



ENGINEERS WITHOUT BORDERS USA
Columbia University Chapter

FALL 2020

NEWSLETTER



ENGINEERING WITH A PURPOSE



WHAT'S INSIDE

PRESIDENTS' NOTES	1
PROGRAM UPDATES:	
GHANA	3
MOROCCO	6
UGANDA	9
HELP US HELP OTHERS	12
THANK YOU!	13

PRESIDENTS' NOTES



MICHAEL COUCH



SOPHIE
REESE-WIRPSA

Dear Friends of Engineers Without Borders,

On behalf of the Columbia University chapter of Engineers Without Borders, we would like to extend to you our warmest gratitude and thanks. The overwhelming support of our students, mentors, and professionals continues to contribute to the great successes we have seen in our three international sustainable development projects. Although this past year has been unlike any other in our chapter's history, we are reminded of the great challenges that can be overcome when we work together, and we would like to thank you for your support in our efforts to do so.

In the summer of 2020, CU-EWB launched an educational mini-series, led by Education & Training Chair, Desu Imudia, that sought to better educate our members on anti-Blackness and racism inherent to the existing power structures in America and gender and sexual misconduct at Columbia. The first half of the

series was broken into two parts: “Contextualizing Anti-Blackness in America” and “The White Savior Complex and its Origins.” The second half of the series focused on Title IX policy and how to be proactive in handling sexual harassment and gender misconduct cases. As volunteers, engineers, and leaders we want to work to actively dismantle these systems and engage with consent and respect towards all people in order to provide for a more prosperous future. Out of this series a new amendment was created and overwhelmingly approved by the EBoard to the constitution which seeks to make continued learning an active part of our club’s mission and work.

Throughout the fall semester, all three programs moved to hosting virtual meetings over Zoom. Members were able to join planning and skills development workshops from all around the globe and carry on the vital work at the heart of our organization. We continued to communicate with our partner communities, each of which is facing challenges of their own under the COVID-19 pandemic. You can read more updates from the Program Managers below.

Even with the fall semester’s virtual setting, our chapter was able to recruit through an online Activities Fair and host a virtual Bootcamp in September. New, eager members joined our teams in hopes of carrying on the great work that has been completed to date. In November, we hosted a chapter-wide virtual speaking event with Dr. Raymond Horton, a professor at Columbia Business School, on Nonprofit Management and Social Enterprises. Our chapter-wide elections were also held in a virtual capacity this year.

Going forward, we are excited to continue the project work with our partner communities as soon as it is safe to do so. During this time, we have been able to reflect on our chapter and its role as a social institution, and realign it to the values we believe it has always stood for. With these thoughts in mind, we remain committed to being better engineers and members of a larger global community, seeking to build a better world, one community at a time.

Sincerely,

Michael Couch & Sophie Reese-Wirpsa

Co-Presidents of CU-EWB



GHANA

The Ghana Program is in the sixth year of our partnership with the community of Amanfro, Ghana, a rural village roughly 40 kilometers north of the capital of Accra with a population of about 3000 people. Jointly, our goal is to increase access to and reliability of potable water for the community. Eventually, we aim to meet and exceed the World Health Organization

standard of 50 L of potable water per person per day for drinking, cooking, and personal hygiene. Over the course of our partnership, we have assisted in the drilling of 4 boreholes in the community, two of which were drilled in 2016 and two in 2018. However, as of August 2019, only the borehole located at the Junior High School (one of the two drilled in 2018) was still in operation.



In January 2020, a team of Ghana Program members and mentors traveled to Amanfro with two main objectives: to reopen the two southern boreholes that were drilled in 2016, and establish a new, unified Water & Sanitation (WATSAN) Committee of community members. The boreholes needed to be retrofitted with hand pumps in order to be reopened, as the previously placed electric pumps were too powerful and caused dry pumping. One hand pump was installed in February and that borehole was successfully reopened to the public for full use. Due to a regional shortage of the specific hand pump model for the other borehole and some local political tensions, the installation of the other hand pump has been delayed further than anticipated. We are actively monitoring the situation and hope to move forward with installation as soon as possible.

During our trip in January 2020 we, in conjunction with one of our local partner organizations – the Community Water and

Sanitation Agency – organized a large community meeting in which a new water and sanitation (WATSAN) committee was successfully formed. We are happy to report that the committee members are still very enthusiastically involved in their roles. This August, we remotely coordinated with the Community Water and Sanitation Agency to facilitate a formal training session for the WATSAN committee. The training seems to have been a success, as we were able to partner with the committee to organize the replacement of the pump in the Junior High School borehole this October.

Our team members worked incredibly hard this year, rising to the many challenges brought on by the Covid-19 pandemic. While still adapting to remote work and distanced collaboration, the Water, Tech, ComDev, and Grants teams committed to ambitious goals in their respective areas. The Water team compiled an Operation and Maintenance manual for the Bio-sand filters, and designed several sustainable



financing schemes, in conjunction with ComDev, that would support the growth of the Bio-sand filter pilot program. These schemes will soon be presented to the WATSAN committee for their design feedback. ComDev and Tech collaborated on the creation of a map-based, data visualization toolkit using the Folium Python package. Grants developed a comprehensive sponsorship packet to connect the Ghana Program with potential corporate sponsors to expand our funding capacity. All of the teams maintained a high level of productivity, welcomed and trained a full new member cohort, and overall contributed instrumentally to progressing the aims of the program in 2020.

We were pleased to hear from the WATSAN Committee that there seems to be a general awareness of the Covid-19 crisis and that the community is engaging in activities such as increased handwashing and social distancing. As a result of the pandemic, it is uncertain when we will next be able to travel to Amanfro to implement the biosand filter project. In the meantime, however, the Ghana Program will continue to plan for eventual implementation as well as continue to maintain communication with the community to preserve the relationship that we have built with them over the past six years.

Authors:
Julie Raiff & Meryl Winicov
Ghana Program Managers



MOROCCO

Faced with the uncertainty of our first full online semester, the Morocco program had a busy semester both recalibrating our in-country implementation plans and optimizing our team's productivity as we adapted to virtual meetings and onboarded new members. With the support of an in-country translator we strengthened our communication with the Ilguiloda

community and took steps towards the re-establishment of a community water association. Lastly, we initiated plans for a remote implementation in early 2021 by leveraging our community partners to make the most of these unprecedented times.



The Morocco Program began Fall Semester after cancelling what would have been an eventful implementation trip in Summer 2020. We established a clear objective at the tail end of summer to strengthen our community contacts and help Ilguiloda adapt to the changing situation and project timeline to the best of our ability. Through our dedicated in-country translator we set up regular community calls to hear feedback and updates, making sure to take on the onerous cost of mobile data for the community leader facilitating calls. Our discussions ranged from troubleshooting internal conflicts over resource allocation to highlighting the importance of establishing a governing association over the water supply system to even an exciting community initiative to extend the existing water pipeline to individual households.

As our team eased into a semester of virtual meetings, we welcomed many new members eager to learn and contribute to the program. In an effort to engage new members and set the tone for a

collaborative virtual work environment, the Morocco program held several team-building events and incorporated short activities into weekly meetings so team members could become more comfortable sharing ideas and thoughts with one another.

To augment these efforts and familiarize new and existing members with the program's long-term goals as well as reinforce best design practices, the Morocco Program successfully executed an ongoing initiative to hold monthly Continued Education (CE) Sessions in which members were encouraged to have conversations and think critically about how to approach engineering projects in a manner that is conscious of socio-cultural and sustainability frameworks. Past CE Session topics have included Morocco at the Center,' a session concerned with explaining existing religious and social institutions in Morocco and how past EWB experiences in-country have informed project management, and



Sustainable Engineering,’ where our team delved into how to define and implement sustainable engineering in our project. CE Sessions have received an overwhelmingly positive response from program members, and we look forward to unpacking even more complex and relevant topics related to humanitarian engineering in the coming year.

In response to the abrupt changes in travel and implementation plans, our team worked swiftly to outline a plan for remote implementation. At the conclusion of the fall semester, we were able to have a remote implementation pre-trip report approved by club mentors. The remote implementation plan involves community surveying to obtain key demographic information, repairs to our bridge project completed in 2014 and water quality testing through laboratories in proximity to Ait Bayoud.

We are excited to make more progress towards completing the water distribution system in 2021!

Authors:

Ike Njoroge & Leanne Pichay
Morocco Program Managers



UGANDA

The Uganda program of CU-EWB began in 2008 with the Multifunctional Platform (MFP) projects in 8 rural communities in eastern Uganda. These MFPs were built to make the processing of grains and other crops more efficient for the agricultural communities. During this project, CU-EWB Uganda began our partnership with Pilgrim Africa. Alongside Pilgrim, we have implemented a Rainwater Harvesting

project at the NGO's Beacon of Hope Secondary School in Soroti. After the completion of both of these projects, CU-EWB Uganda and Pilgrim Africa have embarked on a Rural Electrification project in Otubet Parish. As of May 2020, CU-EWB Uganda has implemented systems at two primary schools, the community medical center, and 33 businesses in the town center. These systems, installed in 2018 and



2019, power lighting at the businesses and lighting and power sockets at the primary schools and medical center. The primary schools and the medical center were also provided laptops, with the medical center receiving an electric microscope. During the first implementation trip in 2018, the benefactors of the project elected a governing board to oversee the system.

The Rural Electrification project is currently in the monitoring and evaluation phase of our project. After traveling during the summer of 2019, our team has decided to take a step back from implementation in order to focus on community development to ensure the financial and social sustainability of the project. The most challenging aspect of our project has been conveying the importance of the community contribution mandated by EWB-USA. The community contribution is an EWB-USA policy that requires the community to “buy into” the project and raise 5% of the implementation costs.

This contribution also prepares the community to raise funds when the system inevitably needs repairs. In the past, the program boards have not collected this contribution, leading EWB-USA and our current board to the conclusion that the project, as it stands, is not financially sustainable. Additionally, after our most recent trip, the system that was implemented in 2019 has not been functioning as designed. Over the next couple of years, the Uganda program will be focusing on repairing the existing systems as we gather more information on how people are actually using the system and working on collecting the accumulated community contribution from the past few years, all while conducting an evaluation of the state of the project to determine whether or not the project should continue implementation. While we have certainly run into many challenges, we are learning from our mistakes and working towards a more sustainable future for the project.



The COVID-19 pandemic has granted CU-EWB as a whole a chance to reflect inwards and reexamine our own motivations and world views. We spent the Fall semester cementing oral program history into institutional knowledge by connecting alumni and new general body members. These informal conversations allowed our program to strengthen our alumni network and gain insight into what being involved in EWB can do for you professionally. We also covered anti-racist and anti-sexist topics during our meetings such as the White Savior Complex and the connection between gender discrimination and race while in country. These meetings allowed for all of our members to participate in discussions with real examples from our years in Otubet and begin to understand the complexity and delicate nature of our intervention in Uganda.

In terms of the project, we have kept constant communication with our in-country partners through phone calls and emails to remotely monitor the system and other aspects of the project, including the status of COVID-19 in the Teso region. The first task that the 2021 board is taking on is a site visit by Pilgrim Africa and CU-EWB's trusted contractor who has been actively involved in the project since the beginning of implementation 2018. This site visit will give the team insight into the technical faults of the system and allow the team to monitor the level of community support that remains. Jessalyn and Martha are proud to hand the reins over to the new board and wish them the best of luck as they maneuver through the next phases of the rural electrification project.

Authors:

Jessalyn Chuang & Martha Escobedo
Uganda Program Managers

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GET INVOLVED!

We are always looking for student members and professional members alike! Visit our website www.cuewb.org for our meeting times and locations this semester. We are in need of both technical and non-technical expertise; you don't have to be an engineer to join Engineers Without Borders.



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THANK YOU

FOR YOUR SUPPORT!

CU-EWB's work is truly a group effort. Our programs have done wonderful work over the years, none of which would have been possible without our invaluable contributors, mentors, volunteers, and supporters. We would like to thank all of our members, mentors, and supporters that ensure the success of our projects. We would also like to thank everyone who supported and volunteered for our many events.

Finally, we would like to thank the generous sponsors and grants whose financial support makes our ongoing work possible:



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