

CORNERSTONE



ENGINEERS WITHOUT BORDERS USA
University of Nebraska Chapter

FALL 2023



2023: Making Progress

Greetings!

Long awaited, the activities of our Engineers Without Borders University of Nebraska (EWB-NU) student chapter are back in full swing post-pandemic. Connecting students across two campuses, we share a unique collaboration between members in Omaha and Lincoln, enabling our chapter with increased access to diversity of backgrounds and ideas. This semester, we welcome several new members to our section and welcome back our committed returning members who never cease in their dedication, determination, and passion for this organization. It is my pleasure to present our chapter to you and I am thrilled for you to read more about what our members are currently working on.

Our Madagascar Team works to bring light to schools, via solar panel arrays. Installing these systems allows students to study past limitations of the dark so they can pursue opportunities to further their education. The team travelled to one of the farthest places you can travel from Nebraska for three weeks. This is especially exciting because our Madagascar Team last traveled to Madagascar in 2018 prior to the pandemic and two category 4 hurricanes that hit the community.

The trip focused on assessment of our previously installed systems. Now, the project is back in the exciting design phase of planning new systems and rebuilding those that need repair. They expect to travel in late July to complete repairs on at least one and maybe two schools.

Our Zambia Team works to bridge two communities together, literally. The Kalomo River separates Sindowe and Simulunda, flooding every year during monsoon season. This prevents the people on the far side of the river from accessing medical care, markets, and schools. People on the near side of the river lose connection with family on the other side of the river. With their interdependence strained, people attempt to make the dangerous journey across the raging flood waters, with one or more drowning each year. Our team members are designing a suspension pedestrian bridge to allow community members to safely cross. With their focus on completing a full initial design, the team prepares for their next trip to Zambia in May!

In charge of fundraising, the Nebraska Team is working to sustain our projects and help publicize our work with our partner communities in Madagascar and Zambia. For the past several years, our team has been hard at work designing a pedestrian bridge to span the Kalomo River in the Southern Province



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Each semester, we host our semi-annual Stream Cleanup of Antelope Valley Creek and weekly Pizza Thursdays. As the fundraising season approaches, we work to plan for Glow Big Red, and our spring minigolf fundraiser. Keep reading for more information on these events! It is the mission of our organization and this chapter to partner with communities to build a better world through engineering projects that empower communities to meet their basic human needs. Through providing engineering services and working together with local and global communities, all those involved also experience the opportunity to improve their leadership skills together. Through these partnerships, we can all grow and move forward into a brighter future. We hope you feel as inspired as we are to get involved and help to make big changes in lives across the planet. We appreciate all your support, as we could not do these incredible things without your help. Thank you for your generosity and we look forward to an impactful year for EWB-NU.

Best wishes,
Laurel Wagner
Senior Chemical Engineering
EWB-NU President



Madagascar Team Update

This summer marked a significant milestone for the Solar Team as we returned to Madagascar after our long hiatus since 2018. Not only did the pandemic keep us from traveling but two category 4 hurricanes swept through our community of Kianjavato, further delaying our travels.. This year our travel team consisted of five students, Grace Pelan (team lead and senior in civil engineering), Thomas Haar (co-junior team lead and sophomore in chemical engineering), Estefany Puc Nieto (co-junior team lead and sophomore in computer science), Laurel Wagner (chapter president and senior in chemical engineering), and Cole Vaske (former vice president and 2023 software engineering graduate), and a faculty advisor (Libby Jones, professor in civil engineering).

Our work in Kianjavato, Madagascar continues to focus on providing lights in elementary school classrooms powered by solar panels. We visited the six schools that we had installed systems in.



Most had issues from the hurricanes. Fortunately, the fixes were small at three schools, and we got them working again quickly. The other schools have more issues that will be addressed on future trips. Finally, we realize how important our user manual will be to empowering the community to better maintain and operate the systems sustainably.

Traveling to Madagascar as members of the solar team was a transformative experience that shaped our growth as a complete engineer. Being immersed in a different culture and environment provides real-world challenges, forcing us to think creatively and adapt quickly.



Working hands-on in the field allowed us to apply problem-solving skills and enhance technical expertise. The experience taught us the importance of collaboration, effective communication, and cultural sensitivity in engineering projects. Engaging with diverse communities broadened our perspective, qualities essential for any well-rounded engineer. Traveling worldwide and having hands-on experiences has undeniably been instrumental in our professional development, making us more adaptable, innovative, and compassionate in our approach to engineering challenges.

Thomas Haar & Estefany Puc Nieto
Sophomores – Chemical Engineering and Computer Science
Junior Co-Madagascar Team Leads

Bridge Team Update



For the past several years, our team has been hard at work designing a pedestrian bridge to span the Kalomo River in the Southern Province of Zambia. This bridge, which will have a span of over 100 meters, will connect the Simulunda and Sindowe communities. During their wet season, the river becomes far too dangerous to cross, cutting access to the health clinic and markets across the river from the community of Simulunda. This means that for up to half the year, thousands of people are left without healthcare unless they attempt to cross the dangerous river. Unfortunately, many who do try to cross do not survive the flooded river. This bridge will eliminate that danger and keep the communities safely connected.

Our team has been hard at work on the design. We plan to have a thorough, completed, and reviewed draft design by our trip this summer that we can present to community members.

A full design with good visuals and a small model will help them understand what this bridge will look like when it's completed. This semester, we have been updating our design using the Nepal Trail Bridges Short Span Manual, as this will help us save money on the design while still being a safe option. Funding is our largest roadblock at this point as the bridge could cost upwards of \$150,000-\$200,000.

Even with the pandemic, we have retained a core team of dedicated members with a deep understanding of the project and how necessary it is. We are excited as we start to move towards planning for a trip to the community in May!

Connor Neville
Junior – Environmental Engineering
Senior Co-Team Lead



Why Did You Join EWB?



Hello! I am excited to share my journey as a sophomore member of Engineers Without Borders. From our projects aimed at improving lives in our partner communities to the strong sense of community within the organization, I've found both purpose and a supportive network of like-minded individuals. It's incredibly rewarding to see the direct impact of our work, particularly in my role within the solar panel project for schools in Madagascar. EWB has not only fueled my passion for sustainable engineering but has also inspired me to think globally and take on challenges with determination. I look forward to contributing even more to our meaningful projects in the future.

Sarah Gas
Sophomore Chemical Engineering



My name is Elizabeth Benda and I am a freshman Mechanical Engineering major at UNL. I found out about EWB through a presentation given to my Freshman Engineering Seminar class. I wanted to join EWB because I had heard good things about the members of the club from upperclassmen, and when I started going to meetings they were kind in helping me get started as joining a new club can be overwhelming. Everyone who is a part of EWB is really passionate about the work they are doing and I knew I wanted to be a part of that.

Elizabeth Benda
Freshman Mechanical Engineering

Nebraska Team Update



Our Nebraska Team works to support the project teams, to organize outreach activities, and to help build team spirit through social activities. Each semester, we clean our section of Antelope Creek during our semi-annual Stream Cleanup, which we've adopted for over 10 years! Last year we also volunteered at the Lincoln Bike Kitchen, taking on roles such as fixing bikes and organizing inventory. This semester, we are hosting a movie night where we will also make blankets for animal shelters. Some semesters we organize intramural teams that go by the name of Border Breakers.

Most of our work is focused on fundraising for our projects. We have three main fundraising efforts – Pizza Thursdays (every Thursday by the Engineering Library), Glow Big Red (February), and our Mini-golf event (April). You can find out more about each of these efforts in this newsletter.



Mini Golf Fundraiser

On April 29th of this year, EWB-NU hosted our annual minigolf fundraiser at Prehistoric Putt in Lincoln. This event wouldn't have been possible without the support of our remarkable sponsors. Eleven companies, LES, Schnackel, Huffman Engineering, Felsburg Holt & Ullevig, Kiewit, Alvine Engineering, Lamp Rynearson, CDM Smith, AE Design, Jacobs, and PK & Associates, lent their invaluable support to our cause. We extend our deepest gratitude to each one of them for their generous contributions.

Three additional companies made direct donations. With their support, we were able to raise more than \$7,000 for our projects. For our sponsors, we offered tiered sponsorship packages. All donors are recognized at the event. Some packages included advertising of their logos on our event webpage and throughout the event itself. In addition, donors were given free tickets to enjoy the event, providing an opportunity for their teams to connect and interact with our students.

UNL students and any community members bought tickets which included a round of minigolf and Raising Cane's. Their individual support means a lot to our club. As we look forward to the future, we hope to take the lessons learned to make next spring's minigolf fundraiser even more successful. With the support of our sponsors and the community, we are confident that our next event will be even more impactful and help make our projects possible. In closing, we would like to express our gratitude to all our sponsors, donors, students, and community members who made this year's minigolf fundraiser an unforgettable success. This year's minigolf fundraiser is being planned for Sunday, April 14, 2024.

If you're interested in sponsorship our next minigolf fundraiser, contact us at ewb.nebraska@gmail.com!

Grace Pelan

Senior – Civil Engineering

Senior Madagascar Team Lead & Vice-President



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Glow Big Red



Each year in February, the University of Nebraska Foundation organizes Glow Big Red to help groups like ours raise funds for our projects. Last year, thanks to our many generous donors, we raised over \$4000 in 24 hours! This year we want to double that as both our projects need funds. All the funds raised go to support our projects to pay for materials and supplies, cover a good portion of travel expenses for our mentors, and subsidize a substantial portion of travel costs for students making a second trip. The return student travelers are invaluable to transferring knowledge of the communities and projects! Be sure to look out for the next Glow Big Red, in February 2024, and other fundraising events in the future!

Ethan Revolorio

Sophomore – Mechanical Engineering

Nebraska Team Lead & Social Chair



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Pizza Thursday Fundraising

One of our fundraising events includes Pizza Thursday where we sell pizza and soda every Thursday in Nebraska Hall to students and faculty. The foot traffic for this event is often high, especially when the weather is hot or cold or when the semester's work gets intense – so basically the entire school year! In 2022 we started collaborating with companies interested in meeting students. The companies sponsored a Pizza Thursday and set up a table to market themselves to students while we sell pizza next to their table. Those companies get the benefit of advertising themselves and recruiting students for internships or jobs. The company pays a tabling fee and for the pizza they hand out to interested students who bring them a resume and talk with them about internship opportunities. EWB does advertising throughout campus on their behalf. This is a mutually beneficial event for everyone involved. Pizza Thursday is also a fantastic opportunity for members to socialize with each other and to network with these companies for future career opportunities. Overall, this is a fun and lighthearted weekly event that helps us bond with fellow members and to promote the organization over a nice lunch. So, if you or anyone you know happens to be on campus on Thursday, let them know and come on by! And if your company is interested in sponsoring a Pizza Thursday, get in contact with me, Ethan, by email at ewb-nebraska@gmail.com!

Ethan Revolorio,
Sophomore – Mechanical Engineering
Nebraska Team Lead & Social Chair



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