

# Nebar Ketema, Ethiopia: Microgrant Project Summary



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## **Nebar Ketema Project Summary as of 19 April 2010.**

*Aileen Chang*

The US \$3,000 microgrant for water and sanitation to Mekelle, Ethiopia is being managed through the partnership of the Millennium Cities Initiative, Community Lab, Mekelle Water Supply and Sewerage Service, and the local government of Nebar Ketema. Two water points will be constructed in Nebar Ketema bringing safe water access to 6,000 people. Thus, there is a high average aid efficiency ratio of the water project as two people are supplied sustainable access to clean water for every one grant dollar. In addition, the availability of the US \$3,000 grant leveraged an additional US \$2,865 contribution from the Mekelle Water Supply Budget and the community.

Most importantly, the grant will fund the connection of Nebar Ketema to the Quiha treated water reserve to provide safe water access to people who currently have dwindling access to water contaminated with E.coli, Giardia, and Schistosomiasis. The two constructions each with six faucets are also intended to decrease water collection time. Currently, people walk on average 3.5 hours daily to collect water. At this moment, only one faucet functions leading to average wait times at the contaminated spring of 4.5 hours. Therefore, the average total time for water collection per day is 8 hours. The new water point construction will improve water quality and decrease water collection time due to the selection of two central locations and the provision of 12 faucets.

The construction is projected to be completed at the close of this week. Water quality testing and polling of villager walking time to reach the newly constructed water points will follow.

This project is a beautiful example of international partnership to make possible a community-led intervention to drastically improve the quality of life for 6,000 people. Recommendations for the long term integration of a microgranting program in Ethiopia to stimulate future projects such as this follows the project proposals and contracts included in this document. Please feel free to peruse the following document and thank you for interest and support.

## **Introduction provided to the communities about the microgrant.**

A Call for Proposals for Sanitation Microgrant Competition  
Millennium Cities Initiative  
Mekelle, Ethiopia

### **Introduction**

Community led projects can often times be very successful in implementing sustainable and cost-effective change at a local level. We propose that empowering individuals to design and execute their ideas to improve their communities can be accomplished using a *microgrant* model.

The microgrant for Mekelle, Ethiopia is \$3,000.00 raised from online donors to go towards a community effort to improve sanitation. Members of youth organizations in Mekelle will have the chance to identify a sanitation problem in their community and propose an intervention to improve the situation. The individual or group with the best proposal will be awarded the money to implement their intervention. The interventions will be followed to evaluate the effectiveness of both the proposed change and the use of microgranting as a development model.

### **Goals of the Project**

*Main goal:* To facilitate a pilot microgrant competition for sanitation in Mekelle to assess the feasibility of microgranting as a model for development financing

*Accompanying goals:*

- To encourage community led identification of sanitation issues and possible solutions
- To improve the capacity of young adults and women in proposal writing
- To finance a community led intervention
- To evaluate outcomes to determine if the intervention was successful

*Health goals*

- To decrease burden of diarrheal illness
- To decrease contamination of drinking water
- To increase attendance at school by improving school sanitation

### **Proposal Requirements**

- Proposed Intervention
- Rationale for intervention
- How intervention will be implemented
- How impact will be assessed
- Budget
- Plan for sustainable management after the grant period

### **Contacts in Mekelle**

- **Aberash Abay (215-0914-726278)**
- **Aileen Chang (215-0914-030025)**

# Millennium Cities Initiative

## Microgrant Proposal

### A Water Point for Nebar Ketema

*This proposal is translated from the voices of the villagers of Nebar Ketema in Tigrinya by Ms. Abay with the addition of pictures, technical construction information, budgeting, and timeline from Mr. Abebe, chemical analysis of water by Mr. Abreham, and engineering plans for the water point by Mr. Tekle.*



Nebar Ketema

#### **Introduction**

In the Tigray region, only some areas have potable water. The government cannot afford to supply all areas with potable water. One of these areas is Quiha, specifically the towns of Nebar Ketema and Zban Zala. Before they were two separate districts and now they are one called Nebar Ketema. The people living in Nebar Ketema are drinking unprotected water and face problems with many water-borne diseases. For these reasons, this project is important.

#### **Goals of the project:**

- To protect the health of the community
- To decrease the absence of students from school due to water-borne diseases
- To improve the talent of the students and the attentiveness of the students in class
- To provide potable water
- To decrease the time to fetch water
- To decrease the distance to fetch water
- To free time for the women to participate in other activities crucial to their development

Women carrying jerrycans of water



#### **Background**

This project area has been a part of Mekelle since 2004. There are about 6,000 people living in this area. This area was known for its greenness and as a source of vegetables, but now, the underground water has been reduced. This affects the income of the people, because vegetable farming was the source of income for the farmers. The community is preoccupied with access to drinking water as well as water for irrigation for vegetable farming.

As can be seen from the picture, fetching water for the whole family is the responsibility of mothers and female children. Culturally the in-house activities are also the burden of this family group. In effect, female children

Zban Zala Spring



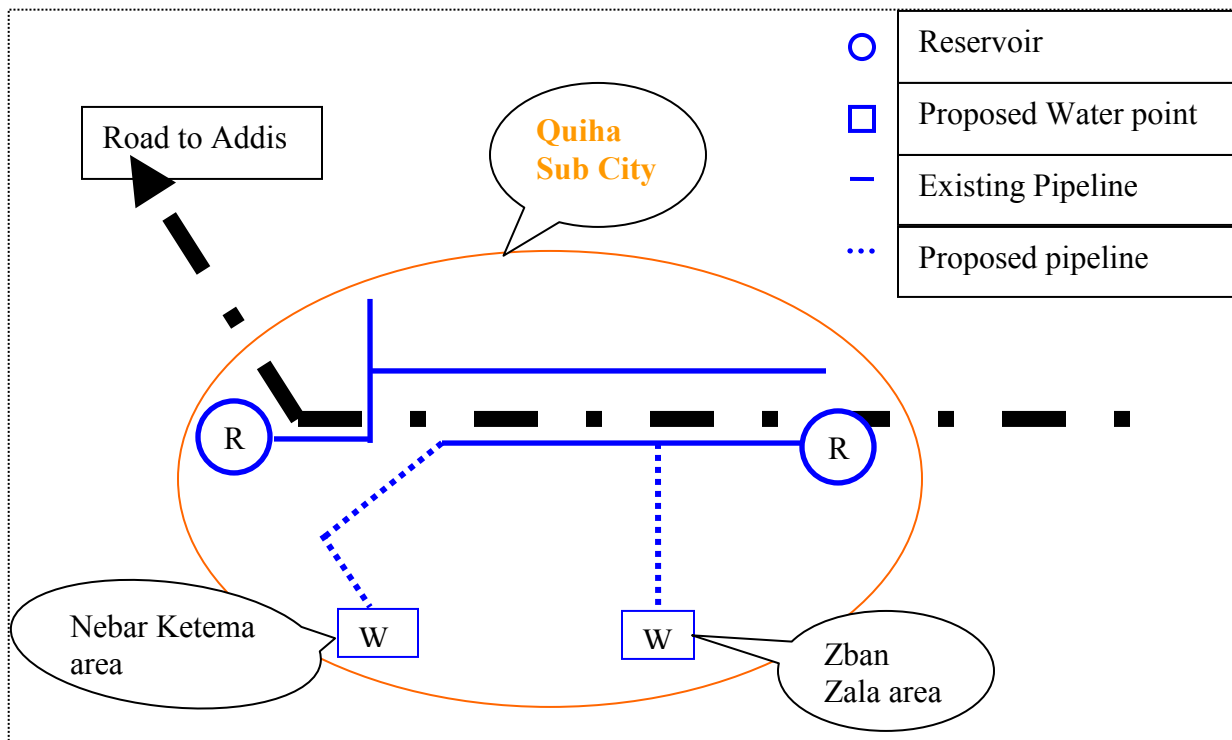
are forced to be absent from school class to carry water and sometimes to drop out.

Although the people spend 3-5 hours on average fetching water per day, this water is unprotected. Since it is unprotected, the community is affected by the water-borne disease like Giardia, Schistosomiasis, and E. coli. They are forced to have extra expenses for health for their children and themselves. In addition to this, the diseases affect the talent of the students and the potential of the adults to work.

### ***Proposed Intervention***

Nebar Ketema is a part of the larger sub-city Quiha. Northeastern Quiha has a water reservoir. Ground water is pumped from Mekelle's main water source to the reservoir. Water is distributed to the residents of Quiha sub-city through pipe networks from the reservoir by gravity.

The villagers of Nebar Ketema in partnership with their local administrators and the Mekelle Water Supply Service propose installing a pipeline from the main water system and constructing two six-fauceted water points to the center of the Nebar Ketema and Zban Zala area. These water points will have 6 faucets to decrease waiting times. The water will come from the chlorine-treated reservoir such that it will not cause bacterial and parasitic infections. Each water point will be constructed 500 meters closer from the main supply line in the center of the town such that no person will have to walk more than 200-300m to collect daily water.



Schematic of current and proposed water supply system.



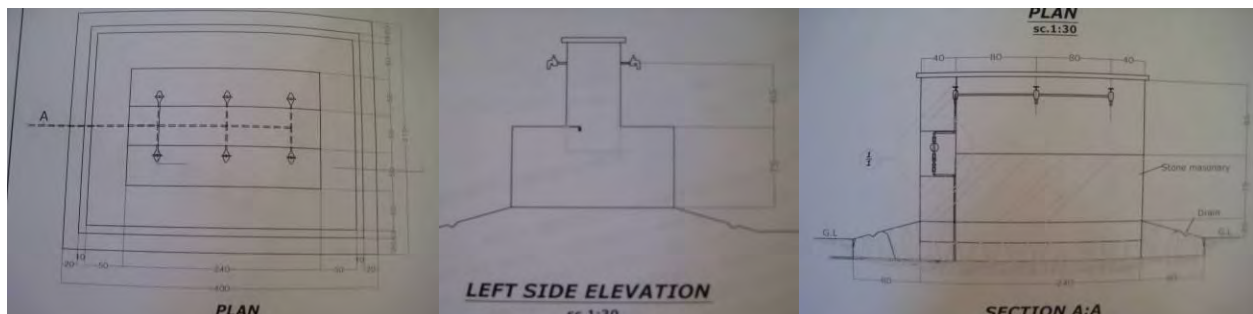
Dehydrated child with abdominal distention likely secondary to parasitic infection

### ***Importance of the Project***

This project is very important because of the above mentioned problems. If the project is implemented, the community will have protected water and they will get rid of the water-borne diseases. The students can go to school regularly and improve their talents. Furthermore, the women will have time to participate in other activities crucial for their development and have enough time to take care of their children.

### ***Implementation procedures***

As can be seen from the sketch there is an existing water supply system which is supplying water to Quiha sub-city. A 32 mm HDPE pipe line will be connected to the main system to the proposed water points to a total of 1000 meter length which is 500 meters each. Two water points having six faucets will be constructed very close to the residents of Nebar Ketema & Zban Zala. The cost for industrial materials such as HDPE pipes & fittings, water meter, cement, and other aggregates will be covered from the microgrant and Mekelle water supply service. Community members from Nebar Ketema and Zban Zala will provide the labor free of charge for construction of the pipeline and will collect stone for the water point construction. The supplies will be purchased locally from Bruh Tesfa manufacturing company in Mekelle. The water points will be constructed from stone masonry containing 6 faucets.



These plans were constructed in AutoCAD. The first picture demonstrates the 6 faucets from an overhead view. The second picture shows the left side view. The third picture shows the cross-sectional view. Measurements are included on the autoCAD maps.

### ***How impact will be assessed***

The impact will be assessed using two markers. The first is markers is the time that it takes the villagers coming from different parts of Nebar Ketema to collect water from the time they leave their home until they return to home. Currently, it takes closer families 3 hours per day to collect water and further families 5 hours per day. After the placement of the two water points, the villagers can report how long it takes people on average to collect water depending on their location.



## Water quality testing



The second marker is the water quality. Water quality testing was performed on March 16, 2010 on both Zban Zala Spring and May Bandera Spring by the Mekelle Water Supply chemist, Mr. Abreham.

May Bandera Spring quality analysis indicated that the water was potable with regards to color, taste, odor, temperature, turbidity, appearance, pH, electrical conductivity, total dissolved solids, total alkalinity, nitrates, and ammonia.

Unfortunately, the total coli bacterial contamination and fecal coli bacterial contamination was too numerous to count. This indicates the presence of human and animal wastes in the water sample. The chemist suggests that in order to use this water for drinking purposes continuous chlorination must be applied and protection from sanitation products must be enforced. He states that otherwise, "Without disinfection, the water source is strictly forbidden for drinking purpose."



May Bandera Spring



Zban Zala Spring

The Zban Zala Spring is in worse condition. While it is potable to drink in terms of temperature, pH, electrical conductivity, total dissolved solvents, total alkalinity, and ammonia, in terms of the other indicators the water is unsafe. The water is cloudy requiring filtration, coagulants, and settlement. It has poor odor, poor taste, and nitrate levels almost double the WHO Guidelines. In addition, the total coli and fecal coli counts are too numerous to count. Contamination with feces, high turbidity, and high nitrate values make this water strictly forbidden for drinking without disinfection and other treatments.

Once the water points have been placed, water quality analysis will be performed after 2-3 hours of running water through the pipelines to ensure safety of the water.

### **Plan for sustainable management after the grant period**

A water committee will be organized as is commonly done in other areas. This committee is made up of members of the community and they will manage the water point. A usage meter will be placed at the water point. The water committee will arrange a schedule for someone to manage the water point at all times collecting .10 to 15 birr cents per 20 liters collected, a unit called the jerrycan. Most people collect water in jerrycans. This fee is sufficient to pay for the water and maintenance on the infrastructure. The average villager is comfortably able to pay this amount. The amount collected by the water point managers will be used to pay the government issued water bill calculated from the usage meter. The community takes on ownership of the condition and management of their water source.

## Budget

S.No	Work Description	unit	Quantity	Unit rate	Total Cost	Remark
1	HDPE Pipes & fittings	m	1000	20.4	20,400.00	To be covered from the grant
2	Masonry Work	m <sup>3</sup>	12.5	1000	12,500.00	To be covered from the grant
3	Concrete work	m <sup>3</sup>	1.5	1500	2,250.00	To be covered from the grant
4	Technical Services	%	65		22,847.50	Contribution from MWSS
5	Earth work	m <sup>3</sup>	480	30	14,400.00	Contribution from community
	Total				72,397.50	

Note: Microgrant is US \$3,000. The current exchange rate is \$1.00 = 13 Birr.

## Timeline

The goal for design and implementation is 30 days.

Monday March 8, 2010

-Preliminary Proposal Draft

Wednesday March 17, 2010

-Revised Proposal

Thursday March 18, 2010

-Submission to MCI

Monday March 22, 2010

-MCI Response for Microgrant

Monday March 22<sup>nd</sup> – Wednesday April 15<sup>th</sup>

-Construction of Water Point

3 hours after the construction of water point

-Post-intervention water testing

A week after

-Poll villagers about travel time

## Conclusion

Through the partnership of MCI, Community Lab, the villagers of Nebar Ketema, Mekelle Water Supply Service, and the local administration of Nebar Ketema we can together ensure safe water for 6,000 people. Please consider this proposal for the microgrant.



Community members leaving Zban Zala Spring carrying contaminated water to their homes.



## Contacts

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- **Atsbeha Abruha: Health Coordinator at Nebar Ketema**
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- **Kahsu Tesfay: Nebar Ketema Villager**
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- **Kbrom Tekle: Nebar Ketema Villager**
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- **Aileen Chang: Visiting Microgrant Facilitator**
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  - [Ayc2113@columbia.edu](mailto:Ayc2113@columbia.edu)



Proposal writing groups of women and men



## Proposal Development Meeting Attendance in Nebar Ketema

SN	Name	Sex	Phone	Kebelle
1	Mr. Gebere Bezabh	Male		02 (Nebar ketema)
2	Mr Hafte Kasa	Male		02(Nebar ketema)
3	Mr. Gebru Banki	Male		02(Nebar ketema)
4	Mr. Tesfay Reda	Male		02(Nebar ketema)
5	Mr. Hagos Sebhat	Male		02(Nebar ketema)
6	Mr. Haile Mamo	Male		02(Nebar ketema)
7	Mr. Kahsu Tesfay	Male	0914001802	02(Nebar ketema)
8	Mr. Kbrom Tekle	Male	0914753026	02(Nebar ketema)
9	Mrs. Letebrhan Adane	Female		02(Nebar ketema)
10	Mrs. Aberash Hailu	Female		02(Nebar ketema)
11	Mrs. Mhret	Female		02(Nebar ketema)

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ሽቶ እቲ ፕሮጀክት

- ጥዕና እቲ ህብረተሰብ ዝተሓለወ ምግባር
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- ❖ ጽሑይ መከተ ማይ ምቕራብ
- ❖ ማይ ንምወጻእ ዝጠፍእ ዝነበረ ሰዓት ምንካይ
- ❖ ማይ ንምወጻእ ዝጓዓዘዎ ዝነበረ መንገዲ ምንካይ
- ❖ ናይ ደቂ ኣንስትዮ ስራሕ ምንካይን ኣብ ካልኦት ናይ ልምት ስራሕቲ ንክሳተፉ ምግባር

ነባራዊ እቲ ፕሮጀክት ቦታ

እቲ ፕሮጀክት ክስረሕሉ ተሓሲቡ ዘሎ ቦታ ካብ 1996 ዓ.ም ጀመሩ ኣብ ምምሕዳር ከተማ መቐለ ዝኣተዎ እዩ፡፡ እቲ ከባቢ 6000 ዝኣክሉ ሰባት ዝነብርዎ እዩ፡፡ እቲ ከባቢ ቅድም ክብል ካብ ዞም ለመንት ቦታታት ዝበሀሃሉ ሓዲ እዩ ነይሩ፡፡ ስለዚ ኮነ ድማ ናይቲ ሕብረተሰብ ቀንዲ እቶት ካብ ሕርሻን መከላከልን ንክከውን ንክይርዎ እዩ፡፡ ሐ'ዚ ግን እቲ ማይ እንዳቀነስ ስለዝከደ ኣይኮነን ንመከላከል ንዝስተማይ'ውን ክይሰኣን ኣብ ዘስግእ ኮነታት በጺሑ እዩ፡፡ ስለ'ዚ ድማ እቲ ሕብረተሰብ ጥዕኑዑ ዘይተሓለወ ማይ ኣብ ምክታይ እቶቱ ኣብ ምንካይን ይርከብ፡፡

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ንቁሕ ኮይንካ ዘይምክትታል ኣሕዲሩ እዩ፡፡ ብተመሳሳሉ መልክዑ ድማ እቲ ሕብረተሰብ ብሰንኪ እቲ ሜ ወለድ ሕምብ ቶሎ ናይ ምድካም ንጠፍ ኮይንካ ናይ ዘይምክራሕ ኣጋጠሞ እዩ፡፡

### ኣድላይነት እቲ ፕሮጀክት

ስለ'ዚ ካብ ዞም ኣብ ላዕሊ ተጠቒሶም ዘለዎ ሽግራት ብምበጋስ ብጥራይ ዘድላይ እዩ፡፡ እቲ ፕሮጀክት ድኣ እንተተግባሩ እቶም ኣብ ላዕሊ ዝተጠቀሱ ሽግራት ክወግዱ ይኸሉ እዮም፡፡ እቶም ናይቲ ከባቢ ሰባት ጥዕኔ ዝተሃለወ ሜ ስለዝረኽቡ ካባ ናይ ወለድ ሕምብ ነጻ ይኮኑ እዮም፡፡ ሓዲ ሰብ ካብ ሕምብ ነጻ እንተኮይኑ ድማ ኣብ ዝደለዮ ክሰርሖ ኣብ ዝሓሰበ ነገር ኩሉ ዕወት ይኮን እዩን፡፡ ንኣብነት ኣብ ላዕሊ ከም ዝተጠቀሰ ተምሃሮ ብሰንኪ ሜ ወለድ ሕምብ ካብ ቤት ትምህርቲ ናይ ምትራፍን ኣቀባብላ ትምህርቶም ዘሓድር ጸገም ኣይህሉን፡፡

### ከይዲ ኣፈጻጽማ እቲ ፕሮጀክት

እቲ ፕሮጀክት ብምትሕበባር ሜ ግልጋሎት፣ ሚኒስቴር ሲቲ ኣኒሹቲቭ ናይቲ ከባቢ ህብረተሰብን ዝሰራሕ እዩ፡፡ ኣብ ከይዲ ምዝርጋሕ እቲ ናይ ሜ መከተ መከመር ናይቲ ከባቢ ህብረተሰብ ብጉልበት፣ ሜ ግልጋሎት ከፃ ብቴክኒክ እንትኮን ሚኒስቴር ሲቲ ኣኒሹቲቭ ድማ ናይ መከተ ሜ መከመር መዘርግሒ በጀት ምሽፋን ይኮወን፡፡ ብተወሳኪ ድማ እቲ ህብረተሰብ ኣብ እዋን እቲ መከመር ምዝርጋሕ ነቲ ቦኖ መርሒ ዝከወን ናይ እምሂ ብምቅራብ ተሳትፎ ክገብር እዩ፡፡

### በጀት

.....

Mekelle Water Supply & Sewerage Service Office Water quality Lab Laboratory Report on Physicochemical analysis of water				
❖ To Quiha city administration				
Site of collection: From MayBandera, Quiha		Time of collection: 11:00am		Ref No.. 21493/5
Date of collection: March 16, 2010		Time of admitted: 10:30pm		Date.. 8/12/2002
Date of admitted: March 17, 2010				
Nature of the sample: - Spring water				
Results of the water sample analysis				
S/No	Parameters	MPL WHO Guide Line	Occurred Value	Remark
1	Color	Colorless	Colorless	Potable to drink
2	Taste	Tasteless	Tasteless	Potable to drink
3	Odor	Odorless	Odorless	Potable to drink
4	Temperature	<25°C	24.1°C	Potable to drink
5	Turbidity	5NTU	0.27NTU	Potable to drink
6	Appearance	Clear	Clear	Potable to drink
7	PH	6.5 – 8.5	7.97	Potable to drink
8	Electrical Conductivity (EC)	2000us	746us	Potable to drink
9	Total dissolved solids (TDS)	1000ppm	378ppm	Potable to drink
10	Total Alkalinity as CaCO <sub>3</sub>	400ppm	280ppm	Potable to drink
11	Nitrate	50ppm	44ppm	Potable to drink
12	Ammonia	1.5ppm	0.51ppm	Potable to drink
13	Total coli forms per 100ml at 37°C incubation temperature	0/100ml	TNTC	Not Potable to drink

**Mekelle Water Supply & Sewerage Service Office**  
**Water quality Lab**  
**Laboratory Report on Physicochemical analysis of water**

❖ **To Quiha city administration**

Site of collection: **From ZbanZala/Maykaebi, Quiha**

Date of collection: March 16, 2010

Date of admitted: March 17, 2010

Nature of the sample: - **Open river water**

Time of collection: 11:00am

Time of admitted: 10:30pm

Ref No...

Date...

*21494/5*  
*8/2/2002*

**Results of the water sample analysis**

S/No	Parameters	MPL WHO Guide Line	Occurred Value	Remark
1	Color	Colorless	Cloudy	Requires Filtration
2	Taste	Tasteless	It has Taste	Not Potable to drink
3	Odor	Odorless	It has Odor	Not Potable to drink
4	Temperature	<25 <sup>0</sup> c	24 <sup>0</sup> c	Potable to drink
5	Turbidity	5NTU	17.8NTU	Requires coagulants
6	Appearance	Clear	Turbid	Requires settlement
7	PH	6.5 – 8.5	8.13	Potable to drink
8	Electrical Conductivity (EC)	2000us	1008us	Potable to drink
9	Total dissolved solids (TDS)	1000ppm	505ppm	Potable to drink
10	Total Alkalinity as CaCO <sub>3</sub>	400ppm	300ppm	Potable to drink
11	Nitrate	50ppm	94ppm	Not Potable to drink
12	Ammonia	1.5ppm	0.74ppm	Potable to drink
13	Total coli forms per 100ml at 37 <sup>0</sup> c incubation temperature	0/100ml	TNTC	Not Potable to drink
14	Fecal coli forms per 100ml at 44 <sup>0</sup> c incubation temperature	0/100ml	TNTC	Not Potable to drink







#### Nebar Ketema Water Point Initiative Agreement

1. This is an agreement between Mekelle Water Supply & Sewerage Service Office represented by Mr. Gidena Abebe (hereafter 'Grantee') and Community Lab represented by Executive Directors Theodore Svoronos and Neal Lesh to provide partial funding to help construct two water points for safe potable water to the community of Nebar Ketema, Ethiopia. The parties to this initiative agree to the following points.
2. Community Lab agrees to provide US \$3,000 to the Grantee to facilitate the Mekelle 2010 Sanitation Microgrant to the community of Nebar Ketema to help support the implementation of their proposal for the construction of two water points. A copy of the proposal is attached.
  - a. The funds will be used to facilitate the specific steps in the Activity Plan Appendix A.
  - b. The funds will be used to purchase equipment, skilled labor, etc as outlined in the Budget (Appendix B). Any deviation of over 20% of any budget item requires written approval from Community Lab.
  - c. If the plan cannot be carried out for any reason (e.g., the people of Nebar Ketema do not contribute the work they said they would), the Grantee will return any unused funds to Community Lab.
3. Community Lab will deposit US\$2,800 (two thousand, eight hundred U.S. dollars) by wire transfer of funds to the bank account of Mekelle Water Supply upon signing of this agreement. Mekelle Water Supply will provide the information necessary for the wire transfer. Community Lab will deposit the remaining \$200 to the same bank account upon submission of a completed Monitoring Plan (Appendix C).
4. Mekelle Water Supply agrees to provide to Community Lab receipts for all expenditures by July 1, 2010.
5. The Grantee agrees to provide a final report by July 1, 2010 which:
  - a. Briefly describes the implementation of the Activity Plan (Appendix A), including any substantial obstacles or challenges faced.
  - b. Reports on the results of the intervention by submitting a complete Monitoring Plan as described in Appendix C.

## Appendix A: Activity Plan

The villagers of Nebar Ketema in partnership with their local administrators and the Mekelle Water Supply Service will install two pipelines from the main water system and construct two six-fauceted water points to the centers of the Nebar Ketema and Zban Zala areas.

A 32 mm HDPE pipe line will be connected to the main system to the proposed water points to a total of 1000 meter length which is 500 meters each. Two water points having six faucets will be constructed very close to the residents of Nebar Ketema & Zban Zala. The cost for industrial materials such as HDPE pipes & fittings, water meter, cement, and other aggregates will be covered from the microgrant and Mekelle water supply service. Community members from Nebar Ketema and Zban Zala will provide the labor free of charge for construction of the pipeline and will collect stone for the water point construction. The supplies will be purchased locally from Bruh Tesfa manufacturing company in Mekelle. The water points will be constructed from stone masonry containing 6 faucets.

The following table describes each step of the plan.

Activity	Start Date	End Date	Performed by Whom	Expected Outcome
Purchase supplies	3/29/10	3/29/10	Gidena Abebe	Supplies bought and receipt sent
Construction	3/30/10	4/20/10	Villagers Water Supply	Water point constructed
Water committee formation	4/1/10	No end	Villagers	Long term management of water point
Stone collection	4/1/10	4/1/10	Villagers	Stones for the water point collected
Water analysis	4/20/10	4/21/10	Abreha Kahsay	No fecal contamination
Poll of Villagers walking time	3/29/10	4/21/10	Aberash Abay	Shorter Walking time

					In Birr	(13 birr/USD)	
1	HDPE Pipes & fittings	m	1000	20.4	20,400.00	1,569.23	To be covered from the grant
2	Masonry Work	m <sup>3</sup>	12.5	1000	12,500.00	961.54	To be covered from the grant
3	Concrete work	m <sup>3</sup>	1.5	1500	2,250.00	173.08	To be covered from the grant
4	Technical Services	%	65		22,847.50	-	In kind contribution from MWSS
5	Earth work	m <sup>3</sup>	480	30	14,400.00	-	In kind contribution from community
6	Analysis and dissemination of results	-	-	-	-	\$296.15	Grantee can determine how to use these funds
	Total				72,397.50	3000	

### Appendix 3: Monitoring plan

The evaluation of the effectiveness of this intervention will be evaluated in two ways. Time to collect was and water quality analysis will be performed before and after the intervention.

The time to collect water will be evaluated by identifying 15 community members from different villages dispersed throughout Nebar Ketema and asking them how long it takes for them to collect water from the time they leave their home to the time they return to their home before and after the placement of the water points.

The water quality analysis will be performed by the Mekelle Water Supply Chemist. The original water quality analysis was performed on the two current sites of water collection in Nebar Ketema: Zban Zala Spring and May Bandera Spring. The post-intervention analysis will occur at the Nebar Ketema water point and the Zban Zala water point. The water analysis includes measurements of color, taste, odor, temperature, turbidity, appearance, PH, electrical conductivity, total dissolved solids, total alkalinity as CaCo3, nitrate, ammonia, total coli forms, and fecal coli forms.

	March	April	May	June	July
Average of 12 people's walking time to water	3.5 hours roundtrip				
Zban Zala	Cloudy.				

color	requires filtration				
Zban Zala Turbidity	17.8NTU, WHO guidelines <5NTU, requires coagulants				
Zban Zala Odor	Has odor, not potable to drink				
Zban Zala Taste	Has taste, not potable to drink				
Zban Zala Nitrates	94ppm, WHO guidelines <50 ppm, not potable to drink				
Zban Zala Total coli	Too numerous to count [tntc]				
Zban Zala Fecal coli	tntc				
Nebar Ketema Color	Colorless, potable				
Nebar Ketema Turbidity	.27 NTU, potable				
Nebar Ketema Odor	Odorless, potable				
Nebar Ketema Taste	Tasteless, potable				
Nebar Ketema Nitrates	44ppm, potable				
Nebar Ketema Total coli	Tntc, not potable				
Nebar Ketema Fecal coli	Tntc, not potable				





## **Ethiopia: A model for long term microgranting programs for water and sanitation**

## **Millennium Cities Initiative. Mekelle, Ethiopia. April 2010.**

**Composed by Aileen Chang.**  
**Millennium Cities Initiative, 2010.**  
[Ayc2113@columbia.edu](mailto:Ayc2113@columbia.edu)  
001-917-834-1181

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*Please forgive me if I have left anyone  
out.*

## **Ethiopia: A model for long term microgranting programs for water and sanitation**

**Abstract.** A microgrant is a small sum of money donated for the purpose of improving the standard of living of impoverished communities. The goal of this paper is to suggest a model which non-governmental organizations may employ to initiate long-term microgranting programs for improving access to safe drinking water and basic sanitation. The model involves the partnership of the microgranting organization with water desks at the woreda level and communities at the kebele level. The aim of the model is to facilitate long term infrastructure and capacity building with regards to the administration of microgrants. While the model is specifically applicable to microgranting in Ethiopia, many of the recommendations may be applicable to microgranting projects in other countries. The paper will address the value of microgranting to water and sanitation, the importance of partnership with the local government, and considerations for how to design a microgrant program.

### **Contents**

- I. Why should microgrant funds be targeted towards water and sanitation?
  - a. The current situation for global water
  - b. The current state of water and sanitation in Ethiopia
- II. Why is it important to integrate local government into microgranting programs?
  - a. Water sector problems
  - b. The need for strengthened governance in Ethiopia
- III. How to design an effective microgrant for water and sanitation involving the local government
  - a. Introduction to the model
  - b. Goals of the model
  - c. Six steps to start a microgranting program

**Abbreviations**

AMCOW.....	African Ministers' Council on Water
BoFED.....	Bureau of Finance and Economic Development
BoWR.....	Bureau of Water Resources
MCI.....	Millennium Cities Initiative
MDGs.....	Millennium Development Goals
MO.....	Microgranting Organization
MoEducation.....	Ministry of Education
MoFED.....	Ministry of Finance and Economic Development
MoHealth.....	Ministry of Health
MoWR.....	Ministry of Water Resources
NGO.....	Non-Governmental Organization
OECD.....	Organization for Economic Co-operation and Development
PASDEP.....	Plan for Accelerated and Sustainable Development for the Eradication of Poverty
UAP.....	Universal Access Plan
WHO.....	World Health Organization



## **I. Why should microgrant funds be targeted towards water and sanitation issues?**

There is great value to improving access to safe water and basic sanitation. In addition to decreasing the incidence of water-related illness, improved water and sanitation access also plays a role in reducing poverty, hunger, and child and maternal mortality [1].

### ***The current situation for global water***

The United Nations has recognized the importance of improved access to safe drinking water and basic sanitation. As a part of their Millennium Development Goals (MDGs), the United Nations has set the target to “halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation (from 1990 levels).” The proportion of people with access to safe drinking water is defined as the percentage of the population with at least 20 liters per person per day available from an “improved” source within .5 kilometers of the user’s dwelling. Improved sources include household connections, public standpipes, boreholes, protected dug wells, protected springs, and rainwater collections. The proportion of people with access to basic sanitation is defined by the WHO and UNICEF as the percentage of the population using improved sanitation; excreta disposal systems are considered adequate if they are private and separate human excreta from human contact. Improved sanitation systems include connection to a public sewer, connection to a septic tank, pour-flush latrine, simple pit latrine, ventilated improved pit latrine, or public or shared latrine if covered and enables a form of privacy [2]. In 2010, still 884 million people drink from unprotected water sources and 1.1 billion people relieve themselves outdoors [3]. Therefore, substantial improvements in water and sanitation are needed.

In addition, there are global inequalities with respect to water access. The percentage of people without access to water is 15% in Latin America and the Caribbean, 20% in Asia, and 40% in Africa. The percentage of people without sanitation is 20% in Latin America and the Caribbean, 50% in Asia, and 40% in Africa. Furthermore, population growth will increase inequalities as the urban population alone is expected to double in the Asia and Africa in the next 25 years [4].

In 2001, a world water panel was formed by the Global Water Partnership, the World Water Council, and the 3<sup>rd</sup> World Water Forum to address how to reach the MDG targets. The panel included 20 experts with executive experience in politics, banking, financial ministries, international development and financial agencies, non-governmental organizations, private water companies, and eminent independent professionals. The panel was chaired by M. Michel Camdessus, the former Managing Director of the International Monetary Fund and now the Honorary Governor of the Banque de France. The panel held seven meetings in order to develop broad financial policy recommendations with a 25 year perspective [4].

The Camdessus Panel reported in 2003 that the spending on new water infrastructure in developing and emerging countries was approximately US \$80 billion a year. They predicted that the spending would need to more than double to US \$180 billion per year in order to finance household sanitation, wastewater treatment, irrigation, and other water schemes [4].

Financing water has important health and economic benefits and increased water financing is greatly needed in order to achieve the MDG target to reduce by half the number of people without access to safe drinking water and sanitation. Microgranting is one method to address water financing disparities in developing countries.

### ***Current state of water and sanitation in Ethiopia***

In 2006, the African Ministers' Council on Water (AMCOW) met to discuss the progress of African nations towards the MDGs for water and sanitation. They reported the coverage goals that would represent a 50% increase in the percentage of people with access to water and sanitation from 1990 coverage levels. In Ethiopia, the water coverage targets to be achieved by 2015 were 62% total coverage, 90% urban coverage, and 66% rural coverage. The sanitation coverage targets were 52% total coverage, 75% urban coverage, and 52% rural coverage [5].

Substantial gaps existed in terms of funding to increase coverage. The public investment required was estimated at US \$297 million per year for ten years. At the time, there was only US \$100 million per year of planned investments leaving a financing gap of US \$197 million per year [5].

There were also gaps in capacity for the implementation of improved coverage. The council determined that sector performance needed to increase by a factor of 1.3 in the water sector and 12.7 in the sanitation sector [5].

Also in 2006, the Ethiopian government developed an ambitious strategy to surpass the MDGs and achieve 100% water coverage and 98% sanitation coverage by 2012 called the Universal Access Plan (UAP) [5]. Although performance has fallen short of coverage rates needed to achieve the UAP, these strategies have supported enormous growth in water and sanitation over the last four years.

For example, national water coverage percentages as reported by the Ministry of Water Resources in 2010 were total 68.5%, urban 81.5%, and rural 65.8% [6]. The total water coverage rate would indicate that Ethiopia has already surpassed the MDG target of 62% coverage. However, there is reason to believe that these values may be inaccurate [7].

A comparison of the planned versus executed water constructions by the Ministry of Water suggest inaccuracies in coverage reporting. As part of the five-year Plan for Accelerated and Sustainable Development for the Eradication of Poverty I (PASDEP I) from 2005-2010, targets were set for the number of water constructions needed to reach 84.5% national water coverage in 2010 where it was 35% in 2005. 2133 deep wells, 14908 medium water wells, 101355 shallow wells, 11065 spring developments, and 404 water ponds should have been constructed to reach the target [6]. Less than half of these constructions were completed. Therefore it is unlikely that the coverage rates are as high as reported above [7].

Nevertheless, the Ethiopian Government has reviewed the program performance of the UAP from 2006-2008 and reformulated UAP strategies for 2009-2012. The current implementation rate is only 75% of the rate needed to achieve universal coverage by 2012. This would leave 18,073,000 people without safe water or basic sanitation in 2012. They predict at the current implementation rate it will take until 2016 to reach universal coverage [8].

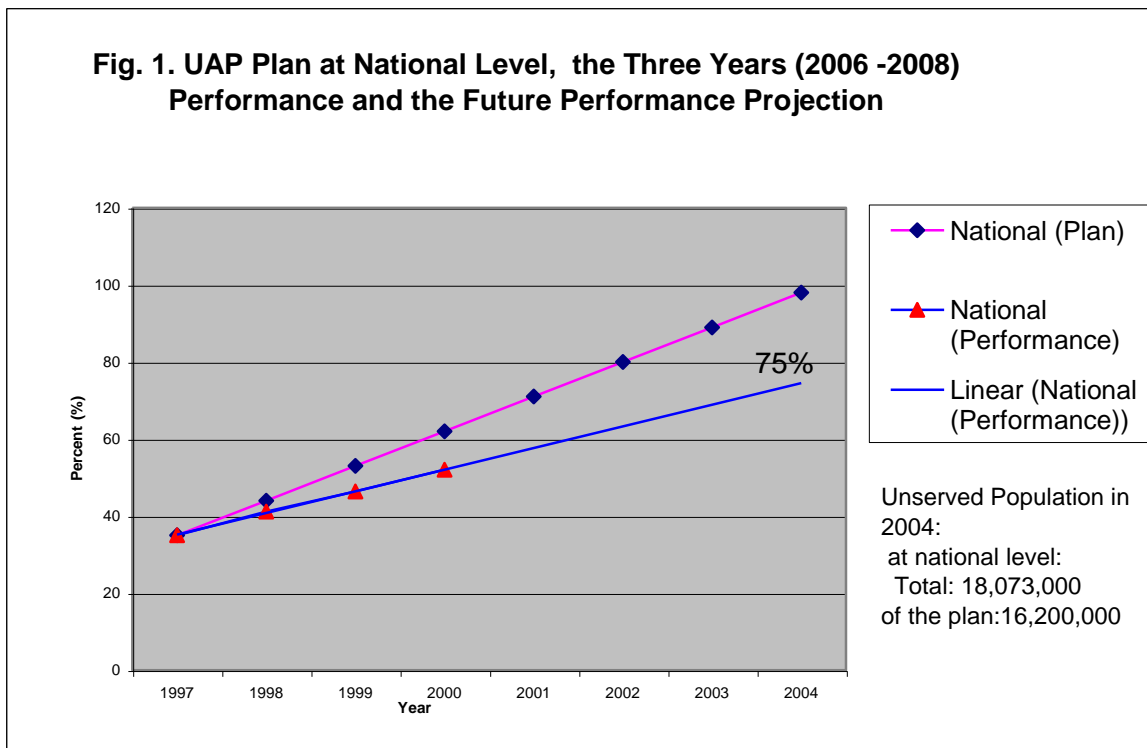


Figure 1. UAP Plan at National Level, the Three Years Performance and Future Performance Projection. *Please note that the Ethiopian calendar varies from the European calendar by eight years such that year 2000 on the Ethiopian calendar is equivalent to year 2008 in the European calendar [8].*

Government officials at all levels report that the primary obstacle to supplying adequate water and sanitation coverage is insufficient funding [7, 9-14]. There are multiple economic factors contributing to Ethiopia's inadequate water budget. The most important factor is a meager national budget as a result of the poor national economic condition. Despite multiple natural resources such as coffee, leather, oilseeds, khat, gold, marble, limestone, tantalum, potash, natural gas, iron ore, and potential for lucrative farming of livestock, flowers, grain, sugar, vegetables, and fruit [15], Ethiopia's GDP per capita in 2009 was only US \$900 [16]. Agriculture accounts for 45% of the GDP and 85% of employment. Periodic severe droughts, poor agricultural practices, deforestation, high population density, undeveloped water resources and poor transport infrastructure greatly limit Ethiopia's agricultural productivity [15]. As a result, 38.7% of the population lived below the poverty line in 2006 [16].

Although, the International Monetary Fund (IMF) forgave Ethiopia's debt in 2005, Ethiopia's external debt was US \$4.229 billion as of 2009 and accounted for 31.7% of its GDP [16]. The Ethiopian government has employed many of the macroeconomic policies suggested by the IMF including focusing the economy towards exports of a few crops, privatization of state enterprises, price stabilization by reducing inflation, and important for this discussion, budget austerity. While these steps have been successful in lowering the inflation rate from 44.4% in 2008 to 11% in 2009[16], the government has had limited success attracting foreign investment [15]. Exports at US \$1.608 billion in

2009 were greatly overshadowed by the US \$7.315 billion dollars in imports that same year [16]. Ethiopia is reliant on imported oil resulting in oil imports of 33,590 bbl/day in 2007. All of these factors have resulted in a budget where expenditures (US \$5.36 billion in 2009) outweigh revenues (US \$4.678 billion in 2009) [16].

For the above reasons, the Ethiopian national budget is insufficient to finance nation-wide water and sanitation coverage. For example, the total cost for the PASDEP II water and sanitation plans from 2010-2015 is 15.7 billion birr with an average of 3.1 billion Birr per year. However during PASDEP I from 2005-2010 the average annual budget allocation was 1.1 billion birr. Therefore, the national budget allocation will need to approximately triple from current expenditures in order to achieve universal coverage. [6].

The contributions of multiple parties are included in the government's plan for funding PASDEP II with 24.17% from the government itself, 46.35% from donor agencies, 5.52% from non-governmental organizations (NGOs), 17.22% from urban customers, and 6.74 % from rural customers [6].

In summation, Ethiopia is making definite progress towards universal coverage but its meager national budget and thus water and sanitation budget is the main obstacle to advancement of the strategic plan for improved coverage. NGOs play a small but important role in financing water and sanitation initiatives. Microgrants facilitated by NGO's can be an effective way to address gaps in funding.

## **II. Why is it important to integrate local government into microgranting programs?**

*“There is now a broad consensus among developing country governments, many parts of civil society and donors, that improving the governance of water is a prerequisite for any successful reform of the water sector [17].” EU Water Initiative.*

### ***Water sector problems***

In addition to an inadequate budget as discussed above, weakness in government is another important cause of water sector problems. The Camdessus Panel reports that “there is general agreement in expert presentations to the panel that the water sector's problems arise partly from weaknesses in government and partly from risks specific to the sector.” These problems as presented by the Camdessus Panel are listed below [4]:

The main problems pertaining to governance:

- a. The apparent low priority given to water sector issues by central government
- b. Confusion of social environmental, and commercial aims
- c. Political interference
- d. Poor management structure and imprecise objectives of water undertakings
- e. An inadequate general legal framework
- f. Lack of transparency in award contracts
- g. Non-existent, or weak and inexperienced regulators
- h. Resistance to cost-recovering tariffs

The main sector-specific problems include:

- i. Project profiles tend to involve capital intensive with high initial investments and long payback periods
- j. Low rate of return
- k. Foreign exchange risk: mismatch between revenues in local currency and finance in foreign currency
- l. Sub-sovereign risk: decentralized water agencies with service responsibility but lacking financial resources and credit standing.
- m. Risk of political pressure on contracts and tariffs with weak and inconsistent regulation
- n. Contractual risk: projects of long-duration entered into on the basis of poor initial information.

Microgranting to the water sector has the opportunity to address some of these problems. Funding water projects increases the priority given to those water issues, increases capital for water infrastructure, and can support decentralized water desks [11]. Capacity building during the microgrant process can improve future management of water undertakings [9-12]. In addition, a three party model involving the microgranting organization, the local government, and the community acts as a check and balance system to improve transparency and accountability. It also provides the opportunity to consult experienced regulators during the microgranting process. Thus, a microgranting program can be structured to improve local governance while simultaneously improving water coverage. Improvements in local governance will have long term effects in the production and management of effective water projects in the future.

### ***The need for strengthened governance in Ethiopia***

In the last 15 years, Ethiopia has experienced tremendous growth in terms of the development of water policy. In 1995, the Ministry of Water Resources [MoWR] was created to manage water-related issues. In 1999, the MoWR developed the Water Resource Management Policy to coordinate a nation effort to optimize the use of the countries water resources [18]. In the following years, multiple policy strategies were designed including the 2001 Water Sector Strategy, the 2002 Water Sector Development Program, the 2004 Water Supply Master Plan, the 2005 Plan for Accelerated and Development to End Poverty, the 2006 Universal Access Plan, the 2006 National Protocol for Hygiene and Sanitation, and the 2009 Universal Access Plan. Formulation of PASDEP II for 2011 to 2015 is currently in progress.

Although comprehensive water policy exists, government weaknesses in terms of budget utilization and the capacity of local water desks interfere with the efficient implementation of this policy. Budget utilization has been improving over the last five years, however increased efficiency is needed. For example, during the 2005/2006 budget year it is estimated that only 61% of the available budget was utilized. Factors contributing to underutilization include lack of personnel, delay in release of funds, absence of effective mechanisms to manage the finance, weak capacity of local contractors, and lack of materials [18]. In 2009, 73% of the planned budget was utilized. [8]. Poor utilization of budget resources can be improved by administrative and technical capacity building achieved during the microgranting process.

In addition, limited capacity of the lowest level government is another obstacle in the efficient implementation of water projects. The importance of the role of the lowest

level local government has increased over the last fifteen years due to decentralization of power. In 1995, the Ethiopian constitution identified nine regional states. In 2001, each state developed its own regional constitution and the Ministry of Water decided to decentralize the water sector [19]. In 2002, a lower tier called the woreda was created with elected councils that were assigned portions of the national budget [18]. While national and regional water offices are responsible for the formulation of policy and provision of technical support, the task of actual implementation is the responsibility of the woredas.

At the woreda level there is a lack of personnel and expertise for successful implementation of water projects [12]. For example, at the Enderta Woreda in the Tigray Region, Solomon Hailu, the Vice-Head of Water Resources reports that although they have 12 people employed at the woreda water desk, they need about 26 people. Their staff is currently made up of 6 community experts, 2 geologists, and 4 engineers. He reports that the woreda needs more personnel with training in water site selection such as watershed experts who analyze topography and hydrogeologists who analyze soil and rock types to determine the likelihood of underground water. He also points out the need for environmental analysts to perform feasibility studies on the environmental impact of particular water projects, surveyors to design water diversion systems, and economists for financial management [11]. At the regional level, Michael Testaye, the Director of the Tigray Water Bureau reports that at the regional office there is not enough staff to handle all of the woreda training needs [12]. Finally, at the ministry level, the African Ministers' Council on Water specifically recommends capacity building at the woreda level in order to increase the sustainability of water development [5]. Low capacity at the woreda level is a significant factor in reduced efficiency of water projects. Microgrants should seek to address these training gaps by bringing in technical experts that teach during the implementation process. Supplying external technical experts as consultants can improve the quality of present and future water projects and relieve some of the pressure on volume-stressed government technical experts at the regional level.

In summary, efficient implementation of Ethiopian water policy depends upon strengthening the government to improve budget utilization and woreda level capacity. One of the goals of a long term microgranting organization should be to address these weaknesses.

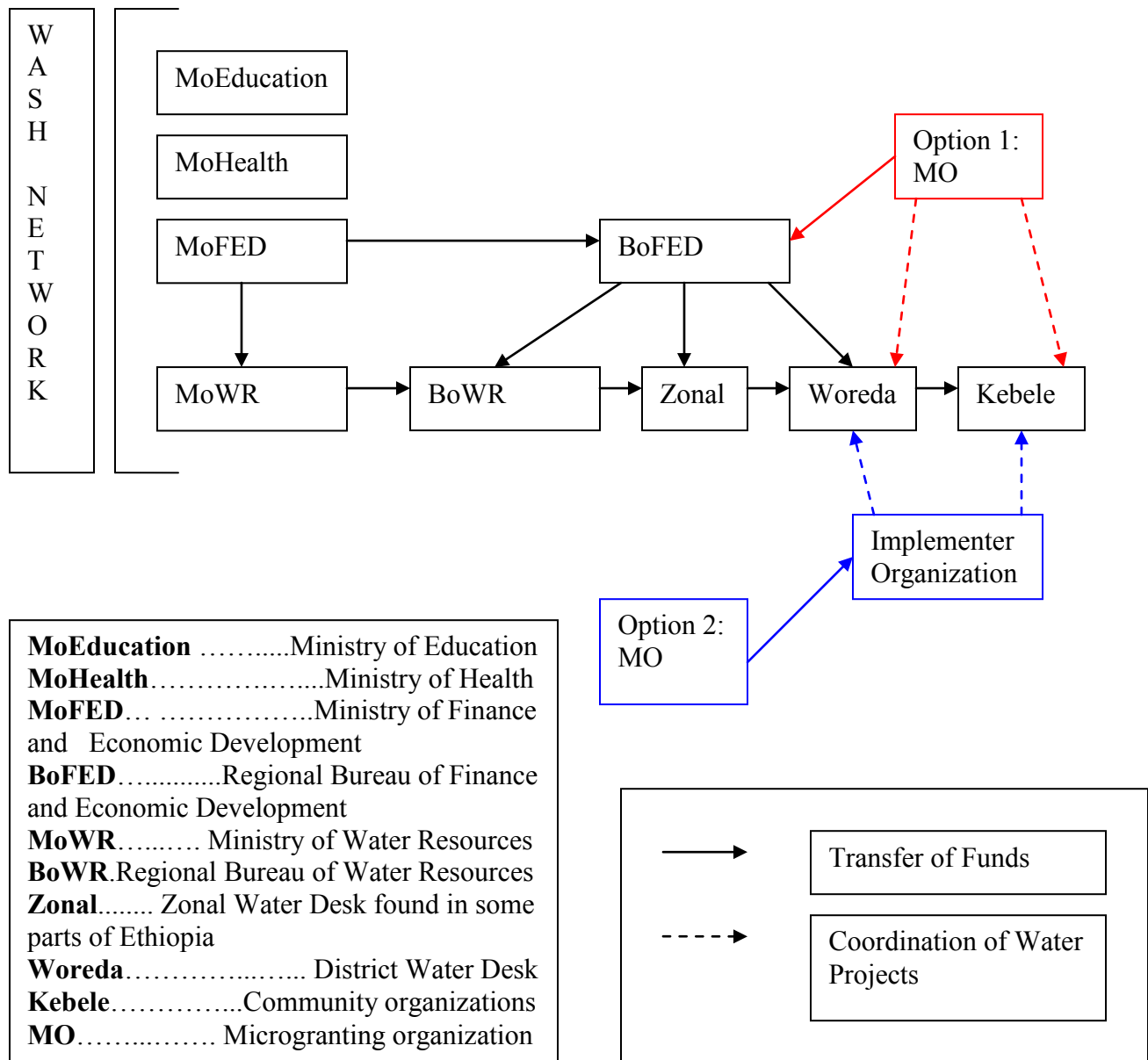
### **III. How to design an effective microgrant for water and sanitation involving the local government**

#### ***Introduction to the model***

This model is proposed based on experience from a 2010 pilot microgrant for water and sanitation in Mekelle, Ethiopia initiated by the Millennium Cities Initiative and Community Lab [20], interviews of Ethiopian government officials at the federal, regional, and woreda levels [7, 9-14, 22-24, 26], interviews of local non-governmental organizations [25, 27-30], communities [22], and literature primarily from European Union Water Initiative [17], the Camdessus Panel [4], and Wateraid [18]. While this model is specifically applicable to the Ethiopian government structure, present financing situation, and infrastructure of NGOs currently present, many of the main ideas may be applicable in other countries for the start-up of small scale microgranting projects. Please

refer to the figure below as the structure of the proposed microgranting system is described.

Figure 2: Microgranting Model Structure



Currently, there are three channels for dispersal of water funding. The first channel involves allocation of the national budget by the Federal Ministry of Finance and Economic Development (MoFED) and the Regional Bureau of Finance and Economic Development (BoFED) directly to the federal Ministry of Water (MoWR), regional water bureaus (BoWRs), or woreda water desks. The woredas coordinate water projects with peasant associations/community groups at the kebele level. The second channel funnels aid from private donors to the Ministry of Water Resources to the regional Bureau of

Water Resources to woreda water desks. The third channel involves direct funding of water projects via non-governmental organizations; these funds are not accounted for in the budget framework [18].

The WASH Ethiopia movement is coordinated by the Water Supply and Sanitation Collaborative Council. WASH Ethiopia is a network of government organizations, international donors, civil society groups, private sector companies, and faith-based organizations doing water and sanitation work in Ethiopia [31]. The national WASH coordinator at the Ministry of Water Resources, Gilebo Sengogo, plays a pivotal role in coordinating communication between the Minister of Health, Minister of Education, the Minister of Finance, and the Minister of Water to create national strategic plans for water development. At the regional level, WASH coordinates the communication of all relevant bureau heads to guide the program and prioritize areas and interventions [14, 27]. At the community level, WASH coordinates training programs that lead to increased sustainability of WASH movement goals [25]. Microgrants to water and sanitation in Ethiopia should be intimately coordinated with WASH to build long term infrastructure for microgranting and also to avoid redundancies in program efforts.

We will consider two ways that a microgranting organization (MO) can fit into this system. Option 1 is that the MO works directly at the woreda and kebele levels to fund projects and increase capacity. In this case, the woreda is responsible for the implementation of the water project and the MO provides funding and technical expertise. The funding in this case should be submitted to the regional budget for approval and transfer to the woreda budget [23]. This process will be described in more detail in coming sections.

Option 2 is that the MO funds implementer or partner organizations that perform the implementation. Often times the implementing organization will coordinate with woredas and kebeles. For example, Wateraid funds in partner organizations in this manner to run construction projects, training programs, etc [28].

There are benefits and drawbacks to both options. Option 1 is favorable because it strengthens the government system by allowing monitoring and regulation of the funds [23], and increases capacity at the local level because the government officers at the woreda are doing the project implementation [14]. With option 1, the offices are already staffed and maintained by the government recurrent budget, so limited overhead costs will be deducted from the microgrant amount [14].

Option 2 is favorable because small partners will likely be more efficient in administrative tasks but a significant percentage of the microgrant will have to go to overhead costs of office staffing and maintenance. Wateraid, for example, minimizes overhead costs by requiring that no proposal exceed 30% in overhead [28].

On the whole, option 1 is more favorable for microgranting as it strengthens the local government and allows a greater proportion of small microgrants to go to their intended purpose [14].

In summary, a microgranting organization in Ethiopia should organize at the woreda and kebele level and coordinate with WASH in order to ensure the most efficient use of funds and the most long term development.



### ***Goals of the Model***

This model was constructed to achieve four main goals:

1. Empower the woreda with improved technical and administrative capacity
2. Improve water and sanitation with small-scale grants
3. Coordinate with other NGOs
4. Support national government participation by incorporating the funding into the national budget

The following discussion will address how a MO can achieve each of these goals.

#### ***1. Empower the woreda with improved technical and administrative capacity***

Each player in this model has a different role. The role of the MO is to coordinate the three entities, provide start-up capital, provide legal and technical advice on best practices, build capacity, and develop information systems. Coordination with the woreda and kebele should seek to structure citizens' participation, planning, feedback, and monitoring with the goals and resources at the woreda water desk. Capacity building should occur in the areas of water source investigation, design, engineering, water quality control, operation and management of water projects, and construction technologies [32]. Information systems can be further developed by encouraging improvements in expenditure reporting and documentation.

At the woreda level, responsibilities dictated by the government include communication of national and regional targets, construction and maintenance of hand-dug wells and spring developments, monitoring construction done by the regional bureau or private companies contracted by the bureau, management of off-budget investments, operation and maintenance of water projects [18]. The microgranting organization can assist the woreda in drawing-up accurate plans and budgets and project implementation. The woreda provides the kebeles a stable connection to government funds and expertise by performing periodic kebele surveys to identify problems and prioritize resources [11].

Each kebele has various peasant associations and community groups that are important in community mobilization; cost and labor contributions to water projects; site selection; proposal development; identification and prioritization of needs; planning, implementation, and performance monitoring; and providing information about coverage [18]. The microgranting organization can aid in the organization of these activities with the woreda desk.

Using the above division of roles, the MO can assist in the empowerment of the woreda level.

#### ***2. Improve water and sanitation with small-scale grants***

Microgrants can be targeted towards multiple different projects within water and sanitation. Possible targets include rural access to potable water, rural access to latrines, improved hygiene, urban access to water, urban sanitation, urban water waste management, water infrastructure, capacity building, private sector participation, improved water governance, and local technologies.

Local technology projects are particularly well-suited to microgranting [9, 12, 13]. While microgrants are insufficient for large projects like drilling boreholes, liquid waste water treatment plants, and solid waste treatment plants, local technologies can often times be implemented by communities with the help of local government experts

for little cost [33]. In addition, the capital for these construction projects can be conveniently funded by discrete, one-time microgrants. Examples of local technologies and their estimated costs are in the following table.

Table 1: Local Technologies for the Provision of Water Supply and Sanitation

Local technology	Description	Cost
Hand dug well	A 6-8 meter well [11] that can be dug by local communities with masonry and plastering performed by a professional	40,000 birr [13]
Rain water catchment	A catchment device that is placed on the roof of schools and other public building that collects water during the rainy season that is stored in an underground tank [13]. Rain water catchments provide a less continuous and overall water supply than the supply from hand dug wells in Ethiopia due to a short and consolidated rainy season [11].	80,000 birr [13]
Spring development	In mountainous areas, clean water from springs with no major contamination can be developed at the site and capped. This water is then diverted to a collection chamber and then to a distribution point [13].	35,000 birr [13]
Traditional Pit Latrine	A pit latrine with a minimum water requirement of 1-2 liters per person per day [34]	Construction: 400 birr Rehabilitation: 160 birr Operation: 40 birr [35]
Pour flush toilet and septic tank	A toilet that can be flushed by pouring water into the bowel. This toilet requires 7.5 liters per person per day [34]	Construction: 15,000 birr Rehabilitation: 6000 birr Operation: 1500 birr [35]
Latrine and communal septic tank	A pit latrine connected to a communal septic tank	Construction: 1000 birr Rehabilitation: 4000 birr Operation: 1000 birr [35]
Communal VIP latrine	A ventilated improved pit (VIP) latrine that has no water requirement	Construction: 14400 birr Rehabilitation: 5760 birr Operation: 1440 birr [35]

### 3. Coordinate with other NGOs

By becoming a recognized partner of the WASH Ethiopia Movement, WASH administrators can guide MO programs to coordinate partnerships with related NGOs working on similar projects to prevent redundancies. They can also ensure that the MO

projects are within national policy goals and government regulations. The WASH program is an important network that can strengthen the microgranting organization.

#### ***4. Support national government participation in microgranting by incorporating the funding into the national budget***

While incorporation into the national budget will cause significant delays in the disbursement of funding as compared to direct transfer of the funds to the community, this is an important element of a long term microgranting program because it allows the contributions of all MOs to be monitored, documented, coordinated, regulated, and co-funded under the nation system [23].

Incorporation in the national budget can be accomplished by first developing the project proposal at the kebele and woreda levels. The microgrant funds can be submitted with a target project and woreda in the header to BoFED three times per year. Proposal development should be scheduled around these tri-yearly budget cycles. BoFED will submit all the fund proposals to MoFED that submits them to Parliament for approval. Once approval is granted the funding is allocated to the specific woreda office [23].

#### ***Six Steps to Start a Microgranting Program***

Starting a microgranting program can be divided into six steps: Preparation, Fundraising, Proposal Development, Budget Submission, Implementation and Evaluation.

##### **Step1: Preparation**

Use information from the regional level to identify a woreda to work with and meanwhile identify a regional partner for the steering committee once the grant is raised. At the woreda level, there will government administrators assigned to each kebele called kebele experts [11]. Pair with a kebele expert. With the kebele expert, compile background information such as coverage information and develop the fundraising timeline, goal, and strategy.

It is important during the preparation stage to clearly define the amount, target, timeline, and responsibilities of each party as this allows the future grant to be included into the budget and thus increases organizational efficiency of the staff. In fact, the Organization for Economic Co-operation and Development (OECD) was reported by the EU Water Initiative in 2007 to be “by far the most experienced international organization with regard to financing strategies in water supply and sanitation.” The OECD is a strong advocate for „SMART targets“ [17] which are Specific, Measurable, Agreed, Realistic, and Time-bound targets. The benefit of defining such targets for financing is that SMART funds can be easily incorporated into the public budget and monitored on a regular basis.

##### **Step 2: Fundraising**

Funds should be raised as a block that will go the woreda which will provide flexibility in funding proposals at multiple different kebeles at the same woreda [11]. For example, a microgrant fund could be raised for „Rural Latrines in the Enderta Woreda“.

Personal invitations to contribute should be extended to people and organizations that may have a particular interest in that area or cause in order to stimulate donation.

### Step 3: Proposal Development

Once the funds have been raised, develop a steering committee [11, 17] consisting of the MO representative, the kebele expert, the regional representative, and technical experts. Coordinate your plans with MoWR, BoWR, and WASH [7, 13, 14, 17, 23]. With this steering committee develop contracts where responsibilities are clarified and proposals that include targets, budgets, and timelines. Submit these proposals for technical review by experts. During the proposal development process, administrative capacity building should occur. The MO representative should allow the primary composition of the proposal to be done by the kebele expert and assistance in the realm of developing SMART targets, accurate budgets, and feasible timelines can be given.

Additional considerations in microgrant proposal development for water projects include promoting local capital markets and designing sustainable cost recovery. Local capital markets can be promoted by supporting local products, labor, and expertise whenever possible. This is favorable for encouraging long term economic development of the area and for developing relationships with private companies that may lend to similar water projects in the future [4].

Designing sustainable cost recovery is another element that should be considered in the proposal. A sustainable cost recovery system can be defined as a system where expenditures such as investments, operation costs, and maintenance costs are balanced with revenues from public sources, user charges, loans, or grants [17]. Please recall from above that the Camdessus Panel reported that *resistance to cost-recovering tariffs* is one of the root problems in providing adequate water coverage on a long term basis [4].

In Ethiopia, cost recovery is too low to cover operating costs so the government currently subsidized water supply costs [9]. Water tariffs are primarily based on affordability and willingness to pay. Secondary concerns are sustainability, cost recovery of operation and maintenance costs, and funds for depreciation of constructions. To supply one cubic meter of water costs 4.5 – 5 birr [9].

For example, in Mekelle, the water supply tariff is a four tiered structure where usage rates by cubic meter determine the tariff. Whereas, poorer populations tend to consume lower volumes of water placing them lower tariff tiers, wealthier populations consume greater volumes of water placing them in higher tariff tiers. The tariff revenue from low volume users does not provide recovery of supply costs, charging 2.3 and 3.5 birr per cubic meter. Higher volume users pay tariffs in excess of the supply cost in order to subsidize the cost of water supply to the lower volume users [9].

Table 2: Tarriff Structure in Mekelle Town Water Supply and Sewerage Office [36]

Category	Water Usage Rate (m <sup>3</sup> )	Fee in Ethiopian Birr (per m <sup>3</sup> )	Fee in US Dollars (per m <sup>3</sup> )
Domestic	0-5	2.3	0.24
	6-10	3.5	0.37
	11-20	5.5	0.58
	>20	6.1	0.64
Non-domestic: Commercial, Industrial	Flat Fee	6.1	0.64

#### **Step 4 Budget Submission**

As outlined above submit the funding for approval in the budget cycle.

#### **Step 5 Implementation**

The woreda should act as the primary implementer and the MO can act as a consulting party. The MO can assist with formation of action plans, deadlines, and technical advice [17].

#### **Step 6 Evaluation**

Evaluation should include monitoring, feedback, and technical review. Effectiveness of the intervention can be monitored by markers that may change specific to the intervention, the number of people who have gained access to water and sanitation, the average aid efficiency ratio of the water project (the number of people served divided by the grant value), and the leverage effect which is the total amount of financing mobilized by the grant for the water project [4]. Agreements for dual evaluation by the government and the MO are recommended for accuracy [28].

In addition, the evaluation process should include three-way feedback between the woreda, kebele, and MO. This communication can be helpful in identifying corruption or other unethical processes and improve future implementation of water projects. Formal evaluation reports should be shared with the national and regional governments as well to improve future coordination of the grants.

#### **Conclusion**

In closing, microgranting to water and sanitation can be a valuable way to improve the health and economic condition of communities. Empowering the local government during the microgranting process is an important element to encourage long term capacity in the planning and implementation water projects. Finally, the above described model can be used to provide a framework for starting new microgranting programs.

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