

## **A Synopsis of Difficulties and Benefits of Operating a Local Chapter of the Society of Women Engineers in Vicksburg, Mississippi after 2021**

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### **ABSTRACT**

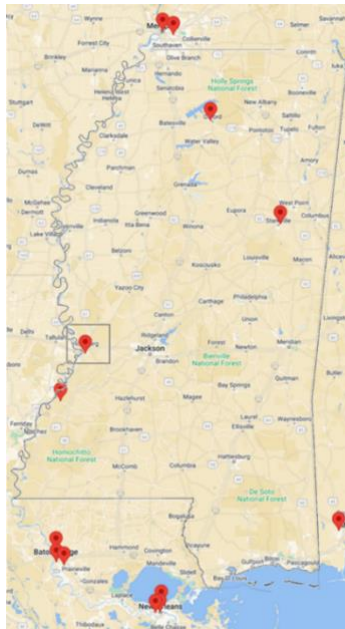
Local industry-specific professional groups offer members benefits such as networking, community outreach, and lifelong relationships with professional peers. The Mississippi River City (MRC) Chapter of the Society of Women Engineers (SWE) in Vicksburg, MS has faced and overcome numerous challenges while positively impacting its members and the local community since its founding, and particularly since 2021 in the wake of the COVID-19 pandemic and the national return to office. Challenges have included but are not limited to officer turnover, membership participation, navigating a cease and desist, development of new programming for events, and institutional knowledge transition. Despite the issues faced by the organization, this group of women engineers and scientists have successfully developed friendships, practiced leadership, and contributed to their community. Their community involvement has impacted over one thousand students in three years and is continuing to develop student interest in science, technology, engineering, and math (STEM). The chapter is still growing and revitalizing, and documenting the challenges, solutions, and positive impact can assist similar organizations in reaching their own organizational goals.

### **INTRODUCTION AND BACKGROUND**

As the old proverb goes: Faster alone, further together. Having community provides the structure and resources to develop the teams that allow for organizations to thrive and ideas to develop into scientific innovation and technological breakthroughs. Having a professional community where ideas are exchanged, fun is had, and professional networks are developed facilitates the success of its members and their workplaces. Professional organizations, such as the Society of Women Engineers (SWE), were created for this purpose and have flourished across the United States and throughout the world; however, chapter location and demographics can affect what a chapter needs to do to be successful, what solutions it develops for its unique challenges, and how it is able to develop a thriving professional community among its members. The Mississippi River City (MRC) section of SWE in Vicksburg, Mississippi, has developed solutions to section specific challenges through the leadership, creativity, and dedication of its officer board and section membership during a transition period from a smaller section to a larger section mainly composed of early career engineers and scientists.

SWE, founded in 1950 (SWE, n.d.-a), was created to showcase the positive impact of engineering on the world as well as developing women in their engineering careers as they became leaders (SWE, n.d.-a; n.d.-d). Internationally, the organization has 40,000 collegiate and professional members, and near one-third of all chapters are professional chapters (SWE, n.d.-a;

n.d.-d). In Mississippi, the collegiate to professional chapter ratio is the same, with one professional chapter and three collegiate chapters. Even though Jackson, MS is the capital city, it does not have a professional chapter associated with SWE national. The MRC chapter in Vicksburg, MS is the only professional chapter in the state (SWE, n.d.-c). A map showing the locations from collegiate and professional SWE chapters in and around Mississippi was adapted from SWE's "Locate Your Section or Affiliate" map (SWE, n.d.-c) and is shown in Figure 1. The location of MRC is denoted by a square encircling the red pin on Vicksburg, MS.



**Figure 1. Map showing collegiate and professional SWE chapters in and around Mississippi. Location of SWE MRC is shown in the box. Figure adapted from SWE's "Locate Your Section or Affiliate" map (SWE, n.d.-c).**

The Mississippi River City (MRC) Section of SWE is located in Vicksburg, Mississippi. According to census.gov, Vicksburg, MS has a population of about 20,000 (Census Bureau, n.d.-a) while all of Warren County has a population of about 42,000 (Census Bureau, n.d.-b). The U.S. Army Corps of Engineers (USACE) Engineer Research and Development Center (ERDC) ("U.S. Army Corps of Engineers Engineer Research and Development Center Website," n.d.) is the largest employer in the Vicksburg area, with 1,654 total employees stationed in Mississippi. Vicksburg, often called an "Engineer City", holds the highest concentration of U.S. Army Corps of Engineers (USACE) employees in the world (Press Release 2024). A majority of MRC members are employees or contractors at USACE ERDC. While MRC is located in Vicksburg, Mississippi, several members commute in from the greater Jackson, MS metropolitan area to work at ERDC.

MRC membership consists of both engineers and scientists. The current SWE email list approximately 95 strong, as of the summer of 2024, though some members may have provided both a work and personal email. Full paying membership is lower, typically around 10-15. A majority of SWE members are early career employees who have graduated with a bachelors degree in science or engineering, with some members have also earned a graduate degree. Given the early career membership, the number of PhDs is currently limited.

Running a chapter, while incredibly rewarding, requires effort and planning, coordination between officers, transfer of knowledge, as well as membership input and interest. Outlined below

are some of MRC's recent challenges and the solutions developed with lessons learned outlined for other organizations. First, challenges related to the administration and legal aspects of running the chapter are addressed. Next, student outreach, fundraising, and social events are discussed. Finally, some main findings are presented.

## **ADMINISTRATIVE OVERVIEW**

Leading a section requires a certain amount of administrative work. For example, bills or fees must be paid, tax documentation must be submitted on time, funding and money must be tracked, meeting minutes must be written and archived, and meetings must be scheduled and held. The administrative work helps avoid roadblocks and provides the structure for successful fulfillment of the chapter's mission: to provide a community for women in STEM to participate in networking, social events, career support, and outreach. The MRC is run in a similar way as most professional organizations with a hierarchy of nominated, then voted-in board members who execute the administrative tasks based on the job duties of their positions.

### **Battling the Loss of Institutional knowledge**

One of the biggest challenges SWE MRC has faced in the past couple of years was the loss of institutional knowledge. During COVID, MRC transitioned from a small chapter with many members closer to retirement to a larger chapter with a significant portion of members having graduated with their bachelors or masters within the last five years. Due to the chaos of COVID closures, the return to office, and rapid demographic changes, institutional knowledge within the chapter related to the legal and administrative steps was lost, creating some operational challenges. Re-establishing the knowledge required reading SWE section by-laws, SWE national documentation, state and federal government policies and working with previous officers who provided additional section documentation and in-person assistance.

To prevent the future loss of knowledge, several steps were taken. First, the newly acquired knowledge was codified into written form (called transition documents) and was added to the MRC Google Drive. Next, a tradition was established in FY22-23 where the out-going board and the incoming board met at the last officer meeting of the fiscal year. During this meeting, the outgoing president reviewed chapter by-laws, legal obligations, and important administrative tasks. Additionally, any passwords (e.g., tax sign-ins, email, social media accounts) and documentation would be passed from out-going officers to the incoming officers. The out-going officers would also be in a position to provide any advice and/or lessons learned to their incoming counterparts. Finally, the paper copies of the transition documents that outlined minimum section obligations, section election policy, section by-laws, policy for replacing officers mid-fiscal year, and guidance for running annually hosted outreach events were printed and given to incoming officers at the transition meeting. Legacy section documentation as well as transition documents were provided to the incoming president in the president's binder. Within this documentation, the minimum obligations required for the section to maintain its status with SWE national as well as the state and federal government were listed, ensuring that if turmoil (e.g., pandemic) impacted the section's ability to engage for a specific year, it would still be in good standing for when it was able to engage again. Developing the officer transition plan was a critical step to remediating the bleeding of both officers and chapter knowledge.

### **Key Challenge: Resolution of a Cease and Desist Order**

One of the operational and legal challenges caused by the knowledge loss was being placed under a cease and desist by the state of Mississippi for failing to fulfill the obligations of a not-for-profit within the State of Mississippi. The cease and desist was discovered in FY22-23 when the requirements for fundraising as a not-for-profit at the state and federal level were checked. While the requirements to register a not-for-profit at the federal level had been completed, the requirements had not been fulfilled at the state level; therefore, the MRC chapter had been placed under a cease and desist before FY22-23 and was not able to fundraise or accept any funds except for membership dues. The chaos of COVID and the rapid shift in the organization resulted in the state requirement being missed. Once the cease and desist was discovered, the next steps focused on getting it lifted. First, the documentation available on the Mississippi Secretary of State website was reviewed and the charities point of contact (POC) was contacted with further questions. Mississippi has a process to allow non-for-profits to be re-instated; however, the process required a fee that was significantly greater than the funds MRC had available, and due to the cease and desist, MRC was unable to fundraise to cover the cost. MRC reached out to their assigned SWE leadership coach (LCC). The problem was referred up to SWE headquarters, where it was determined that SWE national could assist with fee payment. A solution was developed by MRC working with the LCC, SWE national, and the Mississippi Secretary of State office whereby SWE national paid the fine on behalf of the section to the state and the MRC section would pay back SWE national overtime with the section portion of SWE national dues. The cease and desist was lifted before the start of SWE FY23-24.

To prevent future lapses, a number of steps were taken. First, the MRC section registered under a different charity category that required a one-time payment rather than yearly payments. MRC was eligible for the one-time payment because the section was below the funding threshold. Second, transition documentation was written to record the needed tasks to stay compliant on the federal, state, and organizational level, and were disseminated as described in the previous section. The transition documents were stored electronically on Google Drive, explained verbally to incoming officers at the transition meeting, and provided in paper copy format. Additionally, the required tasks were listed prominently in the president's binder.

While an unexpected situation, a number of valuable lessons were learned. First, knowing and following administrative and legal requirements is of the utmost importance, as is writing down and transferring that knowledge to incoming leadership. Second, communication with the parent organization is vitally important. The assistance and resources of the LCC and SWE headquarters enabled a timely resolution. Finally, having a good understanding of the problem is paramount for the solution. The Mississippi Secretary of State website information and the communication with the charity POC were frequently used to develop a full understanding of the reinstatement process and its legalities. Maintaining professional consistent communication, often via email, with SWE national and the charity POC was vital for resolving the solution. Working patiently and persistently towards resolution while following the cease and desist resulted in reinstatement, which has allowed MRC to continue to flourish.

## **ELECTIONS**

MRC has numerous officer positions: president, vice president, treasurer, secretary, outreach coordinator, event coordinator, recruitment coordinator, fundraising coordinator, and social media coordinator. In June 2021, during the chaotic transition period, a paper was passed around with officer positions, and enough people chose to volunteer for each listed officer position (about 8 to

9 people). Similarly, in 2022, officers were elected at the April section meeting, some only choosing to run for an officer position the day-of. To encourage continued membership involvement in FY22-23, a formal election process was developed. The SWE official guidelines and section by-laws were referenced, the LCC was contacted for clarification, and the election process outlined below was developed thereby.

As outlined by the bylaws, a call was put out for 2-3 volunteers not running for office to serve from mid-April to June as members of the nomination committee, with one member serving as the chair. The nomination committee was responsible for choosing all the nominees for all the offices. While there was an option to have a Teller committee to count results, for simplicity, the nomination committee and the teller committee were combined. Officers were allowed to run again for the same position. The nomination committee was expected put out a slate of candidates and would allow 7 days for someone to petition to be on the ballot. Then they would use anonymous voting software and send the ballot out to all members who were national SWE members. A rough election schedule was established, which allowed the results to be in and due before the start of the SWE new fiscal year (July 1<sup>st</sup>). Elected officers are expected to be paying members of national SWE.

The nomination committee decided to hold nominations thus: they sent out a ballot asking for nominations from the membership, allowing members to nominate themselves for a role or nominate others they thought would do a good job. The nomination committee then confirmed that each nominee was willing to run for the nominated position. After receiving confirmation, they would put together the ballot. Then, on election day, the committee sent out the list to voting members via Google Forms. To vote members needed to be national members of SWE. This stipulation was sent out in the new election documentation with a link to the SWE website with sufficient time for members to join if they were interested.

Establishing a more formalized election process helps the chapter stay in line with the by-laws and with SWE national while providing a democratic structure to: 1) allow all interested members a fair chance at being an officer, 2) prevent power from concentrating with one group, and 3) create a bar high enough to prevent those uninterested in contributing substantially from swinging an election/being voted in (i.e., having to pay before being an officer/voting member).

## **OFFICERS**

MRC has faced challenges related to officer roles; however, membership has been consistently willing to step up and lead. Officers have somewhat frequently needed to step down mid-term, often due to pursuing new employment opportunities. A system was developed for filling an officer position mid-term. If the president stepped down, the vice president and then the secretary would be asked to fill the role. If the treasurer stepped down, the members of the board would be asked for interest; if a board member did not fill the role, section membership would be asked for a volunteer, and the board would vote to confirm the volunteer. If any other role stepped down, the members would be asked and then the board would confirm the new officer with a vote. This has ensured both the president and treasurer role are filled quickly after the previous officer had to step down mid-term.

Another challenge facing MRC officers was burn-out. Burn-out has been caused by a number of factors: officers filling their roles and assisting other officers with their responsibilities or filling in for an officer who stepped down, officers balancing work, family, and school, and officers needing to develop new policies given the knowledge loss. Previous officers have

sometimes gone radio-silent during or after their term or have chosen not to run again given the high workload needed to stabilize and maintain the chapter at this point in its operation. While the authors do not propose a full solution to the problem, the authors expect having a more stable section with established procedures and better role delegation will help limit officer burn-out.

While there have been numerous challenges related to officer posts, often officers stepping down have provided the board with sufficient notice to ease transition and multiple section members have stepped up to fill in needed rolls, often going on to run for a second term. Membership has also been willing and able to step up and adapt to the new challenges of leadership.

## **MEMBERSHIP**

The cost of membership dues to SWE national is \$100 for professional member (SWE, n.d.-b). To retain and attract members, especially interns during the summer season, the MRC chapter does not require local members to pay a fee to participate in the events and meetings. Allowing people to participate without paying for membership makes the organization very open and inviting, especially to newcomers. When a national membership is activated by an individual, each chapter receives a small portion from the total membership fee, so having paying members helps the chapter reach monetary needs. Within MRC, paying members have additional privileges. Members must be paying SWE national members to vote in elections and to run for office, which allows members who are invested in the organization and have “put their money where their mouth is” to be involved with leadership roles. The chapter is currently determining more ways to encourage members to sign up for official SWE membership with affiliation tied to the chapter.

## **PERFORMING ON LIMITED FUNDING AND FUNDRAISING SPOTLIGHTS**

Given the small size of the chapter (and the cease and desist that prevented fundraising for an extended length of time), the chapter had limited funds. For FY22-23, student outreach events were fully supported by membership providing supplies and members’ willingness to volunteer time. One of MRC’s greatest strengths is the depth and variety of scientific and engineering educational backgrounds. Despite the chapter being limited by funding, MRC was able creatively develop inexpensive but effective outreach activities by utilizing the breadth of member experience, and thus was able to continue engaging in student outreach. Lesson learned – substantial funding for outreach activities is not required as long as the membership is engaged, and creative planning and execution is conducted.

### **Spotlight: Book sale at local community flea market**

In FY23-24, MRC hosted a book and craft sale at the local flea market to raise funds, engage members, and interact with the local community. Used book donations were gathered from members and the local community. Books do not expire, do not require assembling, can be stored in cars, cabinets, and offices, and can be sold at accessible prices. Additionally, a jar for donations was set out so the community could donate without needing to purchase items. Members also donated hand-made crafts to sell such as cookies, dog treats, crocheted bookmarks, and photos. Members hosted the booth, sold items, and engaged with the community. Participation in flea market and the resulting sale increased visibility with the local community and raised significant funds. The chapter plans to continue utilizing the flea market as

a primary fundraising event. The main downsides of the book sale are 1) volume of space needed for book storage and 2) transport of books (due to the weight).

A couple items that made the event a success were 1) choosing a venue that already had the infrastructure set up for sale and a large customer base (flea market), 2) offering multiple payment methods (cash, card swipe, Venmo/similar app pay), and 3) having members actively sell and engage with customers. To successfully run the event, having an established cashier is important, as was sending out a schedule sign-up to ensure the booth was manned. A picture of the first flea market event is seen in Figure 2.



**Figure 2. 2023 MRC fundraising booth at the local Old Court House Museum Flea Market in Vicksburg, MS.**

## **MEETINGS AND MEETING VENUES**

MRC hosts two types of business meetings. The first are monthly general body meetings for members monthly. Attendance at general body meetings has fluctuated. The second was an officers meeting, at which officers meet and discuss administrative tasks and plan for future events. The division of meetings allowed for officers to conduct extra planning as needed and proved to be effective.

An ongoing challenge for MRC has been determining a venues for meetings and events. In order to affectively facilitate a business-style meetings necessary to run a professional society chapter, certain criteria must be met. First, the meeting venue should be relatively easy for current members to reach (i.e., centrally located). Second, the meeting venue must provide sufficient space for members to gather (10-15) as a group. Third, the meeting location must be quiet enough for all members to hear each other. Finally, meeting locations must be either free or low-cost customer paying (i.e., members can buy dinner) because MRC does not have the funds to rent locations. Members generally appreciate having food and beverage options available. While most local businesses have been accommodating to MRC, with Vicksburg, MS being a small city there are limited options for suitable venues for meetings have been found and often the same venues are used repeatedly.

## **BENEFITS OF MRC ACTIVITY IN THE COMMUNITY: OUTREACH AND NETWORKING EVENTS**

### **Student Outreach**

MRC has conducted a number of student outreach events within the local community, encouraging students to get excited about science and engineering. Within Warren County, 48% of household are considered Asset Limited, Income Constrained, Employed (ALICE) (United Way, n.d.), highlighting the importance of student outreach by STEM professionals who can serve as role models. MRC holds many different types of outreach activities including but not limited to an annual Girl Scout STEM day, Trunk-or-treats, and Q&A panels for school-aged children. Since 2021, the MRC has provided a variety of community outreach events to over 1000 students in the city of Vicksburg.

### **Spotlight Event: Panels for High Schoolers**

In FY22-23, MRC started conducting STEM career panels at the local high schools. The purpose was to provide high school students who may not have exposure to engineering careers or college-educated graduates a chance to ask practicing engineers and scientists questions about classes taken in high school, college experience, and current career. The panels were very straightforward and low effort to organize. Participants just needed to bring themselves and their experiences. The number on the panel was flexible (from 2 to 4 members), allowing the event to continue even if there is limited volunteer availability. The time commitment is low (~2 hours, 1 hour panel and travel time), making it easy to participate, especially for time-constrained section members. Finally, panels reach the target audience, young women who may be interested in engineering. The panels have been well-received by the local schools and students, with MRC being asked to do career panels at other schools in the district.

### **Spotlight Event: Demonstrations at Elementary Schools**

MRC also developed a demonstration activity for local elementary schools in FY22-23. The event started with a PowerPoint presentation on science and engineering. Then students were rotated around three different demonstration stations, with demonstrations provided by SWE membership. Given that each station requires a volunteer and a demonstration, as well as a projector for the presentation, the event is logistically more challenging to host; however, the demonstrations were well-received by students and SWE volunteers and the MRC has been asked to return to do the event the next year and also at different schools.

## **SOCIAL EVENTS/NETWORKING**

Fitting professional society meetings in between the clutter of life responsibilities is an ongoing juggling act. While offering free snacks, games, or other prizes can increase attendance, MRC does not have the funds to provide such goodies. Officers expect participation is driven by the same things that brought people to SWE MRC: developing friendships and career confidants, engaging in social activities, and learning from mentors. A myriad of social events have been hosted including a murder mystery night, “paint and sip”, Halloween pumpkin carving, Christmas parties with white elephant gift exchange, baseball games, and axe throwing. Social events have predominantly been hosted on different days in the latter half of the week (i.e. Thursday, Friday, or Saturday). To attract the greatest amount of attendees, it has been generally practiced to send invites to events early, but also day-before or day-of to attract both the well-planned and spontaneous members. While officer attendance has been high at these events, general body member attendance has been hit-or-miss. The most attended social events by non-officers have been Christmas potlucks, pumpkin carving, and general body meetings. While the chapter has



hosted a variety of social events, the chapter does not have a repeating event besides the general body meeting; adding a consistent social event to the calendar might help with group attendance. Additionally, the fact that a portion of members are located in the Clinton/Jackson, MS area decreases attendance at events in the Vicksburg area.

### **Spotlight Event: Outstanding Women's Lunches (OWLs)**

Outstanding Women's Lunches (OWLs) were established during FY22-23. The purpose was to create an easy-to-host networking social event that allowed members to interact with each other and gain wisdom from local successful women in scientific, engineering, and leadership roles. The organizer would reach out to prospective invitees via email and invite them to be the guest at an OWL. If the invitee agreed, a date was set, and the membership was informed. The casual lunch was hosted at a local restaurant where members and the guest could chit-chat, and the guest could answer member questions. After the event, the invited guest was thanked for attending. Invitees have included leadership from ERDC and local colleges and have been well received by guests and the membership.

## **DISCUSSION**

As outlined within the above pages, MRC has faced a number of organizational challenges. Some are specific to chapter location and demographics. The chapter supports members both in the local Vicksburg area and the Jackson metropolitan area, which limits attendance at events in Vicksburg. While SWE is an engineering organization, a significant number of members are scientists, likely because the local area cannot currently support both a women in engineering and a women in science organization. While email membership has grown, establishing full paying membership continues to be a challenge, as does active membership; however, this can be partially combated by providing members with new and interesting activities, inviting new members to join, and reaching out to current members to engage them in current activities. In addition to membership, officer turn-over and burn-out is a major concern. Burnt-out officers, especially those who no longer engage with the organization, leads to a loss of procedural knowledge that can be hard to recuperate. Ensuring that the board consists of both new officers and returning officers allows for the continuation of knowledge and develops new officers for higher leadership roles for when other officers choose to step down. Having well-established procedures, as well as a well-established calendar of events, removes some of the stress on officers developing new programs and allows them to instead, focus on delivering the creative, well-executed events.

While MRC has faced many challenges, MRC has developed into an organization that supports its members and the surrounding community. The authors have had a chance to develop their leadership skills, work with other intelligent women, and further network with local engineers and scientists. MRC has allowed local engineers and scientists to meet, develop friendships, and attend fun activities. Additionally, MRC has been able to conduct student outreach in an underprivileged area, utilizing the chapter's depth of education and experience to inspire the next generation of engineers and scientists. MRC has allowed members to network with local leaders, sharpen their axe-throwing skills, and continue to develop women into professionals and leaders.

The authors present a synopsis of lessons learned. First, as a part of a larger organization, there is always help, whether it is documentation, an LCC, or leadership, and there is always someone to ask. Second, establishing the administrative and legal base is vitally important because otherwise, the chapter cannot support the networking, outreach, or social activities that make it worthwhile. Third, ensuring that the institutional knowledge is transferred to the incoming

leadership is vitally important, which includes written documentation, meeting in person to explain procedures, and training incoming leadership on any important task, whether that is through training during the year or graciously demonstrating a task after the fiscal year has ended. Fourth, persistence, patience, and communication are can be employed to overcome those large section challenges. Finally, no one knows everything, so stay humble, ask questions, and remember to have fun!

## CONCLUSIONS

The Mississippi River City section of the Society of Women Engineers has encountered a series of challenges since 2021, tied to member demographic shift, the chaos of COVID, and a loss of institutional knowledge; however, many challenges have been overcome by codifying section procedures, teaching incoming officers, and utilizing new membership interest. Continuing to develop leadership within the organization and remaining focused on serving the membership is paramount to future chapter success. With dedication and continued focus, SWE MRC will continue to create a community of engineers and scientists dedicated to their professional craft and using their expertise to enrich the surrounding community.

## ACKNOWLEDGEMENTS

The authors would like to thank SWE National, the Mississippi River City Chapter past and current officer board, and past and current members. We would have been unable to accomplish any of the tasks listed here without your excitement and support.

## REFERENCES

- Census Bureau. n.d.-a. "U.S. Census Bureau QuickFacts: Vicksburg City, Mississippi." U.S. Census Bureau QuickFacts. Accessed May 9, 2024. <https://www.census.gov/quickfacts/fact/table/vicksburgcitymississippi/IPE120219>.
- . n.d.-b. "Warren County, Mississippi." Census Bureau Profile. Accessed June 6, 2024. [https://data.census.gov/profile/Warren\\_County,\\_Mississippi?g=050XX00US28149](https://data.census.gov/profile/Warren_County,_Mississippi?g=050XX00US28149).
- Press Release. 2024. "Vicksburg Has the Largest Concentration of U.S. Army Corps of Engineers Employees in the World." *Vicksburgnews.Com*, June 2, 2024. <https://vicksburgnews.com/vicksburg-has-the-largest-concentration-of-u-s-army-corps-of-engineers-employees-in-the-world/>.
- SWE. n.d.-a. "Empowering Female Engineers: Dive into SWE's Mission & Vision." SWE. Accessed May 8, 2024. <https://swe.org/about-swe/>.
- . n.d.-b. "Join SWE." Society of Women Engineers. Accessed August 12, 2024. <https://swe.org/membership/join-swe/>.
- . n.d.-c. "Section & Affiliate Map." SWE. <https://swe.org/membership/sections/>.
- . n.d.-d. "The World's Largest Advocate for Women in Engineering." SWE. Accessed May 8, 2024. <https://swe.org/>.
- United Way. n.d. "ALICE." United Way of West Central Mississippi. <https://www.unitedwayvicksburg.org/alice>.
- "U.S. Army Corps of Engineers Engineer Research and Development Center Website." n.d. ERDC. Accessed August 14, 2024. <https://www.erdcl.usace.army.mil/>.

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*The paper was published in the proceedings of the 2025 International Conference on Bio-mediated and Bio-inspired Geotechnics (ICBBG) and was edited by Julian Tao. The conference was held from May 18<sup>th</sup> to May 20<sup>th</sup> 2025 in Tempe, Arizona.*