Spring Development Project Proposal for 2023

Submitted to;

Rotary Club of Fort Collins Breakfast

Laga Chali Gravity Spring Water Development project in Leka Dulacha District, East Wollega Zone, Oromia, Ethiopia

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1. Introduction

Lack of access to safe and adequate water supply and the health risks associated with water related diseases are major public health problems in many developing countries. More than 700 million people, mostly living in the developing countries, are without access to safe and adequate drinking water (WHO/UNICEF 2014). Ethiopia is the third populous country in Africa and the majority of the population resides in rural parts of the country. Appropriate rural development with respect to water resources is a key to alleviating water scarcity and the degradation of water quality. The living situation in rural areas are challenging where little attention is given in providing infrastructures to rural villages. As it is well known, water is life and getting water supply for drinking and other activities is more challenging in rural villages. Even expecting clean water is unthinkable in rural villages of Ethiopia in general. Thus, hundreds of people fall ill and die as a result of drinking contaminated water. More than 1.5 million children under the age of five die of diarrheal diseases every year (WHO/UNICEF 2009). Children in rural areas are subjected to be affected by waterborne diseases and cannot attend their school regularly and in some cases the problem is serous and makes the student drop from school.

The other serious social problem, particularly in rural areas, is that women and children have the responsibility of bringing water to home and travel long distances to fetch water. Consequently, they have no time to participate in community life and negatively affects the school time of children. Due to long distance and queues, rural households can only collect a few liters of water for drinking and cooking (Sutton et al. 2012). Limited availability of water may also prevent basic personal hygiene practices.

The rural communities' economic income is based on agriculture and raising livestock, thus the community uses unprotected sources and rivers to obtain water for domestic use. The major source of drinking water supply of our rural society is rivers, streams, unprotected springs, ponds and open wells. These sources are shared by animals and humans alike, with the resulting health risk. Since the majority of rural drinking water supplies are unprotected, they will be polluted with different anthropogenic agents which endangers the health of the community and affects the economy and every developmental activity. The problems are very serious for children and women since all activities in the house hold mostly depend on their efforts.

To this end spring water development is the primary way to supply water for domestic use by the inhabitants residing in mountainous regions. Thus, spring water development and management is one of the keys means of providing clean and safe fresh water to the local rural communities. Proper spring development also helps to protect the water from contamination.

2. The Project Description

The discharge of Laga Chali spring was measured to be 1.5 liters per second; this is a very good discharge that can supply water to a large population. Laga Chali spring was initially developed fifteen years ago and now there is leakage of water from the very small collection box. Large populations are living in the lower parts of the steam and travel more than 1km to get the clean water from this spring. Those who can't travel such long distances are forced to use the unprotected downstream sources. In addition, in lower reaches there are public and government institutions such as schools, health extension offices and farmer training centers (FCT). The current proposal it to pipe water 400 meters from the spring to the downstream users.

This project will have three water distribution points and two clothes washing stands. The first distribution point will be at the source of the spring to provide for up-steam villagers and the second and third will be at a distance of 400m from the source of the spring in the downstream for a majority of communities including the school.

3. Location of the project

The Laga Chali Spring water is located in Leka Dullacha District of East Wollega zone at about 35 km from Nekemte town in south west direction.

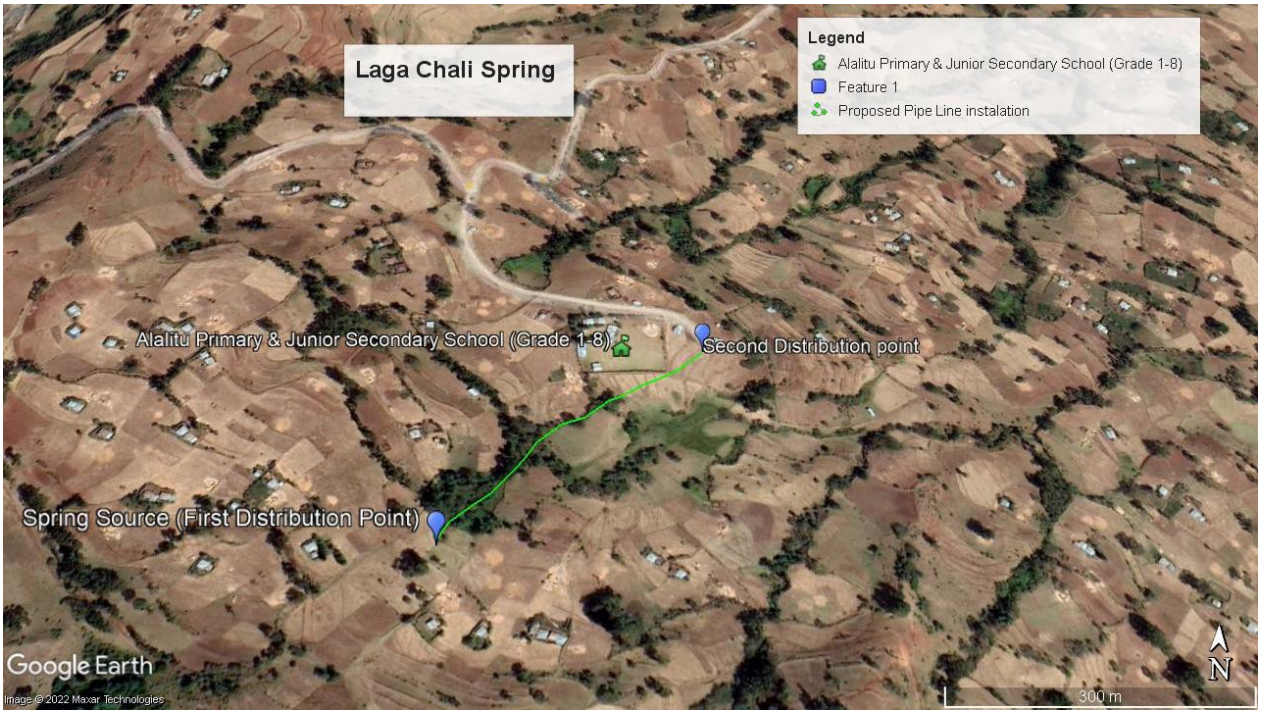

Figure 1: Location of the spring water from Google Earth

I. Laga Chali Spring Sources

Figure 2 . Field Visit of Spring (Community leader, Me, District Water resource office head)

II. Alelitu Primary and Junior secondary school (Grade 1-8)

Figure 3 (a). Front view of Alelitu Primary and junior secondary school

Figure 3 (b). Backside View of Alelitu Primary and junior secondary school

III. Some views of the rural residents Villages

(a)

(b)

(c)

(d)

Figure 4. (a-d). some rral village views

4. Objective

The main objective of this project is to improve access to a safe and clean drinking water supply for rural villages by developing mountain springs. It improves the health of the communities and saves the women and children time and effort that could otherwise be spent on education, social participation and development activities.

5. Populations of Project Area

The population of the community that will be benefited from the project is summarized in the following table.

Spring water users	**Population**	**Remark**
Villagers (Rural Residents)	870	
School students (Grade 1-8)	657	
Teachers	45	
Health extension professionals	2	
FTC's (professional)	4	
Total Population	**1578**	

6. Community Participation

In the Rural spring development project, consultation with community is the beginning activity to create community ownership on the project. Community participation in activities requires community contributions in labor to develop a sense of community ownership in the project. The community is involved with every aspect of the project such as contributing labor towards the project, and have donated the land required to build the distribution system.

7. Collaborators

The Zonal and District Administration offices are key collaborators in linking with lower-level local administration to run the project effectively. The District Water Resource offices are the natural partners for the community in maintaining sustainable water supply in rural areas.

8. Preliminary Estimated Cost for Laga Chali Spring Development

i. Construction Materials Cost and specification

NO	Description of required material	Unit	Quantity	Unit cost (ETB)	Total cost (ETB)	Remark
1.1	Cement	Kuntal	45	1350	60570	
1.2	Gravel for Concrete works	m^3	6	2500	15000	
1.3	Rocks (Construction materials)	m^3	32	1375	44000	
1.4	Sand	m^3	24	1375	33000	
1.5	Gs	DN20	12	1200	14400	
1.6	Soft wire/Black wire	kg	3	200	600	
1.7	HDP pipe 50mm	*m*	400	170	68000	
1.8	HDP pipe 1inch	m	350	130	45000	
1.9	GI Pipe line (single 6m long)	1 inch	8	1200	9600	
1.10	GI Pipe line (single 6m long)	1.5 inch	2	4000	8000	
1.11	Faucets	1 inch	8		6500	HDP accessories
1.12	Unions for HDP pipe 50mm	50mm	10			
1.13	T Galvanized steel	1 inch	16			
1.14	Union Galvanized steel	1 inch	24			
1.15	HDP Union 50mm to 1 inch Galvanized pipe reducer		4			
1.16	Elbow Galvanized steel	1 inch	24			
1.17	Transportation cost of construction materials to the site				25000	
Sub Total 1					**329,670**	

ii. Masonry, Concrete and Pipe line installing Work Cost

NO	Description of Activities	Unit	Type/ Quantity	Unit cost (ETB)	Total cost (ETB)	Remark
2.1	Concrete work for Water collection box and Masonry work around spring source				55000	
2.2	Three Water Distribution stand points				22750	
2.3	Concrete work				18275	
2.4	Two Washing clothes stand				8500	
2.4	Pipe line installation				25000	
				Sub Total 2	**129,525**	

iii. Personnel cost

NO	Description of required material	Unit	Type/ Quantity	Unit cost (ETB)	Total cost (ETB)	Remark
3.1	Supervision of the work	80 day	2	363	58080	
3.2	Two Technical Experts	60 day	2	363	43560	
3.3	Resources Purchase personnel	12 days	2	724	17376	
Sub Total 3					**119016**	

iv. Total Grand Cost of the project

No.	**Description of Activities**	**Total cost (ETB)**	**Total cost (USD)**	**Remark**
1	Construction Materials cost	**329,670**	6105	Due high inflation , there is high material cost
2	Masonry and Concrete work	**129,525**	2398	
3	Personnel cost (Periderm)	**119,016**	2204	
Total Grand Cost		**578,211**	**10,707**	

Key: ETB- Ethiopian Birr (Currently, the currency exchange rate, 1USD=54 ETB)

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