1. Introduction

1.1 The Interim Report, the Five Year Development Plan and Overall SIP Report

As defined in the TOR *"the interim report, by its name, is essentially a situation report. It will be prepared and submitted at month 4 together with the five-year development plan report of the SIP, and will precede the submission of the draft overall SIP report planned for month 5. This interim report will outline the concepts and main issues involved in the selection of the optimal long term development plans for the various water supply systems and recommended prefects for meeting year 2011 requirements. It will also provide an outline of the schemes, and include as well, the final prioritized lists of water supply systems and investments to be included in the SYIP. The interim report will be presented in draft and final versions".*

"The Five-Year 2007-2011 Development plan will include the data used for its preparation, proposed rehabilitation and system expansion, cost estimates and prioritization by region of the systems".

"The overall SIP Plan report for horizons 2007-2011, 2015 and 2025 will contain details of the expected key outputs namely the Project Profiles and System Data Sheets system by system, details of all the communities served by the various systems and their projected populations.

The overall SIP report will be presented for approval at the end of month 5 as a draft proposal for review and comments by GWCL. The final SIP will be prepared with all comments properly integrated and will be submitted in final form at the end of month 6".

The Consultant expressed his view in the Proposal and Inception Report (Submitted in October 2007) about the tight time schedule of Part 1 of the assignment and of the Reports to be submitted.

It should be emphasized that the final product of Part 1 of the assignment includes the Five Year Development Plan (2007-2011) prioritized within the Regions and Investment Plans for 2015 and 2025. Furthermore Part 2 or specifically the detailed design of the selected projects can start in a region before completing part 1 for the other regions. Therefore in order to expedite the assignment, the Consultant prepared the present Interim Report which contains outputs due in the three reports above (i.e. the Interim Report, the Five Year Development Plan and the Overall SIP Report). One of the important outputs presented here is the System Profiles of the 74 water systems in the seven southern regions of Ghana.

This report presents the data collected from all sources including the site visits and inspections to the water systems, compiled, processed and analyzed for arriving at the development projects to meet the 2011 water requirements and conclusions arrived at for the long term i.e. 2015 and 2025. The results are presented in forms of system profiles and cost estimates for rehabilitation and expansion of the five year development plans.

held with the PMU and AVRL to present the Inception Report. A second meeting has been held on February 2008.

2. Population and Water Demand Projections

2.1 Demographic Analysis and Population Growth Rates

The localities in each of the ten regions of Ghana were sorted and grouped according to 11 population group sizes, and the total population in each group was summed up. The 1970 and 1984 data have been taken from publications of the Ghana Statistical Services (GSS) and SIP 1998, while the data for 2000 have been retrieved from the 2000 population census obtained from GSS in soft and hard copies. The intercensal population growth rates between 1970 and 1984 and between 1984 and 2000 were calculated. The results of the demographic analyses or the regional intercensal growth rates by group sizes are shown in Appendix 2.1.

The 1984-2000 results obtained show inconsistencies and even errors because of the administrative changes that took place between the 1984 and 2000 population censuses. In Ghana the District Assembly system of administration has replaced since 1988 the Local Authority system. Localities of more than 5,000 populations are urban localities, the other have a town council status. The population densities and the intercensal growth rates between the previous censuses (1984 and 2000) cannot be calculated for the districts (and smaller areas or group sizes), because boundaries of administrative units within regions have changed between the censuses. The 1984 census was conducted with 140 Local Councils as administrative units, which had different boundaries from the 110 Districts in the 2000 census. It should be emphasized that the overall regional growth rates, because the boundaries of the regions being the same in the censuses are consistent with the GSS publications.

Table 2.1 presents a Regional summary of the population growth rates between 1960 and 2000 using the 4 population censuses of 1960, 1970, 1984 and 2000. It shows that the intercensal growth rates of the whole Country between the 1970, 1984 and 2000 censuses are very close, i.e. 2.6% and 2.7% respectively. The population projections for 2011, 2015 and 2025 (the horizon years of the Project) of Ghana calculated according to the 1970-1984 and 1984-2000 growth rates are given for comparison in table 2.2 below. For both estimates, the actual population of 2000 (census) has been used for the projections.

As shown in table 2.2 the differences can be considered as insignificant for the purposes of this study and therefore it was decided to adopt the population growth rates (by region and by group sizes) of 1970-1984 censuses as estimated in the SIP 1998. It should be mentioned that the methodology and the criteria for adopting an annual growth rate for each group to be used for population projections was then discussed and agreed upon with the Ghana Statistical Service (GSS). A summary of the estimated annual growth rates adopted in the SIP 1998 for the various population group sizes is presented in table 2.3 below.

Table 2.1: Regional Population and Growth Rates (1960-2000)
(Source:Table 2.1 Demographic Characteristics - Central Bureau of Statistics)

Regions	Total Population				Inter-Censal Growth Rate %/Year		
	1960	1970	1984	2000	1960-1970	1970-1984	1984-2000
Western	626,155	770,087	1,157,907	1,924,577	2.1	3.0	3.2
Central	701,392	880,135	1,142,335	1,593,823	1.7	1.6	2.1
Greater Accra	941,933	909,447	1,431,099	2,905,726	5.2	3.3	4.5
Volta	777,285	947,260	1,211,907	1,635,421	2.9	1.8	1.9
Eastern	1,044,080	1,206,828	1,686,892	2,106,596	1.5	2.4	1.4
Ashanti	1,109,133	1,481,868	2,090,100	3,612,950	2.9	2.5	3.5
Brong Ahafo	587,920	798,509	1,206,606	1,815,408	2.7	3.3	2.6
Northern	531,573	727,618	1,154,583	1,820,806	3.2	3.4	2.8
Upper East	468,838	542,869	772,744	920,069	1.5	2.6	1.1
Upper West	288,706	319,865	438,006	676,593	1.0	2.3	1.7
Total	6,726,815	8,559,313	12,296,081	18,912,079	2.4	2.6	2.7

Table 2.2: Ghana Total Population Projections Based on 2000 Population Adopting the 1970-1984 and 1984-2000 Growth Rates

Growth Rate		2000 Population	Population Projections		
Period	%	Census 2000	2011	2015	2025
1970-1984	2.6	18,912,079	25,139,346	27,680,771	36,114,516
1984-2000	2.7	18,912,079	25,426,255	28,315,618	37,058,164

Table 2.3 : Summary of the Estimated Annual Growth Rates Adopted in the SIP 1998 Study

Item No	Population Size Groups	Ash	Brong Ahafo	Cent	East	Great Accra	North	Upper East	Upper West	Volta	West
1	Above 30,000	2.9	3.2	2.2	2.5	3.5	3.3	3.3	-	-	1.2
2	30,000-20,000	2.9	3.2	2.2	2.5	3.5	3.0	3.3	3.3	3.2	1.2
3	20,000-18,000	2.9	2.5	2.2	2.5	3.5	3.0	3.3	-	2.2	-
4	18,000-10,000	2.2	2.5	2.2	2.5	3.5	3.0	3.3	-	2.2	2.2
5	10,000-8,000	2.2	2.5	2.2	2.5	3.5	3.0	3.2	-	-	2.2
6	8,000-6,000	2.5	2.5	2.2	2.5	3.5	3.0	3.2	-	2.2	2.2
7	6,000-4,000	2.5	2.5	2.2	2.5	3.5	3.0	3.2	3.0	2.2	2.2
8	4,000-3,000	2.5	2.5	2.6	2.5	4.0	3.3	3.3	0	2.2	2.2
9	3,000-2,000	2.5	3.5	2.6	2.5	4.0	3.3	3.3	0	2.2	2.2
10	2,000-1,000	2.5	3.3	2.4	2.5	4.0	3.3	3.3	3.0	2.2	2.2
11	1,000-100	4.0	3.7	2.4	3.5	4.0	4.0	3.3	3.5	2.8	2.5
12	Below 100	4.0	3.2	2.4	3.5	4.0	3.5	3.3	6.4	2.8	4.2
	Average in the Region	3.3	3.2	2.4	3.1	3.5	3.6	3.3	3.4	2.6	2.3

2.2 Population Projections of the Localities Served by the Urban Water Systems

The localities served by the urban systems and those to be connected in the future are basic data for water demand forecasts and therefore for the elaboration of the SIP and investment/development plans.

In the SIP 1998, (Main Report, Appendix 8), are shown the localities (then) served by each of the urban water systems.

However this list of localities (served then by the systems in 1998) is being updated to reflect the actual localities served by the systems ("within the supply area") and those to be connected in the future to the same water systems ("outside the supply area") in 2015 and 2025 under the Millennium Development Goals Vision. A copy has been given / sent to the regional offices / water systems for update. It should be emphasized that new localities to be proposed to be connected in the future to the existing urban systems might be of any type (rural, urban) and of any size, although some study will be required to confirm the feasibility of each connection.

According to the 2000 census population there are some 90,000 localities in Ghana. Their location or coordinates are not known and therefore no GIS means can be used to screen localities nearby the existing urban systems for connection considerations. Therefore it is beyond the capacity of the Consultant and beyond its time frame to collect directly from the field those data and therefore the GWCL is requested to help collect the same as they are known to the regional offices which were also requested to provide them.

Population projections for the years 2005, 2007, 2011, 2015 and 2025 have been estimated based on the growth rates as mentioned above however the base population for each locality is that of the 2000 census. These projections reflect only the localities connected actually (SIP 1998) to the systems.

2.3 Per Capita Water Demand and Water Demand Projections

The lpcd (liter per capita per day) has been also assumed as the same adopted in the SIP 98 as stipulated in the TOR section 3.1 ("*Guideline values of per capita demands for these standards are available in the GWCL Strategic Investment Programme Report of 1998, and other Planning Reports; however Consultant shall determine and agree with the Employer, the per capita water demand figures that he proposes to use for design of water supply facilities*").

It should be mentioned that a socio economic survey is planned to be carried out in representative systems. A survey in the big towns is beyond the scope of this study. The results will be updated for lpcd values if found necessary.

Table 2.4 below presents the lpcd figures by group size and by year.

Table 2.4: Per Capita Water Demand by Population Group Size

Population Group	Year (lpcd)						
	1995	2005	2007	2011	2015	2020	2025
2,000-5,000	30	30	31	32	33	35	37
5,000-10,000	45	55	56	59	62	65	67
10,000-20,000	65	75	76	78	82	86	87
20,000-50,000	75	85	86	89	92	95	97
>50,000	85	105	107	111	116	120	125

The lpcd values for the years 2007, 2011 and 2025 have been estimated by interpolation / extrapolation of the values adopted in the SIP 1998.

It is assumed that the per capita water demand increases in the different stages of the project and depends on the size of the town or settlement. The rational of this assumption is that in large towns a large part of the demand is for commercial and industrial purposes and for public use, thus per capita water consumption also represents other uses in addition to domestic consumption. In small towns or settlements, a larger part of the served population is supplied by stand pipes, which inevitably reduces the demand for water.

In the SIP 1998 the Consultant analyzed the data on water production, water consumption by domestic, institutional, commercial and industrial customers in the largest urban Centers (with population above 50,000 which are mainly the regional capitals), in order to estimate the per capita water demand in these towns. Other Consultants Messrs. Otul, Cowi and Howard Humphrey conducted comprehensive analysis in Planning Studies for ATMA, Tamale, and Kumasi. It was therefore (SIP 1998) agreed with GWSC to adopt the per capita water demands for the 10 regional capitals as shown in Table 2.4 above in the last row, i.e. 85, 105 and 120 lpcd for 1995, 2005 and 2020 respectively.

The water demand forecasts (for each locality served by the systems) for the same horizon years have been estimated based on the population forecasts as described above and the per capita demand as adopted in the SIP 1998.

The population and water demand forecasts for all the localities / systems is shown in Appendix 2.2.

3. Water System Analysis

3.1 Site Inspection Reports and Data Sources

The Consultant collected and compiled the available feasibility and design reports and other data related to the urban water supply schemes. These reports, prepared by many consultants during the last 20-30 years, were not on the same basis and outdated like equipment since replaced, rehabilitation works carried out since, various criteria for water demand projections, different horizon years, and variable unit costs. The SIP 1998 incorporated all these previous data however by now 10 years have passed since the SIP 1998.

The sources of information are reported in Appendix 3.1. They include previous planning and design reports, feasibility studies, water resources assessment, previous rehabilitation works, the SIP 1998 Report and Appendices, AVRL reports and data bases and the Fixed Assets Revaluation Study of 1999. However the site inspections to the systems were the most credible and visual mean to assess present conditions of the systems. During the inspections additional information has been collected or requested to be collected like localities served by the systems and layout/drawings of the systems although dating back as far as 30 years or more ago. So far 74 water systems located in the 7 northern regions of Ghana have been inspected and a well documented site visit report prepared for each system. The Status of the site visits and preparation of the site visit reports is shown in Table 3.1 along with the visiting team and date of visit. The Systems are grouped by region and identified with the same ID, sequential number from 1 to 81, as given in the TOR list. However the ID number used in AVRL, comprised of the region number and system number has been also given in the same list.

The list of drawings/layouts collected is shown in Appendix 3.2 with their details particularly the scale and date of the drawings and the source of the drawing. It can be seen that the drawings are very old and might not reflect the actual conditions of the distribution systems.

The site inspection reports include the description of the existing water supply system and details and capacity of its mechanical and electrical components like pumps etc, the existing water source and photographs of selected components. The Site Visit Reports have been prepared for 74 water systems visited so far in the 7 southern Regions of Ghana (out the 81 systems under study). Site visit inspections to the remaining 7 systems in the Northern, Upper East and Upper West Regions are still to be undertaken in the next future after data collection as most of them are now the object of rehabilitation, renewal and expansion.

3.2 Installed Capacity, Water Production and Projected Population and Water Demand

Table 3.2 below shows the installed capacity and water production of the systems and the projected population and water demands up to the 2025 horizon year.

It should be noted that the 2015 and 2025 population and water demand projections do not include the new localities outside the actual supply area to be connected in the future under the MDG's.

The installed capacity and water production of the urban water systems is shown from 3 different sources; (i) as estimated from data collected during the site inspections conducted by the Consultant, (ii) from the TOR and (iii) from AVRL reports. The AVRL data are from 2005. As can be seen from Table 3.2, there is a difference in the installed capacity and production figures between the present study, the TOR data and the AVRL data. This is attributed mainly because the estimates were made at different periods of time. For instance the new Kwanyaku system put in operation in 2007 is not reflected in the 2005 AVRL data.

The actual assessment of the production is based on the data recorded at time of field inspections.

The actual total production of [(5.1)(1c)] m3/day is not sufficient to meet the 2007 demands, however the data differ from system to system.

Furthermore the installed capacity compiled by the Consultant has been given for various major components of the systems, like the source, intake, WTP, distribution system. All might be different even in the design; some may have decreased as a result of any deterioration during the life of the systems so that the actual production may be restricted by the smallest component which is often the capacity of the distribution system. The rehabilitation plans of system components will take into consideration the actual capacities of all the components.

Table 3.1: Status of Site Visits, Site Visit Reports, System Profiles and BoQ's of the Water Systems Under Study

ID No	ID AYRL	Region/System		System Type	Water Source	Site Visit Date	Site Visit Team	Site Visit Report	System Profile and BOQ	System Coordinates North		System Coordinates West		amsl	Rem
	R01A	GREATER ACCRA													
1	R01A-S01	Kpong- New Works			Volta River	24/10/2007 03/11/2007		+	+						
1	R01A-S02	Kpong-Old Works				24/10/2007 03/11/2007		+	+						
		Accra and Tema Boosters				25/10/2007		+	+	5	41.81[illegible]	0	1.256	61	
2	R01A-S03	Weija-Adam Clarke			Densu River (Dam)	25/10/2007 16/11/2007		+	+	5	34.319	0	20.597	22	Intake
2	R01A-S04	Weija-Borteap				29/10/2007 16/11/2007		+	+	5	34.319	0	20.597	22	Intake
2	R01A-S05	Weija-Candy				25/10/2007 16/11/2007		+	+	5	34.319	0	20.597	22	Intake
3		Kasoa/Adaiso			Ayensu River (Pump)	31/10/2007		+							
4	R01A-S07	Dodowa Borehole			Boreholes	01/11/2007		+	+						
	R02	ASHANTI REGION													
5	R02-S03	Agona	Jamase		Boreholes	05/12/2007		+	+	6	56.318	1	21.158	279	BH1
6	R02-S06	Bekwai	Kumasi		Offin River (Dam)	04/12/2007		+	+	6	49.658	1	45.170	242	Intake
7	R02-S05	Effiduase	Asokore		Boreholes	05/12/2007		+	+	6	51.089	1	23.698	327	BH1
8	R02-S04	Konongo	Odumase		Anum River (Weir)	05/12/2007		+	+	6	38.385	1	18.640	190	Intake
9	R02-S00	Mampong			Sumampa/Kyirem (Weir)	05/12/2007		+	+	7	5.879	1	20.909	289	Intake
10	R02-S07	New-Edubiase			Boreholes	08/12/2007		+	+	6	3.773	1	23.664	165	EWT
11	R02-S06	Obuasi	Odaso	(5.1)(1c)	Odaso River	05/12/2007	(5.1)(2e)	+	+	6	15.384	1	54.375	136	Intake
12	R02-S02	Owabi	Kumasi		Owabi River (Dam)	04/12/2007		+	+	6	44.766	1	42.553	225	Intake
13	R02-S08	Tepa			Boreholes	06/12/2007		+	+	7	0.114	2	9.879	264	EWT
	R03	BRONG-AHAFO													
14	R03-S01	Abesim	Sunyani		River Tano (Weir)	17,18/12/2007		+	+	7	16.589	2	15.992	251	Intake
15	R03-S05	Acherensua			River Tano (Weir)	09/12/2007		+	+	6	57.937	2	10.456	164	Intake
16	R03-S02	Berekum			Boreholes	18/12/2007		+	+	7	20.000	2	35.415	315	BH EAT
17	R03-S03	D. Ahenkro/Bosso	Dormaa		[illegible]a River (Pond)	19/12/2007		+	+	7	5.306	2	42.809	311	Intake
18	R03-S04	Dwomo	Techiman Dumasua		Boreholes	20/12/2007		+	+	7	8.178	2	2.594	290	HLPS
19	R03-S06	Techiman/Tanoso			River Tano (Weir)	18/12/2007		+	+	7	37.826	1	58.102	324	Intake
	R04	CENTRAL REGION													
20	R04-S06	Breman-Asikuma			Ochi Nakwa River (Dam)	17/12/2007		+	+	5	35.355	0	59.420	93	Intake
21	R04-S01	Brimsu			Kakum River (Dam)	05/11/2007		+	+						
22	R04-S07	Dunkwa-Offin			Boreholes	18/12/2007		+	+	5	57.790	1	46.998	122	BH WY
23	R04-S08	Kwanyako			Ayensu River (Dam)	17/12/2007		+	+	5	35.253	0	33.734	74	Intake
24	R04-S03	Mankessim/Saltpond			Ochi Amissa River	17/12/2007		+	+	5	17.790	1	6.047	18	Intake
25	R04-S04	Winneba			Ayensu River (Weir)	18/10/2007		+	+						

Table 3.1 : Con't

ID No	ID AFRL	Region/System		System Type	Water Source	Site Visit Date	Site Visit Team	Site Visit Report	System Profile and BOQ	System Coordinates North		System Coordinates West		amsl	Item
	R05	EASTERN REGION													
26	R05-S02	Abodzo			Borehole	21/11/2007		+	+	5	56.154	0	57.154	149	BH 1
27	R05-S11	Anum-Boso			Lake Volta @ Sud	20/11/2007		+	+	6	31.603	0	9.554	89	Headwork
28	R05-S19	Anyinam			Birim River (Weir)	07/11/2007		+	+	6	23.169	0	33.219	185	Intake
29	R05-S16	Apedwa-Kodo			Densu River (Weir)	07/11/2007		+	+	6	6.220	0	29.049	236	Intake
30	R05-S24	Asamankese			Abouchiere River (Weir)	09/11/2007		+	+	5	51.360	0	40.472	114	Intake
31	R05-S04	Asene			Borehole	23/11/2007		+	+	6	15.390	0	55.090	146	BH
32	R05-S05	Asuom			Borehole	21/11/2007		+	+	6	16.183	0	52.544	197	EWT
33	R05-S20	Begoro			Akurum River (Weir)	19/11/2007		+	+	6	22.313	0	23.285	415	Intake
34	R05-S21	Bunso			Birim River	19/11/2007		+	+	6	15.945	0	28.220	220	Intake
35	R05-S07	Kade			Borehole	21/11/2007		+	+	6	5.394	0	50.911	145	BH 1
36	R05-S17	Kibi			Birim River (Weir)	07/11/2007		+	+	6	8.768	0	32.982	304	Intake
37	R05-S09	Koforidua			Densu/Volta River [illegible]	06/11/2007		+	+	6	4.100	0	17.388		
38	R05-S22	Kwabeng			Pawnu River (Weir)	21/11/2007	(5.1)(2e)	+	+	6	18.848	0	35.494	247	Headwork
39	R05-S12	Kwahu-Tafo-Kotoso	Ridge		Lake Volta @ Asempaneye	08/11/2007		+	+	6	44.726	0	37.731	90	Intake
40	R05-S33	New Tafo	old Tafo		Bata River (weir)	08/11/2007		+	+	6	13.891	0	20.891	234	Intake
41	R05-S13	Nkawkaw			Borehole	07/11/2007		+	+	6	33.068	0	45.702	286	EWT
42	R05-S15	Nsawam		(5.1)(1e)	Densu River (Weir)	09/11/2007		+	+	5	50.024	0	21.008	61	Intake
43	R05-S03	Oda-Akim	[illegible]		Borehole	22/11/2007		+	+	5	55.880	1	0.011	123	BH E138
44	R05-S01	Ofoase-Akim			Pra River (Intake)	22/11/2007		+	+	5	18.502	1	8.578	143	Headwork
45	R05-S08	Osenase			Awpong River	21/11/2007		+	+	5	57.133	0	44.898	159	Headwork
46	R05-S14	Osino			Birim River (Weir)	19/11/2007		+	+	6	21.121	0	26.062	182	Intake
47	R05-S10	Suhyen			Borehole	19/11/2007		+	+	6	9.761	0	18.914	184	BH
48	R05-S18	Suhum			Borehole	07/11/2007		+	+	6	2.300	0	26.730	205	Hospital BH
49	R05-S05	[illegible]			Borehole	22/11/2007		+	+	5	53.810	1	0.790	127	BH 48
	R06	NORTHERN REGION													
50	R06-S03	Damongo			Bwam (earth dam)										
51	R06-S01	Tamale	Dalum Awayi		White Volta River										
52	R06-S02	Yendi			[illegible] River (Weir)										
	R09	UPPER EAST													
53	R09-S02	Bawku			Borehole										
54	R09-S01	Bolgatanga			[illegible] River (Vea Dam)										
55	R09-S03	Navrongo			Borehole										
	R10	UPPER WEST													
56	R10-S01	Wa			Borehole										

Table 3.1 : Con't

ID		Region/System		System Type	Water Source	Site Visit			System Profile and BOQ	System Coordinates					
No	AVRL					Date	Team	Report		North		West		elev	Rem
	R07	VOLTA							+						
57	R07-512	Abor			Borehole	11/12/2007		+	+	6	3.281	0	50.013	21	BH K33
58	R07-510	Aflao	Aveme Danu		Borehole	11/12/2007		+	+	6	6.175	1	8.979	9	BH K36
59	R07-511	Agbozume			Borehole	11/12/2007		+	+	6	4.360	1	3.308	21	BH K65
60	R07-509	Agordome/Sogakope	Keta Anloga		Volta River	12/12/2007		+	+	5	57.083	0	37.598	18	Intake
61	R07-506	Anbega			Borehole	05/12/2007		+	+	6	53.444	0	16.891	176	BH TP30
62	R07	Anyaha	Anyanko		Borehole	11/12/2007		+	+	6	0.548	0	54.088	8	BH K55
63	R07-508	Hohoe			Dayi River (Weir)	04/12/2007		+	+	7	9.058	0	29.347	176	Headworks
64	R07-514	Jasikan			Borehole	06/12/2007		+	+	7	24.697	0	27.879	215	BH J711
65	R07	Kadjebi			Borehole	04/12/2007		+	+	7	31.287	0	38.351	229	BH 4
66	R07-504	Kpandu			Borehole	10/12/2007		+	+	7	0.382	0	17.751	148	BH J5
67	R07-502	Kpedze			Tale & Todze Springs (Weir)	10/12/2007		+	+	6	51.151	0	29.313	303	Intake
68	R07-503	Kpeve			Lake Volta	05/12/2007		+	+	6	41.314	0	17.973	80	Intake
69	R07-507	Nkonya-Ahenkro		(5.1)(1c)	Borehole	05/12/2007		+	+	7	8.241	0	19.557	190	BH T107
70	R07	Peki			Lake Volta	09/12/2007	(5.1)(2e)	+	+	6	31.463	0	14.143	246	BCR Peki
71	R07-505	Sovie	Digbe		Borehole	05/12/2007		+	+	6	55.738	0	17.098	198	BH T65
72	R07-503	Tsito			River/Spring Weir (Weir)	04/12/2007		+	+	6	32.544	0	16.089	199	Headworks
73	R07-515	Worawora			Borehole	04/12/2007		+	+	7	31.021	0	21.798	181	BH T117
	R03	WESTERN													
74	R03-506	Aboso			Borehole	07/11/2007		+	+						
75	R03-507	Axim			[illegible] River (Dam)	08/11/2007		+	+						
76	R03-505	Bogoso			Borehole	07/11/2007		+	+						
77	R03-500	Bonsa/Tarkwa			Bonsa River	07/11/2007		+	+						
78	R03-501	Daboase	Sekondi Takoradi		Pra River (Intake)	09/11/2007		+	+						
79	R03-508	Elubo			Tano River	08/11/2007		+	+						
80	R03-502	Inchaban	Sekondi Takoradi		Anakwari River (Dam)	09/11/2007		+	+						
81	R03-504	Prestea			Borehole	07/11/2007		+	+						

Table 3.2: Installed Capacity, Actual Water production and Projected Population and Water demand

IP No	IP AVRL	Region/System	Present Study: Installed Capacity m3/day	Present Study: Actual Production (m3/day)	TOR: Installed Capacity m3/day	TOR: Current Production m3/day	AVRL: Installed Capacity m3/day	AVRL: Water Produced 2006 m3/day	Projected Population 2007	Projected Population 2011	Projected Population 2016	Projected Population 2026	Projected Water Demand (m3/day) 2007	Projected Water Demand (m3/day) 2011	Projected Water Demand (m3/day) 2016	Projected Water Demand (m3/day) 2026
	R01A	GREATER ACCRA														
1	R01A-S01	Kpong- New Works							810,746	930,350	1,087,598	1,505,952	74,733	91,070	108,504	173,313
1	R01A-S02	Kpong-Old Works							409,011	464,212	527,217	726,859	20,866	26,687	32,261	50,156
2	R01A-S03	Weija-Adam Clarke														
2	R01A-S04	Weija-Barnag														
2	R01A-S05	Weija-Candy														
		Total Weija							1,365,695	1,568,191	1,800,752	2,544,679	119,232	144,469	177,871	293,960
3		Kokomlemle/Adafoah														
4	R01A-S07	Dodowa Borehole														
TOTAL GREATER ACCRA									2,586,482	[illegible]	[illegible]	4,777,484	214,563	262,256	[illegible]	[illegible]
	R02	ASHANTI REGION														
5	R02-S09	Agona							22,699	25,108	27,777	35,776	1,689	1,939	2,224	3,091
6	R02-S01	Barekese							1,166,613	1,307,271	1,465,190	1,950,390	105,180	123,286	144,003	212,479
7	R02-S05	Effiduase							33,627	36,638	40,366	50,701	2,773	3,149	3,568	4,733
8	R02-S04	Konongo							113,673	126,998	141,967	188,086	7,829	8,967	10,315	15,832
9	R02-S03	Mampong							57,576	64,563	72,277	96,148	4,282	4,977	5,777	10,404
10	R02-S07	New-Edubiase							11,487	12,680	13,996	17,917	873	1,002	1,148	1,559
11	R02-S06	Obuasi							157,305	176,082	197,104	261,331	15,569	18,102	20,996	30,275
12	R02-S02	Owabi														
13	R02-S08	Tepa							16,101	17,566	19,163	23,821	1,224	1,388	1,571	2,311
TOTAL ASHANTI									[illegible]	1,797,[illegible]	1,977,[illegible]	2,624,[illegible]	139,454	[illegible]	190,[illegible]	280,625
	R08	BRONG-AHAFO														
14	R08-S01	Atebubu							100,530	213,858	239,515	319,205	16,068	18,942	22,259	32,532
15	R08-S05	Acherensua							5,611	6,193	6,836	8,751	305	358	411	576
16	R08-S02	Berekum							85,406	96,984	110,139	151,416	5,691	7,820	8,634	15,189
17	R08-S03	D. Ahenkro/Bisso							87,228	97,404	108,982	144,224	5,180	6,218	7,342	10,800
18	R08-S04	Drobo							18,476	20,530	22,816	29,729	1,229	1,418	1,770	2,674
19	R08-S06	Techiman/Tanoso							142,802	161,358	182,390	248,145	12,100	14,488	17,457	25,893
TOTAL BRONG AHAFO									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(5.1)(1c)

New Kpong and Weija Supply part of Accra Metropolitan, it has been assumed at (5.1)(1c)

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Table 3.2: Con't

ID		Region/System	Present Study		TOR		AWRL		Projected Population				Projected Water Demand (m3/day)			
No	AWRL		Installed Capacity m3/day	Actual Production (m3/day)	Installed Capacity m3/day	Current Production m3/day	Installed Capacity m3/day	Water Produced 2006 m3/day	2007	2011	2015	2026	2007	2011	2015	2026
	R04	CENTRAL REGION														
20	R04-S06	Breman-Asikuma							15,059	16,428	17,922	23,279	1,144	1,298	1,470	2,184
21	R04-S01	Brimsu							352,842	385,316	423,635	532,846	22,970	26,407	30,200	41,586
22	R04-S07	Danfoso-Diffa							30,820	33,306	36,334	45,107	2,625	2,984	3,343	4,381
23	R04-S05	Kwanyaku							500,335	546,735	601,881	759,408	27,992	32,749	37,454	53,872
24	R04-S0	Mankessim/Saltpond							98,321	105,626	116,273	147,155	5,089	5,028	6,699	10,111
25	R04-S04	Winneba							92,107	100,742	110,895	137,452	6,534	8,946	10,100	13,758
TOTAL CENTRAL									[illegible]	[illegible]	1,309,158	1,643,466	[illegible]	[illegible]	89,474	128,844
	R05	EASTERN REGION														
26	R05-S02	Abirem							3,458	3,984	4,531	6,330	107	127	150	424
27	R05-S11	Anum-Boso							12,551	13,455	15,096	19,829	511	594	692	991
28	R05-S19	Anyinam							9,038	10,869	12,104	15,487	556	866	993	1,348
29	R05-S16	Apedwa-Asafo							10,388	18,090	19,068	25,685	715	925	1,307	1,970
30	R05-S14	Asamankese							42,641	47,115	52,961	66,827	3,801	4,114	5,857	8,159
31	R05-S04	Asene							9,835	10,856	11,985	15,340	551	656	983	1,335
32	R05-S06	Asiakwa							15,537	17,159	18,931	24,230	1,181	1,355	1,582	2,351
33	R05-S20	Begoro							18,040	20,018	23,087	28,554	1,440	1,882	2,124	2,887
34	R05-S21	Bunso							2,912	3,247	3,585	4,580	81	104	116	170
35	R05-S07	Kade							27,130	30,153	33,512	43,676	2,064	2,359	2,891	3,871
36	R05-S17	Kibi							11,426	12,612	13,925	17,830	866	998	1,142	1,580
37	R05-S09	Koforidua							144,845	159,171	177,903	227,278	13,655	15,765	18,087	23,535
38	R05-S22	Kwahu-Tafo-Kotoso							6,937	7,657	8,452	10,820	358	452	524	941
39	R05-S12	Kwahu-Tafo-Kotoso							76,835	85,386	94,862	123,596	3,744	4,569	4,870	9,159
40	R05-S23	New Tafo							40,921	45,169	49,856	63,822	3,203	3,671	4,264	5,899
41	R05-S13	Nsawam							51,949	57,342	63,295	81,023	5,569	6,385	7,270	10,129
42	R05-S15	Nsawam							56,746	62,856	69,032	89,068	4,418	5,069	5,787	9,841
43	R05-S03	Oda-Akim							53,578	58,146	65,279	83,583	4,382	6,132	7,021	9,899
44	R05-S01	Ofoase-Akim							3,682	4,206	4,742	6,679	121	137	196	407
45	R05-S08	Osenase							7,540	8,323	9,187	11,760	422	491	576	1,020
46	R05-S24	Osino							5,386	5,945	6,562	8,400	309	351	467	584
47	R05-S10	Suhyen							8,835	10,014	11,229	14,882	404	472	698	1,002
48	R05-S18	Suhum							38,952	40,732	44,981	57,554	3,174	3,825	4,138	7,194
49	R05-S05	Swedru-Akim							14,198	15,666	17,290	22,135	936	1,073	1,228	1,878
TOTAL EASTERN									[illegible]	[illegible]	[illegible]	1,071,214	[illegible]	[illegible]	[illegible]	[illegible]

(5.1)(1c)

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Table 3.2: Con't

ID		Region/System	Present Study		TOR		AVRL		Projected Population				Projected Water Demand (m3/day)			
No	AYRL		Installed Capacity m3/day	Actual Production (m3/day)	Installed Capacity m3/day	Current Production m3/day	Installed Capacity m3/day	Water Produced 2006 m3/day	2007	2011	2016	2025	2007	2011	2016	2025
	R06	NORTHERN REGION														
50	R06-S05	Damongo							17,762	19,991	22,600	30,298	1,359	1,579	2,070	2,939
51	R06-S04	Tamale							456,104	517,664	587,877	807,212	35,479	41,888	48,392	75,245
52	R06-S03	Yendi							49,808	55,934	62,842	84,455	4,266	5,158	7,227	10,557
TOTAL NORTHERN									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	88,738
	R09	UPPER EAST														
53	R09-S02	Bawku							64,469	73,433	83,616	115,889	5,990	8,161	9,616	14,461
54	R09-S01	Bolgatanga							61,707	70,264	80,006	110,697	8,603	7,799	9,201	13,837
55	R09-S03	Navrongo							20,061	22,843	26,011	35,969	1,726	2,033	2,393	3,491
TOTAL UPPER EAST									146,237	166,640	189,634	262,371	16,331	17,993	21,216	31,789
	R10	UPPER WEST														
56	R10-S01	Wa							84,790	97,298	111,652	157,496	9,073	10,600	12,840	19,687
TOTAL UPPER WEST									84,790	97,298	111,652	157,496	9,073	10,600	12,840	19,687
	R07	VOLTA														
57	R07-S13	Aber							29,762	32,472	35,426	44,687	2,317	2,622	2,964	3,902
58	R07-S10	Afiao							67,482	75,655	84,082	113,927	5,210	7,260	8,719	12,726
59	R07-S11	Agbozume							13,892	15,155	16,584	20,583	778	894	1,025	1,613
60	R07-S09	Agordome/Sogakope							131,843	144,638	158,691	200,179	6,649	7,988	9,256	13,340
61	R07-S08	Anfoega							1,994	2,176	2,379	2,950	62	70	78	109
62	R07	Anyako							6,861	7,486	8,169	10,152	384	442	506	693
63	R07-S05	Hohoe							43,979	49,885	56,583	77,533	3,782	4,440	5,507	8,692
64	R07-S14	Jasikan							10,925	11,913	12,997	16,156	930	941	1,066	1,408
65	R07	Kadjebi							9,606	10,480	11,433	14,213	538	629	536	1,236
66	R07-S04	Kpandu							27,770	30,436	33,348	41,943	1,994	2,254	2,647	3,380
67	R07-S02	Kpedze							6,146	6,707	7,317	9,096	344	396	464	609
68	R07-S01	Kpeve							182,227	181,163	202,988	287,216	11,671	13,697	16,185	23,879
69	R07-S07	Nkonya/Ahenkro							4,379	4,777	5,211	6,478	136	153	323	434
70	R07	Peki							30,476	33,361	36,622	45,812	1,748	1,979	2,600	3,462
71	R07-S06	Sovie							3,124	3,408	3,719	4,623	97	169	123	171
72	R07-S03	Tsito							11,623	12,701	13,865	17,333	563	645	738	1,241
73	R07-S15	Worawora							6,665	7,271	7,932	9,860	373	420	492	691
TOTAL VOLTA									865,723	923,477	997,180	[illegible]	37,472	46,064	54,617	78,444

(5.1)(1c)

Table 3.2: Con't

ID		Region/System	Present Study		TOR		AVRL		Projected Population				Projected Water Demand (m3/day)			
No	AVRL		Installed Capacity m3/day	Actual Production (m3/day)	Installed Capacity m3/day	Current Production m3/day	Installed Capacity m3/day	Water Produced 2006 m3/day	2007	2011	2016	2026	2007	2011	2016	2026
	R03	WESTERN														
74	R03-S06	Aboso	(5.1)(1c)						11,818	13,045	14,399	18,432	886	1,031	1,181	1,604
75	R03-S07	Axim							28,366	30,984	33,845	42,209	2,274	2,568	2,807	3,812
76	R03-S05	Bogoso							10,084	11,001	12,001	14,918	766	860	984	1,298
77	R03-S03	Bonsa/Tarkwa							60,611	65,402	70,596	85,591	3,749	4,287	5,060	6,451
78	R03-S01	Daboase							409,974	444,801	482,706	592,833	27,222	30,541	34,233	45,407
79	R03-S08	Elubo							12,398	13,682	15,103	19,333	942	1,081	1,238	1,682
80	R03-S52	Inchaban							0	0	0	0	0	0	0	0
81	R03-S04	Prestea							25,438	27,752	30,278	37,939	2,188	2,470	2,785	3,651
TOTAL WESTERN									555,687	606,667	658,925	818,565	38,039	42,846	48,378	63,984
TOTAL ALL REGIONS									5,342,746	5,362,694	10,612,108	14,070,914	664,756	781,216	926,461	1,402,876

* It should be noted that in almost all of the water systems the distribution system capacity is the bottle neck of the actual production and in most cases the actual production is determined by the distribution system capacity

ID		Region/System	Present Study		TOR		AVRL		Projected Population				Projected Water Demand (m3/day)			
No	AVRL		Installed Capacity m3/day	Actual Production (m3/day)	Installed Capacity m3/day	Current Production m3/day	Installed Capacity m3/day	Water Produced 2006 m3/day	2007	2011	2016	2026	2007	2011	2016	2026
1-4	R01A	Greater Accra	(5.1)(1c)						2,595,452	2,862,758	3,385,987	4,777,484	214,853	262,239	318,467	517,430
5-13	R02	Ashanti							1,579,882	1,767,045	1,977,830	2,624,152	139,434	162,629	190,461	280,628
14-19	R08	Brong Ahafo							530,052	596,140	670,678	861,471	40,799	48,257	58,867	87,669
20-25	R04	Central							1,067,073	1,191,572	1,358,158	1,843,426	68,355	78,288	89,474	125,889
26-49	R05	Eastern							679,067	751,204	831,064	1,070,214	52,381	62,245	73,689	109,444
50-61	R06	Northern							523,584	593,689	673,219	921,905	41,096	49,665	58,699	89,735
63-65	R09	Upper East							145,257	169,049	189,635	262,376	15,228	17,983	21,219	31,789
66	R10	Upper West							84,790	97,298	111,652	157,496	9,073	10,890	12,849	19,087
67-73	R07	Volta							585,723	629,677	697,380	951,458	37,472	45,064	54,517	78,444
74-81	R03	Western							556,687	606,687	658,025	810,053	38,039	42,846	48,378	63,984
TOTAL ALL REGIONS									8,342,748	8,362,694	10,612,106	14,070,914	664,756	781,216	926,461	1,402,876

3.3 System Project Profiles

The site visit reports were the basis for the preparation of the system profiles for the 74 water systems that are presented below in this report. The system profiles contain also population and water demand projections, and the rehabilitation and expansion requirements to meet 2011 water demand and their cost estimates (Five Year Development Plan). The status of preparation of system profiles and BoQ's of the Five Year Development Plan are shown in the Table 3.1 above.

Expansion requirement for 2015 and 2025 and their cost estimates will be amended to the system profiles.

4. Water Resources Assessment

4.1 General

Many years have passed since these water systems were planned and constructed, and it is possible that the sources, whether surface water or groundwater, have diminished in supply or in quality, possibly affecting the water production and supply of the systems. This information regarding the water resources and their potential must be obtained with a high degree of reliability in order to ensure proper decision-making as to the type of the source to be tapped to meet future growing demands. Contamination of the water source may also be handled by imposing restrictions on effluent disposal upstream of water flows or to the aquifers. This issue will be studied and recorded for later work to be done by the team.

The purpose of the water resources assessment is to ascertain if the potential yields of the surface water and groundwater sources feeding the systems are adequate to meet the projected water demands up to 2025. Out of the 81 urban systems, 40 are based on surface water resources, 34 based on groundwater resources and 7 systems are based on both surface water and groundwater. There are some [illegible] boreholes (part of them non operative or abandoned) in the groundwater based systems.

The distribution of the water systems by region and type of water source and the number of boreholes are shown in Table 4.1.

Water resources (surface water and groundwater) and hydro geological studies have been carried out in the past in selected systems and in the districts of Ghana to establish the groundwater replenishment, borehole yield and quality of the water.

These studies will be supplemented and will be used particularly for planning system expansion to meet the 2015 and 2025 water demands from these sources.

Table 4.1: Distribution of the Systems by Source of Water

Region	Number of Systems Based on			Total Number of Systems	Number of Boreholes
	Ground Water	Surface Water	SW and GW		
Greater Accra	1	3	(5.1)(1e)	4	(5.1)(1i)
Ashanti	4	5		9	
Brong Ahafo	2	3		6	
Central	1	5		6	
Eastern	9	12		24	
Northern	-	3		3	
Upper East	2	1		3	
Uppor West	1	-		1	
Volta	11	5		17	
Western	3	3		8	
Total	34	40		81	

4.2 Surface Water Resources Assessment

For the SIP 1998 the potential yields of the sources have been assessed based on hydrological reports of other consultants and on assessment made based on hydrological data obtained from water resources agencies in Ghana and topographical sheets procured from the Survey Department. The results of the surface water assessment and the recommended actions for the SIP 1998 are shown in Appendix 4.1.

Messrs Noreonsult completed in 2007 a study on "Dam Safety Assessment and Rehabilitation" of 16 dams and weirs. The Engineering Report also considers the adequacy of the yields of the reservoirs to meet the water demands of 2025 and where these are not sufficient and where it is considered feasible from practical considerations outlines the works required to heighten the dams to impound more water. The relevant results are shown in Appendix 4.2

For the current assignment the Consultant will supplement the above studies by undertaking, where required, the assessment of the potential yields of the catchment areas upstream of the existing intake points based on rainfall / run-off data correlations if available or from long term stream flow analysis.

The surface water resources potential of all the existing urban systems will be presented indicating the name of the present source, the projected water demand, the proposed future source, the catchment area size and the storage / impoundment required.

Table 3.1 above shows under the column "water source" the name of the river supplying the based surface water system. The existing available data and the hydrological and meteorological data required for the assessments are being collected from the Hydrological Services and the Meteorological Department of Ghana.

4.3 Groundwater Resources Assessment

It can be seen from Table 4.1 above that there are 41 systems based on groundwater extraction through some 177 boreholes.

The hydrogeological conditions of the aquifers in Ghana are known to be unfavorable for significant yields and large scale groundwater development, therefore a borehole data base has been erected in order to use all available information on lithology, structure, and well yield for future groundwater development by means of new boreholes and rehabilitation of existing ones. The data have been mostly obtained during the site inspections of the systems and from other sources (drilling unit of Kumasi, AVRL data base). The available data are far from being complete and essential information like year of drilling and pump test results are not available. The boreholes data base is shown in Appendix 4.3. It is strongly recommended to update the data base for missing data and to implement in the future a field monitoring program to include static and dynamic groundwater levels and well performance.

Various hydrogeological data and maps have been collected mostly from the Water Research Institute (WRI) of the CSIR:

An overview of the hydrogeology of Ghana has been compiled and is shown in Appendix 4.4.

A map of Ghana indicating the estimated potential yields of various aquifers is shown in Appendix 4.4.

District wise lithology, depth of wells, expected yields and success of boreholes and District wise groundwater abstraction are shown in Appendix 4.5. This information covers all Ghana.

Previous studies (SIP 1998) have shown that out of the 110 districts of Ghana, 35 districts are identified suitable for small mechanized borehole systems and 69 districts suitable for water point systems based on groundwater. The remaining districts have mixed projects, i.e. parts of the district are suitable for small mechanized boreholes systems while other parts of the same district are only suitable for water point systems.

Table 4.2 below has been compiled from Map 4.1 and other hydrogeological information and taken from SIP 1998. It is a Summary by Regions of the Number of Districts and Urban Systems in which groundwater is considered Adequate.

Table 4.2: Summary by Regions of the Number of Districts and Urban Systems in which Groundwater Potential Sources are Considered Adequate

Item No.	Region	Total Number		Adequate Groundwater Potential Districts & Urban Systems			
		Districts	Urban System Based on GW	No. of Districts Suitable for WP's	No. of Districts with prospects for Mechanized System	No. of Districts with mixed prospects (i.e Partly Suitable for Mech. & Partly Suitable for Manu	No. of Urban Systems where GW is Adequate
1	Ashanti						
2	Brong Ahafo						
3	Central						
4	Eastern						
5	Greater Accra						
6	Northern						
7	Upper East						
8	Upper West						
9	Volta						
10	Western						
	Total						

(5.1)(1c)

As the water demand is growing it seems that surface water sources should be explored in the groundwater deficient areas.

5. Proposal for Rehabilitation and Capacity Expansion

5.1 General

For the 81 urban water systems included in the study, the Consultant compiled information from the SIP 1998 study, from previous planning reports, from AVRL reports and other sources, but mainly from the site inspections conducted to the systems since the beginning of the assignment. The findings of the site inspections have been compiled into site visit reports which were the basis for the preparation of the system profiles.

Proposals for rehabilitation and expansions of the systems to meet the water demands for the horizon years of 2011 (five year development plan), 2015 and 2025 (investment plans) are being prepared according to the various information and data collected about the water systems and the water demand projections made for the same years.

Various proposals for expansion have been made in the past by various Consultants either at a feasibility or pre-feasibility stage. However these plans and programs have been made long time ago and based on various assumptions actually not relevant as found even 10 years ago during the preparation of the SIP 1998.

The criteria and guidelines applied for planning the rehabilitation, renewal and expansion of the water systems, including headwork and treatment plants, transmission mains, pumping stations, distribution network, house connections and storage tanks etc are first formulated for their application in this study when preparing the various proposals.

5.2 Proposed Criteria and Guidelines for Assessment of Rehabilitation and Capacity Expansion

5.2.1 Criteria

5.2.1.1 Water Sources

Surface Water Sources:

Streams are classified into perennial and non-perennial.

A perennial stream is regarded as reliable with respect to the water demand of a system if its minimum daily discharge during a drought period occurring on an average once in 25 years exceeds the water demand of the system at least 95% of the time. In most cases the low flows are usually not enough to permit direct abstraction with a pump, so a weir or impoundment have to be constructed across the stream to provide some pondage for pumping.

A non-perennial stream requires a storage or impounding reservoir whose reliable yield is estimated as the maximum quantity of water that can be supplied daily throughout a critical dry period with a frequency of occurrence of 100 years for cities and large urban systems. Both weirs and impounding dams will be provided with means for scouring away silt that tends to accumulate behind such weirs or dams.

New dams and impoundments, rising of existing dams required for the short term to meet the water demands will be sized to meet the long term (2025) demands.

Ground Water Sources:

The reliable yield of a borehole is determined from its specific capacity (derived from draw-down and pump test yield) and an allowable drawdown to be fixed at 50-60% of the borehole depth with the following constraints:

- Submersible pump will be completely submerged with at least 1m depth of water above the highest impeller at DWL.
- A borehole pump capable of discharging that yield can be installed in the borehole.

Boreholes are considered suitable for mechanization when the reliable yield exceeds 150-200 litres/min (2.5-3.3 l/sec).

Drilling of new boreholes should be preceded by a review of all existing geological and hydro geological information on existing boreholes in the area concerned. When these studies indicate a reasonable chance for finding ground water, sites will be selected for reconnaissance drilling with the help of topographical and available air photo maps, and physical inspection of the terrain.

The decision for rehabilitation or replacement of boreholes will be made based on the historical yield and the actual yield of the borehole. For a decrease of up to 40-50% of the borehole yield, rehabilitation of the borehole will be considered otherwise a new borehole should be considered.

For the groundwater based systems, a surface water source will be considered if the potential groundwater is not adequate to meet a high water demand.

The results of the hydrological and hydro geological studies will be taken into consideration while preparing the proposed expansion.

5.2.1.2 *Water Demand and Peak Flows*

Water demand projections for each horizon year have been estimated for each water supply system based on population projections and per capita water demand. The population growth rates and the per capita of SIP 1998 have been adopted however the base population for the projections is the 2000 census population (progress reports 2,3).

The following factors are taken into consideration when evaluating the projected water demand:

- *Increased demand due to population growth,*
- *Increased demand due to higher levels of consumption,*
- *Unreasonably high loss of water due to leakage and unauthorized use.*

Two types of variation in water demand are of interest in the planning and design of a pipe-borne water supply. These are the seasonal peak daily demand, which is used for sizing water source capacities, treatment plants, pumping and transmission facilities, and maximum hourly demand, which is used for sizing distribution pipelines.

Studies carried out by Tahal on Accra-Tema water supply in 1965 and by Howard Humphreys & Sons on seven Urban Water Supply Systems in Ghana in 1970 yielded ratios of seasonal peak daily demand to average daily demand ranging from 1.13 to 1.38 and ratios of maximum hourly demand to average hourly demand from 1.50 to 2.50.

In the SIP 1998 study the means of the values recorded in the two studies have been adopted, i.e. a seasonal peak daily factor of 1.20 and a maximum hourly factor of 2.0.

For this study the peak hourly demand has been elaborated for various population group sizes according to the following table below where a daily demand pattern is shown. The peak values of 1.70 to 2.40 are within the range of values mentioned in the previous studies.

These values will however be adjusted in appropriate cases if found necessary at the detailed planning stage.

5.2.1.3 *Storage Tanks*

The required storage capacity of a water system is a function of the daily demand and production patterns, the peak hour demand coefficient and the population size. An analysis of the required storage capacity is shown in Appendix 5.1 under variable assumptions: town size, daily pattern of water demand as shown in the table 5.1 above and water production pattern including the daily hours of production. The sample calculations have been made for a "unit" average water demand rate of 1 m^3/hr for 24 time steps of 1 hour each (for 1 day period). The summary of the results is shown in the table 5.2 below:

Table 5.1: Daily Demand Pattern and Peak Hour Demand Coefficient for Various Population Group Sizes

Hour	Town population < 5,000	Town population 5,000-10,000	Town population 10,000-50,000	Town population 50,000-100,000	Town population > 100,000
0-1	0.15	0.20	0.25	0.30	0.35
1-2	0.15	0.20	0.25	0.30	0.35
2-3	0.15	0.20	0.25	0.30	0.35
3-4	0.15	0.20	0.25	0.30	0.35
4-5	0.20	0.30	0.30	0.30	0.30
5-6	0.60	0.55	0.60	0.60	0.60
6-7	1.00	1.00	1.00	1.00	1.00
7-8	**2.40**	**2.20**	**2.00**	**1.90**	**1.70**
8-9	1.80	1.70	1.70	1.70	1.70
9-10	1.60	1.60	1.60	1.60	1.55
10-11	1.50	1.50	1.50	1.50	1.45
11-12	1.40	1.40	1.40	1.40	1.40
12-13	1.40	1.40	1.40	1.40	1.40
13-14	1.30	1.30	1.30	1.30	1.30
14-15	1.30	1.30	1.30	1.30	1.30
15-16	1.60	1.50	1.45	1.40	1.40
16-17	1.70	1.60	1.60	1.50	1.50
17-18	1.70	1.65	1.60	1.50	1.40
18-19	1.40	1.30	1.25	1.20	1.20
19-20	1.10	1.10	1.10	1.10	1.10
20-21	0.50	0.55	0.60	0.70	0.80
21-22	0.50	0.55	0.60	0.70	0.80
22-23	0.30	0.40	0.40	0.40	0.40
23-24	0.20	0.30	0.30	0.30	0.30
Total	**24.00**	**24.00**	**24.00**	**24.00**	**24.00**

Table 5.2: Required System Storage Capacity Calculation

n	Required Net Storage Capacity $V_{av}/V_{d\,av}$					Reserve Capacity $V_{res}/V_{d\,av}$	Required Total Storage Capacity $V_a/V_{d\,av}$				
	Town population < 5,000	Town population 5,000-10,000	Town population 10,000-50,000	Town population 50,000-100,000	Town population > 100,000		Town population < 5,000	Town population 5,000-10,000	Town population 10,000-50,000	Town population 50,000-100,000	Town population > 100,000
24	0.306	0.281	0.261	0.243	0.234	0.041	0.347	0.322	0.302	0.284	0.275
20	0.199	0.170	0.159	0.146	0.128	0.041	0.240	0.211	0.200	0.187	0.169
16	0.111	0.129	0.129	0.129	0.129	0.062	0.173	0.191	0.191	0.191	0.191
12	0.228	0.241	0.255	0.263	0.282	0.083	0.311	0.324	0.338	0.346	0.365

Q_{av} - Average demand flow rate
$Q_{d\,av}$ - Average daily demand flow rate
V_{av}- Available/necessary water volume in storage capacity
V_d- Daily average water demand
V_{res}- Emergency reserve water demand
n- Number of daily hours of operation of the water supply systems

The actual required storage volume of a system is obtained by multiplying the respective coefficients of Table 5.2 by the actual average daily water demand.

In the SIP 1998 the following criteria have been used:

- Storage tanks will have volume sufficient for 12 hours supply a day,
- Localities with population of above 2000 will have their own storage tanks.
- Villages of population less than 2,000, connected to a water supply scheme will not have their own storage tanks. The storage tanks in the main towns will cater for the storage capacity needed in the adjacent villages.

In the analysis shown in Appendix 5.1 and Table 5.2 above the required storage capacities are less than the 12 hours supply volume assumed in the SIP 1998.

The Consultant will calculate the total storage capacity required for each of the water supply systems. The additional volume of storage tanks required in each system will be calculated using the 2011, 2015 and 2025 daily water demand figures and subtracting the existing storage capacity.

5.2.1.4 Rehabilitation of the Existing Distribution Networks

- The lengths and diameters of the existing network will be obtained if available from site inspections, drawings and layouts, and from the Fixed Assets Regional Reports of 1999.
- It will be assumed that 20% of the total existing distribution network in the existing system require rehabilitation,
- Where information is available, pipelines with ages above 30 years will be replaced.

5.2.1.5 Expansion of the Distribution Networks

- Data on the existing distribution network are being collected. Where information is not available, it will be assumed based on certain assumptions.
- Additional distribution network will be required to serve the increase of population between 2011 and 2025. It is assumed that 1 km of distribution pipeline will be needed for 2,000 persons.

The following criteria have been elaborated by the Consultant for selecting the diameters of the required distribution networks:

The preliminary assessment of the distribution network pipelines diameters has been carried out based on the main criteria of 0.5 m of pipe per inhabitant. In line with good engineering practices and energy saving considerations, the maximum pipe diameter is estimated so as to have at peak flow rate a maximum head loss of 6 m / km through it. For example, for a peak flow rate of 500 m³/hr, the maximum diameter of the pipes will be DN 350 (Table 5.3).

Table 5.3: Diameter of Main Pipeline

Hourly Peak Demand (Qh max) (m3/h)	DN of Main
20	100
55	150
120	200
210	250
340	300
510	350
730	400
1000	450
1300	500
2100	600

The length of pipes for each diameter between DN 65 and DN 350 (the maximum) are estimated according to the following table.

Table 5.4 Required Pipe Length for a Given DN
(as Percentage of Total Length for a Given Peak Water Demand)

Hourly Peak Demand (Qh max) (m3/h)	DN65	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
20	50	50									
55	40	30	30								
120	30	30	25	15							
210	30	30	25	10	5						
340	25	25	25	10	10	5					
510	15	25	25	10	10	10	5				
730	10	25	25	10	10	10	5	5			
1000	10	25	25	10	10	10	5	5	5		
1300	10	25	15	10	10	10	5	5	5	5	
2100	10	20	15	10	10	10	5	5	5	5	5

Number of isolation valves: 1 No/km of pipeline.
Number of washouts: 1 No/5km of pipeline.

Rehabilitation and/or expansion of the distribution network will be considered only if the water source and the installed capacity are adequate to meet the water demand.

5.2.1.6 House Connections and Standpipes

The mode of water distribution to the consumers is either by means of house connections or stand pipes.

In the SIP 1998, the following criteria have been applied to estimates the number of house connections and standpipes in a water system according to population size:

- For localities with population between 2,000 and 10,000, it has been assumed that 40% of the population will be served by connections and 60% by standpipes.
- For localities with population between 10,000 and 50,000, it has been assumed that 50% of the population will be served by connections and 50% by standpipes.
- One connection will serve 10 people and one standpipe will serve 200 people.

For the present study the Consultant based on his experience in similar projects, has elaborated the following criteria for the percentage of the population served by house connections for each population group size and for each horizon year. The remaining population is served by stand pipes.

Table 5.5: Percentage of Population Served by a House Connection

Population Size	2008	2011	2015	2025
< 5,000	25	30	40	45
5,000-10,000	30	35	45	50
10,000- 50,000	30	35	45	50
50,000-100,000	35	40	50	55
> 100,000	35	40	50	60

The number of persons considered to be served by a house connection is 10. The number of persons considered to be served by a stand pipe is 350.

- The actual number of existing connections and standpipes for each existing water supply system is being collected. If those data are not available they will be estimated from table 5.5 above as 30% of the 2008 column. The actual production / supply is below the demand while table 5.5 assume the full supply of the demand according to the 2008 population.
- The additional number of connections and standpipes required for the horizon years will be calculated by using the above criteria against the projected population figures and subtracting the existing number of connections and standpipes from the total number.

5.2.1.7 Small Localities Connected to the Existing Urban Water Supply Schemes

There are many small localities with population below 2,000 which are connected to major urban water supply schemes, such as Cape Coast, Kwanyaku, Sekondi-Takoradi, Tamale, Obuase etc.

No storage tanks or distribution network will be proposed in the cost estimates for these small localities. In calculating the total storage tanks required for a particular water supply scheme, the daily water demand of these small communities will be considered.

5.2.1.8 *Connecting New Localities to Existing Water Supply Schemes*

New localities outside the present supply area will be considered for connection in the future to an existing system from 2015 and 2025 under the MDG's. These localities might be of any size and will require an extension of the distribution network. The water source will be checked for availability and reliability to cater the water demand.

5.2.2 *Guidelines for Rehabilitation and Capacity Expansion*

The criteria described above and related mostly to the water demand, water source capacity, storage capacity, distribution system and type of connections are a blend of actual criteria being applied and additional criteria proposed by the Consultant. The rationale behind is to take into consideration whether they are applied for rehabilitation or for expansion of an existing system.

The actual water production in some systems and even the installed (design) capacity are not adequate to meet actual (2007) water demands. Therefore an expansion of the systems will be required in addition to their rehabilitation in order to meet short term water demands. Rehabilitation is defined as the works required to bringing back the systems to produce water at the installed capacity. However transmission mains and impoundments will be planned to meet the long term water demand as per good engineering practices. New treatment plants are planned and sized for many years.

The Consultant prepared an outline of the required rehabilitation and capacity expansion for the year 2011 (five year development plan) and the investments required based on unit costs. A unit cost data base based on that in use by the GWCL Planning Department has been expanded and will be continuously updated. The unit cost data base is shown in Table 5.6.

Many water supply systems have been the object or are planned to be the object of rehabilitation and even expansion under various funding schemes (Appendix 5.2: GWCL Status Report on Contracts and Proposals, First Year Investment Program FYIP). The Consultant while assessing the rehabilitation and expansion requirements took into consideration the works already carried out or works to be carried out and assessed the additional works needed.

The assessment of year 2011 system components will be based on the availability of adequate yield of the water source to meet the projected system water demands. It is anticipated that most of the surface water sources would require raw water impounding reservoirs or ponds to cater for the demand in the dry season when low flows are experienced and some of the sources dry up.

For large system water demands, conventional treatment plants would be adopted for economic reasons.

The year 2011 scheme components for rehabilitation and capacity expansion with the estimated costs have been incorporated in the system project profiles.

(5.1)(1c)

6. System Profiles and Cost Estimates for Rehabilitation and Expansion of the Five Year Development Plan (2007-2011)

6.1 System Profiles

The Consultant developed and prepared system project profiles for 74 of the 81 systems. The project profiles capture system population and demand projections, description of the existing system and outline of physical components and cost estimates for rehabilitation and expansion of the system to meet water demands up to the year 2011 and more generally up to the year 2025. In this interim report is presented only the Five Year Development Plan (2007-2011).

The investments required to meet the 2015 and 2025 water demands will be amended to the above system profiles.

For the Greater Accra Region only strict rehabilitation has been considered for the Weija and Kpong systems. The system profile of Kesseve/Adafoah and the cost estimates are still to be prepared. Birmm is now under rehabilitation/expansion and therefore no costs have been included in Table 6.1. Its system profile has been prepared and not included in this report.

The system profiles of the remaining 72 systems are shown in Appendix 6.1. They are reported by region in the same sequence as they are listed in Table 3.1 and Table 3.2 above with their identification.

6.2 Proposals and Cost Estimates – Five Year Development Plan

For each system, the works required for rehabilitation and expansion to meet the 2011 water demands and their cost estimates are presented in three worksheets: (i) Basic data for cost estimates, (ii) Rehabilitation cost estimates and (iii) Expansion cost estimates.

The costs estimates for rehabilitation and expansion have been further subdivided into 5 groups of works:

- Water Source (impoundment, dredging..)
- Transmission mains,
- Treatment plant,
- Storage facilities
- Distribution system.

The total investments required for the Five Year Development plan to meet the 2011 water demands in terms of rehabilitation and expansion of the 74 systems in the 7 southern regions of Ghana are shown in the Table 6.1 below with a regional summary.

Table 6.1: The Five Year Development Plan 2007-2011
Estimated Costs of Rehabilitation and Expansion

ID		Region/System		System Type	Water Source	Cost Estimates (US dollars)	
No	AVRL					Rehabilitation 2008	Expansion 2011
	R01A	GREATER ACCRA					
1	R01A-S01	Kpong- New Works			Volta River		
1	R01A-S02	Kpong-Old Works					
2	R01A-S03	Weija-Adam Clarke			Densu River (Dam)		
2	R01A-S04	Weija-Barnag					
2	R01A-S05	Weija-Candy					
		Total Weija					
3		Kaeeve/Adafoah			Agor River (Sump)		
4	R01A-S07	Dodowa Borehole			Boreholes		
TOTAL GREATER ACCRA							
	R02	ASHANTI REGION					
5	R02-S09	Agona	Jamase		Boreholes		
6	R02-S01	Barikese	Kumasi		Offin River (dam)		
7	R02-S05	Effiduase	Asokore		Boreholes		
8	R02-S04	Konongo	Odumase		Anuru River (Weir)		
9	R02-S03	Mampong			Sumanpa&Kyiremfa (Weir)		
10	R02-S07	New-Edubiase			Boreholes		
11	R02-S06	Obuasi	Odaso		Odaso River		
12	R02-S02	Owabi	Kumasi	(5.1)(1c)	Owabi River (Dam)	(5.1)(1c)	
13	R02-S08	Tepa			Boreholes		
TOTAL ASHANTI							
	R08	BRONG-AHAFO					
14	R08-S01	Abesim	Sunyani		River Tano (Weir)		
15	R08-S05	Acherensua			River Tano (Weir)		
16	R08-S02	Berekum			Boreholes		
17	R08-S03	D. Ahenkro/Biaso	Dormaa		Bia River (Pond)		
18	R08-S04	Dwomo	Bechem Duayaw		Boreholes		
19	R08-S06	Techiman/Tanoso			River Tano (Weir)		
TOTAL BRONG AHAFO							
	R04	CENTRAL REGION					
20	R04-S06	Breman-Asikuma			Ochi Nacho River (Dam)		
21	R04-S01	Brimsu			Kakum River (Dam)		
22	R04-S07	Dunkwa-Offin			Boreholes		
23	R04-S05	Kwanyaku			Ayensu River (Dam)		
24	R04-S03	Mankesim/Baifikrom			Ochi Amissa River		
25	R04-S04	Winneba			Ayensu River (Weir)		
TOTAL CENTRAL							

Table 6.1: Con't

ID		Region/System		System Type	Water Source	Cost Estimates (US dollars)	
No	AVRL					Rehabilitation 2008	Expansion 2011
	R05	**EASTERN REGION**					
26	R05-S02	Aboabo			Boreholes		
27	R05-S11	Anum-Boso			Lake Volta @ Dodi		
28	R05-S19	Anyinam			Birim River (Weir)		
29	R05-S16	Apedwa-Asafo			Densu River (Weir)		
30	R05-S14	Asamankese			Abouchem River (Weir)		
31	R05-S04	Asene			Boreholes		
32	R05-S06	Asuom			Boreholes		
33	R05-S20	Begoro			Akurum River (Weir)		
34	R05-S21	Bunso			Birim River		
35	R05-S07	Kade			Boreholes		
36	R05-S17	Kibi			Birim River (Weir)		
37	R05-S09	Koforidua			[illegible] River,Springs(dam)		
38	R05-S22	Kwabeng			Awusu River (Weir)		
39	R05-S12	Kwahu-Tafo-Kotoso	Ridge		Lake Volta@ Asampaneye		
40	R05-S23	New Tafo	old Tafo		Bona River (weir)		
41	R05-S13	Nkawkaw			Boreholes		
42	R05-S15	Nsawam			Densu River (Weir)		
43	R05-S03	Oda-Akim	Manso Aprem		Boreholes		
44	R05-S01	Ofoase-Akim		(5.1)(1c)	Pra River (Intake)	(5.1)(1c)	
45	R05-S08	Osenase			Asupong River		
46	R05-S24	Osino			Birim River (Weir)		
47	R05-S30	Suhyen			Boreholes		
48	R05-S18	Suhum			Boreholes		
49	R05-S05	Swedru-Akim			Boreholes		
TOTAL EASTERN							
	R06	**NORTHERN REGION**			[illegible]		
50	R06-S03	Damongo			Stream (earth dam)		
51	R06-S01	Tamale	Dalum Awuni		White Volta River		
52	R06-S02	Yendi			Daka River (Weir)		
TOTAL NORTHERN							
	R09	**UPPER EAST**					
53	R09-S02	Bawku			Boreholes		
54	R09-S01	Bolgatanga			[illegible] River (Vea Dam)		
55	R09-S03	Navrongo			Boreholes		
TOTAL UPPER EAST							
	R10	**UPPER WEST**					
56	R10-S01	Wa			Boreholes		
TOTAL UPPER WEST							

Table 6.1: Con't

ID		Region/System		System Type	Water Source	Cost Estimates (US dollars)	
No	AVRL					Rehabilitation 2008	Expansion 2011
	R07	VOLTA					
57	R07-S12	Abor			Boreholes		
58	R07-S10	Aflao	Aveme Denu		Boreholes		
59	R07-S11	Agbozume			Boreholes		
60	R07-S09	Agordome/Segakope	Keta Anloga		Volta River		
61	R07-S06	Anfoega			Boreholes		
62	R07	Anyako	Anyako		Boreholes		
63	R07-S08	Hohoe			Dayi River Atikpo		
64	R07-S14	Jasikan			Boreholes		
65	R07	Kadjebi			Boreholes		
66	R07-S04	Kpandu			Boreholes		
67	R07-S02	Kpedze			Tale&Todzie Springs(Well)		
68	R07-S01	Kpeve	Ho		Lake Volta		
69	R07-S07	Nkonya-Ahenkro			Boreholes		
70	R07	Peki		(5.1)(1c)	Lake Volta	(5.1)(1c)	
71	R07-S05	Sovie	Digbo		Boreholes		
72	R07-S03	Tsito			River/Spring Wuwa(Well)		
73	R07-S15	Worawora			Boreholes		
TOTAL VOLTA							
	R03	WESTERN					
74	R03-S06	Aboso			Boreholes		
75	R03-S07	Axim			Dankyerenada River (Dam)		
76	R03-S05	Bogoso			Boreholes		
77	R03-S03	Bonsa/Tarkwa			Bonsa River		
78	R03-S01	Daboase	Second Takoradi		Pra River (Intake)		
79	R03-S08	Elubo			Tano River		
80	R03-S02	Inchaban	Second Takoradi		Anankwari River (dam)		
81	R03-S04	Prestea			Boreholes		
TOTAL WESTERN							
TOTAL ALL REGIONS							

* It should be noted that in almost all of the water systems the distribution system and in most cases the actual production is determined by the distribution system

ID		Region/System		System Type	Water Source	Cost Estimates (US dollars)
No	AVRL					
1-4	R01A	Greater Accra				
6-13	R02	Ashanti				
14-19	R04	Brong Ahafo				
20-28	R06	Central				
29-49	R05	Eastern				(5.1)(1c)
50-52	R08	Northern				
53-55	R09	Upper East				
56	R10	Upper West				
57-73	R07	Volta				
74-81	R03	Western				
TOTAL ALL REGIONS						

00028 1073167

6.3 Prioritization

For each water system projects should be selected for prioritization. The prioritization will be carried out among the systems and projects within each Region for rehabilitation and for expansion separately.

The prioritization and the resulting top ranked systems and projects for implementation of the Five Year Development Plan under the SYIP will be based on a combination of criteria as suggested in the TOR and PAD of the World Bank.

They are based on:

- National development planning priority guidelines on socio-economic considerations for human development and rapid economic growth,
- Financial considerations based on unit per capita investment costs to accelerate population coverage of water supply,
- Geographical balance in water supply provision to the urban centers, the districts and the regions in the country. A summary by districts of the number of localities and population served in 2000-2007 will facilitate decision making.

A suitable weighting system for ranking of the schemes in the urban systems, the districts and in the regions will be applied.

6.4 Investment Plans for 2015 and 2025

In the years 2015 and 2025, under the MDG's, new localities located outside the supply area will be connected to the existing urban systems. This is in addition to the natural growth of the connected and supplied population.

The investment plans for 2015 and 2025 will be estimated based on per capita unit costs to be elaborated by the Consultant and derived from previous projects.

7. Conclusions

This Interim Report is a status report on the Progress at Month five of the Consultancy.

Despite bottle necks and gaps in data collection and processing, this report addressed and covered the Five Year Development Plan and cost estimates, update of the SIP, and preparation of the system profiles as required by the TOR, although they will be finalized along with the elaboration of the 2015 and 2025 investment plans, and expanded to cover the remaining 7 systems of the northern regions.

The site inspections to the 74 systems of the seven southern regions were the starting point and basis of all subsequent activities for elaboration of the system profiles and cost estimates.

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ORET PROGRESS REPORT NO. 10

ORET project number	:	GHWM07029
Title of project	:	ATMA Rural Water Supply System South of Kpong, Ghana
Period	:	1st January, 2013– 30th June, 2013
Country	:	Republic of Ghana
Description of transaction	:	Rehabilitation and expansion of ATMA Rural Water Supply System
Dutch company	:	TAHAL GROUP B.V.
Contact	:	(5.1)(2e)
tel/fax	:	
Local recipient	:	Ghana Water Company Ltd. (GWCL)
Contact	:	(5.1)(2e)
tel/fax	:	

Within the framework of the ORET programme, you are obliged as from the date of the positive decision to provide narrative and financial reports to Oret.nl on the progress of the transaction. The objective of the reports is to inform ORET.nl on the progress of the project and the transaction, to enable ORET.nl to establish whether the grant was awarded in accordance with the Ministry of Foreign Affairs Grant Programme 2006 (ORET). These semi-annual reports have to be submitted to Oret.nl (PO Box 30716, 2500 GS, The Hague, the Netherlands) by1 March and 1 September, respectively. The reports should cover the periods July-December and January-June. The reporting obligation ends after ORET.nl has determined the definitive grant amount. This form is not designated for the final report. For the final report a separate form is available.

These answers have been filled in truthfully.

Date	:	27/07/2013
Place	:	Accra, Ghana
Company	:	TAHAL GROUP B.V.
Contact		
Position		

00029 (5.1)(2e)

1073168

A. Progress of project

- *A delivery may be an isolated event. In that case, the project is the delivery plus the extent to which it is incorporated into the end user's company/organisation.*
- *In many cases, a delivery constitutes an integral part of a combination of activities, deliveries by third parties and the end user's own activities. In that case, the project constitutes the larger whole.*
- *For the definitions of "transaction" and "project", you may refer to the ORET programme, chapter 1, paragraph 5, and chapter 3, paragraph 2, respectively.*
- *The transaction relates to the part of the project to which the applicant is bound by a contract with the end user.*

A.1 Progress of project

Describe the extent to which the end user was prepared for this project and whether it has completed all of the actions to be carried out. This will suffice if the delivery is an isolated event.
If the delivery forms an integral part of a larger project and your delivery's success depends on the realisation of the project as a whole, please also indicate in your description how other sub-activities of that project are developing, and whether there have been any frictions in this context and which consequences those frictions will have on the sub-activity that falls under your responsibility.

A.2 Additional steering

Does the project require additional steering for it to proceed successfully? If so, which steps are you considering to realize this?

- *Frequent sites monitoring and steering in conjunction with the client (on a nearly daily basis) is required and performed to ensure timely resolutions of all setbacks.*

B. Progress of transaction

Please maintain the same numbering in your description.

1. Describe the transaction's current level of progress. Which developments have taken place over the past six months?
2. Which of these developments are deviations from what was agreed by contract?
3. Describe any problems encountered.
4. In case of any deviations and/or problems, point out their cause and consequences, translated into an adjusted – narrative and financial – planning.

B.1

Water Distribution Network

* **Bethlehem** [illegible] **Km.** - Pipelaying; [illegible] Chambers, Fittings & Accessories; [illegible] Completed.
* **Pram Pram** [illegible] **Km.** - Pipelaying; [illegible] Chambers, Fittings & Accessories; [illegible] Completed.
* **Adjei Kojo** [illegible] **Km.** - Pipelaying; [illegible] Chambers, Fittings & Accessories; [illegible] Completed.
* **Gbestele** [illegible] **Km.** – Pipelaying; [illegible] Chambers, Fittings & Accessories; [illegible] Completed.
* **Akuapem** [illegible] **Km.** – Pipelaying; [illegible] Chambers, Fittings & Accessories; [illegible] Completed.
* **Krobo** [illegible] **Km.** – Pipelaying; [illegible] completed, Chambers, Fittings & Accessories; [illegible] Completed.
* **House Connections** (5.1)(1c) **Units.(supply only)** – Detail Design, approved, Procurement; [illegible] Completed.
* **Standpipes** [illegible] **Units** – Ongoing of Location's distribution, Materials procured fully.

New water treatment plant (WTP)

* **Chlorine Building** - Civil works [illegible] Equipment have all been procured and delivered to site, Electro- Mechanical Installation (5.1)(1c)
* **Chimical Building.** – Ditto above.
* **Filter Building.** – Civil works; [illegible] Equipment, M&E procurement; [illegible] ompleted, Steel Filtration Pipework's in position ready to be assembled.
* **External Works.** – Drainage Chambers & pipes; [illegible] ompleted, Filling & compaction to receive Roads & access; [illegible] ompleted.

Construction of Transmission Mains

* TAHAL has completed laying all the (5.1)(1c) and (5.1)(1c) diameters [illegible] ransmission mains.
* **Kpong to Tema Service reservoir;** (5.1)(1c) [illegible]
* **Kpong to Akawele junction;** (5.1)(1c) (5.1)(1c)
* **Affenya to Dawhenya;** (5.1)(1c)
* **Akawele junction to Micchael Camp;** (5.1)(1c) (5.1)(1c)

* The pressure testing of the pipelines has (5.1)(1c) (5.1)(1c) (5.1)(1c)

Construction of Ground Water Reservoirs (GLR)

* ***Dodowa*** (5.1)(1c) - (5.1)(1c)
* *New* (5.1)(1c) *piping and* (5.1)(1c) *to connect Dodowa GLR. – Pipelaying* (5.1)(1c) *Pumps on site awaiting* (5.1)(1c)
* ***Akawele*** (5.1)(1c) *- Civil works, Landscaping & Testing* (5.1)(1c) *, Taking Over Certificate (TOC)* (5.1)(1c)
* ***Adukrom*** (5.1)(1c) *- Ditto Above.*
* **Tema** (5.1)(1c) **Rehabilitation** – Civil (internal/external) works; (5.1)(1c) completed, Erosion works (5.1)(1c) completed, Landscaping; (5.1)(1c) completed.

B.2.

No major problems were encountered at this stage.

B.3.

Extension of Time:

Based on the approval of the Financial Extension of Time (EOT), (ORET, July 4th letter of extension until 31July 2013), TAHAL submitted a claim for Physical Extension of Time Which was approved by the Client equivalent to the finance (EOT) i.e. 31July 2013.

A claim for Fluctuation Expenses was submitted and approved by the client on 6th December 2012, awaiting ORET approval.

C. Lessons learnt

Please maintain the same numbering in your description.

- Were there any developments in the transaction that had an impact on the project's progress?
- During the transaction's implementation, did you encounter any unforeseen circumstances which forced you to change the way you operated?
- Would you go about the transaction's implementation differently in the future? If so, in what way?

D. Other relevant information

Are there any other important aspects you have not mentioned?

E. Liquidity forecast

E.1 Liquidity Forecast

Please fill in the liquidity forecast following the eight steps mentioned below. With the forecast you provide insight into the total amount of received payments as well as into the expected payments until the completion of the project on a quarterly basis.

1. Payments received to date – State the total amount of received payments to date, followed by the grant amount and other financing amount.

(Expected payments)

2. Period – Select both year and quarter in which future invoices are due to be submitted to ORET.nl (or other financing party).

3. Classification – Select the classification, in accordance with the grant agreement, to which yet to be invoiced activities should be allocated.

4. Description – State a concise description of the yet to be invoiced activities (e.g. "equipment delivery batch 7", "site clearance", "maintenance training").

5. Amount – State the total amount of the yet to be invoiced activities.

6. Grant – State the total amount out of the grant of the yet to be invoiced activities.

7. Other financing – State the total amount out of other financing of the yet to be invoiced activities.

8. Total transaction – State as means of control per column the total amount of the transaction, grant and other financing at the bottom of the table.

E.2 Explanation to the liquidity forecast

Please maintain the same numbering in your description.
1. Are there any deviations in the liquidity forecast until the completion of the project compared to liquidity forecast of previous reporting period?

The impact of the Financial and Physical Extension of Time (EOT), and Fluctuation Expenses should be taken into consideration for liquidity forecast.

2. In case of deviations please explain the reason and consequences.

Prolongation of execution time, which consequences are additionel expenditures reflecting on balance of profits and loss.

Period		Classification	Description	Amount	Grant	Other financial
To date		**Total**	**Sum of received payments**			
Expected Payments						
2013	Q2	Progress Payment	Site works, Material purchased, Civil works-Inv.27			
2013	Q2	Contingencies	Representing part of contingencies amount of Euro (5.1)(1c) (intervention) out of contingency for spare parts]-Inv. 28			
2013	Q2	Contingencies PAF	Price Adjustment Factors – Inv. 28			
2013	Q2	Contingencies	Representing out of contingencies amount of Euro [(5.1)(1c)] - Euro (intervention) for spare parts – Inv. 29			
2013	Q2	Progress Payment	Site works – Inv.29			
2013	Q2	Final Payment	Final payment – Inv 29			
Total transaction						

(5.1)(1c)

aanvulling VGR

GH/OM070209
13-01461

ATMA RURALS WATER SUPPLY (SOK) PROJECT
REPORT ON AWARENESS CAMPAIGN FOR THE QUARTER ENDED 31ST AUGUST, 2013

INTRODUCTION:

As part of the plan to install (5.1)(1c) house connections and (5.1)(1c) standpipes in the project area, Ghana Water Company Limited has targeted to hold meetings and fora with stakeholders to explain the project objectives and sensitize them on these, namely provision of house connections at reduced cost on demand and standpipes to serve between (5.1)(1c) inhabitants per standpipe.

ACTIVITIES

Ghana Water Company Limited met Assembly members and some chiefs and opinion leaders in the Ashaiman, Ningo-Prampram, Akuapim and Krobo areas during August 2013 to disseminate information on these objectives. As a result of that installation of standpipes has started.

Ghana Water Company Limited is getting its act together to launch the awareness campaign on house connections. Ghana Water Company Limited has not received the materials for the house connections from Tahal yet.

WAY FORWARD:

Ghana Water Company Limited will intensify its campaign activities to reach all the other stakeholders.

oret.nl Beoordelingsformulier voortgangsrapportage

Projectgegevens

Projectnummer:	GH/WM07029
Rapportageperiode:	1 januari – 30 juni 2009
Aanvrager:	Tahal Group B.V. (Tahal)
Afnemer:	Ghana Water Company Limited (GWCL)
Land:	Ghana

Geraadpleegde documenten

Correspondentie ORET-mailbox en ORET-postdatabase voor de periode 15 juli t/m 2 september 2009, VGR nr. 2 d.d. 12 februari 2009, Beschikking d.d. 5 oktober 2007 en gelekende GA d.d. 18 maart 2008

Voorwaarden Beschikking/Schenkingsovereenkomst

In de Beschikking staat een vaste wisselkoers voor het project vermeld van € 1 = $ 1,36. Verder vermeldt de Beschikking geen VGR-specifieke voorwaarden. Ook de GA vermeldt geen voorwaarden voor de VGR.

Toetsing voortgangsrapportage

☑ Is voortgangsrapportageformulier voorzien van originele handtekening van tekeningsbevoegdpersoon?
(Indien originele handtekening ontbreekt, aanvrager verzoeken het formulier ondertekend te verzenden)

Bevindingen:

De VGR is ondertekend door [(6.1)(2e)] van Tahal en ondertekenaar van eerdere VGR's. Bij de vorige VGR was een Power of Attorney voor dhr. [(6.1)(2e)] gevoegd, die was ondertekend door [(6.1)(2e)] van Tahal en gecertificeerd door een Nederlandse notaris. Aangenomen mag daarom worden dat hij tekeningsbevoegd is.

Naam 1e beoordelaar: [(6.1)(2e)]
Datum beoordeling: 2 september 2009
Datum aanvulling: 21 oktober 2009

A. Voortgang project

A1. Voortgang project
Conclusie:

Het project is nog niet gestart. Ook de leveringen zijn nog niet begonnen. Dit als gevolg van het voortduren van het regelen van administratieve vereisten.

Bevindingen:

Het Ministry of Finance and Economic Planning in Ghana heeft op 11 juni 2009 de aanvraag voor belastingvrijstelling van GWCL goedgekeurd. GWCL heeft vervolgens de benodigde separate aanvraagprocedures bij andere overheden gestart (de VGR vermeldt als voorbeelden de Customs' Excise and Revenue Service, Internal Revenue Service, Value Added Tax, Ministry of Trade and Industry).
Tahal is bezig met het verzamelen van de benodigde documentatie voor het ondertekenen van subcontracten en met het afronden van de procedures voor het aanvangen van import van materialen. De materialen kunnen worden geïmporteerd nadat alle benodigde belastingvrijstellingen zijn verkregen.

A2. Bijsturing
Conclusie:
Tahal acht bijsturing niet nodig.

Bevindingen:
Tahal houdt continu meetings met GWCL. De contacten zijn goed. Zaken die zijn besproken en waar nodig aangepast zijn: het detailed design, sitebezoeken, lijsten van materialen, juridische en contractuele zaken en vooral het belangrijkste onderwerp: de belastingvrijstellingen. Tahal verwacht dat de belastingvrijstellingen nu snel gerealiseerd zullen zijn en acht daarom bijsturing niet nodig.

B. Voortgang transactie
Conclusie:
Tahal heeft al voorbereidend werk gedaan, maar de transactie loopt vertraging op als gevolg van het uitblijven van de belastingvrijstelling.

Bevindingen:
Tahal heeft de meeste topografische werken op de site bijna afgerond. Tevens zijn detailed designs van de pijlijnen en wateropslagtanks aan GWCL opgeleverd. De detailed designs voor de zuivering zijn nog niet opgeleverd, deze volgen in een latere fase van het project.
GWCL is ten tijde van het opstellen van de VGR (20 augustus 2009) de detailed designs aan het beoordelen. De op- en aanmerkingen van GWCK zullen door Tahal worden doorgenomen en waar nodig zullen de detailed designs worden aangepast voor de uiteindelijke bouw-designs.
Er zijn op dit moment geen technische afwijkingen van het contract.
Het belangrijkste probleem tot nu toe is het uitblijven van de benodigde belastingvrijstelling. Tahal geeft aan dat hierdoor de bouw vertraagd wordt en de opleverdatum dus later zal zijn. Ook heeft Tahal nog geen rekeningen ingediend, waardoor ook de omzetten en cashflow van het bedrijf lager zijn dan gepland. Tahal verbindt hier in de VGR geen verdere conclusies aan.

C. Geleerde lessen
Conclusie:
Tahal zal in de toekomst eerder druk uitoefenen en proactief handelen om belastingvrijstellingen te realiseren.

Bevindingen:
Tahal heeft geen verder vertragende ontwikkelingen te melden. Wel zal het bedrijf in toekomstige gevallen veel eerder druk uitoefenen en proactief handelen om de belastingvrijstellingen te realiseren.

D. Overige relevante informatie
Conclusie:
Tahal geeft aan dat GWCL zich voldoende inspant om de belastingvrijstellingen te realiseren.

Bevindingen:
Volgens Tahal is GWCL zich volledig bewust van de onverwachte vertraging als gevolg van het uitblijven van de belastingvrijstellingen. De afnemer onderhoudt contact met de juridische vertegenwoordigers van de Ghanese overheid en doet zijn best om dit belangrijke probleem op te lossen.

E. Liquiditeitsprognose
Conclusie:
De Liquiditeitsprognose is akkoord.

Bevindingen:
De Liquiditeitsprognose is volledig conform de Grant Agreement.

Conclusie

De VGR geeft voldoende informatie over de voortgang tot op heden. Niet duidelijk is hoeveel vertraging het uitblijven van de belastingvrijstellingen (ten minste) met zich mee zal brengen.

00030

1073169

Actie

Bij Tahal nagaan wat de actuele status van de verzoeken om belastingvrijstelling is en hoeveel vertraging tot nu toe is opgelopen ten opzichte van de oorspronkelijke planning.

Aanvulling 21-10-2009:
De vragen zijn per e-mail van 3 september verstuurd. Op 14 september is een reactie ontvangen, waarin Tahal aangeeft te verwachten over 8 weken (dus op 9 november) te zullen kunnen starten. De totale uitloop zou dan 10 à 11 maanden zijn (waarvan het Ghanese parlement als gevolg van verkiezingen 8 maanden in reces was).

Daarmee is de gevraagde informatie beschikbaar en de VGR volgens de eerste beoordelaar akkoord.

Eindconclusie

VGR is akkoord.

VGR akkoord 1e beoordelaar

Datum: 21 oktober 2009

(5.1)(2e)

VGR akkoord coördinator Contractering & Monitoring

Datum: 28 oktober 2009

(5.1)(2e)

oret.nl Beoordelingsformulier voortgangsrapportage

Projectgegevens

Projectnummer: GH/WM07029

Rapportageperiode: 1 juli 2008 – 31 december 2008

Aanvrager: TAHAL Group B.V.

Afnemer: Ghana Water Company Ltd (GWCL)

Land: Ghana

Toetsing voortgangsrapportage

☑ Is voortgangsrapportageformulier voorzien van originele handtekening van tekeningsbevoegd persoon?
(Indien originele handtekening ontbreekt, aanvrager verzoeken het formulier ondertekend te verzenden)

Bevindingen:

De rapportage d.d. 9 februari 2009 is ondertekend door (5.1)(2e) bij Tahal Group B.V. Gelet op de bij de voortgangsrapportage gevoegde "Power of Attorney" d.d. (5.1)(2e) tekeningsbevoegd.

Naam 1e beoordelaar: (5.1)(2e)

Datum beoordeling: 13 maart 2009
Datum aanpassing: 31 maart 2009

A. Voortgang project

A1. Voortgang project

Conclusie:

De werkzaamheden zijn niet gestart, omdat er geen toestemming is verleend door de Ghanese overheid.

Bevindingen:

In de voorgaande voortgangsrapportage is aangegeven dat er in het eerste halfjaar van 2008 nog geen voortuitgang is gerealiseerd, omdat de CPs nog niet waren ingevuld.
De aanvrager geeft in de voortgangsrapportage over de tweede helft van 2008 aan dat ultimo 31 december 2008 aan dat er voor alsnog niet is voldaan aan artikel 41.1 sub v (tax exemptions), omdat de Ghanese overheid nog niet haar goedkeuring heeft gegeven. De aanvraag is nog in behandeling bij de Ghanese overheid. Derhalve hebben de werkzaamheden mbt. de constructie, inkoop en aanvoer van materialen nog niet plaatsgevonden.

A2. Bijsturing

Conclusie:

Over de tweede helft van 2008 is er geen voortgang gerealiseerd als gevolg van het uitblijven van tax exemption. Daarom is bijsturing nodig om de tax exemption zo snel mogelijk te realiseren. Een vraag hierover is uitgezet bij EKN Ghana.

Bevindingen:

De aanvrager heeft frequent contact met de afnemer over de nog te ontvangen goedkeuring van de tax exemptions van de Ghanese overheid. De afnemer verwacht dat de goedkeuring binnen afzienbare tijd een feit is. Echter, op 20-03-2009 ontvingen wij een mail van Tahal waarin werd aangegeven dat geen voortgang geboekt was met de tax exemption. 26-03 hierover een vraag uitgezet bij EKN Ghana (5.1)(2e)

B. Voortgang transactie

Conclusie:

Door het ontbreken van de toestemming van de Ghanese overheid is er een vertraging opgetreden in het proces en daarmee komt de gecontracteerde einddatum in het gedrang.

Bevindingen:

TAHAL is gestart met het project en boekt voortuitgang op het bouwterrein van de "topography works". Ook heeft TAHAL initiële ontwerpen van de voorgestelde pijpleidingen, wateropslagtanks en treatment plants voorbereid en voorgelegd aan de afnemer. De bevindingen van de cliënt worden gecontroleerd en meegenomen bij het verwerken van de definitieve ontwerpen.

Ten tijde van de rapportage waren er geen technische feiten geconstateerd die afwijken van het contract.

De voorgang wordt belemmerd door het ontbreken van de ontvangen goedkeuring van de Ghanese overheid m.b.t. tax exemption. Dit werd niet door de aanvrager voorzien en wordt nu gezien als een belangrijke blokkade die de voortgang van de transactie belemmert en waardoor gecontracteerde opleveringsdatum onzuiker wordt.

C. Geleerde lessen

Conclusie:

De aanvrager bereekt de afnemer aan om rekening te houden met de tijd van de besluitvorming van de Ghanese overheid.

Bevindingen:

Het ontbreken van de toestemming m.b.t. tax exemption van de Ghanese overheid beïnvloedt de voortgang van het proces. De aanvrager geeft aan dat de vertraging in het proces is veroorzaakt door een onvoorziene vertraging in het goedkeuringsproces van de Ghanese overheid m.b.t. tax exemption
De aanvrager merkt op dat dit door de de eindgebruiker/afnemer in een veel eerdere stadium de tax exemption aanvraag had moeten indienen.

D. Overige relevante informatie

Conclusie:

De afnemer tracht de Ghanese overheid te stimuleren de besluitvorming te versnellen.

Bevindingen:

De afnemer is op de hoogte van de onvoorziene vertraging m.b.t. de toekenning van de tax exemption en spant zich in om de besluitvorming van de Ghanese overheid te versnellen.

E. Liquiditeitsprognose

Conclusie:

De liquiditeitsprognose is juist en volledig.

Bevindingen:

De liquiditeitsprognose sluit aan met de ORET.nl betalingsoverzichten.

TAHAL GROUP

24th November, 2011

To
ORET Desk
The Hague,
The Netherlands

Att: (5.1)(2e)

Dear Sir,

REF: GH/WM07029 – Your questions by email dated 26th October, 2011

Further to your questions and request for clarification, we hereby furnish our responses as follows:

Progress Payments:

According to the terms of the contract between the Ghana Water Company Ltd., and Tahal group B.V. (the Contractor), the contractor according to clause 70.1 is entitled to apply a Price Adjustment Factor (PAF).

We are in the process of compiling all the required data and information from the various statistical entities in Ghana and abroad in order to amass the (PAF) tables for presentation to the Ghana Water Company Ltd., for their prior approval and subsequent submission for payment.

From our preliminary PAF calculations we can deduct that the under spending mentioned by your good self's is due largely to the fact that the PAF has not been presented by us to GWCL., up to this present stage.

Progress Report, (5.1)(1c) Transmission Mains.

Your comments in regards to the actual lengths are well noted and we hereby explain the difference of the estimated contract pipe lengths and the actual designed and executed pipe laying lengths following the completion of topographical site works and detailed design.
May we also state and make it perfectly clear, that in not one single instance have we changed, altered or deviated in any way from the (5.1)(1c) pipeline diameters as originally stated in the contract.

- Bill 2.1 - Kpong to Tema Service reservoir, estimated length of (5.1)(1c) prior to the completion of site topography and detailed design was (5.1)(1c) meters.
- Subsequent to topographical works and completion of the detailed design the actual length required to complete the section Kpong to Tema Service reservoir was (5.1)(1c) meters. An addition of (5.1)(1c) meters of (5.1)(1c) pipe.

ATMA Rural Water Supply System (Lot 9a) South of Kpong

		1	2	3	4
		1	2	2 minus 1	4
Item	Transmission Main	Estimated Contract pipeline lengths prior to detailed design in meters	Actual pipeline lengths after site topography and detailed design in meters.	Difference in meters	Remarks
1	BILL 2.1 - Kpong to Tema Service reservoir, (5.1)(1c)	(5.1)(1c)	(5.1)(1c)	(5.1)(1c)	(5.1)(1c)
2	BILL 2.2 - Kpong to Akawele junction, (5.1)(1c)				
3	BILL 2.3 - Akawele junction to Michael Camp, (5.1)(1c)				
4	BILL 2.4 - Afienya to Dawhenya, (5.1)(1c)				
5	Total Length				

- BILL 2.2 - Kpong to Akawele junction, estimated length of (5.1)(1c) prior to the completion of site topography and detailed design was (5.1)(1c) meters.
- Subsequent to topographical works and completion of the detailed design the actual length required Kpong to Akawele junction was (5.1)(1c) meters. A reduction of (5.1)(1c) meters of (5.1)(1c) pipe.

- BILL 2.3 - Akawele junction to Michael Camp, estimated length of (5.1)(1c) prior to the completion of site topography and detailed design was (5.1)(1c) meters.
- After topographical works and completion of the detailed design the actual length required Akawele junction to Michael Camp was (5.1)(1c) meters. A reduction of (5.1)(1c) meters of (5.1)(1c)

- Bill 2.4 - Afienya to Dawhenya, , estimated length of (5.1)(1c) prior to the completion of site topography and detailed design was (5.1)(1c) meters.
- After topographical works and completion of the detailed design the actual length required Afienya to Dawhenya was (5.1)(1c) meters. An addition of (5.1)(1c) meters of (5.1)(1c) pipe.

On the above Bill 2.4 - Afienya to Dawhenya in our progress report No.7 the stated length of (5.1)(1c) meters of (5.1)(1c) pipe is due to a typographical error, the correct length should have stated (5.1)(1c) meters of (5.1)(1c) pipe only.

We remain yours sincerely,

(5.1)(2e)

TAHAL Group

Mail

(5.1)(2e)

28-10-2011 15:24

To (5.1)(2e)

cc ORET@EMEA-NL

bcc

Subject ATMA

Dear [redacted],

Thanks for the call yesterday. As discussed I would like to share with you some additional thoughts.

Progress Payments

From the information we have received from Tahal we have committed ourselves to payments from the grant in 2011 in the amount of roughly €[redacted] million. So far we have disbursed roughly €[redacted] million. Currently, we are awaiting the payment confirmation from Ghana for invoice 19 € (5.1)(1c) and invoice 20 (5.1)(1c). The total of the two invoices is (5.1)(1c) (to be paid from the grant).

Yesterday you mentioned 3 invoices, for an estimated amount of € (5.1)(1c) to be paid from the grant. Do these three include the two invoices we have already received? Or may we expect to receive 3 more invoices?

Could you please advise on the remaining payments from the grant in 2011? I hope that with the remaining payments we will reach the prognosis of € (5.1)(1c). If the remaining payments and the amounts that have already been disbursed in 2011 do not add up to € (5.1)(1c), could you please advise on the rationale behind the underspending?

Progress report

From your recent progress report we concluded that:

1. (5.1)(1c) = [redacted] km (5.1)(1c) pipeline were laid ([redacted] complete); and
2. (5.1)(1c) m (5.1)(1c) pipeline were laid ([redacted] complete),

According to the contract (BoQ) however, a total of [redacted] km (5.1)(1c) will be laid (1 km bill no. 2.1; [redacted] km bill no. 2.2; [redacted] km bill (5.1)(1c)). In addition, according to bill no. 2.4, [redacted] km of (5.1)(1c) will be laid.

The actual lengths and diameters according to the progress report appear to be different from the estimated lengths and diameters according to the contract. Could you please explain the apparent differences?

I am looking forward to hearing from you.

Thank you and kind regards,

(5.1)(2e)

(5.1)(2e)
PwC | Advisor Perf. Impr.
(5.1)(2e)
PricewaterhouseCoopers Advisory N.V. (KvK 34180287)
Prinses Margrietplantsoen 46, 2595 BR, Postbus 30715, 2500 GS, Den Haag

RE: GH/WM07029 - Oret Progress Report No. 8

(5.1)(2e)

ORET (5.1)(2e)

30-04-2012 09:57

2 attachments

ORET_PROGRESS_REPORT_NO_8 GH-WM07029 Final not signed.pdf

GHANA ATMA Letter from GWCL re reservoir.pdf

Dear (5.1)(2e),

Sorry it took so long,

Following the questions raised by you in reference to the progress report No . 8, we found out that unfortunately the version that had been sent to ORET was **not the updated final file.** Therefore please see enclosed the correct report. An original hardcopy will be promptly sent to you via post.

In addition see below TAHAL's responses to your questions .

1. In your report you have indicated that ORET.nl may expect another request for change with regard to the Tema service reservoir.The changes you have indicated have to be approved upfront by ORET.nl. Could you indicate when we may expect to receive this request?

1. See attached the scanned copy of GWCL's letter concerning this issue ; it will be sent by DHL shortly.

2. According to your progress report, between Akawele Junction en Michael Camp (5.1)(1c) meters of (5.1)(1c) have been laid. This is the same as in your last progress report. At the time we have asked you about the apparent mismatch between the contractual dimensions (length and size) of the pipes and dimensions of the pipes that have been actually laid. You have then answered that the actual length required (according to the detailed design) is (5.1)(1c) meters. Could you again explain why apparently only (5.1)(1c) meters have been laid (5.1)(1c)% complete) instead?

2. The correct length is (5.1)(1c) meters as appears in the enclosed report.

3. According to your progress report you have received € (5.1)(1c) from the grant. Not calculating the last payment of last week (€ (5.1)(1c)), until 31 December 2012 according to our administration you have however received € (5.1)(1c) from the grant. Could you check in your administration that the amount received until now is € (5.1)(1c)

3. Your amounts are correct, see the updated table in the enclosed report .

(5.1)(2e)

Tahal Group ● Member of the Kardan Group

154 Menachem Begin Rd., Tel-Aviv 64921, Israel
(5.1)(2e)
5.1.2e @tahal.com | www.tahal.com

From: (5.1)(2e) **On Behalf Of** oret@nl.pwc.com
Sent: Monday, April 16, 2012 6:35 PM
To: (5.1)(2e)
Subject: Fw: GH/WM07029 - Oret Progress Report No. 8

Dear (5.1)(2e)

Have you had a chance to respond to my questions below? I am looking forward to your earliest reply.

Kind regards,
(5.1)(2e)

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visit our website | info@oret.nl

----- Forwarded by (5.1)(2e) on 16-04-2012 17:34 -----

ORET
Sent by: (5.1)(2e)
(5.1)(2e)
29-03-2012 11:48

To: **(5.1)(2e)**
cc
Subje: Fw: GH/WM07029 - Oret Progress Report No. ctB

Dear (5.1)(2e)

In addition to my message below I would like to ask you some questions with regard to the report.

1. In your report you have indicated that ORET.nl may expect another request for change with regard to the Tema service reservoir.The changes you have indicated have to be approved upfront by ORET.nl. Could you indicate when

we may expect to receive this request?

2. According to your progress report, between Akawele Junction en Michael Camp (5.1)(1c) meters of (5.1)(1c) have been laid. This is the same as in your last progress report. At the time we have asked you about the apparent mismatch between the contractual dimensions (length and size) of the pipes and dimensions of the pipes that have been actually laid. You have then answered that the actual length required (according to the detailed design) is (5.1)(1c) meters. Could you again explain why apparently only (5.1)(1c) meters have been laid (5.1)(1c)% complete) instead?
3. According to your progress report you have received € (5.1)(1c) from the grant. Not calculating the last payment of last week (€ (5.1)(1c), until 31 December 2012 according to our administration you have however received € (5.1)(1c) from the grant. Could you check in your administration that the amount received until now is € (5.1)(1c)

Thank you, kind regards,
(5.1)(2e)

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visit our website | info@oret.nl

----- Forwarded by (5.1)(2e) on 29-03-2012 11:28 -----

ORET
Sent by: (5.1)(2e)
(5.1)(2e)

29-03-2012 10:02

To (5.1)(2e)
cc
Subject Re: GH/WM07029 - Oret Progress Report No. 8 Link

Dear (5.1)(2e)

Thank you for the attached progress report for the second half of 2011. In your message you mention that the originals will be sent from Ghana by express courier. As of yet we have not received these. Do you know where they may be, have they been sent?

Thank you,
(5.1)(2e)

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visit our website | info@oret.nl

(5.1)(2e)

To (5.1)(2e)

28-02-2012 10:23

ccORET@EMEA-NL
SubjeGH/WM07029 - Oret Progress Report
ctNo. 8

Dear (5.1)(2e),
Please find attached a scanned copy of Progress report no.8 (for H2-2011)
Original was sent by express courier from Ghana.

Kind regards

(5.1)(2e)
Tahal Group BV • Member of the Kardan Group
(5.1)(2e) Email:
5.1.2e tahal.com | www.tahal.com

(5.1)(2e)
14-09-2006 19:26

To ORET@EMEA.NL [illegible]
cc (5.1)(2e)
bcc (5.1)(2e)

Subject RE: Progress Report ORET project GH/WM07029 ATMA Water Supply

Dear [illegible]
With respect to your questions our replies are as follows:

1) How much is the total delay of the project at this time and how will delay incurred thus far affect the end date of the project?

At present and with the available information at our disposal this is a rather difficult question to answer with a great deal of complete certainty.
Tahal Group B.V. have commenced the taxes exemptions procedures and presented all the required documentation to the client GWC Ltd. as soon as the Grant Agreement and Loan Agreement were signed, all as per Sub-Clause 41.1 of the Particular Conditions of Contract.
The unexpected long delay in the approval of the taxes exemptions are directly associated to the two rounds of National Elections that Ghana went through during the months of November and December of 2008.
In correlation, the Ghanaian Parliament went into recession from November 2008 to the beginning of June 2009 a total of eight months.
According the above-described history of events and in addition considering that not all the required exemptions (VAT Customs and Excise etc.)have been provided, the delay incurred so far would in the magnitude of 8-9 months.
It is still hard to say what would be the effect on the end date of the project. For now it's "safe" to assume a postponement similar to that delay.
Once those exemptions are furnished, and a "Commencement of Works" notice is given we shall reassess the time schedule and set a realistic finish target with GWC Ltd.

2) When does Tahal expect to be able to start the actual works for the project, i.e. when will GWCL have obtained all the tax exemptions required?

Tahal Group B.V. during this lapse of time of more than eight months has completed most of the site topography works, has prepared preliminary designs and presented to the client GWC Ltd. From the approved preliminary designs, Tahal Group B.V. completed detailed working drawings complete with detailed list of materials and equipment for the subsequent importation.
Therefore, it can be stated that Tahal Group B.V. has been and still is working on all the related aspects of the project that do not involve actual site construction and installation works. Such site construction and installation works can commence only when Tahal Group B.V. shall be exempt of all taxes, duties, levies, customs, and all other taxes in relation to the project.
From the latest information that we have at our disposal, we estimate that GWC Ltd. may obtain the additional taxes exemptions from the various entities within a time to eight weeks.

I hope to have you sufficiently informed.
Kind regards,

(5.1)(2e)
TAHAL GROUP BV
TAHAL CONSULTING ENGINEERS LTD.
(5.1)(2e)

From: (5.1)(2e) **On Behalf Of** oret@nl.pwc.com
Sent: Thursday, September 03, 2009 11:11 AM
To: (5.1)(2e)
Subject: Progress Report ORET project GH/WM07029 ATMA Water Supply

Dear (5.1)(2e)

Last week, we received your progress report for the ATMA Water Supply Project. From the report we understand that the continuing efforts to obtain tax exemption from all Ghanese institutions involved has not yet been finalised. It is clear that this will delay the implementation of the project and that GWCL is at this time doing its best to achieve tax exemptions from all institutions involved.

Based on the above observations, we have two questions:
1) How much is the total delay of the project at this time and how will delay incurred thus far affect the end date of the project?
2) When does Tahal expect to be able to start the actual works for the project, i.e. when will GWCL have obtained all the tax exemptions required?

We would appreciate your swift response to these questions.

Kind regards,
(5.1)(2e)

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bezoek onze website | **info@oret.nl**

From: (5.1)(2e) **On Behalf Of** oret@nl.pwc.com
Sent: Tuesday, February 03, 2009 16:44
To: (5.1)(2e)
Cc: (5.1)(2e)
Subject: RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / TAHAL GROUP BV

Dear (5.1)(2e)

Thank you for the status update. If possible, we would appreciate it if you could send us digital copies of the Contract Annexes, so that we can start our review as soon as possible.

We agree with you that the most appropriate way to establish more certainty about the non-Grant financing is to approach the Fund. We hope to hear from you on developments in this respect.

Given the previous extensions for submitting the CP's for this project and Kerden's previous experience in providing ORET.nl with a parent company guarantee, we would expect to receive the guarantee for this project shortly.

As indicated earlier, ORET.nl's support for this project is conditional on the continued show of progress in working towards fulfillment of the CP's. We therefore trust that Tahal and the other parties involved endeavour to provide these documents to us as soon as possible.

Kind regards,
(5.1)(2e)

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bezoek onze website | info@oret.nl

(5.1)(2e)

29-01-2009 17:01

To: (5.1)(2e)
cc:
Subj RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / TAHAL ect GROUP BV

Dear (5.1)(2e)
As mentioned during our phone conversation this afternoon, I have just returned from a briefing by our people in Serbia with respect to the updated status of this Project.

The annexes have been "preliminarily" approved by the Client, and are supposed to get our final internal approval during next week. After such an approval, all annexes will be signed by both parties. We shall then be able to provide you with the final signed version.

Buiten reikwijdte verzoek

With respect to the Parent Company Guarantee, What I meant was that it would take about 2 weeks to finalize from the approval in principle by Kardan NV.
Our executives are planned to present this request during next week, and an approval in principle may not be given "on the spot". I'll keep you updated as soon as the "green light" is given by Kardan, by connecting Kardan's Legal Dept. directly to you (after preparing the draft wording, based on Ghana case) and deal with this issue in the most efficient manner.

I hope I have informed you sufficiently.
Thanks for your support.

Kind regards,

(5.1)(2e)

TAHAL GROUP B.V.
TAHAL CONSULTING ENGINEERS LTD.

From: (5.1)(2e) **On Behalf Of** oret@nl.pwc.com
Sent: Thursday, January 29, 2009 3:37 PM
To: (5.1)(2e)
Cc: (5.1)(2e)
Subject: RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / TAHAL GROUP BV

Dear (5.1)(2e)

Thank you for keeping us updated on the status of the various CPs and for taking the time to go into detail on the various timelines on the phone today. With regard to the project financing, we discussed that ORET.nl would like to have more comfort that authorities in Serbia are committed to providing the non-Grant financing for the project. Ideally, this would be in the form of a written statement of intent from the Ministry of Finance. Please let us know whether you think this will be feasible. Perhaps reminding the MoF that the ORET financing is conditional upon their own commitment may help to convince them.

Regarding the Commercial Contract between Tahal and Vrbas Municipality, we understand that all Annexes have been agreed on and signed. We would appreciate to receive digital and hard copy versions of the Contract as soon as can be arranged, so that we can review the Contract and establish whether it is in line with the ORET Regulation and the Decision for this project.

Finally, we agreed that the parent company guarantee from Kardan N.V. will be based on the same wording as agreed upon for the project GH/WM07029 "ATMA Water Supply System" and that a draft of the parent company guarantee will be sent to ORET.nl within two weeks.

We would therefore appreciate it if we could receive copies of the Contract as well as the draft parent company guarantee by 13 February. Could you also inform us about the opportunities you see regarding a statement of intent from the MoF by that date?

Best regards,
(5.1)(2e)

(5.1)(2e)
20-03-2009 02:43

To (5.1)(2e)
cc
bcc

Subject RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / TAHAL GROUP BV

Dear (5.1)(2e)
Thank you for your follow-up message and your expressed concern.
Indeed this process turned to take longer than expected:

The project has gone through a review of TAHAL's new Chief Engineer (which has been appointed to its office just a few weeks ago). In his review he has pointed-out some water engineering issues to consider. Following this review some changes were introduced to the initial general layout of the Project.
It has taken some engineering/design efforts to come up with a suitable solution in line with a rural water supply concept for the town of Vrbas periphery.

In terms of the investment and benefits of the project, the outcome is the same. However, under the revised scheme, our experts believe it to provide a more reliable water supply, and a more feasible potable water solution to the surrounding villages near Vrbas.

The annexes of the contract have been signed in the last few days and will be scanned and sent for your review shortly.

Concurrently, we were trying to get the letter for the "non-ORET grant" funding from the Serbian fund. We were promised to get that letter during next week, at a meeting to be held in Belgrade.
It is important to point out that the Serbian Minster of Finance is fostering this process, and is regularly updated on its progress.

As earlier asserted, the "Parent Company Guarantee" should not constitute a problem, as the wording of such a commitment has been previously established. However, TAHAL may apply for such a commitment from Kardan NV only upon completion of the other outstanding conditions.
We will be taking this to Kardan's management board attention as soon as we get the Fund's letter.

With respect to the project in Ghana, we are waiting some indication with respect to the tax exemption.

We welcome the idea and the opportunity to meet with you with a view to enhancing progress in both projects and discussing those issues.
As we expect substantial progress in the coming week I believe it would be better not to schedule our meeting at this point and communicate again in about a week's time.

Kind regards,

(5.1)(2e)
TAHAL GROUP BV
TAHAL CONSULTING ENGINEERS LTD.
(5.1)(2e)

From: (5.1)(2e) **On Behalf Of** oret@nl.pwc.com
Sent: Friday, March 13, 2009 5:12 PM
To: (5.1)(2e)
Cc: (5.1)(2e)

Subject: RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / TAHAL GROUP BV

Dear [illegible]

Regarding your e-mail below, we are still waiting to receive the documents required under the Preliminary Offer. Specifically, we were under the impression that we were to receive the signed Contract, including all the annexes, as well as the parent company guarantee from Kardan by 13 February. This impression was based on your confirmation during our phone conversations in January and your e-mail of 29 January. We were also expecting to receive more information on the availability of the non-Grant financing during the month of February. Unfortunately, we have not received these documents or a reason for the further delay.

Also, we have reviewed your progress report for the project GH/WM07029 "ATMA Rural Water Supply System" and we conclude that not much progress has been made so far, due to the fact that the tax exemption has not yet been granted for this project by the Government of Ghana.

Considering the progress in both projects thus far, we would recommend that representatives of Tahal schedule a meeting with ORET.nl at our office in The Hague, so that we can discuss how to improve the progress in both of Tahal's ORET-supported projects. We would appreciate it if you could contact us before 20 March to schedule such a meeting.

Kind regards,
(5.1)(2e)

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bezoek onze website | info@oret.nl

(5.1)(2e)

23-02-2006 17:49

To: (5.1)(2e)
cc:
Subje RE: CS00023 "Potable water treatment and supply for Vrbas municipality" / of TAHAL GROUP BV

Dear [illegible]
This is to inform you that the Contract Annexes are still being finalized.
I hope to be able to send it to you in a week.
Also, we haven't received yet the letter from the Fund, and efforts are made to get such a letter.
In any case I'll keep you informed.
Thank you for your patience and understanding.
Kind regards,

(5.1)(2e)

Mail

ORET
(5.1)(2e)
26-03-2009 15:59

To
cc
bcc
(5.1)(2e)

Subject Belastingvrijstelling voor ORET-project GH/WM07029 'ATMA Water Supply System'

Geachte heer (5.1)(2e) Beste [illegible]

Zoals telefonisch besproken zijn wij door Tahal, het uitvoerende bedrijf van ORET-project GH/WM07029 "ATMA Water Supply System", geïnformeerd dat de Ghanese overheid nog geen goedkeuring heeft gegeven op de eerder ingediende aanvraag voor belastingvrijstelling voor het project. De belastingvrijstelling is een voorwaarde die volgens het contract tussen Tahal en Ghana Water Company Limited (GWCL) en de ORET-Schenkingsovereenkomst voor dit project moet worden vervuld.

Bijgaand stuur ik u de Schenkingsovereenkomst voor dit project. De belastingvrijstelling staat genoemd in artikel 7.1 op pagina 5 van de Schenkingsovereenkomst. Recent ontvingen wij een mail van Tahal waarin werd aangegeven dat men nog geen bericht heeft ontvangen over de belastingvrijstellingen.

Contactpersonen voor dit project zijn:
GWCL: (5.1)(2e)
Tahal:

De contactpersoon van het Ministry of Finance and Economic Planning staat genoemd in de oplegbrief in de bijlage. Helaas hebben wij van hem geen telefoonnummer.

Mocht u naar aanleiding van het bovenstaande vragen hebben, dan kunt u mij bereiken bij ORET.nl, via onderstaande contactgegevens.

Met vriendelijke groet,
(5.1)(2e)

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bezoek onze website | info@oret.nl

0_2008_0295i_GHWM07029_MOF_getekende BA_d.d_17-03-2009.pdf

Mail (5.1)(2e) 16-02-2010 15:56

To (5.1)(2e)
cc ORET@EMEA-NL
bcc
Subject GH/WM07029 - Ghana

Dear (5.1)(2e),

For your consideration I would like to share with you the following.

Recently we have received a letter from a (potential) supplier of yours, whose name I will not disclose, in which this supplier expresses his concern that Tahal may be buying supplies which are not of Dutch origine. Under the ORET regulations minima and maxima are set for respectively Dutch and local content. Local content may be higher if the specific supplies are not available in the Netherlands, or only at a considerable higher price.

The supplier we have received the letter from argues that you have requested them to put in an offer for equipment, and that the offer had to be accompanied by a certificate of Dutch origine. This supplier did not receive the order from Tahal, he is almost certain the order went to a supplier who is not of Dutch origine.

We will communicate with this supplier that, if he is right about Tahal buying products which are not of Dutch origine, Tahal is not per definition acting in conflict with the ORET regulations.

Please be advised that my message to you now is only to inform you of our receipt of the letter. We will not act upon the letter from this said supplier, other than a courteous reply that we are keen on the ORET regulation, and that we will surely act if the regulations are not complied with.

Please call me if you have any questions.

Kind regards,

(5.1)(2e)

(5.1)(2e) Adviesgroep Subsidie Innovatie & Beleid | PricewaterhouseCoopers Advisory N.V. (KvK 34180287)
Princes Margrietplantsoen 46 | 2595 BR | Postbus 30715 | 2500 GS | Den Haag
(5.1)(2e)

(5.1)(2e)
28-03-2010 17:43

To (5.1)(2e)
cc ORET@EMEA-NL (5.1)(2e)
(5.1)(2e)
bcc

Subject RE: GH/WM07029 - Ghana - Proposed List of Spare Parts

Dear (5.1)(2e)
Thanks for your rely.
You understand correctly:
The detailed design is divided according to the Project's sub-components. For most of the sub-components the detailed design has been completed, copies of which you have received.

As you may assume, an infrastructure project in Africa is seldom on time.
Our project management took some "spare time", when indicated November 2010 as target for completion of the Detailed Design for the WTP, while expecting to complete it earlier, but allowing the time required for the Client to check and approve it (a period of time we don't have control over).
Nevertheless, this doesn't mean an over-all delay of 1.5 years in the project, as works continue on other components concurrently.

According to our estimations, the project shall be completed a year later than planned, due to the long delay with obtaining of the tax exemption.
Notwithstanding the above, our team is determined to try shortening the execution as much as possible, without compromising the quality of the finished project.

Thank you for your understanding by putting the spare part issue aside for the time being.

Is there any response we should anticipate with respect to the list of suppliers/subcontractors?

Kind regards,

(5.1)(2e)

TAHAL GROUP BV
TAHAL CONSULTING ENGINEERS LTD.
(5.1)(2e)

(5.1)(2e) **On Behalf**
Of oret@nl.pwc.com
Sent: Monday, March 22, 2010 11:59 AM
(5.1)(2e)
Subject: RE: GH/WM07029 - Ghana - Proposed List of Spare Parts

Dear (5.1)(2e)

I was under the impression that we had received the final detailed design two weeks ago? But this detailed design does not concern the water treatment plant yet, correct?

Furthermore, it was estimated that the final list of spare parts would be submitted within one year after the down payment has been made on 25 July 2008 (Condition 2.5(d)). I understand the tax exemption issue has caused a serious delay. The completion of the detailed design for the WTP in november 2010 however means a delay of approximately 1,5 years, correct?

We will now park the issue and pause our appraisal of the spare parts list. Please keep us informed on making up for the delays when possible.

Kind regards,

(5.1)(2e)

Per 1 January 2010 our phone and fax numbers have changed!
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visit our website | **info@oret.nl**

(5.1)(2e)

21-03-2010 23:39

To (5.1)(2e)
cc ORET@EMEA-NL, (5.1)(2e)
(5.1)(2e)
Subject RE: GH/WM07029 - Ghana - Proposed List of Spare Parts

Dear (5.1)(2e)
I got briefed by TAHAL's Project manager in that respect as follows:

The presented proposed list of spare parts is comprised of items that our engineers find as required. The majority (if not all) of the list is related to sub-components of the water treatment plant (WTP) .

Recently, the Client has finally made its mind with respect to the definite location of the WTP, and thus the detailed design for this component is expected to be completed in about 6-months time from now. Only after completion of that design, the list of spare parts shall be reviewed by the Project's Engineer, on behalf of the Client.

Out team was told by the Client that the budget item of ~ EUR (5.1)(1c) refers to spare parts for old pumps. The Client is considering to buy new pumps, outside the scope of TAHAL's project.

In light of the above, the Client's position towards any spare parts cannot be provided at this time.
We suggest to "park" this issue for the time being, and address it again in November 2010, after the D.Design of the WTP is completed and submitted for the Client's review.

We are informed that another drawdown request is being prepared for shipment. We shall advise as soon as it is sent to you.

Kind regards,

(5.1)(2e)
TAHAL GROUP BV
TAHAL CONSULTING ENGINEERS LTD.
(5.1)(2e)

From: (5.1)(2e)
Sent: Wednesday, March 10, 2010 3:47 PM
To: (5.1)(2e)
Cc: oret@nl.pwc.com; (5.1)(2e)
Subject: RE: GH/WM07029 - Ghana - Proposed List of Spare Parts

Dear (5.1)(2e)

In other words, the suggested list of spare parts are to be financed from the contingencies budget in the amount of EUR (5.1)(1c) (EUR (5.1)(1c) minus EUR (5.1)(1c))? If so the list of spares has to be approved also by the buyer, as article 2.5 (d) of the GA reads: "...Possible additional spare parts to be delivered in excess of this list may be financed from the budget available under contingencies, but only after approval by ORET.nl and GWCL and/or the Grantee".

Please advise on the approval of the buyer.

Kind regards,
(5.1)(2e)

(5.1)(2e) | Advisor Adviesgroep Subsidie Innovatie & Beleid |
PricewaterhouseCoopers Advisory N.V. (KvK 34180287)
Prinses Margrietplantsoen 46 | 2595 BR | Postbus 30715 | 2500 GS | Den Haag

(5.1)(2e)

Help reduce waste. Consider the environment before printing this email.

(5.1)(2e)

10-03-2010 14:02

(5.1)(2e)

Subject: RE: GH/WM07029 - Ghana - Proposed List of ectSpare Parts

Dear (5.1)(2e)

The BOQ includes spare parts for the water treatment plant only in value of EUR (5.1)(1c).
According to the commercial contract TAHAL shall suggest a spare parts' list for the client's decision.

The rest of the required budget for such spare-parts may come from contingencies.

Kind regards,

(5.1) (2e)

TAHAL GROUP BV
TAHAL CONSULTING ENGINEERS LTD.
Tel. (5.1) (2e)

From: (5.1) (2e)
Sent: Wednesday, March 10, 2010 12:23 PM
To: (5.1) (2e)
Cc: oret@nl.pwc.com
Subject: RE: GH/WM07029 - Ghana - Proposed List of Spare Parts

Dear (5.1)(2e)

oret.nl

Stichting ORET
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2595 BR The Hague
P.O. Box 30715
2500 GS The Hague
Telephone +31 (0)88 792 94 66
E-mail info@oret.nl
www.oret.nl

Ghana Water Company Limited

(5.1) (2e)

11 August 2015

2015-0054a/LK/pm/rv

Finalizing project including standpipes and household connections "ATMA Rurals Water Supply (South of Kpong) Project" GH/WM07029

Dear Mr (5.1) (2e),

The Dutch Government has a history of supporting the water sector in Ghana and has built a long relationship with your Government. Our involvement in the construction of water treatment plants contributes to the development of the Ghanaian water sector and helps to improve access to water for larger parts of the population. Therefor the realization of water treatment plants including the actual installation of house connections and standpipes are of great importance to both of us.

That is why I would like to come to a final agreement with GWCL to realize the remaining house connections of the "ATMA Rurals Water Supply (South of Kpong) Project", GH/WM07029.

Since my approval of the request for change on 15 July 2013, as a result of the price escalation and therefore change of scope, we agreed for you to submit every three months a progress report, as of September 2013, regarding the progress of the household connections and standpipes installed by GWCL.

With reference to the house connections and standpipes and as mentioned in my letter of 15 July 2013 the following change applied to the original project scope:

- Instead of (5.1) (1c) standpipes, only (5.1) (1c) standpipes will be supplied and installed by Tahal;
- The amount of house connections (yard taps) supplied by Tahal will be increased from (5.1) (1c) to (5.1) (1c). GWCL will be responsible for the installation of these connections;
- Approximately (5.1) (1c) people will have access to water as a result of these (5.1) (1c) house connections. Approximately (5.1) (1c) people will have access to water as a result of the installation of (5.1) (1c) standpipes. In total approximately (5.1) (1c) people will have access to water as a result.

The approval letter also referred to information received from GWCL on 26 June 2013 describing the plan and timeframe to install the (5.1) (1c) house connections by GWCL and (5.1) (1c) stand pipes by Tahal.

In the forecast received on 26 June 2013 it was envisioned to install an average of (5.1) (1c) house connections every month. In the last two years, it appears that little progress has been made due to different circumstances.

The first quarterly report of 20 September 2013, received by ORET.nl on 20 February 2014, described that (5.1) (1c) stand pipes were installed. No house connections were realized at that time, since the materials were not delivered yet by Tahal.

In the progress report received by ORET.nl on 12 March 2014 (dated 5 March 2014), 40% of the materials for the house connections had been delivered, so I expected that the installation works had started.

Tahal informed me on 20 March 2014 that they received a Final Completion Certificate of GWCL (dated 7 March 2014), stating that all obligations during the Defect Liability Period had been fulfilled, that (5.1) (1c) standpipes had been installed and the material for (5.1) (1c) house connections was delivered. Even though Tahal received the Final Completion Certificate and send us a final report, the project at that time was far from completed.

In the next quarterly report of GWCL dated 5 September 2014 it was mentioned that all materials had been delivered by Tahal. To my surprise still no house connections had been installed by GWCL. The clarification giving by GWCL was that other parts of the water treatment plants, which were under separate funding, had not been completed yet. However no alternative time schedule had been proposed to me, making it unclear for me when the installation of the house connections would start and when the project could be fully terminated.

In the meanwhile the Atma Water Treatment Plant had been completed and fully operational, the inauguration ceremony took place 23 December 2014 as I learned from Tahal and your report of 27 May 2015 (received 1 June 2015). The report stated that the installation of (5.1) (1c) house connections had been effected in the first quarter of 2015 and that the remaining (5.1) (1c) house connections would be realized by June 2015. As I received this report in June 2015, I expected this meant that all (5.1) (1c) house connections were installed by now. After inquiry of ORET.nl on 3 June 2015 about the feasibility of the report, I received an updated quarterly report of you on 24 July 2015 (dated 21 July 2015) which stated that only (5.1) (1c) house connections had been realized as of June 2015. As a consequence works would need to continue until December 2015.

With this last report and ambiguous information, it makes it difficult for me to adequately monitor the installation of the (5.1) (1c) house connections. The latest report focusses on installing (5.1) (1c) house connections over a period of 6 months (xxxx per months). However from our understanding there are still (5.1) (1c) house connections that have to be connected in order to meet the target of (5.1) (1c) house connections. I am curious to know if this means that the project can be completed within the 6 month timeframe you mention in your latest update of June or if works need to be extended after December 2015.

Since I receive varying information of GWCL I urge you to send me a realistic time schedule for the installation of the remaining (5.1) (1c) house connections. The ORET project can only be terminated if all the house connections have been installed. Since almost one year has passed since the materials for the house connections have been delivered by Tahal in September 2014, I would like to set the deadline of the installation of all (5.1) (1c) house connections on December 2015. GWCL is expected to send the quarterly report of September 2015 and deliver a final report to ORET.nl no later than January 2016.

I look forward to your positive response to my letter and would like to receive an updated installation plan to complete the works **before January 2016**.

I have send a copy of this letter to Mr (5.1) (2e) of the Embassy of the Kingdom of The Netherlands in Accra and to Mr (5.1) (2e) of Tahal.

Finally, I urge you to prevent any further delay to the project and trust on your cooperation.

The minister for Foreign Trade and Development Cooperation,
On her behalf:

(5.1) (2e)

CC:

- Embassy of the Kingdom of The Netherlands, attn. Mr (5.1) (2e)
- Tahal Group, attn. Mr (5.1) (2e)

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COURIER
Ghana Water Company Limited

(5.1) (1c)

13 October 2015

2015-0070a/LK/pb/rv

Reminder finalizing project including standpipes and household connections "ATMA Rurals Water Supply (South of Kpong) Project" GH/WM07029

Dear Mr (5.1) (2e)

On 11 August 2015 I wrote you a letter with reference 2015-0054a/LK/pm/rv in order to come to a final agreement with GWCL to realize the remaining house connections of the "ATMA Rurals Water Supply (South of Kpong) Project", GH/WM07029.

Unfortunately I have not yet received a reply from your side.

In addition we have not yet received the quarterly report of GWCL that was supposed to be send before 1 September 2015.

I would kindly ask you to send the quarterly report and your response no later than 30 October 2015.

The minister for Foreign Trade and Development Cooperation,
On her behalf:

(5.1) (2e)

Annex:
- Letter of 11 August 2015

Klantgegevens		**Contactpersoon**	
Naam cliënt:	GH/WM070291 - ATMA Water Supply System	Naam:	
Status cliënt:	Due Diligence	Adres:	
Opdrachtnummer:		Postcode:	
Datum laatste opdracht:		Woonplaats:	
Industry:	Water Supply	Land:	
Portefeuillehouder:	(5.1) (2e)	Titel:	
		Faxnr:	
Project:	ATMA Water Supply System		

Inkomend/uitgaand: ○ Inkomend ◉ Uitgaand

Gesproken met: PwC Medewerker:	(6.1) (2e)
Onderwerp:	Price escalations
Datum:	15-10-2012
Samenvatting:	Gesproken met [redacted] over price escalations. GWCL is niet blij met de escalations die Tahal wil doorvoeren. In het contract zit een clausule voor escalatie. De datum vanaf wanneer wordt gerekend veroorzaakt verwarring. Conform de clausule moet gerekend worden vanaf de datum waarop het contract is getekend, zijnde eind 2007. De GA is echter pas in 2009 afgegeven, en na de aanbetaling is er nog een jaar vertraging ontstaan als gevolg van de belastingvrijstelling voor de transactie. Nadat deze door het parlement in Ghana is afgegeven, is het werk in 2010 gestart. Volgens GWCL heeft Tahal daarna ook nog voor onnodige vertraging in de uitvoering gezorgd. Nu beroept Tahal zich op de clausule, waar GWCL zegt dat al lang bekend was dat op basis van de tekendatum van het contract, de prijs hoger zou worden. GWCL vindt dat als datum de start van de werkzaamheden moet worden aangehouden. Tahal wil nu de scope verkleinen (minder standpipes, minder huisaansluitingen, minder distribution lines). GWCL wil dit niet, en zal hierover met Tahal praten. Tahal schiet niet op op met hun onderbouwing, van een oplossing is het nog niet gekomen. Tahal heeft ORET.nl toegezegd te werken naar een oplossing voor eind oktober 2012. Dit lijkt een utopie. Er zijn 3 betalingen (staat[redacted]lijsten, waarvan [redacted] van ORET) die nog moeten worden goedgekeurd door GWCL. Volgens [redacted] worden deze niet expres opgehouden, maar ze liggen wel af vanaf juni 2012 bij ORET.nl te wachten op goedkeuring door GWCL. [redacted] zou hier achteraan gaan. Met [redacted] afgesproken dat ORET.nl bij Tahal nagaat welke koers zij willen varen. ORET.nl geeft vervolgens aan wat wel en wat niet acceptabel is. Met dit in het achterhoofd wil GWCL met Tahal om de tafel. Het idee is om EKN hierin te betrekken.

Klantgegevens		**Contactpersoon**
Naam cliënt:	GH/W M07023 - ATMA Water Supply System	Naam:
Status cliënt:	Due Diligence	Adres:
Opdrachtnummer:		Postcode:
Datum laatste opdracht:		Woonplaats:
Industry:	Water Supply	Land:
Portefeuillehouder:	(5.1) (2e)	Tel.nr:
		Faxnr:
Project:	ATMA Water Supply System	

Inkomend/uitgaand: (•) Inkomend ( ) Uitgaand

Gesproken met: (5.1) (2e)
PwC Medewerker:
Onderwerp: Price escalations
Datum: 16-10-2012
Samenvatting: Met [illegible] gesproken over het voorstel voor het omgaan met de price escalations. Tahal zal eind oktober klaar zijn om een plan te presenteren naar GWCL. Hierbij rekening houdend met de eisen van ORET (behouden contractuele scope, dus ook huisaansluitingen en stand pipes; contingencies budget mogelijk beschikbaar, maar geen extra geld; alles subject to our approval). Onderdeel van het plan is, besparingen op distributie ([illegible] mio) door alternatieve invulling binnen bestaande scope), [illegible] mio gebruiken van contingencies, [illegible] mio besparen op house connections ([illegible] door GWCL zelf te installeren, Tahal die wel materiaal blijft leveren). De house connections is voor ORET alleen probleem, deze optie hebben we medio 2011 niet goedgekeurd ite onzeker dat dit door GWCL zelf wel wordt geïnstalleerd). Indien van toepassing zullen we dus hele duidelijke afspraken moeten maken en bevestigingen moeten krijgen dat de huisaansluitingen worden gemaakt door GWCL. Tevens wordt het aantal stand pipes in het voorstel van [illegible] naar [illegible] teruggebracht. Volgens Tahal kan dit, omdat de [illegible] te ambitieus en niet allemaal nodig waren. GWCL schijnt dit zelf te hebben voorgesteld. Onder voorwaarden zou ORET in hiermee akkoord kunnen gaan, maar dat hangt af van de details die we nog krijgen.

Tahal en GWCL gaan begin november om de tafel. Als er overeenstemming is gaat het voorstel naar ORET voor een akkoord.

(5.1)(2e) heeft nog de antwoorden op onze vragen over de renovatie van het bestaande reservoir.

ORET houdt bij GWCL vinger aan de pols voor de uitstaande betalingen (3 facturen voor [illegible] mio totaal).

Klantgegevens		**Contactpersoon**
Naam cliënt:	GH/WW007829 - ATMA Water Supply System	Naam:
Status cliënt:	Due Diligence	Adres:
Opdrachtnummer:		Postcode :
Datum laatste opdracht:		Woonplaats:
Industry:	Water Supply	Land:
Portefeuillehouder:	(5.1) (2e)	Tel.:
		Fax:
Project :	ATMA Water Supply System	

Inkomend/uitgaand:	(•) Inkomend ( ) Uitgaand
Gesproken met:	(5.1) (2e)
PwC Medewerker:	
Onderwerp:	Price escalations
Datum:	26-11-2012
Samenvatting:	Tahal is in de afgelopen 3 weken twee keer naar Ghana geweest voor een oplossing voor de price escalations. Helaas is ondanks relatief positieve berichten van de kant van Tahal nog geen oplossing gevonden. Belangrijkste reden is volgens Tahal, dat binnen GWCL mensen van positie gaan veranderen (5.1) (2e) vertrekt, (5.1) (2e) wordt waarschijnlijk van baan [illegible] (was al met pensioen). Medio december zijn in Ghana landelijke verkiezingen, waardoor men momenteel afwachtend is met het nemen van besluiten, zo lijkt het en aldus Tahal. Tahal blijft zich binnen het project richten op de werkzaamheden die buiten de discussie over prijsstijgingen vallen. Zo is men bezig met de nieuwbouw van een waterreservoir, en met de rehabilitatie van een ander reservoir, waarvoor ORET.nl in oktober 2012 een wijzigingsverzoek heeft goedgekeurd. Tahal is positief gestemd en hoopt dat vrij snel na de verkiezingen een einde aan de discussie over prijsstijgingen kan worden gemaakt. Tot dan kan men vooruit met lopende zaken. Er staan momenteel een aantal betalingen open bij GWCL. Deze betalingen betreffen werkzaamheden die reeds zijn uitgevoerd. Voor een deel betreft dit echter ook prijsstijgingen, met als gevolg dat GWCL nu niet wil betalen. Tahal wil ook geen druk uitoefenen of nieuwe facturen sturen voor het deel dat buiten de prijsstijgingen valt. Dit zal bij GWCL kwaad bloed zetten, aldus Tahal. Tahal realiseert zich dat ze hierdoor momenteel achterlopen op de inkomsten, maar zegt bereid te zijn dit op dit moment voor hun rekening te nemen. Het gevolg is, dat ORET.nl in 2012 geen betalingen aan Tahal meer zal kunnen doen. Dit werd door Tahal bevestigd. Tahal zal hierdoor substantieel achterblijven op de prognose voor 2012. Dit wordt dus niet meer goedgemaakt, en ORET.nl zal op de prognose voor 2012 in totaal ca. [illegible] mio moeten afwaarderen. In Ghana heeft Tahal nieuw management aangesteld. Het enige positieve op dit moment lijkt, dat [illegible] namens Tahal bovenop de zaak zit. We communiceren veel, en [illegible] lijkt volledig op de hoogte te zijn. Zijn aanpak (geen kwaad bloed willen zetten, en gebrek aan inkomsten tijdelijk accepteren) is positief. Van de kant van ORET.nl is met betrekking tot Tahal momenteel geen actie vereist.

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Bijeenkomst Goedkeuringscomité

Datum: 18 september 2007

Bespreking Grant Appraisal Document:
Ghana GH/WM07029 ATMA Rural Water Supply System South of Kpong

Aanvrager: TAHAL Group B.V.

Discussiepunten:

1. De heer [(5.1)(2e)] vraagt om nadere informatie over de Kardan Groep. De heer [(5.1)(2e)] vraagt zich af of TAHAL, onderdeel van de Kardan Group kan worden beoordeeld? In de condities is opgenomen dat Kardan NV een garantie afgeeft.

2. Gevraagd wordt of er voldoende garanties aanwezig zijn om het Nederlands aandeel te realiseren aangezien TAHAL een buitenlands bedrijf is. De heer [(5.1)(2e)] geeft aan dat verwacht kan worden dat aan deze voorwaarde van het ORET Reglement zonder problemen voldaan wordt.

3. De heer [(5.1)(2e)] vraagt of training voldoende tot stand kan komen. De heer [(5.1)(2e)] geeft aan dat opbouw van institutionele capaciteit geen onderdeel is van het project (75 procent subsidie), maar dat training ter plaatse wel zal plaatsvinden.

4. De heer [(5.1)(2e)] geeft aan niet tevreden te zijn met de wijze waarop de financieringskosten gepresenteerd zijn in het rapport.

5. Ook bij dit waterproject in Ghana wordt gesproken over de invloed van de prijspolitiek van Ghana op ORET besluitvorming.

Conclusie:
Geconcludeerd wordt dat de prijspolitiek van Ghana geen grond vormt voor afwijzing. Het Comité vraagt wel aan de beoordelaars aandacht te geven aan deze problematiek.

Besluit: Positief advies

pwc

August 7, 2017

Tahal Group B.V.
Amsterdam

Assurance report

Engagement and responsibilities

We have examined whether the attached final report, certified for identification purposes, relating to the ATMA Rural Water Supply System South of Kpong project of Tahal Group B.V ("The Company"), in Ghana, meets the relevant requirements as referred to in the audit protocol belonging to the ORET programme.
Management is responsible for the preparation and fair presentation of this final report.
Our responsibility is to formulate a conclusion on the final report based on our audit.

Restrictions

For the sake of completeness, we observe that we did not establish compliance with all provisions in the ORET regulations. In particular, we did not establish the extent to which the requirements referred to in chapter 2 of the ORET programme and the criteria referred to in chapter 3 of said programme have been met. This has been assessed by or on behalf of the ORET foundation within the framework of assessing the application.

The following provisions also fall outside the scope of this assurance engagement:

- On the date of commitment, the applicant of the transaction is not permitted to have a controlling interest in the end user (section 1.4 of the ORET programme)
- Section 1.5.4 relating to conditions for a grant of [redacted] of the costs for technical assistance.
- The tendering procedure (meaning : the selection of the supplier) is not permitted to conflict with local laws and regulations (section 5.3 of the ORET programme) or with the relevant OESO requirements (section 1.7 of the ORET programme).
- The (timely) notification of the intended ORET grant (section 4.6 of the ORET programme).

In addition, we did not carry out any assurance work in the recipient country. Any ensuing uncertainties have been expressed in the assurance report.

Criteria

We used the 2006 ORET programme (published on 18 May 2006), the decision, the contract and the grant agreement, as well as additional written agreements, among them, the approval request for change (issued on July 15 2013), as assessment frameworks for our engagement.
We deem these criteria relevant and sufficient to formulate a conclusion on the final report.

Activities

We performed our audit in accordance with Dutch law, including Standard 3000 "Assurance engagements other than engagements to audit or review historical financial information". In addition, we incorporated into our activities the instruction that the ORET foundation provided in the audit protocol belonging to the ORET programme (version 1.6 as of 14 December 2007). Accordingly, we are to plan and perform our audit in such way that we obtain reasonable assurance about whether the final report is free of material misstatement. An assurance engagement includes examining, on a test basis, relevant details. We believe that the assurance information obtained by us is sufficient and suitable for our conclusion.

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Findings

a) As described in the company's final report in section 1 the project suffered from certain delays that were brought to the attention of ORET foundation during the project. As consequence, the transaction exceeded the grant period as defined in the grant agreement.
b) The final report was not submitted within the timeframe required by the ORET programme and the grant agreement.

Conclusion

Based on our audit, except for the above mentioned findings, our conclusion is that the final report on the ATMA Rural Water Supply System South of Kpong project meets the relevant requirements as referred to in the audit protocol belonging to the ORET programme.

Other aspects – restrictions in use

The final report on the ATMA Rural Water Supply System South of Kpong project and our accompanying assurance report are solely intended for Tahal Group B.V. to render account to the ORET foundation and, consequently, they cannot be used for any other purposes.

(5.1) (2e)

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ORET-	: *GHWM07009*
Period	: 2008 to 2013
Land	: Ghana Water Company Limited, ATMA
Title of the project	: *ATMA Rural Water Supply System South of Kpong, Ghana*
Dutch company	
Report maker	(5.1) (2e)
Tel/fax number	
Local receiver	
Contact	(5.1) (2e)
Tel/fax number	

Within the context of the Oret programme, you are required to submit a petition to determine the grant within six months after successfully completing the transaction (based on the date of the transaction in the contract between the applicant and the client). You are required to submit this petition at Oret.nl. According to article 6.4 of the Oret programme 2006 and article 2a of the official Decision dated, you need to accompany this petition for approval with three documents, namely:

1. A 'Final Certificate of Completion' issued by the client for the covered activities;
2. A report that summarizes the financial accountability, as well as the content of the project for the whole transaction. This report needs to be composed by the applicant.
3. An audit report that is composed by an external auditor that is accepted by Oret.nl

For composing the audit report we kindly refer to the control protocol, which you already received. If you did not receive this control protocol, we kindly ask you to contact us, so that we can send you this. Regarding the final report, we composed this form, that you got right now. At the following pages we ask you some questions regarding the final justification and the transaction. The main purpose of this report is to inform Oret.nl about the results of the project and the transaction, so that Oret.nl can justify that the grant is provided according to the Grant ruling by the Ministry of Foreign Affairs.

This final report needs to be submitted to Oret.nl, PO BOX 36715, 2500 GS Den Haag

The following attached answers are answered truthfully.

Date and Place	: 07 August, 2017
Company	: Tahal Group B.V.
Name	(5.1) (2e)
Signature	

(5.1) (2e)

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Final Report Oret

The goal of the Oret programme, is to strengthen the durable economic development and business climate in developing countries in the long term. This takes place by facilitating investments in economic and social infrastructure in those lands, by the Dutch government. Large and small construction projects as well as consultancy projects form the basis for these investments. The Oret-programme lowers the costs for developing the project. The Oret-programme does this by donating money for the purchase of capital goods, services or works. The Oret-programme provides donations from the Dutch government to the government of those development countries, who eventually pass this donations to the clients.

For the definition of a project, we follow the definition, that is used by the OESO: "The smallest complete, physically and technically integrated productive unit, which totally benefits from the proposed investment". A transaction can be self-sustained. In that case, the project is the transaction plus the extent to which this transaction is included in the organization of the client. In many cases the transaction is part of a combination of activities, supplies by the client and own activities of the client. In this case, the project is the bigger picture.

Dutch exporters, and in some cases foreign exporters, can qualify for the Oret-project and transactions grant. These exporters qualify for this grant if they meet some important criteria:

- The project and the transaction must not be commercially feasible or fundable;
- The project must have sufficiently development relevancy;
- The client needs to be capable in every aspect to guarantee a durable management for the project on the long term;
- The applicant (and eventual partners of the applicant) need to be capable in every aspect to successfully complete the transaction;
- The transaction needs to have a causal relationship to the Dutch export;
- The price/quality ratio needs to be conform the market;
- Any tenderprocedures need to be in line with the requirements of the OESO.

Your application meets all of these requirements. Therefore, the Dutch government awarded the government of the regarding development country a grant. Now, the project is completed and you are in the possession of a signed final certificate which is given to you by the client ('Certificate of Completion' or 'Final Acceptance Certificate') and which covers the executed activities. The purpose of this final report is to determine to which extent the stated goals are reached, due to the criteria mentioned above. A grant award counts as an advance. After completing the project, Oret.nl will determine, on basis of the final report, to which extent de grant is awarded legitimate.

To determine to what extent the goals have been met, you need to submit:

1. A summary and clear description of the project and the transaction.
2. A financial report of the project and the transaction.
3. Using an overview of the entry "unforeseen" (when applicable) is needed for declaring the Grant.

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1. Summary project

In this part of the report you should sketch a general picture, on the basis of the questions, of the project and the transaction, any problems, the meaning of the project and any points of improvement. In this part it is about the development relevancy of the project, the goals that are set, the impact of the project for the local economy and the employment rate on the long term. Besides, on the basis of the answers of these questions, ORET.nl should be able to sketch a picture for the progress of the project. In this case, you could think about the relation with the client and the local authorities, lessons learned, new developments and chances and any other approach for comparable project in the future.

General

The answers provided on these questions need to sketch a general picture of the project. It is about problems that are faced in the concerning development country, the goals of the project and solutions that the project has provided.

- Could you describe in general terms what the direct goal is of the project?
- Could you indicate to which extent the goals are achieved?
- Could you indicate which cause or problem directly led to this project?
- Could you describe which problems/issues are solved by this project?
- Could you describe to which extent this project is completed within the set period or to which extent the project suffered from delays. In case of delays, could you please indicate how this delays occurred?

The objective of this project was to provide accessible water to households in the ATMA South of Kpong Area through establishing water facilities and systems to the Ghana water utility - Ghana Water Company Limited ("GWCL").
The goal eventually was fully achieved after the water treatment plant was completed, transmission lines were laid, distribution lines were implemented and house connections were implemented by the utility alongside providing stand pipes to few of the communities.
The main issue was how to implement the house connections when neither the utility was ready for such portion of the project, nor some of the population. The issue was addressed through reallocation of responsibility – The exporter provided the materials with full guidance and support to the utility, in order to complete the connections upon its and the population readiness.
The project suffered from few delays, most of them were because of the customer delay in design and allocation of the location of the main component of the project – the water treatment plant and the reservoir. This triggered the extension of the implementation period. Once this was completed, the main parts of the project were expedited and completed. Further delay was due to the customer delay in the actual installment of the end equipment of the house connections with the statistic that were provided by the exporter. An implementation program was agreed, including with Oret, but it was not met and further delay occurred. Eventually the client reported completion of this component of the Project.

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Development relevance

ORET-donations need to facilitate investments in the infrastructure in developing countries, and also deliver a positive contribution to a durable economic development and the business climate. The following questions concern the financial-economic effects of the project, the technical durability, environmental effects and the social effects.

- Could you please indicate what the economic benefits are, which are a direct result of the project and ended up in the receiving country? You could think of the contribution of this project to the local economy and any additional government revenue.
- Could you please indicate if, or to which extent the client is able to deliver and maintain the goods, works or services? Does the client provide training for the local staff?
- At each ORET-application, you need to clarify the environmental policy that the client has for the project.. Could you please indicate what the results are of the environmental policy of your project.
- Could you please indicate what the social effects are of the project in the regarding region or the regarding country? You could think of stimulation of the employment rate, workers conditions, child labor and reducing the accidents at work

The local economic benefit are in few aspects/levels:

- *Most of our direct employees were locals, not expats.*
- *Most of the subcontractors were local subcontractors, which gained directly from the work assigned to them and from the knowhow by working with foreign company in large-scale project.*
- *The water utility and the population received sustainable water systems, delivering fresh drinking water to homes that before the project had no close easy access to fresh water.*
- *Many of the sourcing and supplies to the project were from local manufactures.*
- *The indirect employment generated in supporting businesses to the project benefited from additional work and business, that without the project wouldn't have been initiated.*

The client received a long thorough support and training, at the corporate level and that the employees level, which will enable them to maintain and operate the project, and its various components for long period, continuing the project and meeting its long term goals.

The environment policy of the client to the project was based on the local and international standards for erection and maintaining of the facilities. This is mainly with respect to the water treatment plant, which is similar to other water treatment plant facilities that the client is operating.

The social benefits are mainly, but not only, the fresh accessible drinking water to about 7,500 households, which have not benefited from it before the project. This will improve sanitation; reduce allocation of household resources for bringing low-level water from remote locations, and reallocating them to other productive resources with better added value for the benefit of the individuals, the families and the community. The improvement in the wellbeing of the population will improve their satisfaction and the social unrest will decrease or vanish.

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The transaction

The answers provided on these questions need to sketch a general picture of the transaction. In this part it's about the goods and/or services that are contractually agreed with the client.

- Could you provide an overview of the supplies and services, that are contractually agreed with the client? This overview needs to include the transaction price (per product or service and total), that is contractually agreed with the client. You can include this as an attachment.
- Could you indicate if all supplies and services are delivered?
- Could you give an overview of any changes in numbers, specifications or origin of the supplies and services? If changes occurred, could you give the reason for this change?
- Could you please include an overview (as an attachment) of the total, actual transaction price. This overview needs to be equal to the overview of the transaction price that is or will be checked by the auditor.

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Attached please find the Project supplies and services, per item (supplies), per the commercial contract and with references to the Oret application approval

All agreed supplies (after the adjustment which will be described hereunder) were fully delivered.

As the Project implementation was based on Red FIDIC, the scope, especially quantities for its various items were estimated by the Client and were budgeted accordingly in the Project original budget and price. In few of the Project components, mainly in the the transmision and distribution water lines, actual needed quantities required for the completion of the relevant lines ("as made" during the implementation - based on which the client was charged), were less than as estimated by the client during the contract signing. The result was surplus in the Actual Amount of these items compared to the budget. Later on these unused amounts were assigned to other items of the project, for which there was increase in budget. All of this was addressed and approved by Oret before finally concluded and formalized with the client.

The total amount of Price adjustments was Eur 5.25 m, which was agreed and approved by Oret per the letter of 10 July 2013.

Attached please find the Project actual transaction price.

Content

The answers provided on these questions need to sketch a general picture of the project. In this part it's about the relation with the client and the local authorities, the lessons learned, developments and new opportunities.

Relation with the client and the local authorities

The purpose of the question mentioned below is to get a better look at the collaboration regarding the client and the local authorities

- Please describe the collaboration with the client?
- Please describe the collaboration with the local authorities?

The collaboration with the client was very close and supportive. There were weekly meetings with the local field representative of the client, together with the independent engineer, as well as monthly meeting at the client main offices with the Client's project manager, and a senior engineer for the supervising. All issues were raised and addressed. Minutes of meetings have ben issued, for documentation and follow up.

The collaboration with the local authorities, mainly the tax and these related to the import of supplies, started with some issues and concerns. Later on biweekly meetings were conducted, and together with the support of the client, a huge improvement was achieved. After a short while everything was done, even if sometimes slightly slowly than we expected, to our full expectation.

Lessons learned

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Between comparable projects there can be a big difference in the completion of the project. The success of a project is related to demographical, social and cultural aspects of a country or region. On the basis of the next questions we hope to get an image of the difficulties due to working in the regarding country and the regarding region. In this case, it is very important that you indicate where the problems/difficulties occurred, how you handled this and what you would do different for projects in the future.

- Could you indicate which problems/difficulties occurred? In this case we mean problems that are related to working in the regarding countries and regarding the region, so not the technical problems
- How have you dealt with this problems/difficulties?
- What would you do different for a project in the same country, with the same client or another client, given the information and experience you gathered by working in this country, region and sector?
- Would you consider working on a new project in the regarding country or with the regarding client?

The difficulties that we faced were that we could not find enough local reputable sub-contractors to do the digging and piping works.
This was addressed by expanding the geography that we approached for looking for subcontractors.
There were no large local subcontractors which could be assigned to 2 large components of the project – the large water reservoir and the water treatment plant facility. We have engaged foreign subcontractors to be assigned and take responsibility of these 2 sub-components of the project.

We would advance the searching for subcontractors for the more complicated components of the project, so we could have a better understanding of the capabilities of local firms, and engage foreign contractors earlier in the process.

We definitely would do new projects in the country and this client.

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For developing countries and for the Dutch export it is important to know what the recent developments are in the several developing countries. On the basis of this information, governments can trade, and Dutch exporters can make use of this new opportunities. The next questions are meant to give a clear picture in the developments in the regarding country in which you just completed the project and in any new opportunities. You don't have to answer each question. These question are asked to give you a direction for answering some of these questions.

- Could you indicate some of the new activities that you saw, that rose due to this project?
- Did the project create opportunities for new projects?
- Do you see opportunities to repeat this project?
- Do you think that this is possible without the support of the (Dutch) government?
- Would you like to collaborate with the same client in a new project?
- Would you invest in this sector in the regarding country?
- When would you think it would be the right time to do so?
- If given the opportunity, what would you do different?

The project allowed us to provide further deliveries, goods and services, which were different from what we have previously done with the client, before this project.

This allowed us to expand the work with the client and do more projects, with similar scope.

This project was unique, so duplication is irrelevant. Similar projects, with the necessary adjustments, are relevant and are being discussed and considered with the client.

We are certain that this could not have been achieved without the support of the Dutch Government.

We would and are investing in business development, and indirectly in the sector. However, as this is public sector project, direct money, or other monetary investments in the sector are irrelevant.

If the opportunity given, we would better assess the needs of the client and the scope of the project, in order to better address the differences (in the project scope) earlier, and to consider other scoping/allocation, for by that maybe give better value to the client.

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2. Financial report of the project

In this part you need to paint a financial picture of the project and the transaction on the basis of the questions below. The meaning of this report is to give the reader sufficient information about the budgeted costs in the application and the contract with the client. The overview of the budgeted costs need to be prepared in the same way as the overview of the total, actual costs. Besides, the differences need to be explained.

Budgeted costs

Answers on the questions mentioned below need to give a clear picture of the budgeted costs in the transaction.

- Please give an overview of the budget as in the application and as recorded in the contract with the client (include as attachment).

Please find attached.

Nacalculatie

Answers on the questions mentioned below need to give a clear picture of the actuel costs in the transaction.

- Please give an overview of the actual costs of the project (include as attachment and in the same format as the budget). This overview needs to be checked by the auditor

Please find attached.

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Differences between the budgeted and actual costs

Below you need to indicate any differences between the budgeted and actual costs and you need to provide an explanation.

- Please indicate, where and how the differences between the budgeted and actual costs occurred?

As stated above, the differences occurred in two aspects, and in two different directions.

- *The estimate for some components of the project were significantly less than estimated and budgeted by the client.*
- *The increase in costs for some of the project items triggered the need for Price Adjustments: based on the agreed mechanism that was stipulated on the commercial contract.*

Accordingly, after long discussions with the client, and thorough assessment by Oret, this was approved and the surplus in the underused items was reallocated to the Price adjustments.

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3. Entry "unforeseen"
The entry contingencies is important in this transaction. The entry for risk-storage and profit need to be in balance with regards to the project. According to ORET.nl these entries need to follow market conformity. Payments related to the entry "unforeseen" can only be obtained after a foundation is provided to ORET.nl, whom should have accepted these. The following questions should provide the reader with a clear understanding of the use of the entry "unforeseen".

Entry "unforeseen"

Answers to the following questions should provide a clear picture of the entry "unforeseen" in this transaction.

- **Please give an overview of the entry "unforeseen" (contingencies) as record in the application, the Decision, the Grant Agreement and as in the contract with the client**

In the application, the unforeseen was recorded for spare parts and need for enlargement of the Project required items. In the commercial agreement, this was not detailed.

Use of the entry "unforeseen"

Below you need to indicate to which extent you used the entry "unforeseen" for your project

- **Please indicate to which extent you've used the entry "unforeseen". Also indicate for what this entry is used.**

The unforeseen were used almost to its full extent. This was mainly to price adjustment which were included in the Commercial Contract provisions, but with no hedgeting. Accordingly, this was addressed specifically to Oret and was explicitly and directly approved by Oret (see attached).

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Permission ORET.nl

Below, you need to indicate if permission was given by ORET.nl (Before FMO) to use the entry "unforeseen".

- Is permission given by ORET.nl (before FMO) for the use of the entry "
- If so, on which date (Date on the document of permission)?
- Could you please include a copy of the permission given by ORet.nl or FMO as an attachment?

Yes, through the attached approval letter by Oret.

Other

- If you got any comments, which are not discussed by the questions before, you can leave the comments below

Please leave your comments here

EX 1.38

EUR 000'	Actual	ORET	Diff
Net Production costs			
Financing costs			
TA Costs			
Freight and Packaging costs			
Contingencies			
Profit			
% of CSP			

(5.1) (1c)

As can be seen in the table above the differences are not material

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Attachment 2 - Project supplies and services

Please see explanations for changes from the original budget in the Report above, under the response to the Section "The Transaction"

ATMA RURAL WATER SUPPLY SYSTEM (Lot 8a) South of Kpong

Final Valuation

STATEMENT OF FINAL ACCOUNT

Description	Amount (₵)

(5.1) (1c)

00048

(5.1)(2e)

1073187

mmary of Variation

	Item	Contract Amount	Certified Amount	Differences	Comment
A					
B					
C					
D					
E					

(5.1) (1c)

(5.1)(2e)

Civil and Planning Group

Final Payment Certificate
Verletion Account

ATMA RURAL WATER SUPPLY SYSTEM (Lot 9a) South of Kpong

Item	Description	Euro (€)	
		Contract / Bill Amount (Deletion)	Certified Amount (Addition)
A			
1.1			
1.2			
1.3			
1.4			
B			
C			

(5.1) (1c)

Item	Description	Euro (€) Contract / Bill Amount Omission	Euro (€) Certified Amount Addition
D			
4.1			
4.2			
4.3			
4.4			
4.5			
4.6			
4.7			
4.8			
4.9			
4.10			
4.11			
4.12			
4.13			
4.14			
4.15			
E			

(5.1) (1c)

Civil and Planning Group

Final Payment Certificate
Variation Account

ATMA RURAL WATER SUPPLY SYSTEM (Lot 9a) South of Kpong

Item	Description	Euro (€)	
		Contract / Bill Amount	Certified Amount
		Omission	Addition

(5.1) (1c)

00048

(5.1)(2e)

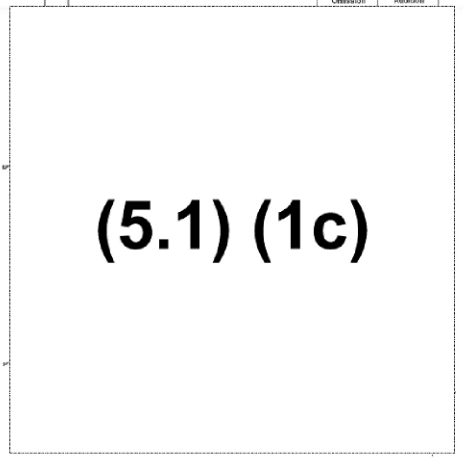
1073187

Civil and Planning Group

Final Payment Certificate
Variation Account

ATMA RURAL WATER SUPPLY SYSTEM (Lot 9a) South of Kpong

Item	Description	Euro (€)	
		Contract / Bill Amount Omission	Certified Amount Addition



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Tahal Group B.V.
(5.1) (2e)

15 July 2013

2013-0046a/LK/fw/amm/mvb

Approval request for change for "ATMA Rurals Water Supply (South of Kpong) Project" GH/WM07029

Dear Mr (5.1) (2e)

The request for change that has been submitted by you on 3 September 2012, for which additional information has been submitted on 18 December 2012, 4 February 2013, 4 April 2013 and 26 June 2013, has been reviewed by ORET.nl.

The request for change is the direct consequence of the application of a price-escalation formula (Clause 70.1 in the commercial contract between Tahal Group B.V. (hereinafter: Tahal) and the Ghana Water Company Ltd. (hereinafter: GWCL)), and the following adjustment of the scope of the project. Based on our review I hereby inform you that your request for change has been approved.

Price-escalations are a logical consequence of the Price Escalation Factor (hereinafter: PAF) in Clause 70.1 of the contract. However, it is my belief that the PAF should be applied with care, and with limited damage to the scope of the contract. As such, the actual margin on the contract price will be carefully scrutinised upon the determination of the definite amount of the grant and may not exceed the budgeted margin in the original ORET application.

Considering the time that has elapsed between the first change request and my current approval, I would like to summarise the main components of the change that will be applied to the original project scope:

- Instead of (5.1) (1c), only (5.1) (1c) will be supplied and installed by Tahal.
- The amount of house connections (yard taps) supplied by Tahal will be increased from (5.1) (1c) GWCL will be responsible for the installation of these connections.

(5.1)(2e)

- Approximately (5.1) (1c) people will have access to water as a result of these (5.1) (1c) house connections. Approximately (5.1) (1c) people will have access to water as a result of the installation of [illegible] standpipes. In total approximately (5.1) (1c) people will have access to water as a result.
- Further savings will be the result of a reduced length of transmission pipelines supplied and installed by Tahal (Bill No.2), and of savings on reservoirs (Bill No.3).

To cover the remaining costs of the price escalations under the PAF, I hereby approve the use of the contingencies budget for a maximum amount of € (5.1) (1c). Disbursements for contingencies will be made pro-rata, of which € (5.1) (1c) will be paid out of the Grant and € (5.1) (1c) out of the Commercial Loan. ORET.nl's final approval will take place upon receipt of the particular invoices.

Considering that in the new situation, GWCL itself will be responsible for the installation of the (5.1) (1c) yard taps, I had requested from GWCL some information on their plans to do so. On 26 June 2012 I have therefore received:

- A map showing where the connections will be installed;
- A plan for installing the house connections, including a timeframe. This timeframe shows that (5.1) (1c) house connections will be installed by GWCL before 1 January 2014;
- Information on the awareness and communication campaign GWCL is hosting, to encourage people to apply for a house connection.

ORET.nl and GWCL have agreed that, as an extra to the regular progress reporting twice a year by Tahal, a report on the progress of the installation of the house connections composed by GWCL is submitted to ORET.nl every three months. The first report is due on 1 September 2013 and should include information on the status of the house connections as well as the awareness campaign. The reporting obligation will remain valid until all house connections (5.1) (1c) have been installed. The reports may be sent to ORET.nl through Tahal as an intermediary (for example before the progress report deadline of 1 September as part of the regular ORET.nl progress report from Tahal), or by GWCL itself.

As the house connections have always been and still are considered to be part of the project scope, the definite amount of the grant will not be determined before all house connections have been installed. I trust that Tahal will do everything in its powers to assist GWCL in the installations as to make sure that the installations are made as per the agreed schedule.

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I trust to have informed you sufficiently, and I look forward to receiving the first progress report on the awareness campaign and the installation of the house connections by 1 September 2013 together with the regular progress report of Tahal. In case you have any questions concerning the above, please do not hesitate to contact ORET.nl.

The minister for Foreign Trade and Development Cooperation,
On her behalf:

(5.1) (2e)

CC:

- Ghana Water Company Limited, attn. Mr (5.1) (2e) (Managing Director)
- Embassy of the Kingdom of The Netherlands, attn. Ms (5.1) (2e)

(5.1)(2e)

Final Completion Certificate

We hereby declare that Messrs **TAHAL GROUP BV**, with attention to safety and quality, has successfully completed to our full satisfaction and within the contractual time frame, the **ATMA RURALS WATER SUPPLY SYSTEM (SOUTH OF KPONG) PROJECT.**

All obligations arising during the Defects Liability Period for the various work components have been fulfilled and further covered by a Performance Bank Guarantee covering the Defects Liability Period. The Works have been taken over by the Client.

The project comprised, but was not limited to the following:

Design and Engineering
Process Design as well as Civil, Mechanical and Electrical Engineering Design for a new (5.1) (1c) Water Treatment Plant; Design of Ground Level Reservoirs, Transmission Mains and Water Distribution Network including Standpipes; Production of Working and As-built drawings and Environmental Impact Assessment Report and Permit.

Ground Level Reservoirs
Construction of (5.1) (1c) new reservoirs ie. 1No. each located at Dodowa, Akawle and Adukrom; Rehabilitation of the Dodowa Booster Station including installation of new booster pumps and replacement of the inlet and outlet piping to the new reservoir; Rehabilitation of an existing (5.1) (1c) reservoir instead of the Construction of a new (5.1) (1c) reservoir ie. Tema Service Reservoir.

Transmission Mains
Construction of the following Transmission Mains

(5.1) (1c)

Construction of a new (5.1) (1c) Water Treatment Plant (WTP)
Construction of a Filter Building comprising six (6) new filters, Chlorine building and a Chemical Dosing building for Alum and Lime dosing; Electrical power supply extension to the new WTP.

Water Distribution Network
Construction of approx. (5.1) (1c) of Distribution network pipelines in localities in (5.1) (1c) (5.1) (1c) House Connection materials.

Commencement date: 13th October 2007
Completion date: 7th March 2014

(5.1) (1c)
Acting Managing Director

(5.1) (2e)
Engineer's Representative

March 2014

00048

1073187

(5.1)(2e)

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Tahal Group B.V.

(5.1) (1c)

30 September 2011

2011-0153a/AK/fw/mvb

Decision to turn down the request for changes in the distribution network of ORET Project "ATMA Rural Water Supply System South of Kpong "(GH/WM07029)

Dear Mr (5.1) (1c)

On 17 August 2011 ORET.nl has received your response to our letter dated 15 July 2011, in which ORET.nl had raised questions with regard to your change request. I have decided not to approve of these changes and to turn down your request. In this letter I will explain my motivation for this decision.

The motivation for my decision to turn down your request to make changes to the project is the substantial effect the changes have on the original scope of the project. The original project scope encompasses the rehabilitation and expansion of the Accra Tema Metropolitan Area (hereinafter: ATMA) Rural Water Supply Scheme, South of Kpong and includes treatment, transmission and distribution of potable water to communities in five districts located around the cities of Accra and Tema. According to your change request, it is now proposed to substantially change this scope, by focusing on increasing the water production capacity first. As part of your change request, the distribution pipelines (except for the standpipes) to the end users will no longer be part of the ORET financing agreement, but these will be financed by the Government of Ghana and GWCL themselves at a later stage.

This new arrangement is not acceptable to ORET.nl, as it poses a substantial change to the original scope of the project. The ORET grant as you propose it, will be used for different ends than they were originally proposed by Tahal and GWCL. Moreover, the new scope of the project would perhaps not have resulted in an approval of the grant application, considering the data on which ORET.nl has based the various calculations during the assessment of the application become completely different.

In addition to the change in project scope, it remains highly uncertain to ORET.nl if and when the initial scope of the project will in effect be taken over by the Government of Ghana and GWCL through additional financing arrangements of some other kind.

Whereas the existing project in its original scope has a beginning and an end, the project becomes an open ended project as a result of the proposed changes. As a consequence, the sustainability of the project becomes highly uncertain.

I suggest that the Government of Ghana and GWCL take on the additional investments to increase the water capacity themselves instead of turning these additional investments around and incorporate them into the ORET project.

For the additional activities, although they cannot be financed by ORET.nl, an extension to the existing contract may be a possibility. Of course the consessionality clause in this respect will have to be considered, and ORET.nl will have to assess and approve any change in, or extension to the existing contract. But ORET.nl would be willing to consider such an extension to the existing contract, as long as it is not affecting the positive outcome of the existing ORET project, and as long it has a beginning and an end (a tangible result). In case such an extension becomes a concrete possibility, please inform ORET.nl in an early stage.

I trust to have informed you sufficiently. Please contact ORET.nl in case you have any questions concerning the above.

The minister for European Affairs and International Cooperation,
On his behalf:

(5.1) (2e)

CC: Ghana Water Company Ltd. (GWCL), attn. Mr (5.1) (2e)
Royal Netherlands Embassy Ghana, attn. Mr (5.1) (2e)

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Tahal Group B.V.
(5.1)(2e)

22 October 2012

2012-0276a/LK/fw/mvb

Approval request for change for "ATMA Rurals Water Supply (South of Kpong) Project" GH/WM07029

Dear Mr (5.1) (2e),

The request for change that has been submitted by you on 15 June 2012 and for which additional information has been submitted on 15 July 2012 and on 16 October 2012, has been reviewed by ORET.nl.

The request for change entails the refurbishment of the existing Tema service reservoir (5.1) (1c)), rather than to build a new service reservoir. Based on our review I am pleased to inform you that your request for change has been approved.

In case you have any questions concerning the above, please contact ORET.nl.

The minister for European Affairs and International Cooperation,
On his behalf:

(5.1) (2e)

CC Ghana Water Company Limited, Mr (5.1) (2e)
Embassy of the Kingdom of the Netherlands, Mr (5.1) (2e)

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Ghana Water Company Limited

(5.1) (2e)

11 August 2015

2015-0054a/LK/pm/rv

Finalizing project including standpipes and household connections "ATMA Rurals Water Supply (South of Kpong) Project" GH/WM07029

Dear Mr (5.1) (2e),

The Dutch Government has a history of supporting the water sector in Ghana and has built a long relationship with your Government. Our involvement in the construction of water treatment plants contributes to the development of the Ghanaian water sector and helps to improve access to water for larger parts of the population. Therefor the realization of water treatment plants including the actual installation of house connections and standpipes are of great importance to both of us.

That is why I would like to come to a final agreement with GWCL to realize the remaining house connections of the "ATMA Rurals Water Supply (South of Kpong) Project", GH/WM07029.

Since my approval of the request for change on 15 July 2013, as a result of the price escalation and therefore change of scope, we agreed for you to submit every three months a progress report, as of September 2013, regarding the progress of the household connections and standpipes installed by GWCL.

With reference to the house connections and standpipes and as mentioned in my letter of 15 July 2013 the following change applied to the original project scope:

- Instead of (5.1) (2e) standpipes, only (5.1) (2e) standpipes will be supplied and installed by Tahal;
- The amount of house connections (yard taps) supplied by Tahal will be increased from (5.1) (2e) to (5.1) (2e). GWCL will be responsible for the installation of these connections;
- Approximately 190,000 people will have access to water as a result of these (5.1) (2e) house connections. Approximately 36,000 people will have access to water as a result of the installation of (5.1) (2e) standpipes. In total approximately 225,000 people will have access to water as a result.

The approval letter also referred to information received from GWCL on 28 June 2013 describing the plan and timeframe to install the [8.1] [1c] house connections by GWCL and [8.1] [1a] stand pipes by Tahal.

In the forecast received on 26 June 2013 it was envisioned to install an average of [8.1] [2b] house connections every month. In the last two years, it appears that little progress has been made due to different circumstances.

The first quarterly report of 20 September 2013, received by ORET.nl on 20 February 2014, described that [...] stand pipes were installed. No house connections were realized at that time, since the materials were not delivered yet by Tahal.

In the progress report received by ORET.nl on 12 March 2014 (dated 5 March 2014), 40% of the materials for the house connections had been delivered, so I expected that the installation works had started.

Tahal informed me on 20 March 2014 that they received a Final Completion Certificate of GWCL (dated 7 March 2014), stating that all obligations during the Defect Liability Period had been fulfilled, that [1.1] [1a] standpipes had been installed and the material for [8.1] [1c] house connections was delivered. Even though Tahal received the Final Completion Certificate and send us a final report, the project at that time was far from completed.

In the next quarterly report of GWCL dated 5 September 2014 it was mentioned that all materials had been delivered by Tahal. To my surprise still no house connections had been installed by GWCL. The clarification giving by GWCL was that other parts of the water treatment plants, which were under separate funding, had not been completed yet. However no alternative time schedule had been proposed to me, making it unclear for me when the installation of the house connections would start and when the project could be fully terminated.

In the meanwhile the Alma Water Treatment Plant had been completed and fully operational, the inauguration ceremony took place 23 December 2014 as I learned from Tahal and your report of 27 May 2015 (received 1 June 2015). The report stated that the installation of [8.1] [1c] house connections had been effected in the first quarter of 2015 and that the remaining [8.1] [1b] house connections would be realized by June 2015. As I received this report in June 2015, I expected this meant that all [8.1] [1c] house connections were installed by now. After inquiry of ORET.nl on 3 June 2015 about the feasibility of the report, I received an updated quarterly report of you on 24 July 2015 (dated 21 July 2015) which stated that only [8.1] [1c] house connections had been realized as of June 2015. As a consequence works would need to continue until December 2015.

With this last report and ambiguous information, it makes it difficult for me to adequately monitor the installation of the (5.1) (1c) house connections. The latest report focusses on installing (5.1) (1c) house connections over a period of 6 months (***** per months). However from our understanding there are still (5.1) (1c) house connections that have to be connected in order to meet the target of (5.1) (1c) house connections. I am curious to know if this means that the project can be completed within the 6 month timeframe you mention in your latest update of June or if works need to be extended after December 2015.

Since I receive varying information of GWCL I urge you to send me a realistic time schedule for the installation of the remaining (5.1) (1c) house connections. The ORET project can only be terminated if all the house connections have been installed. Since almost one year has passed since the materials for the house connections have been delivered by Tahal in September 2014, I would like to set the deadline of the installation of all (5.1) (1c) house connections on December 2015. GWCL is expected to send the quarterly report of September 2015 and deliver a final report to ORET.nl no later than January 2016.

I look forward to your positive response to my letter and would like to receive an updated installation plan to complete the works **before January 2016**.

I have send a copy of this letter to Mr (5.1) (2e) of the Embassy of the Kingdom of The Netherlands in Accra and to Mr (5.1) (2e) of Tahal.

Finally, I urge you to prevent any further delay to the project and trust on your cooperation.

The minister for Foreign Trade and Development Cooperation,
On her behalf:

(5.1) (2e)

CC:

- Embassy of the Kingdom of The Netherlands, attn. Mr (5.1) (2e)
- Tahal Group, attn. Mr (5.1) (2e)