



Ministry of Education

ZAMBIA EDUCATION ENHANCEMENT PROJECT (ZEEP - AF)

Component 2.

Access to Safe Secondary School Education

**Environmental and Social Management Plan for Borehole
Drilling at 120 new secondary schools**

July 2023

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TITLE: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR BOREHOLE DRILLING

INTRODUCTION

The Ministry of Education has planned to float a tender to employ contractors, through competitive bidding process to drill 2 x number boreholes at each of the 120 proposed sites for school construction, in the 10 provinces of the country. The drilling shall however be phased as follows: Phase 1 comprising 61 schools located on the Copperbelt, North-Western and Western Provinces and lastly phase 2 comprising 59 schools located in the other seven provinces.

CONTEXT

The Zambia Education Enhancement Project (ZEEP) under the Directorate of Planning and Information in the Ministry of Education, has been constructing secondary schools in needy areas of the Country, with financial support from the World Bank. The project commenced in April 2018 with construction of 82 day secondary schools in 7 provinces, that included Central, Eastern, Luapula, Lusaka, Muchinga, Northern and Southern. To ease construction work, the ZEEP facilitated drilling and equipping of boreholes at each of the sites before commencement of construction. Consequently, the builders were able to draw water within the project site. The ZEEP was in 2020 further expanded to include construction of 120 new secondary schools in 10 provinces of the country. Similarly to what was done under the parent project, the Project Implementation Unit (PIU) has planned to drill 2 boreholes at each of the 120 sites as part of the scope prior to construction works.

Borehole drilling activities fall under works category that triggers the Environmental Management Act (2011) and the World Bank safeguards policy on Environmental Assessment (OP. 4.01). In order to reduce, minimize and mitigate adverse impacts and undue harm of its development projects to the environment and social structures, environmental and social management plan (ESMP) needs to be drawn to guide the implementation process before drilling can commence. However, borehole drilling at the 82 schools was undertaken in 2018, therefore, this ESMP will not apply to sites that are part of the 82 schools.

The boreholes shall be drilled on land that has been reserved for school construction. On this account, access to the land is guaranteed. The land is currently not in use, and has vegetation. However, in order to access the site and drill the boreholes, there are fears that the environment may be disturbed. It is, therefore, essential that the contractor complies to the environmental and social risk management in line with the ZAMA act of 2011 and the World Bank Environmental Safeguards during the planning and implementation of the drilling work.

Considering that most of the proposed schools are located in rural parts of Zambia which are scarcely connected to the hydro power grid, water supply for construction has been planned to be manually operated with hand pumps. The ESMP at hand refers to the boreholes that shall be drilled in the 3 provinces. Details of the contract is outlined under Annex 2 and 3. The scope for the drilling contractor includes, borehole sitting, drilling and installation of hand pumps. The scope does not include installation of electricity connection/alternative power sources for drilling works.

IMPLEMENTATION

The ZEEP-AF falls under the jurisdiction of the directorate of planning and information. The Director of Planning and Information has scheduled training sessions to capacity build the staff at offices of the Provincial Education Officer and District Education Board Secretary in drawing up and implementing the environmental and social management plans. In particular, the Senior Planner, District Planner and Assistant District Buildings Officer shall receive the training. The office of the DEBS shall be represented by the District Planning Officer who shall be responsible for the overall implementation of the ESMP. It shall be the duty of the District Planner to visit the site to conduct the very first sensitization meeting for the community.

At school level, for the purpose of this ESMP, the Assistant District Buildings Officer shall be the focal point person, assisted by the Head teacher. The two focal point persons shall oversee the day to day implementation of the ESMP. Their contact details are given in Annex 1.

Table of potential impacts and mitigation measures

S/NO	IMPACT	PROPOSED MITIGATION MEASURE	RESPONSIBLE	FREQUENCY OF MONITORING
1	Impact on Air Quality - Mainly dust and fumes from machinery	<ul style="list-style-type: none"> - Ensure proper working conditions of exhaust systems of the borehole drilling and construction machines. - Sprinkle water on the ground and on earth stockpiles. - Provide drill crew with dust masks 	Contractor (implement); Contractor Supervising Consultant BO at DEBS, (monitor); Environmental & Social (E&S) Focal Point , The Planner at DEBS (monitor, ensure)	During drilling
2	Impacts on Water Resources Quality and Quantity	Prevent construction materials and other debris (mud from the drill, grout, etc.) from entering waterways.	Contractor (implement); Contractor, Supervising Consultant ABO, District Planner at DEBS (monitor); E&S Focal Point (monitor, ensure)	During drilling
3	Impacts on Land and Soil- Mainly Oil and grease spills, and soil erosions	<ul style="list-style-type: none"> - Ensure proper management of excavation and drilling activities. - Proper refilling of the excavated cuttings pit. Prevent spillage of oil and grease 	Contractor (implement); Contractor, Supervising Consultant ABO and District Planner at DEBS	Throughout drilling operation

			(monitor); E&S Focal Point (monitor, ensure)	
4	Impacts on Public health and occupational safety	<ul style="list-style-type: none"> - Provide proper protective gears to all workers - Provide workers training on safety procedures and emergency response. - Ensure that there are no spills of petroleum, oil and grease, no smoking, no source of ignition. - Provide fully equipped first aid kit at site. Provide appropriate human and solid waste disposal facilities - Ensure the community is made aware of the activity 	Contractor (implement); Contractor, Supervising Consultant ABO and District Planner (monitor); E&S Focal Point (monitor, ensure)	Throughout drilling operation
5	Impacts on Biodiversity	<ul style="list-style-type: none"> - Avoid cutting and destruction of trees and shrubs during the drill process - Spare the vegetation that must not necessarily be removed. 	Contractor (implement); Contractor Supervising Consultant, ABO and District Planner(monitor); E&S Focal Point (monitor, ensure)	Throughout drilling operation
6	Visual Impact	Do not engage in clearance of site after works completion	Contractor (implement); Contractor Supervising Consultant, ABO and District Planner (monitor); E&S Focal Point (monitor, ensure)	Throughout drilling operation
6	Land Acquisition	Proposed land for borehole drilling is in already existing school premises/provided by the chief through the process of voluntary land donation.	DEBS, PEO, PIU and Head Teacher,	Throughout drilling operation
7	Gender-Based Violence (GBV) and/or Sexual	The Project has a Grievance Redress Mechanism (GRM)	PIU, PEO, DEBS Contractor (implement);	Throughout drilling operation

	Exploitation and Abuse (SEA)	in place and should there be any SEA incidences, these will be reported through the GRM	Contractor Supervising Consultant, ABO and District Planner (monitor); E&S Focal Point (monitor, ensure)	
8	Child Labour and Protection	Ensuring no children are employed on site in accordance with national labour laws	PIU, PEO, DEBS Contractor (implement); Contractor Supervising Consultant ABO and District Planner (monitor); E&S Focal Point (monitor, ensure)	Throughout drilling operation

MONITORING

Monitoring of the implementation of this ESMP shall be undertaken by the focal point persons, the Assistant District Buildings Officer and Head teacher who are required to be present during the implementation of the ESMP. The Assistant District Buildings Officer shall prepare the final report for the attention of the District planner.

CONCLUSION AND RECOMMENDATION

The project, overall, will have considerable substantial social, economic and environmental benefits that will impact the project positively. It will establish sufficient potable water supply system for the respective schools, that will benefit even the nearby communities. Monitoring and control of local processes during drilling has been identified as an important process in the management of the protection of the environment of the project area and understanding social concerns since it will reveal changes and trends brought about mainly by the construction and operational activities. The project activities are likely to cause although on a small scale, disturbance of vegetation, risk of accidents, health, emission of dust, increase in noise. Further, the risk of gender-based violence (GBV) and/or sexual exploitation and abuse are very unlikely considering that the activity will be undertaken over a period of 5 hours. However, the Head teacher and the community will be educated to register a social complaint should any matter arise. The adverse impacts on the physical and natural environment will not be significant, and can be well managed through the recommended mitigation measures.

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ANNEX 1: ESMP FOCAL POINT PERSONS FOR BOREHOLE DRILLING

			ZAMBIA EDUCATION ENHANCEMENT PROJECT ZEEP-AF CONSTRUCTION OF SCHOOLS UNDER THE ZEEP-AF LIST OF HEADTEACHERS & ASSISTANT BUILDING OFFICERS				
			WESTERN PROVINCE				
	DISTRICT	OVERSIGHT	NAME OF SCHOOL	HEAD TEACHER/PHONE NUMBER	PHONE NUMBER	BUILDINGS OFFICER/	PHONE NUMBER
1	KALABO	PROVINCIAL- RESIDENT ENGINEER	NG'UMA	SIMASIKU MUBITA, CELL: 0954534694	CELL: 0954534694	CHITETA KAYEMBE,	CELL: 0976150012
2	KALABO		SISHEKANU	TWEMBUCHI AGNESS,	CELL: 0763933952	CHITETA KAYEMBE,	CELL: 0976150012
3	KAOMA	CHOMBA KAMPAMBA 0979716223	LUNYATI	KUMBI MUKUBESA,	CELL: 0964669842/ 0953366431	AG/MWALE FRED,	CELL: 0977713398
4	KAOMA	NATIONAL. ACCESS COMPONENT COORDINATOR 0954521130	WINDA	UKELABAI INAMBAO,	CELL: 0950211102	AG/MWALE FRED,	CELL: 0977713398
5	LIMULUNGA		USHAA	MORGAN KASHAKO MUNGOYI,	CELL: 0976717328/ 0967717328	BENOS LUPAPULA,	CELL: 0979722772
6	LUAMPA		L.S. MUSONDA	LUI	CATHERINE KAPAWA,	CELL: 0979740765	JAMES MUNENGA,

7	LUAMPA		NYAMBI	NALUMANGO MWIYA,	CELL: 0950031717	JAMES MUNENGA,	CELL: 0978633991
8	LUKULU		DONGWE	MBANGWETA MUKUWA,	CELL: 0979631803	IWAKE MUBITA,	CELL: 0971861914
9	MITETE		LUTEMBWE	MUTONGA SILUMESII,	CELL: 0951546186	AG/IWAKE MUBITA,	CELL: 0971861914
10	MONGU		LUKALANYA	GEORGE SITAKWA,	CELL: 0977241229	AG/NAMAKANDO NAMAKANDO,	CELL: 0979955790
11	MONGU		LWATILE	PUMULO PUMULO,	CELL: 0956516164	AG/NAMAKANDO NAMAKANDO,	CELL: 0979955790
12	MULOBEZI		KAMANGA	MINYOI MASHIHU,	CELL: 0950045071	WAMUNYIMA SIMASIKU,	CELL:0977232605
13	MWANDI		MAGUMWI	KAMBUYA MAURICE SIKUTO,	CELL: 0974802270	MBINGA SIBELA,	CELL: 0979325172
14	NALOLO		LIKUMA	AKASHAMBATWA BRIAN,	CELL: 0977205394	MWANGALA MUMBUWA,	CELL: 0971614657
15	NKEYEMA		KANCHALE	CHISUPA,	CELL: 0968159844	AG/LIOMBA,	CELL: 0971187485
16	NKEYEMA		KAHARE	MPUKUTA,	CELL: 0955949099	AG/LIOMBA,	CELL: 0971187485
17	SENANGA		MATA BASIC	INAMBAO SIKWANDA,	CELL: 0957768742/ 0974534340	NGENDA WAKUNG'UMA,	CELL: 0976436241

18	SESHEKE		IMUSHO	MUSIPILI LISWANI,	CELL: 0977368551	CHIKOMA LIKANDO,	CELL: 0979459885
19	SIKONGO		SIKUSHI	MAILA BIEMBA,	CELL: 0950054572	CLEO MPOLOMOKA LENGWE,	CELL: 0953555354
20	SIOMA		SINJEMBELA	INDALA KABUKU,	CELL: 0955512214	AG/ SABOI SISHEKANO,	CELL: 0978696423
21	SHANGOMB O		KAUNGA-MASHI	YUYI YUYI,	CELL: 0957767121	AG/DERICK SITALI,	CELL: 0978732862
22	SHANGOMB O		SHANGOMBO GRZ	SISHWASHWA SISHWASHWA,	CELL: 0977479818	AG/DERICK SITALI,	CELL: 0978732862
						NORTH WESTERN PROVINCE	
	DISTRICT	OVERSIGHT	SITE ON AN OLD SCHOOL	NAME OF HEADTEACHER	PHONE NO.	NAME OF BUILDING ASSISTANT	PHONE NO.
1	CHAVUMA	RESIDENT ENGINEER BWALYA CHIBAMBA 0976197931	KAKHOMA DAY	MWANANGOMBE DAVAN	955351262	FRED CHINYAMA	964376980
2			KAMBUYA DAY	NJAPAWU KANOKA	953634727		
3	ZAMBEZI	NATIONAL.	MUYEMBE DAY	SAKACHIBA DANNY	9699879082	KEITH KAPELA	977922130
4			NYAKULENGA DAY	FUNGULA RAYMOND	969895773		

5	KABOMPO	ACCESS COMPONENT COORDINATOR 0954521130 L.S. MUSONDA	CHIKONKWELU DAY	CHIRWA	950768777	CHINOYA	771209536
6			KAMASOMBO DAY	LUPINDA	969511179		
7			KABULAMEMA BOARDING	FUMBELO	965496264		
8	MANYINGA		CHIPANDA DAY	SHIMONDA LIWAKALA	968377900	KALWIJI MAKONDE	963350100
9			MAWANDE	MAGRENT CHIPESHI	963325035		
10	MUFUMBWE		SHUKWE WEST DAY	NGONGA TEDDY	979372945	SAMAKAYI BORNFACE	965052743
11			MILUJI DAY	MUTENDA JUSTIN	950304034		
12	KASEMPA		MUKUSHI DAY	KALELE	96114034	MWEETELA MATHEW	960489066
13			MIOMBE DAY	NGUMBWE	954501535		
14	KALUMBILA		CHITUNGU DAY	B ANDA ASTONE	968254678	MUFUCHANI	972450278
15	SOLWEZI		MULEMBA DAY	SANGENJO ATHONY	973159233	SONEKA WAVISON	

16			KYAPATALA	NGAMBELA ADAMS	962326591		979463010
17	MUSHINDA MO		KILUMBA DAY	CHUMISHA PAUL	964657563	IKWEKWA EDWARD MARK	964073964 97595860
18			MUNJIMANZOVU	LANO ECRUDE	950886232		
19	MWINILUNG A		KAKOMA	CHIWETA KENNY	760146856	CHIFWAKO MAKOLYASI	979287468 969001076
					766958297		
20			CHISENGISENGI	KASONGO HENLY	976972759		
21	IKELENGE		MWININYILAMBA	KAMALONDO JUDITH	973475006	MAKONDO LUKUMO	979814817 964179237
22			MUKANGALA	MWANDWE CLETUS	979759740		
23			LWAKELA BOARDING	MUSAMBA VIOLET	973791385		
24			SALUJINGA BOARD. SCHOOL	LIKULUNGA LIKANDO	965827400		

				COPPERBELT PROVINCE			
	DSTRICIT	OVERSIGHT	SCHOOL	HEAD TEACHER	PHONE NUMBER	ASSISTANT DISTRICT BUILDING OFFICER	PHONE NUMBER
1	MASAITI	RESIDENT ENGINEER	KALULU PRIMARY	MR. REAGAN SHIPEKESA	0965 182867	MALAMA KABANGWE	0977 848711
2	MPONGWE	KELVIN CHISHA 0979898242 NATIONAL ACCESS COMPONENT COORDINATOR 0954521130 L.S. MUSONDA	KALWEO COMBINED	MR. CHILUNDA RAPHAEL	0967 197943	KENEDY SIMUKONDA	0762 002054
3	MPONGWE		MACHIYA COMBINED	MR. MASAUSO PHIRI	0979 092424	KENEDY SIMUKONDA	763 002054
4	KITWE		KAFUE PARK	MR. OWEN MTONGA	0966 531776	JOHN MUTAMBO	0971 883654
5	KITWE		KAMAKONDE	MR. BANDA JOHN	0966 957197	JOHN MUTAMBO	972 883654
6	CHILILABOM BWE		KAMENZA SECONDARY	MRS. HILDA CHIMANGA	0979 089922	JACOB MUMBA	0975 332152
7	CHILILABOM BWE		CHINFUSHI SECONDARY	MR JOHN MUBANGA	0968 569050	JACOB MUMBA	976 332152
8	NDOLA		MINSUDU PRIMARY	MRS. KANKHUNI AUXILIA	097 6503827	MONDAY MWENYA	0771 175154
9	NDOLA		MAPALO PRIMARY	MRS SAPALO PETRONELA	0972 205460	MONDAY MWENYA	772 175154

10	LUANSHYA		KAMUCHANGA PRIMARY SCHOOL	MR. KAFULA HAPPY	0966 507498	EVARISTO MULENGA	0970 617982
11	CHINGOLA		CHINGOLA SOUTH	MR. DAVISON CHAMBELA	0977 139609	LUPUPA	968328170
12	KALULUSHI		BUYANTASHI PRIMARY	MRS. NTINDA M.Z	0966 846928	RAPHEAL MULUNDA	0967 756619
13	MUFULIRA		MUKUBA PRIMARY	MRS. ALICE BIMBA	0977 489783	MWILA MPUKU	0777 794004
14	LUFWANYA MA		SHIBUCHINGA PRIMARY	MR. BOLSWINE SIWALE	0963 597971	JULIUS MUTANUKA	0950 375027
15	LUFWANYA MA		MUKUTUMA PRIMARY	MR. MUSHALA HARMUS	0963 772058	JULIUS MUTANUKA	951 375027

ANNEX 2: TEMPLATE FOR REQUEST FOR QUOTATION FOR WATER SUPPLY

REQUEST FOR QUOTATION FOR WATER SUPPLY – BOREHOLE DRILLING

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.....
.....

Dear Sir,

WATER SUPPLY BOREHOLE DRILLING

ZEEP PROJECT SITE NAME:

.....

We are pleased to invite you to quote for water supply improvement works on the project under reference situated at in in accordance with the Bill of quantities numbered 1 to 5 attached hereto.

Please note that all quantities are provisional, and works are subject to re-measurement upon completion. The successful contractor will be required to sign a contract agreement, which we have attached to this copy to enable you acquaint yourselves to our conditions.

We hope to receive your priced Bill of Quantities with a completed and signed form of tender (attached) not later than

Yours faithfully

The Chairman

Procurement Sub-committee

cc The Chairman

Project Implementation Committee

NAME OF PROJECT

- I. BILL OF QUANTITIES FOR WATER SUPPLY IMPROVEMENT BY BOREHOLE DRILLING**
- II. INSTALLATION OF HAND PUMP**

		Unit	Qty¹	Rate	Amount
1.	Allow sum for mobilization and Demobilization		Item		
1.1	Allow for care for the environment, safety and social issues		Item		
2.	Allow sum for borehole sitting, and production of site hydrological report, submitted to Provincial Education Officer.....		Item		
3	Obtain WARMA Authorization on behalf of Client		Item		
4.	Bore hole & Casing				
4.1	125 mm diameter Bore hole drilling, depth not exceeding... 80m by Rotary percussion or any other approved methods.		Sum		
4.2	<u>Rate only</u> for extra bore hole drilling depth exceeding 50m	m			
4.3	Supply and install 125 mm diameter PVC casings entire depth of bore hole		Sum		

¹ Quantities will vary depending on sub project requirements. Figures shown should be changed to suit needs.

4.4	Rate only for extra 125mm diameter casing depth exceeding 50m.	m			
4.5	Allow for pump testing and yield estimates.		Sum		
4.6	Allow for provision of 6-7 mm aggregate stone into space between casing bore hole inner face.		Sum		
4.7	Allow for concrete civil works protection around hand pump complete with drainage		Sum		
Total Bore hole drilling and casing to form of tender					

iv. INVITATION LETTER TO SUBMIT A QUOTATION FOR DRILLING AND EQUIPING OF A BOREHOLE.

Date:

The Managing Director

.....
.....
.....
.....

Dear Sir,

ZEEP PROJECT SCHOOL, DISTRICT:
REQUEST FOR QUOTATION TO DRILL 1x No. BOREHOLE AND EQUIP WITH HAND PUMP COMPLETE WITH ACCESSORIES.

A quotation is requested from yourselves for the above services as outlined in the attachment and subject to the Terms and Conditions specified below.

The project site is in district and about Km return from _____ district by road.

TERMS AND CONDITIONS

1. All prices to be V.A.T Exclusive.
2. All quotations must remain valid for the period from submission to completion of execution of works. This period is estimated to be not more than 6 weeks. Note that this will be a Fixed Price Contract.
3. The supplier must provide warranty to cover a "defect liability period" of 3 months after completion of works. To this effect 5% of the Contract Sum will be withheld for 3 months.
4. Payment terms must be indicated in the quotation. However, advance payments, if any, must not exceed 25% of the quoted sum and should be supported by a Bank guarantee before payment is made. A sample of the Bank guarantee will be issued to the successful contractor upon acceptance of offer.
5. All quotations and payments will be in Zambian KWACHA.
6. The quotation must clearly show the breakdown of the cost of mobilization, drilling, casing, pump testing and supply and installation of the hand pump.

The quotation should clearly itemize all materials, components and activities related to the drilling and equipping of the borehole with their corresponding quantities and cost. Attached is a suggested format complete with parameters to be considered when providing the quotations. Drilling companies are

advised to obtain copy of the Technical Specification for borehole drilling and equipping must comply with the legal requirements.

In providing the quote please indicate the above-mentioned project name and school.

Please indicate if any of this work will be subcontracted. Provide the name of the subcontractor and the amounts involved. Subcontracted work exceeding 30% will be rejected.

All quotations must be deposited in the tender box situated school. Situated at _____,
_____ road, _____ before close of business on _____ 2023.

Any quotations received after the aforementioned date and time will be rejected.

Yours faithfully,

The Chairman

Procurement Sub-committee

ANNEX 3: SAMPLE DRAFT LETTER OF OFFER – BOREHOLE DRILLING AND EQUIPING CONTRACT

Date:
The Managing Director
Dear Sir,

ZEEP PROJECT PRIMARY SCHOOL,DISTRICT, REQUEST FOR QUOTATION TO DRILL 1No.BOREHOLE AND EQUIP WITH HAND PUMP COMPLETE WITH ACCESSORIES.

We write in connection with our letter of..... inviting you to quote in respect of the above, and your response dated

We have completed the evaluation process and are pleased to offer you the contract in the sum of (corrected) net of VAT as per rates and details contained in your quotation. Please confirm acceptance of this offer in writing and provide a detailed schedule of the drilling programme by failing which the offer will be deemed ineffective.

Upon receipt of your confirmation, we shall proceed to issue you with a Local Purchase Order, which will be confirmation of the contract. The contract shall be VAT inclusive.

Please note that in order to safeguard the interest of the community and government, our offer of this contract is conditional upon the following:

- (1) You accept our right to carry out an inspection to check conformity of services provided to specification prior to delivery and during or after drilling and installation.
- (2) The drilling of the borehole, casing and test pumping shall have to be done in the presence of the supervisor from the **District Education Board Office**. You may invoice us as per your quotation upon production of an Installation Completion Report signed by the **District Building Officer**, who will supervise the works. The **Project Implementation Committee** will be required to confirm that the works have been done by signing on the Installation Report. Copies of these reports should be provided to the **Project Implementation Committee** for records and use during maintenance.
- (3) Please note that advance payment will be made only upon you providing us a bank guarantee for the amount requested as advance.
- (4) Liquidated and ascertained damages of 0.5% of the contract price per day up to a maximum of 10% will be charged if the installation of the system is done outside the specified period.
- (5) 5% of the contract sum will be withheld for 3 months to cover the “defect liability period” in line with our letter of invitation.
- (6) The works shall be certified as completed when executed in accordance with the specifications and these conditions i.e. when the users are able to continuously use the hand pump and the discharge is greater than **1 L/ Sec** and borehole construction is stable, free from sediments, collapse of borehole walls and protected from ingress of silts or fine debris during the defect

liability period. In the event that the**Hand pump**... experiences major breakdown more than 2 times during the defect liability period then the pump shall be replaced with a new one.

- (7) There shall be no payment for “dry” boreholes.
- (8) In the event that siting investigations reveal that the probability of striking water within the premises of the**School**..... is minimal, then site investigations may be conducted outside the premises provided the site chosen is within the neighbourhood of beneficiary community and that it has been done with their cooperation and with the full knowledge of the **District Building Officer** and the supervising Engineer from the **Provincial Education Office**.
- (9) The above offer includes conducting a practical training workshop for at least 2 members of the community in operations and maintenance of the water system.

Your faithfully,

The Chairman

Procurement Sub-committee

cc The Chairman

Project Implementation Committee