

DIVERSITY, EQUITY, AND INCLUSION IN WATER ENGINEERING GROUP DISCUSSIONS: LESSONS LEARNED AND FUTURE WORK

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1 GROUP OVERVIEW

A diverse team of faculty, staff, and graduate students created a group that discusses diversity, equity, and inclusion (DEI) in the context of water resources engineering and associated design and solution considerations. The group has discussed a wide array of topics through the biweekly meetings. The group was formed to serve as a platform to discuss DEI issues facing students and faculty in water resources engineering.

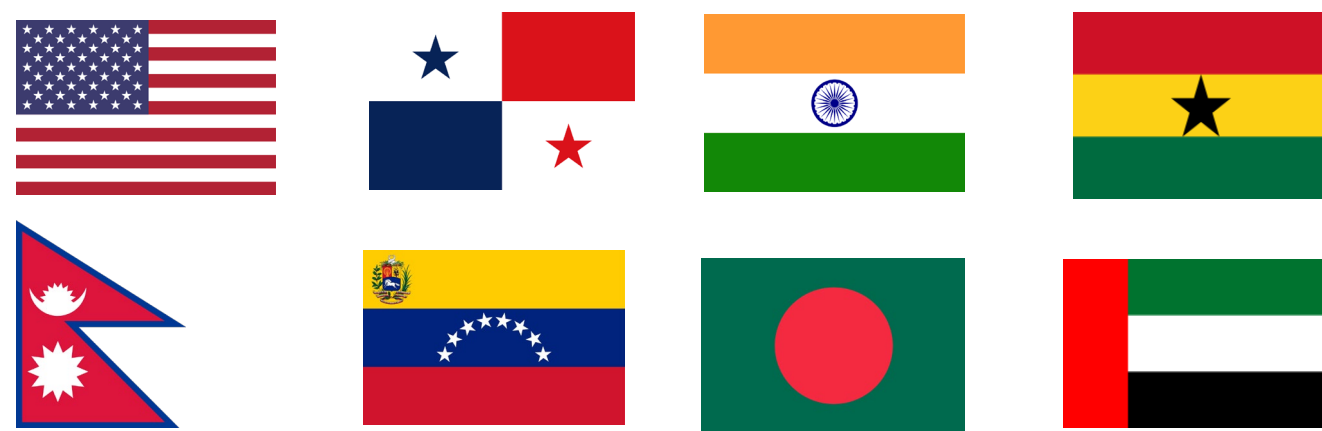


Figure 1. Group members' nationality for 2021-2022 academic year



Figure 2. Group meetings during lockdown in 2020-2021 academic year

The main objectives of the group are:

- Sharing and learning from our fellow peers with diverse backgrounds and experiences
- Educating ourselves on topics of equity in engineering to become better engineers
- Creating action items to become agents of change within academia and industry

2 GROUND RULES

The group members agreed to the following ground rules:

- What's said here stays here, what's learned here leaves here
- Step up if your voice is missing. Step back if yours is dominant
- Allow for change and growth in yourself and others
- Challenge the ideas, not the person
- Speak from the "I" perspective
- Listen openly and fully for understanding, not reacting
- Be open-minded towards new ideas and perspectives

3 STRUCTURE

The group meetings have the following core features:

- Biweekly Meetings (hybrid option due to COVID-19)
- Two people in charge of each biweekly meeting to curate content and agenda
- Materials for meeting should be distributed 1 week in advance
- Meetings are interactive and discussion based

4 DISCUSSION TOPICS

The group discussions have focused on various case studies and current events related to the intersection of DEI and water resources engineering. Some of the topics include the following:

- Water access inequities in the USA
- Race and water affordability
- Green gentrification
- Why diversity in engineering matters
- Disaster relief and access
- Climate change vulnerability
- Bias in technology and artificial intelligence



Figure 4. Hybrid meetings during Fall 2021 semester

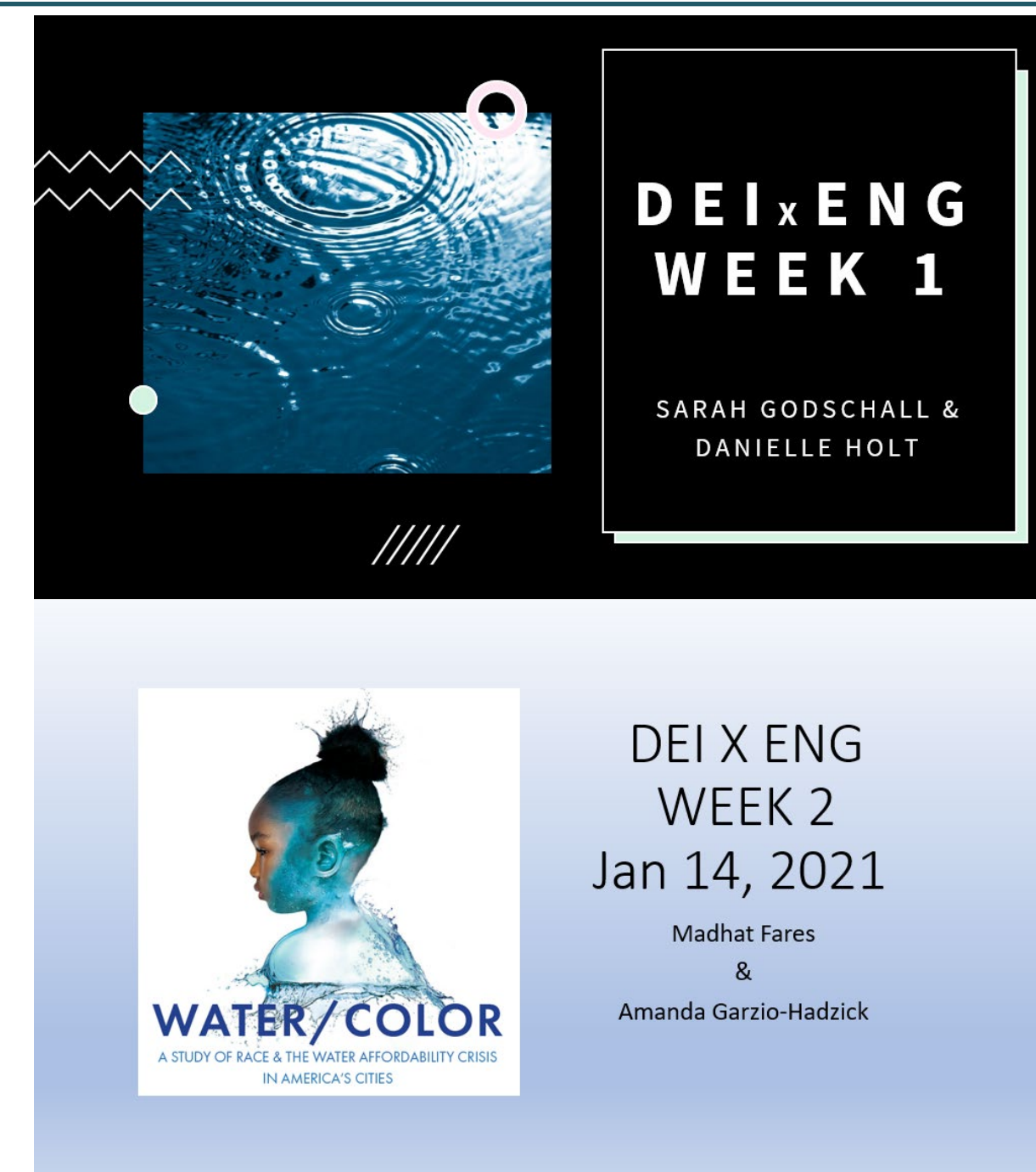


Figure 3. Sample slides for discussion

5 IDEAS

As the group expanded and evolved, sub-groups formed around various topics, including:

- Reading Seminar: exploring case studies and current events related to the intersection of DEI and engineering along with its application to engineering theory and practice
- Research-based: incorporating DEI into research questions
- Symposium-based: providing space for discussions and sharing findings on DEI through meetings, competitions, journal articles, symposiums, and conferences
- Collaborations: creating relationships with institutions, companies, academia, and industry to improve the quality of engineering design, outreach, and accessibility



READING SEMINAR



RESEARCH-BASED



SYMPOSIUM-BASED



COLLABORATIONS

Figure 5. Themes for DEI related activities in academia and industry

6 FUTURE WORK

The group will continue to meet biweekly to discuss DEI topics in engineering. Tasks that will be worked on:

- Curate materials for further discussions
- Share group insights and processes with other research centers in Universities and groups in industry
- Engage in more competitions, conferences, and meetings beyond Villanova University
- Foster a community of researchers and professionals that share findings and experiences on DEI related issues

7 CONCLUSIONS

The following conclusions can be drawn from the discussions and other tasks accomplished by the group:

- Group discussions on DEI provide a safe space for diverse views to emerge where members feel valued for their unique experiences
- Group discussions had a positive impact on the collective knowledge of the participants
- Created opportunity to brainstorm ways to incorporate DEI into student research
- Through the Schiller Challenge, the group successfully submitted a paper on DEI which was a great opportunity for the individuals to improve their writing skills.

8 REFERENCES

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