

Proposal for the Italian Government UNICEF Ethiopia



Sustainable water supply for Drought affected areas in Somali and Afar Regions

Submitted By
UNICEF Ethiopia

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Programme summary

Programme Name	Drought Response in Ethiopia
Country	Ethiopia
Programme Objective	Sustainable water supply for Drought affected areas in Somali and Afar Regions
Total Proposed Budget	Euro 2 million
Programme Duration	Up to December 2017
Key Expected Results to be achieved with this funding	About 10,000-15,000 people have access to adequate, reliable and sustainable water sources.
Geographical coverage	Afar and Somali Regions
Focus Population	Drought-affected households in Ethiopia with focus on Afar and Somali regions
Programme Partners	Afar and Somali Regional Water Bureaus, UNESCO, EU-JRC, Private consultants, private contractors
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1. Issue

Situation Overview

Effects of El Nino were prominent throughout 2015 in Ethiopia causing failed spring/Belg rains and severely affecting rainfall patterns of the main summer/Kiremt rains. Normally, the Kiremt rains provide 80-85 per cent of the country's agricultural harvest. This combination resulted in a slow-onset emergency and during autumn 2015, Ethiopia moved into its worst drought in decades. The drought has devastated livelihoods and greatly increased malnutrition rates in Afar, Amhara, Oromia, Tigray, Southern Nations Nationalities and Peoples (SNNP) and Somali regions.

Recognizing the gravity of the situation and the increased needs, the Government in December presented the 2016 Humanitarian Requirements Document (HRD) requesting US\$ 1.4 billion for relief efforts, compared to US\$ 470 million in humanitarian needs in 2015. The HRD estimates 10.2 million people in need of food aid, compared to 2.9 million in the beginning of 2015. The number of children requiring treatment for severe acute malnutrition in 2016 are estimated to 435,000 compared to 264,515 in the beginning of 2015 (numbers of severely acutely malnourished children peaked at 43,000 in August 2015 which is higher than any month during the 2011 East Africa Food Crisis). The Famine Early Warning Systems Network (FEWSNet) alert of Dec 4, 2015 describes the current drought situation as the worst in 50 years history.

The HRD foresees 5.8 million people in need of access to clean drinking water and basic latrine facilities in 2016, compared to 1.4 million at the beginning of 2015¹. Shortage of water forces communities to many interlinked problems including displacement, gender based violence, child labour, and exposure to unsafe water that causes water borne and water related diseases.

Most of the communities in need of water live in chronically affected areas, where impacts of drought further aggravate/deteriorate the already delicate situation. Somali, Afar, parts of Oromia and SNNPR regions are the low lying arid areas of Ethiopia, with complex hydrogeological formations resulting in chronic water shortages and difficulties in access ground water. The average access to safe water in these areas are far below the national average of 55 per cent.

Due to water shortages, sanitation and hygiene conditions are poor contributing to increase in water related disease outbreaks, including scabies. In Ethiopia, 60 to 80 per cent of communicable diseases are attributed to limited access to safe water, inadequate sanitation and hygiene services. Additionally, due to the effects of El Niño conditions, heavy rains in highland areas have caused overflow of rivers and flooding in Afar and Somali regions, which will force displacement of communities and damage water supply systems.

2. Rationale

In Ethiopia, access to safe water in arid and semi-arid areas is largely limited to availability of deep well sources. However, due to the usually complex geology, hydrogeology, topography and climate, developing deep wells and providing sustainable water sources in these areas poses significant challenges to the government of Ethiopia, and its partners. Despite the significant increase in the number of drilling in recent years, the number of

¹ Due to the worsening conditions and delays in seasonal raining, the sector is currently reviewing the HRD figures as increase in target population is expected.

successful boreholes is limited to 30-50 per cent, a very low rate even in sub-Saharan standards.

The key problem contributing to this low rate of successful boreholes is attributed to the lack of adequate scientific information and surface/subsurface investigations pertinent to the hydro geologic complexity. The conventional hydrogeological investigations (e.g., geology and geophysics) are only applicable to identify depth of water in limited locations where relatively shallow water tables are expected and formations are less complex. Where deep ground water and complex geology exists, the use of combination of different techniques of analysis and investigation is required to increase the probability of getting sustainable water source.

The water sector partners in Ethiopia acknowledge the importance of remote sensing in identifying potential ground water bearing formations to overcome the problem. However, the use of remote sensing is very limited in Ethiopia, due to the high cost associated with access to and use of satellite imagery data (usually required in a scale of less than 1:100,000).

Recognizing the challenges, UNICEF has started and implemented a ground water feasibility study project that use remote sensing satellite imagery data combined with geological/hydrogeological information to develop probability models. The models can then be used to pin-point drilling spots with a desired probability of success (usually 80 per cent) for ground water availability at acceptable depths.

The project has started in three woredas in Afar and Tigray Regions through the support of UNESCO. The results achieved so far are very promising - all boreholes using the remote sensing method have resulted in productive wells.

In order to scale up this intervention, UNICEF has recently signed a MoU with the European Union Joint Research Centre (EU-JRC) to access high resolution satellite imagery data and to expand the groundwater mapping in drought affected areas characterized by complex geology and hydrogeology. The overall operational approach adopted includes three essential steps:

1. Remote sensing and secondary data analysis (a platform has been established and now enriched thanks to the partnership with EU-JRC)
2. Detailed field hydrogeological and geophysical verifications – the second step builds on the previous one and is functional to validate the outputs of remote sensing analysis by locating drilling spots with promising potential for groundwater availability.
3. Deep well drilling and construction of water supply systems - the final step, based on outputs of steps I and II, aims at developing the water source and provide services to communities.

3. Objective

The project aims to develop adequate, reliable and sustainable water sources for about 10,000 – 15,000 people in selected drought affected woredas in Somali and Afar Regions including distribution systems for service delivery by December 2017.

4. Activities

This proposal for the anticipated UNICEF-Italian Agency for Development Cooperation collaboration proposes to implement step-II and III of the operational approach in selected areas of Afar and Somali regions. The following activities will be implemented:

1. Drilling and development of up to 5 deep wells in areas affected by the current drought and whose potential is confirmed through the satellite imagery analysis and verification studies on the ground
2. Construction of water supply systems for immediate service that can be easily upgraded to multi-village distribution systems, on the basis of field investigations and detailed design and feasibility studies.
3. Together with regional water bureaus (RWBs), ensure the developed sources are handed over to communities/operators and managed properly for sustained service during the drought season, and beyond – this component include management training to local communities/operators.

As part of the phasing out strategy, UNICEF will support regional and weredas authorities in enhancing their capacities in terms of i) managing the infrastructures developed, ii) positioning an adequate stock of spare parts available at regional level for repairs and maintenance of the water supply systems and iii) facilitating the establishment of WASH committees at water points level able to manage the efficiently the facilities provided.

The efforts done in the phasing out, will be coordinated with Italian NGOs, operating the in the same locations and supported by additional funds from the Government of Italy, so that these organizations will be in the position to take over the support at the communities level (WASH committees) and further contribute to the long term sustainability and functionality of the infrastructures developed through the UNICEF-Italian Agency for Development Cooperation programme.

5. Implementing strategy

UNICEF will implement the combined technique of data analysis and investigation to locate the spots for drilling in both regions. UNICEF will adequately involve the regional water bureaus to ensure sufficient information exchange and promote learning among experts.

UNICEF will implement the positive wells contracting approach where in (at least 75%) success rate of getting productive boreholes is met in order for payment to be effected.

UNICEF in collaboration with the Ministry of Water Irrigation and Energy (MoWIE) and the respective regional water bureaus, will arrange and conduct practical training for proper operation and maintenance of the systems following the successful completion of the construction works.

The selection of the intervention areas, will be done in a consultative manner among UNICEF, IADC, Regional Water Bureau and communities in order to involve all the concerned stakeholders and to maximize synergies with ongoing activities funded by the Italian Government as well as other partners.

UNICEF will document the outputs of this collaboration with IADC, towards the larger project knowledge base in the drilling approach to partners and the larger group of sector actors and to demonstrate the added value of remote sensing techniques in increasing access to water.

6. Estimated Budget

Description of activities	Qty	Unit	Estimated unit rate (EUR)	Estimated cost (EUR)	UNICEF share (%)	UNICEF Share (EUR)	IDCA share (%)	IDCA share (EUR)
Staff and personnel								152,000
Senior WASH Specialist with experience in drilling - international (salary and DSA costs)	18	month	19,000	342,000	10 month	190,000	8 months	152,000
Works and supplies								1,510,000
Remote sensing analysis / mapping	1	Ls	125,000	125,000	100%	125,000	0%	0
Ground water feasibility study using geological and hydrogeological field investigations	1	Ls	125,000	135,000	0%		100%	135,000
Drilling and construction of deep boreholes (>300meters) including productivity and water quality tests	5	unit	125,000	625,000	0%		100%	625,000
Supply and installation of electromechanical equipment (pumps, generators and accessories)	5	sets	100,000	500,000	0%		100%	500,000
Construction/rehabilitation of a water storage and distribution systems for resilient services (including on-spot water delivery in emergency conditions)	5	unit	50,000	250,000			100%	250,000
Quality Assurance and Sustainability								19,000
Design and Work Supervision Consultancy	1	Ls	19,185	19,185	0%		100%	19,185
Costs for arranging training of operators, administrations and communities	1	Ls	4,000	4,000	0%		100%	4,000
Cross sectoral coordination, monitoring and supervision							100%	166,667
Operational costs for UNICEF field offices (Semera and Jigjiga) to support phasing out strategy (as described in the narrative)	1	Ls			0%		100%	100,000
Operational costs at UNICEF AA level for logistics and monitoring	1	Ls			0%		100%	66,667
Subtotal				1,499,500				1,851,852
Recovery cost					0		100%	148,148
Total						315,000		2,000,000