



# EWBlast!

The Yale Student Chapter of Engineers Without Borders

## Vision

*EWB-USA supports community-driven development programs worldwide through the design and implementation of sustainable engineering projects, while fostering responsible leadership.*

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## Dear EWB friends new and old,

We have returned from an amazing trip to Kikoo in January 2010! Thanks to your support, we are closer than ever to the completion of the Kikoo water project, and our growing organization here at Yale is ready to continue working hard.

In addition to preparing this semesterly newsletter for readers like you, we are preparing a comprehensive curriculum of civil engineering topics, practical workshops, and special lectures by guest speakers so that future EWB members and the Yale community can benefit from everything we've learned as a group.

Other exciting new work involves collaborating with other Yale organizations and investigating potential new projects, as our main project in Kikoo will be wrapping up construction by June 2010.



*The EWB-Yale team*



*The January 2010 travel team, standing near the spring catchment in Kikoo.*

Thank you so much for your continued interest in our organization. We will continue to work hard to build relationships and communities, both here at Yale and across the world, and we hope that you'll be with us every step of the way. For now, enjoy the latest issue of EWBlast, and take a look at the exciting progress made during our most recent journey to Kikoo!

*-Rohan Agarwal and Jonathan Yeh,  
2010 YSC Co-Presidents*

## What is the Kikoo project?



*Yiibey, an active women's group in Kikoo*

Kikoo is a village of approximately 1000 people located outside of the city of Kumbo in Northwest Region, Cameroon. Access to clean water for drinking and washing has been a major problem for the community, as stream sources are heavily polluted with human and animal wastes, and extra

fuel for boiling water is prohibitively expensive. Prior to our involvement, gastrointestinal diseases such as diarrhea and dysentery were widespread, representing the largest cause of illness for children below age five.

In 2006, Kikoo and the neighboring village of Roh created a Water Committee to address these problems, identifying a clean but difficult-to-access water source 1.5 kilometers from the village, and beginning construction of a catchment box and pipe system. Facing technical and financial challenges, they brought their project to EWB-USA through the Social Welfare Department of the local diocese of Kumbo. The support of EWB-Yale, combined with over 10,000 man-hours of volunteer labor contributed by the Kikoo and Roh communities, has resulted in the construction of a gravity-fed water distribution system with a 20,000 liter storage tank, eight standpipes and over seven kilometers of buried piping connecting a clean spring to two thirds of the community.



## Cameroon 101

**Full name:** Republic of Cameroon

**Location:** West coast of Africa,  
between Nigeria and Gabon

**Population:** 18.8 million

**Currency:** Central African CFA franc  
(1 USD ~436 CFA)

**Language:** Official Languages are  
English and French, over 200  
languages and dialects are spoken

**Religion:** Indigenous beliefs,  
Christianity, Islam

**Population without access to  
clean drinking water:** >50%  
(United Nations Development Fund)

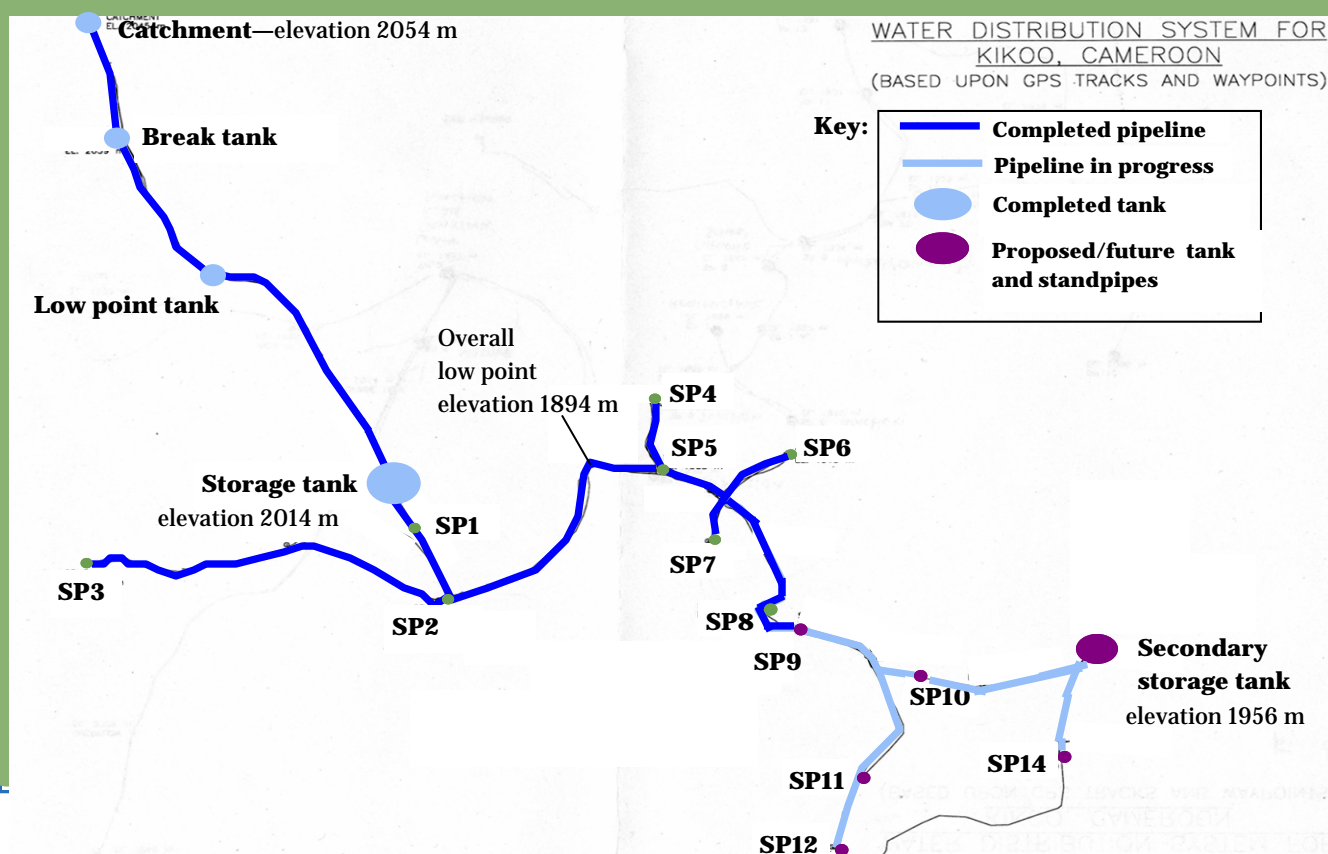
## Construction update

As of February 2010, standpipes (water collection stations) have been constructed at 8 of the original 14 locations identified by the community at the beginning of the project. Pipe has been laid up to standpipe 7, and is currently being laid towards standpipe 8 when connected this standpipe will serve both the village clinic and elementary school.

During the trip, we were able to excavate the site for a second storage tank and help villagers prepare construction materials. As originally intended, the Kikoo community has been given all the necessary instructions and will be able to finish the tank in our absence. We will be in constant contact with our local partners to ensure that the work proceeds smooth, and that we can be of any technical help, if the need arises.

Thanks to the generous support of our donors, we were able to transfer enough funds to Cameroon to finish the project. The community in Kikoo estimates that it can finish the storage tank before the rainy season begins in April. Concurrently, pipeline is being laid from standpipe 7 up towards the second storage tank. As of March 22, standpipe 8 is connected and functional, while standpipes 9 and 10 should be delivering water within a few weeks. Once the tank is finished, the community in Kikoo will be able to finish the system by extending pipeline from the tank and constructing the remaining standpipes in eastern Kikoo.

We are estimating that the Kikoo water system, shown below, will be fully completed by June 2010.





## January '10: A new team in Kikoo

This most recent trip in January 2010 was EWB-Yale's fourth trip to Cameroon. A team of 7 students and 2 professional mentors crossed the Atlantic over winter break, and spent week and a half in Kikoo and Roh together with local engineering students and professionals. The primary goal of the trip was to begin construction of a second storage tank, which will stabilize water flow to the last, most eastern third of Kikoo, enabling the system to be completed.

After arriving on New Year's Eve to a jubilant welcome ceremony, the team split in several groups. One group, with the help of new mentor Jeremy Smith, conducted a topographic survey run of the entire Kikoo system in order to finalize the location of the second tank. They combined a Total Station surveying system with a handheld GPS unit, collecting the most detailed topographic data that we have ever obtained in Kikoo. Afterwards, work on the second tank began in earnest, with EWB members and local villagers working together to excavate the tank site.

Meanwhile, another group inspected the entire existing distribution network, testing water quality and flow rates at each standpipe. Despite being in the midst of the dry season, the standpipes were flowing rapidly with water, and all quality tests indicated that the water is clean—free of fecal coliform bacteria.

Also, the EWB team continued the health and sanitation outreach work begun by the previous trip team, training the Water Committee in water testing techniques, speaking to women's groups about the community's health, and teaching Kikoo's schoolchildren about the importance of hand washing and good hygiene. We brought them letters from home to begin a pen-pal letter exchange with a sister school in New Haven!

We made many memories working with the community of Kikoo and our friends in Cameroon this holiday season. We are very grateful to the people of Kikoo and Roh for their hospitality and their continuing dedication to this project.



*Edwin, Benoit, Dana, and Eric survey with the Total Station*



*Mentors Dave Sacco and Jeremy Smith excavate and create a gradient in the site of the secondary storage tank*



*Elementary school students show off their pen-pal letters to John C. Daniels School in New Haven, CT; Jonathan teaches kindergarten students the importance of hand-washing through a puppet show*



*Trip team with Kikoo Water Committee, local engineering partners, and other friends in Kikoo*

## Our Future Plans



*The town of Kumbo is a bumpy, 30-minute drive from Kikoo*

The following is an approximate timeline of activities that EWB-YSC will undertake in the coming year:

### Spring 2010:

- Build a structured curriculum for incoming students in the fall
- Organize engineering workshops (survey, water testing, AutoCAD) for the Yale community
- Design model latrines as part of sanitation project in Kikoo
- Begin planning for the next trip to Kikoo and, possibly, the first assessment trip for a new project
- Raise funds for 2011 travel teams

### Summer 2010:

- Continue raising funds for 2011 travel teams
- Coordinate with partners in Cameroon to plan a trip in 2011

- Maintain contact with Eugene in Kikoo regarding the technical status of the system
- Maintain contact with Kumbo health officials regarding a post-project health survey in Kikoo
- Set plans for an assessment trip for a new project (to be determined)

### Fall 2010

- Recruit and train incoming members of EWB-YSC
- Continue fundraising for travel in 2011 and future work
- Finalize all plans and paperwork for 2011 travel to Cameroon; purchase plane tickets
- Organize on-campus events and attend engineering conferences

### January 2011 (tentative): Trip to Kikoo

- Walkthrough and technical inspection of completed system
- Conference with Water Committee regarding all technical findings
- Continue education programs and letter exchange for schoolchildren
- Interview and speak with members of community, including women's groups
- Build public model latrines to improve sanitation and health in Kikoo
- Assist in post-project health survey coordinated by Banso Baptist Hospital
- Ensure that we maintain contact with our local friends and partners in the coming years

### March 2011 (tentative): Assessment Trip for New Project

- To be determined, based on availability of feasible projects, group interest, and mentor involvement. Some tentative possibilities are as follows:
- Depending on the findings of the January 2011 trip, the new project may involve continuing work in Cameroon, whether in Kikoo or another location
- Many members of our group have expressed desire to contribute to reconstruction efforts in Haiti. We will monitor the situation in Haiti over the next two months and watch for possible collaboration with local groups
- Water projects in Guatemala and Uganda have been brought to our attention by other members of the Yale community
- Multiple communities already listed by EWB-USA may serve as excellent sites for a future project
- We will be able to make a final decision regarding a new project within the next month, once paperwork for the previous trip to Kikoo has been completed

### Get involved!

Please contact us if you have questions or suggestions. We are grateful to the many people who have contributed towards our projects; as we are part of a non-profit organization independent from Yale University, this work would not be possible without your continued support.

#### Our current wish list:

- Donations of funds or equipment
- Engineering professionals interested in serving as mentors

#### Sign up to receive our newsletter by email!

To help us reduce student-contributed printing costs and become more environmentally friendly, please visit our website or email us to receive future newsletters electronically.

### To make a donation:

All donations are tax deductible. You will receive a tax deduction statement from EWB-USA.

**By check:** Please make checks payable to Engineers Without Borders—Yale Student Chapter and mail to the address at right.

**By credit card:** On the EWB-US website ([www.ewb-usa.org](http://www.ewb-usa.org)), select 'Donate', 'Specific Chapter', 'Yale University' and follow the easy online instructions.

**Thank you to our most recent supporters!** Boeing Corporation, Rotary Club of Waterbury, Dean Bouland, Steve Calvert, Barbara and J. Robert Mann, Alexandra Mitch, Humbert and Carol Sacco, Steven and Joyce Sacco, Theresa Rostkowski, Larry Visochek

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