



## ENGINEERS WITHOUT BORDERS USA MASSACHUSETTS INSTITUTE OF TECHNOLOGY CHAPTER

### Official Newsletter

#### Editor's Note

BY LAI WA CHU

We are happy to share with you the long-awaited Fall 2021 issue of our semesterly newsletter!

This issue will include updates on our progress through the year for all our active projects: Female Sanitation, Irrigation, and Solar Manual.

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 and Andrew Dixon, our faculty advisor Tal Cohen, and the Edgerton Center for their continuous support and guidance. Finally, a huge thank you to our donors and members who have been the lifeline of this chapter and without whom this chapter wouldn't exist.

Thank you to everyone that helped put this newsletter together.

Enjoy the issue!

#### Message from President

BY VIVIAN CHENG

EWB has been an incredible source of inspiration since I joined my freshman fall. From the get-go, I was introduced to the Mkutani community, and seeing the difference that our members have made has been amazing. Over the years, I've learned a lot about sustainable international development from mentors and fellow members alike, and I'm humbled to be able to serve as president this year.

Our chapter is currently working on 3 projects: irrigation, female health and sanitation (FHS), and solar education. Under Fiona's leadership, the FHS team officially launched a health clinic project to address the concerns of women in Mkutani regarding maternal care. The irrigation team, led by Jason and Lai Wa, has been wrapping up their plans for an assessment trip for the irrigation pipeline and school garden. Diego has continued to lead the solar education team in revising and updating our solar manual for the solar-powered water pump we installed in 2018. Internally, we have been putting together an updated constitution and introducing more structure to our chapter to facilitate future endeavors.

This semester, we've had the chance to return to campus, bringing back in-person meetings and social events — including our annual boba outing and a hiking trip. We have been meeting a few times weekly across general body meetings, project meetings, and executive board meetings, and it has been great to meet many of our new and returning members in person after a year of Zoom. We still have not been able to travel due to the uncertainty of COVID-19 conditions in Tanzania, but we are moving forward with the goal of conducting assessment trips for our irrigation and FHS projects in the early months of summer.

I would like to extend a sincere thank you to all of our donors and supporters for making all of our work possible. Thank you, also, to our mentors from the Boston Professional Chapter for all of your invaluable guidance and collaboration, as well as our advisors and mentors from MIT and the Edgerton Center for your continued assistance and support. I'd also like to thank our contacts from Build Health International and Ndarara Development Organization for their help with workshops and surveys, and the Mkutani community for maintaining contact with us through difficult times and allowing us to learn from and work with them for all these years. Finally, thank you to each and every one of our members for constantly inspiring me with your hard work and making our organization the wonderful team it is!



Hiking trip in November



Boba run in September

# Female Health and Sanitation Project

BY FIONA DUONG

In October, the Female Health and Sanitation team successfully launched a new structural project for a local 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.



Photos of dispensary

That report further detailed that cases of infant and maternal mortality that occurred within the facility were “due to the lack of reliable medical instruments and poor delivery environment as well as lack of basic delivery equipment like blood pressure (BP) machines, thermometers, oxygen cylinders and flowmeters, oxygen concentrator, ambu bags, suction machines, child delivery kits, etc.” Additionally, the dispensary lacks a dedicated space where said delivery equipment could be housed and where expectant mothers could deliver their babies safely and privately. As a result, it was found that at that time, roughly 32% (65/204) of expectant mothers giving birth in the area of the dispensary sought medical care elsewhere, whether it was in their homes or at a more established medical facility in further away major cities. For many, however, it is neither safe or monetarily viable to seek care elsewhere.

Throughout the spring and summer of 2021, the FHS team was in contact with medical staff from the dispensary to discuss these current conditions of the facility and its greatest priority needs. Ranked highest amongst those needs was a new birthing room that could provide greater comfort and privacy to expectant mothers and make room for much needed delivery equipment. Moving forward, our team is looking to take an assessment trip in the summer of 2022 in an effort to better understand how to best cater potential solutions to the desires of the women of the village, as well as determine the logistics of renovation of the medical dispensary.

## Member's Corner

BY MARIA HERNANDEZ

I joined EWB this semester, and it's been a great experience. Over the course of the semester, I've learned about the history of the club and the projects that have been done in Mkutani to help the community. I am currently part of the Female Health and Sanitation team where we are collaborating on a project to create a birthing center for the women in the community. This project is very special to me because I am passionate about women's health, and EWB allows me to combine that passion with a challenging technical project. I am excited to see what this project will become.

# Irrigation Project

BY LAI WA CHU

The Irrigation Team is working to design and implement an irrigated garden near the existing primary school in the Mkutani Village with the aim of supplementing lunches for approximately 200 students per day. Over the semester, we focused on planning for the assessment trip. We continued to work on the pre-trip report that we started in Spring 2021. Last semester, we mainly did research on the different irrigation methods (Drip Irrigation, Surface Irrigation, and Sprinkler Irrigation) and crop specifications, for instance, their water requirements and land usage. This semester, we looked at potential ways of collecting water for the irrigation system, including creating a new borehole, gathering river water, and using other catchment systems (e.g., microcatchment, dew catchment, and roof rainwater catchment). In addition, we started to consider the kinds of geological survey and water and soil testing we would need to do during the assessment trip to help us in the future with our design process.

With advice from our mentors, Sydney Kates and Andrew Dixon, we got a better understanding of the scope of our project. Irrigation is a huge part of our project, however, there are other aspects that we also need to consider, such as food storage and how to maximize the garden's productivity. Moving forward, our team will think of this as an agricultural project. We will do more research on the agricultural and educational aspect of creating this garden and establish new contacts with the recommendations we got from our mentors.

## Meeting with BPC

BY MARIA HERNANDEZ

MIT EWB hosted a joint meeting with the Boston Professionals Chapter in order to update each other on our current projects. The first project BPC presented was the Mkutani Water Supply Project. As of September 2021, they completed the third phase of their project which entailed upgrading the solar pumping system, installing a 2.5 mile pipeline, and installing a new tank and stand near the local school. The second main project presented by BPC is the Chamhawi Water Supply Project. In this project, they were faced with a similar problem to the Mkutani water supply problem, and consequently, are approaching the project in a similar way. The last project BPC discussed was the Mkutani School Girls' Latrine Project which has an implementation trip planned for January 2022 (subject to safety considerations). The goal of this project would be to build a new latrine and create a safe space for girls to practice feminine hygiene. The MIT EWB chapter plans to collaborate with BPC in the educational aspect of this project through menstrual health posters displayed in the latrines. After the BPC members presented their respective projects, MIT EWB members presented their own. Overall, the meeting was successful, and had high turn out giving the two chapters a chance to meet in-person.

## Donors' Corner

BY HUNG HUYNH

Within this past semester, we are grateful to MIT's Course 1 Department of Civil and Environmental Engineering for helping us get moving on the initial stages of our fundraising. With their generous support of \$5000, we have established a firm foundation to build our future fundraising efforts. Most importantly, these funds will enable our efforts to travel to Mkutani for our assessment trip for scoping irrigation solutions and hosting workshops for female health & sanitation along with education of the solar pump.

As our operations continue ramping back up to normal, potential future funding needs for an irrigation system and building renovations are estimated to be anywhere from \$50,000-\$100,000. For that reason, we have started a new initiative here at EWB-MIT to birth a corporate fundraising program to help fulfill our funding needs alongside our crowdfund and grants. Within the tier system of our donations, organizations that donate at least \$2,500 will receive the benefits such as access to our resume pool, shoutouts on our social media for their donations, and promotions to our members.

That said, we hope that any further disruption from the pandemic will not hinder our efforts to make change in the world. We are hoping to connect back with some of our alumni to gather our history and learn from them. We also hope that during these times, you can offer us your generosity through <https://giving.mit.edu/> to allow us to continue our work to make the world a little bit better. To those who have supported us in the past and those that have continued to do so in the present, please know that we are grateful for the things you all have allowed us to do. And to those who will continue supporting us in the future – you are the reason why we, as mere college students, can help improve the lives of those halfway around the world.



Civil and  
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