



ENGINEERS WITHOUT BORDERS USA MASSACHUSETTS INSTITUTE OF TECHNOLOGY CHAPTER

Official Newsletter

Editor's Note

BY MARIA HERNANDEZ

We are happy to share with you the Winter 2023 issue of our newsletter!

This issue will include updates on our progress through the year for all our active projects: Health & Sanitation and Irrigation.

We would like to thank everyone who has supported our chapter. Thank you to our wonderful mentors and partners from the EWB Boston Professional Chapter, Sydney Kates, our faculty advisors, Libby Hsu and Tal Cohen, and MIT D-Lab for their support and guidance. Finally, a huge thank you to our donors and members who have greatly helped our chapter.

Thank you to everyone that helped put this newsletter together. Enjoy!



Message from President

BY HUNG HUYNH

It is an incredible honor to work with so many hardworking individuals for the past year as we rebuilt the MIT Chapter through the pandemic. I am so grateful for our project team leads, who work tirelessly to maintain the core of our work. Despite the interruption in our ability to travel in previous years, we finally visited the community of Mkutani this past summer to conduct assessment trips for both of our project teams. We even made it on MIT NEWS for this trip!

Our trip to Tanzania this past summer focused around conducting assessment work for both of our project teams. We traveled with the Boston Professional Chapter and shared many meals and laughs together. When we were there, the Health & Sanitation team (Fiona, Vivian, and mentor Barbara) had the opportunity to survey the local dispensary land, architecture, available resources, and women who use the building. Meanwhile, the Farm & Irrigation team (Lai Wa, Hung, and mentor Brienne) took samples of the soil, tested the water, and interviewed the local farmers. Coming back from this trip, we gave a travel talk at MIT D-Lab and submitted our post trip reports in preparation for the work in the fall semester.

This fall semester was one of the most successful recruitment seasons within our chapter's recent history. We grew from roughly 5-8 members to now well over 25+ members. With our first rendition of our onboarding program, we hope to equip new members with the skills they need to meaningfully serve Mkutani through its projects. I would also like to welcome 4 of our new members (Shreya, Emma, Ruchitha, and Mannendri) to our exec team! Alongside new membership, we also started working more closely with an additional faculty advisor: Libby Shu, from D-LAB. EWB-MIT and D-LAB have much shared history and work as we celebrated D-LAB's 20th anniversary this past fall.

With the formation of our 4 committees this past fall, we were able to establish more robustness and redundancy in sharing our workload across Presidential functions, Fundraising needs, Publicity campaigns, and Education events. Looking forward into the next semester, the most urgent thing that our chapter needs will be fundraising the money needed to implement the projects for both teams, which is currently projected to have a combined cost of \$40k to \$50k. In our efforts to also reconnect to alumni from our past, we are building a database that will hopefully help us rely on the wisdom and connections of those who have walked before us. Through this, we hope that even though some of you may no longer be actively involved in EWB-MIT, you can still continue making a difference.

The work that has been, and continues to be done here at the MIT Engineers Without Borders chapter is nothing short of inspiring. Without all the work that each of our members put in and the mentorship from the Boston Professional Chapter, our organization as a whole would struggle to exist. However, by taking initiative and responsibility, we have told the world otherwise. We told it that we can make a difference, no matter who we are. So let's keep making a difference.



Female Health and Sanitation Project

BY FIONA DUONG

Back in October 2021, the Health and Sanitation team successfully launched a new structural project for a local medical dispensary in Mkutani, Tanzania. The Mkutani dispensary serves as the nearest health care facility for roughly 4800 village residents. However, in 2019 it was reported that “death of expectant mothers during delivery” and “death of children below the age of 5” were among some of the challenges facing the dispensary.

In June 2022, our team finally got the opportunity to visit the village in person in order to collect data about the facility, meet with local government officials, and hold focus groups with mothers and community members of the village. In that time, we were able to learn more about the several challenges the dispensary faces, two of which are lack of access to clean water and insufficient room to accommodate all patients. At the time of our visit, we found that, although there is a water catchment system currently on the facility’s roof, it is reportedly inadequate to meet the demands of water needed for birthing mothers on top of the regular influx of patients. The dispensary also only currently has two rooms available for patient care, each with only one bed, and the facility does not have all the preferred medical equipment to service potential issues with patients nor any space to appropriately house them.



Photo of health dispensary from assessment trip

With all these challenges in mind, our team has been set on writing up an Alternatives Analysis, in which we weigh the feasibility of each potential design option to address the community’s concerns and hopes for the Mkutani Dispensary. Our goal is to determine a solution that best creates a space in which mothers in the surrounding community, as well as patients as a whole, can feel safe and well provided for. Projected in the future is a possible implementation trip during Summer 2023 when we can kick off a portion of our proposed solution and collect further data for later stages of the project.

Member’s Corner

BY ISELLE BARRIOS

This is my third semester as a member of EWB, and I really enjoy being part of the MIT chapter. I am a member and co-lead of the Irrigation team, which is working on building an irrigated garden at the Mkutani Primary School. Working on this project has exposed me to new technical skills, like estimating agricultural water needs, and taught me a lot about how to work in and manage a team. Most importantly, it has given me an opportunity to work on a project that will make a positive impact on food security and education at Mkutani Primary School, which has been incredibly meaningful for me.



Irrigation Project

BY LAI WA CHU AND ISELLE BARRIOS

Our project is building an irrigated garden at Mkutani Primary School in Mkutani, Tanzania. Over the summer, members of our team traveled to Mkutani to conduct our assessment trip to gather data we needed to design the garden. This included technical data such as water quality data for a nearby river and soil quality data for the garden site. We also spoke to project stakeholders, including parents, a teacher, and the school headmaster to get community input on the garden and agricultural techniques, since both the teacher and parents were farmers. After returning from Mkutani, the team completed EWB's assessment post-trip report, summarizing the trip and the data we had collected. We also spoke to someone from One Acre Fund, a non-profit that provides equipment loans to farmers, to get more information about agriculture and education.

Over the fall semester, we focused on researching for our alternative analysis report and training for new members. We visited a local nonprofit organization called The Food Project whose mission is to increase food access through urban farming here in Boston. Our mentor, Brienne McKinley, a mechanical engineer from the Boston Professional Chapter, gave us lessons on basic fluid mechanics and Revit. For our alternative analysis, our main priority is to get an estimate of the amount of water that is needed for the irrigation system. For this, we have used two different water calculation tools online to better understand the water requirement. Our biggest challenge so far is that the water requirement far exceeds the amount we originally anticipated and were hoping to provide with a rainwater catchment system. We have expressed our concern with Eric Lundborg, International Community Program (ICP) Program Engineer from Engineers Without Borders USA, and asked for advice. We will continue to brainstorm solutions for this problem next semester. In addition to calculating the water requirement, we also worked on calculating cost estimates and compiling materials lists for our alternatives, including drilling a new borehole, pumping water from the water, sprinkler irrigation, and drip irrigation. Next semester we will work on putting together the information we gathered on our alternatives analysis report.

Donors' Corner

BY ALEX HARRIS

Thank you to all of our donors from this fall! Your donations will help fund expenses such as merchandise and food for our General Body Meetings, as well as the implementation of our projects this summer. If you would like to make another donation, or donate for the first time, you can visit our page at giving.mit.edu [here](#) or donate to our crowdfund [here](#).

Photos from Summer 2023 Assessment Trip



Left: The EWB-MIT & BPC Summer 2022 Travel Team with members from Mkutani's school board, NGOs, and interpreters.



Right: Health / hygiene workshops using a portable projector with songs & videos help primary level students understand cleanliness and germs.

Left: Members of the MIT EWB Team and teachers/staff from the Mkutani Primary School. Several impromptu workshops happened as one of the primary school teachers worked with the team to teach water testing and disinfection methods.



Right: Our club was featured on MIT NEWS! The article focuses on the progress made on our projects this past summer. Read more [here](#):

