
30	Drilling data on 3,000 Well Project	CWSA	Copy	
31	Organization Chart of MoWH	CWSA	Copy	