

Rock, Soil, and Solidarity: Cultivating Active Allyship in Geotechnical Engineering and Geosciences



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ABSTRACT

Equity, diversity, and inclusion (EDI) initiatives are increasingly prevalent in workplaces, but creating a truly inclusive environment requires effort from both management and employees. Allyship, involving actions to support and advocate for equity-deserving groups, can significantly impact organizational culture by fostering engagement and inclusivity.

Geotechnical engineering and geosciences have traditionally been White and male-dominated. Although some organizations have started addressing EDI issues, these conversations are often brief and lack sustained allyship. This paper explores ongoing EDI challenges in our field, delves into the concept of allyship, and provides practical ways to implement active allyship. Whether you are new to this topic or advocating for change, we aim to inspire and empower individuals and organizations to break down barriers and create more respectful, welcoming workplaces.

RÉSUMÉ

Les initiatives en matière d'équité, de diversité et d'inclusion (ÉDI) sont de plus en plus courantes dans les lieux de travail, mais créer un environnement véritablement inclusif nécessite des efforts à la fois de la direction et des employés. Agir en tant qu'allié, ce qui implique des actions pour soutenir et plaider en faveur des groupes recherchant l'équité, peut avoir un impact significatif sur la culture organisationnelle en favorisant l'engagement et l'inclusivité.

L'ingénierie géotechnique et les géosciences ont traditionnellement été à prédominance blanche et masculine. Bien que certaines organisations aient commencé à aborder les questions d'ÉDI, ces conversations sont souvent brèves et manquent de soutien soutenu. Cet article explore les défis continus de l'ÉDI dans notre domaine, approfondit le concept de soutien et propose des moyens pratiques de mettre en œuvre un soutien actif. Que vous soyez novice en la matière ou que vous plaidez pour le changement, nous espérons inspirer et donner aux individus et aux entreprises les moyens de briser les barrières et de créer des lieux de travail plus respectueux et accueillants.

1 INTRODUCTION

By now, many of us within the geotechnical and geoscience professions are undoubtedly familiar with the concepts of equity, diversity, and inclusivity (EDI). While discussions around EDI often revolve around lofty goals such as achieving better board/executive representation – like advocating for a 50% female presence on the company Board of Directors – or presenting compelling business cases that cite encouraging statistics (such as the 2020 McKinsey report that showed a 34% greater financial outperformance for executive teams with greater ethnic diversity), these targets and figures may sometimes feel disconnected from the day-to-day reality for the average professional.

However, despite this potential disconnect, there is encouraging news: each of us holds the power to make meaningful contributions toward fostering EDI. How? By becoming an ally – more precisely, by becoming an active ally. In this paper, we will explore the essence of allyship, unpack what it entails, and provide practical examples and resources that can be readily applied in both personal and professional spheres. The examples provided in this paper are only a selection of cases meant to enhance the reader's understanding of the types of actions that can be

taken and we encourage the readers to take their interest beyond this paper.

This paper builds upon a series of EDI-related papers that have been submitted to the Canadian Geotechnical Society's (CGS) annual national conference. The previous papers include:

- Reflections on Resources: Engaging the Future in Geotechnical Engineering – Steps towards effective gender inclusivity in our profession (Hutchinson & Diederichs, 2022)
- Bridging the Data Gap for a more Equitable, Diverse and Inclusive Future in Geotechnical Engineering: Survey Design and Ethical Considerations (Diederichs et al., 2023).

1.1 Importance of EDI

Equity, diversity, and inclusion are essential elements of a thriving workplace. By creating diverse, barrier-free workplaces, not only are employers upholding the values of human rights and social justice, but they are putting themselves on a path to organizational success in a rapidly evolving global landscape.

There are a multitude of factors that illustrate why employers must take meaningful actions to embed EDI within all of their practices. Major events, such as the

murder of George Floyd, the Black Lives Matter movement, the discovery of bodies at former residential schools, COVID and the rise of anti-Asian hate, and increasing rates of violence towards 2SLGBTQ+ persons have intensified the need to eliminate structural and social barriers, recognize that racism and colonialism are built into our current systems and structures, and that constructive change is necessary.

Now, more than ever before, today's job seekers want to work for an organization that values EDI and social justice. In one recent study, 76% of respondents indicated that a diverse workforce was important when evaluating potential job offers, 80% of respondents said that they wanted to work for a company that values EDI, and 60% said that they wanted to hear business leaders speak up on diversity-related issues (LinkedIn Learning, 2024).

Companies that prioritize EDI can perform better. One recent report showed that diverse teams are 70% more likely to capture new markets and that diverse teams solve problems faster than cognitively similar individuals, thereby fostering more creativity and more effective solutions (Harvard Business Review, 2013). Finally, as it relates to a company's brand reputation, 64% of today's consumers identified themselves as "belief-driven buyers" (Edelman, 2018), meaning that they would choose to switch, avoid, or boycott a brand/company based on its stance on social issues. More recently, competitive proposals from oil and gas, energy, government, and mining companies in the geotechnical engineering and geoscience realm have requested company statements and statistics on EDI policies and programs. These proposals are increasingly weighing EDI programs in the evaluation of competitive projects.

In summary, employees are drawn to companies that prioritize EDI, and companies that foster these principles can, in turn, be more successful. By fostering EDI, employees will feel a sense of respect and belonging and in turn will be empowered to bring their unique selves to their work. When employees are provided equitable access to opportunities for growth and advancement, and when diverse opinions are celebrated, there will be an increase in ideas, creativity, and innovation. Therefore, it is within the best interest of employees to seek companies that deliberately foster EDI, and it is within the best interest of companies to make meaningful, sustainable EDI strategies for their workplaces. Allyship for individual employees and companies is central to advancing EDI.

1.2 An Ally, To Ally, and Active Allyship

An ally refers to an individual who expresses and outwardly provides support to under-represented or equity-deserving groups or individuals who belong to those groups. The origin of this English-language word dates back to the early 1800s, but its use within the context of EDI is thought to have started when individuals stood up for the rights of the LGBTQ+ community during the Stonewall Inn riots in the US in 1969 (Luthra & Muhr, 2023). The word gained further attention following the murder of George Floyd in the US

and the Oxford English Dictionary made it the "Word of the Year" in 2021.

Ally can also be a verb: "To unite or form a connection or relation between" (Merriam-Webster, n.d.). Though the word relates to an action, it may not necessarily describe one's behaviour or attitude. This is where the word "allyship" comes in. You may wonder why we have emphasized "active" allyship. This is because there are phases of allyship, as described by Luthra and Muhr (2023): denial, passive, and active (**Figure 1-1**).

An individual in the denial stage may believe that biases do not exist. However, it is more often that people are unaware of the need for EDI, or subconsciously limit their interactions with others to those who look and think similar to them. The idea of broadening their views may bring discomfort to individuals in a denial stage. An individual in a passive stage understands the need for EDI and believes biases exist and can often identify them. They often engage with individuals who look and think differently from them. However, they may not make a concrete effort to foster an inclusive environment (i.e. voicing concerns and confronting discriminatory comments or behaviours). The last stage is active allyship. Individuals in this stage have put in the effort to be well-informed about the need for EDI and recognize their own biases in most situations. They actively engage with individuals who look and think differently from them, even if it makes them feel uncomfortable. These individuals make frequent and concrete efforts to foster an inclusive environment (i.e. encouraging others to participate and advocate to change institutional practices). It is important to note that the three stages of allyship lie within a spectrum and an individual may move through different stages throughout their life depending on their own experiences, education, and the environment they are in.

1.3 Privilege and Power

In order for active allyship to be effective and for individuals to understand how biases and oppression affect equity-deserving groups, it is important to understand the unbalanced privileges and powers that exist in our society. To best describe this, a Wheel of Privilege and Power is often used to show the intersectionality¹ of overlapping factors of social identities such as gender, sex, sexuality, skin colour, neurodiversity, education, and wealth (**Figure 1-2**). This Wheel of Privilege and Power provides examples of these intersectionalities, but the factors of social identities could expand to a greater list. In general, the closer you are to the centre of the wheel, the more privilege and power you have. As an example, a person who identifies as cisgender and heterosexual man, with an able body, post-secondary education, and in the middle class may experience more privilege and power than a person who identifies as a trans woman, who has darker skin colour, with post-secondary education, and whom English is not their first language.

¹ The term "intersectionality" was coined by Kimberlé Crenshaw in 1989 to describe how different factors of social identities can result in unique combinations of discrimination and privilege.

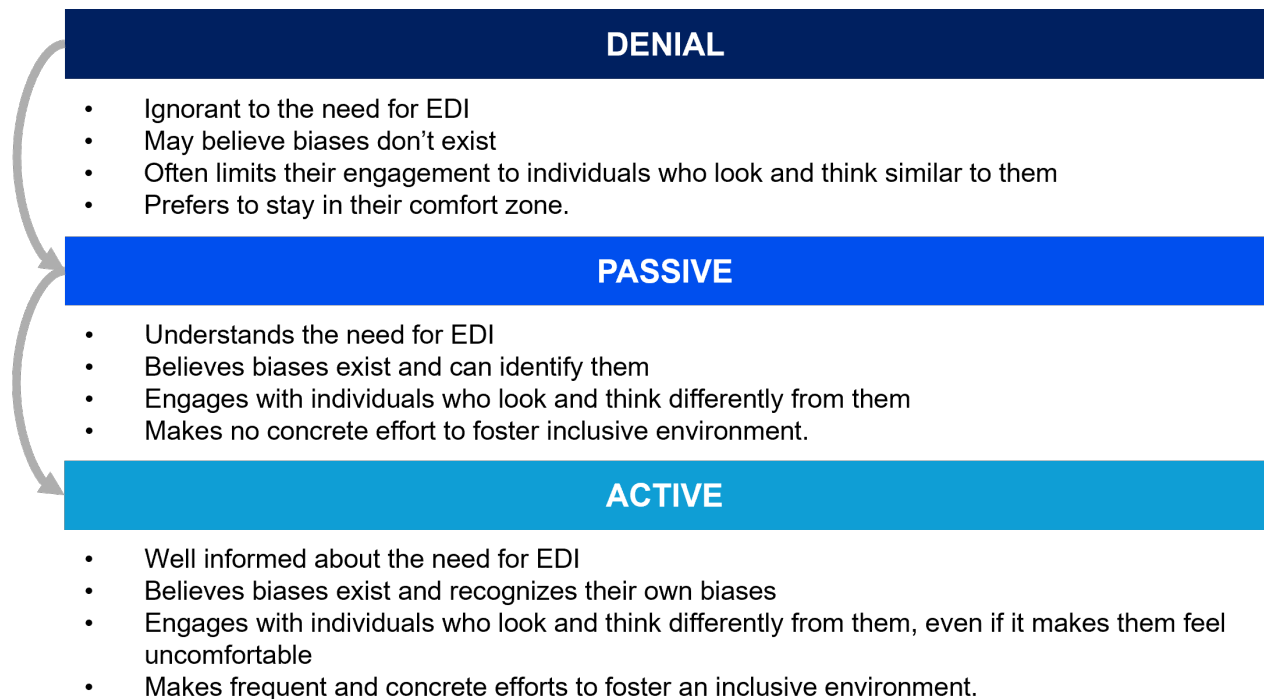


Figure 1-1. Phases of allyship (modified from Luthra & Muhr, 2023).

Positionality refers to the understanding of where you are within the wheel and reflecting upon what that means in relation to where others may be. In recognizing your positionality on the Wheel of Privilege and Power, you can become more mindful and a better ally to equity-deserving persons through understanding their experiences.

2 SEVEN ACTIVE ALLYSHIP BEHAVIOURS

In 2015, the Canadian Commission for Truth and Reconciliation (TRC) made 94 Calls to Action for policy changes to acknowledge the history of the residential school systems and to prevent it – along with systemic discrimination – from happening again. Allyship with Indigenous groups and individuals who have suffered from colonialization, directly or indirectly through inter-generational trauma, should reflect upon the Calls to Action made by the TRC. For example, Call to Action #13 articulates that “...Aboriginal rights include Aboriginal language rights”. This means referring to a Nation by its language name (written and spoken), rather than in its anglicized form (e.g., Skwxwú7mesh Úxwumixw, instead of Squamish Nation). Another is that the onus on learning and education should be on the individuals seeking knowledge (i.e. settler colonials), not on the Indigenous Peoples (Winkler, 2020; Montreal Urban Aboriginal Community Strategy, n.d.). In this regard, Winkler (2020) also mentions that reciprocity is key: meaningful relationships with Indigenous Peoples require some give and take – if you are requesting their time and energy, what are you offering them in return? Being an active ally to Indigenous Peoples requires learning, listening, and decolonizing our work and lives.

Being an active ally can seem daunting to navigate or you may feel underqualified. That feeling is normal. However, everyone can be an ally. Allyship can come from small gestures, such as offering to listen to the feelings of an individual impacted by discrimination. Everyone has been an ally to someone at some point in their lives – it is part of human nature as social beings.

Being an active ally requires practice and commitment and there are many behaviours you can adopt day-to-day to show your active allyship. In this paper, we will share Luthra's (2022) seven active allyship behaviours, what they mean, and how you can incorporate them into your practice. To build sustainable change takes time and commitment. As you increase your awareness and practice these behaviours, you will become more comfortable with them and find they become habits that can be applied to many spheres, not just EDI. The seven active allyship behaviours are:

1. Deep Curiosity
2. Honest Introspection
3. Humble Acknowledgement
4. Empathetic Engagement
5. Authentic Conversations
6. Vulnerable Interactions
7. Courageous Responsibilities

The following sections take Luthra's (2022) seven behaviour concepts and elaborate further with examples of allyship behaviours that can be applied both in professional and personal environments.

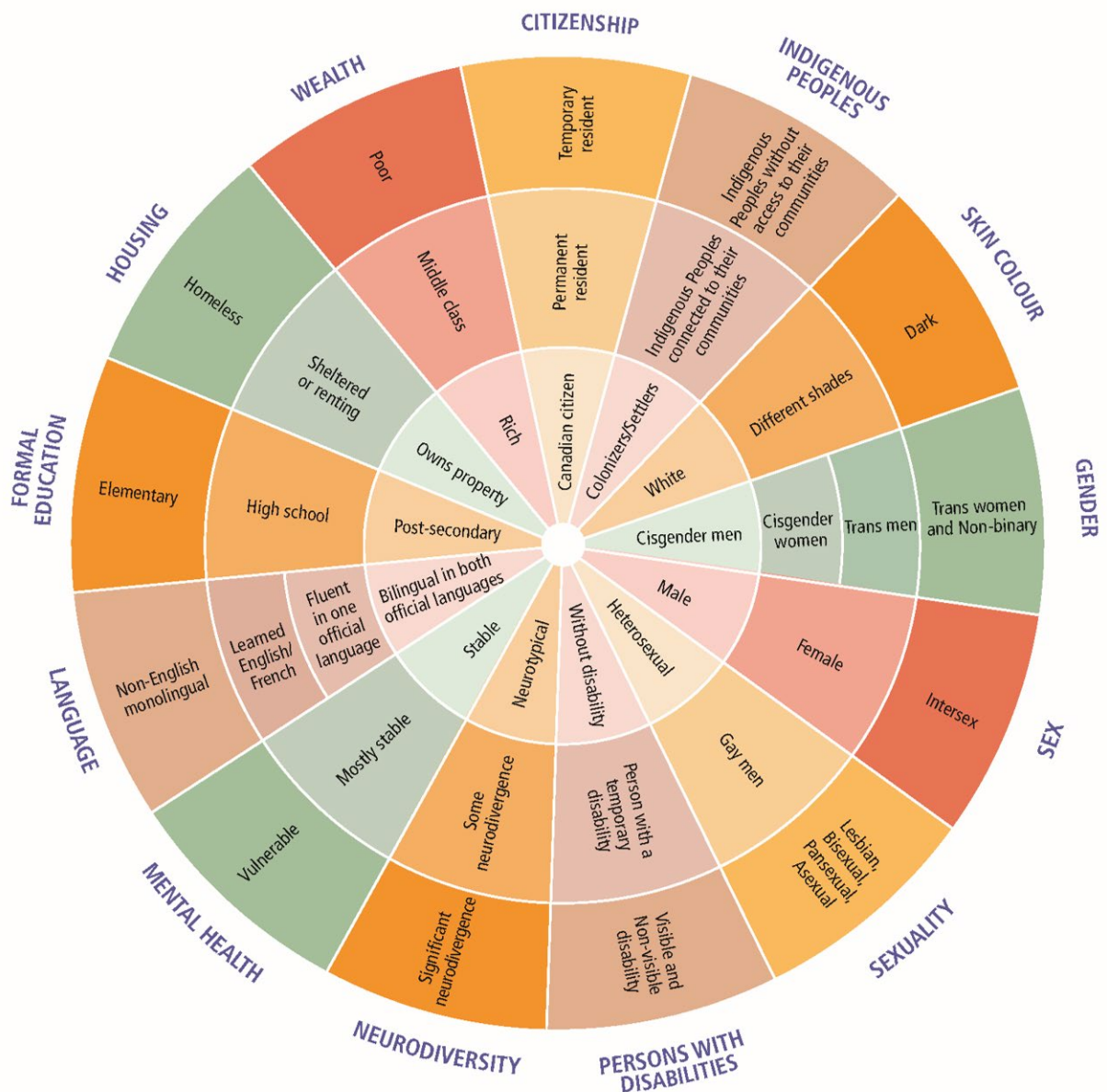


Figure 1-2. The wheel of privilege and power in the Canadian context (IRCC, 2022). The closer you are to the centre, the more privilege you have

2.1 Deep Curiosity

The objective of developing a deep curiosity is to understand where you come from and where others might come from. This understanding starts with the Wheel of Privilege and Power mentioned in Section 1.3 (**Figure 1-2**) and your place within the wheel in relation to privilege and power (positionality). Once you have understood your intersectional identity, you can see how others may place themselves differently within the wheel. Because of these differences, your experiences in society and within your organization may be different from others – for better or worse. Ask yourself:

- How would your experience be if you had a broken foot?
- How about if you had to commute using the transit with your broken foot?
- What about if you were in your 60s?
- What if you have a vision and/or communication disability?

It is not necessary to experience this specific situation to understand what another individual may be going through. But you can build awareness of what others are going through without directly asking about their life situation. This awareness comes from a deep curiosity of how different experiences may arise from different

intersectionality and is a good start to practicing your active allyship. Another way of exploring allyship is to consider your own privilege and observe how it impacts your own life as McIntosh writes about in, *White Privilege: Unpacking the Invisible Knapsack* (1989).

2.2 Honest Introspection

The Stanford Encyclopedia of Psychology refers to introspection as “learning about one’s own currently ongoing” (2010). Honest introspection does not just mean recognizing you have biases, but also understanding what those biases are and how they influence what you say and do. There are two types of biases: explicit and implicit (also called unconscious bias). Explicit biases are preferences you are already aware of. For example, you prefer to hire students from the same alma mater because you believe graduates from that institution make better employees. Implicit biases on the other hand are subconscious feelings, attitudes, prejudices, and stereotypes an individual has developed due to their unique life experiences. Both biases can be problematic, as your day-to-day decisions may impact others negatively. These biases have historically resulted in suboptimal healthcare delivery for individuals experiencing homelessness and with a disability (National Institutes of Health, 2023), or assumptions of African-Americans not being lawyers or otherwise underqualified (American Bar Association, 2020), or presumptions leading to loss in opportunities for individuals that taking maternity or parental leave will negatively disrupt projects and that they will underperform upon their return to work (APEGA, 2021). Note that biases, especially implicit biases, are not inherently bad. Biases are evolved tools to help us make quicker decisions. How else would you know to pull your arm away from an animal that is trying to bite you? Or how else would you make a quick decision about what ice cream flavour you want when there are 12 people in line behind you? However, if your unconscious decisions negatively affect someone else’s social or physical well-being, then your introspection on your own biases can help you become a better ally to those whom you interact with. Remember, impact, not intent.

If you are curious about your own implicit biases, the Harvard Implicit Association Test (2011; link included in the Helpful Resources) is a great tool to assess your baseline biases towards race, disability, gender-science association, sexuality, and many more.

2.3 Humble Acknowledgement

Humble acknowledgements require reflecting and admitting what you do not know and your privileges and powers. Life-long learning is something that is generally valued in geotechnical engineering and geosciences. In active allyship, this can look like saying “I don’t know”, and then looking for opportunities to learn and educate yourself, including asking for help. Many, if not all of the associations that govern our professional practice require continuing education in non-technical subjects. Committing to learning more about EDI-related challenges and solutions is a great step towards being an ally while meeting your professional obligations.

If we return to the Wheel of Privilege and Power, examine how your position has made your life easier compared to those who are placed near the outer wheel. We encourage you to share your acknowledgements with others, as you may not even know your privileges and power (and that in itself is a privilege!).

Here are some examples of humble acknowledgements (directly from the authors):

- As a man, I have never had to worry about being able to attend to my personal needs during fieldwork
- I have never had someone ask me how to pronounce my name or had someone mispronounce my name when being introduced
- I have never had to worry about going hungry, even as a student or during my early career
- I have never worried about my personal safety during fieldwork
- As an able-bodied person, I have not had to ask for accommodations to access professional development opportunities
- I have been able to afford high-quality, appropriate, safe, and fit-for-purpose work clothing and footwear without replacing these items regularly
- As a White person, I have not been confused for a colleague of similar ethnicity or racial identity
- As a heterosexual person, I have not had to worry about bringing my relationship partner to workplace events
- I have never had to use vacation days to celebrate non-Christian religious holidays and/or cultural celebration days.

An example of how humble acknowledgement can be applied to active allyship is provided by a recent company experience. While an office was being renovated, the company temporarily instituted a desk-sharing policy and the office manager assigned people to share desks. Two Asian women were assigned to one desk. A White member of the EDI committee recognized from a recent EDI learning that non-White women are commonly mistaken for other women of similar racial identity – this microaggression has roots in the systemic oppression of non-White women. In this instance, the EDI committee member approached the office manager, educated the White office manager on this systemic bias, and addressed the potential concern about this desk arrangement. The employees were assigned new desks and efforts were made to avoid similar circumstances for other employees. The office manager acknowledged their mistake and was receptive to the feedback. Had the EDI committee member not been educated on this microaggression and recognized it, even though it was outside of their experiences, the women employees may have inadvertently experienced ongoing microaggressions.

2.4 Empathetic Engagement

Media, especially social media, is increasingly becoming more polarizing (NPR, 2022; Pew Research Center, 2022). Challenges surrounding EDI are not immune to this

polarization. What is often portrayed in media is overt shaming of discriminatory practices, which is countered by the distaste of social movements, or labelling EDI actions as “wokeism”². Given this, we admit that even though stronger voices are necessary to change the narratives on systemic and institutional discrimination, for many day-to-day professional and social settings there are more strategic ways to show your allyship by guiding the discussion more positively. It is fair to say that most people do not like being judged, therefore, approaching EDI discussions with curiosity, empathy, and compassion when engaging with others or ourselves about biases yields the best results.

We will often observe termite biases (also referred to as microaggression) when an individual acts or makes a statement that is indirect, subtle, or unintentionally discriminatory against equity-deserving persons (examples below). If you witness this, rather than calling the person out, bring them into a conversation by saying: “I’m curious, what made you say that?” or “That’s an interesting way of looking at it, why don’t you tell me more?” (Luthra, 2022).

If you are being corrected on your biases, avoid getting defensive (e.g. “Relax, don’t be so serious.” or “It was just a joke.”). Instead, reflect on your actions or language, admit your mistake, thank the individual for correcting you, and discuss ways to improve. Here are some examples of termite biases and alternate ways to convey the same intentional meaning; note that some of these terminologies are so ingrained into our communication, that it will take practice to correct them:

- *“We ~~blacklisted~~ blocked the contractor from bidding on this proposal due to their previous poor performance.”*
Reason:
“Blacklist” refers to a list of things that are viewed negatively, compared to “whitelist” that is viewed positively.
- *“Hi ~~guys~~ folks (or team), how is everyone doing today?”*
Reason:
“Guys” imply gender-specific expectations.
- *“Have we conferred with Indigenous ~~stakeholders~~ partners/rights and title holders on the project’s environmental impact?”*
Reason:
The term “stakeholder” refers to the practice of staking land claims and the historical allotment of land to settler colonials (Government of British Columbia, 2024). The words “partners” or “rights and title holders”³ acknowledges Indigenous rights to governance authority on traditional lands and territory and in the decision-making process.
- *“~~Hey lady, let me help you lift that.~~ Can I help you with that?”*

Reason:

While well intentioned, the usage of a feminine term in relation to physical strength implies that the person is incapable of performing a physical task.

Here are some examples to avoid altogether:

- *“I’m not a racist, I’ve dated a Black girl before.”*
Reason:
This statement denies racial biases, is sexist, and displays an attitude of misogynoir⁴.
- *“Wow, you speak really good English. You don’t have any accent at all.”*
Reason:
This statement puts prejudice against the individual and presumes that an individual with a different skin colour should have an accent.

2.5 Authentic Conversations

Coined by Professor Amy Edmonson from Harvard Business School, the term “psychological safety” is defined as “a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes and that the team is safe for interpersonal risk-taking”. Psychological safety is necessary to have authentic conversations about EDI. Imagine that you are a new employee in your company working on a new task that you are unfamiliar with. You have many questions but are afraid to ask your project manager for fear of being judged or labelled incompetent. This fear can also be felt in times of being an active ally. It takes time, practice, and experience to breathe through this fear. If you see someone willing to step up and be an active ally (even if it is not perfect), give them credit and encouragement. The last thing you want someone willing to learn is to be on the receiving end of criticism, which may create fear and result in no further active allyship actions.

To establish psychological safety within your team or organization, encourage open and honest conversations and get uncomfortable talking about difficult topics. Stop avoiding difficult conversations that address individual biases. To do this, it is good to come up with rules of engagement: this may mean setting aside a scheduled time to talk openly about what actions have been noticed recently or self-reflecting on what could have been different. This action is not a performance review, so grab a coffee or tea, and go for a walk to ease the tension. In particular, walking together can feel like moving towards a shared goal, rather than an aggressive confrontation.

As psychological safety is established within an organization, you may notice those around you open up to you about their personal experiences. Remember that this means they trust you – do not forget to approach the conversation with empathy and listen.

² Progressive or left-wing attitudes or practices, especially those opposing social injustice or discrimination (Oxford English Dictionary, 2023).

³ Note that verbiage around Indigenous rights to governance on traditional territory is in flux and it is best to consult with local First Nations on preferred terminology.

⁴ Misogynoir was coined by Moya Bailey (2012) to address anti-Black racism and misogyny directed towards Black women.

2.6 Vulnerable Interactions

People often think allyship means you have to provide some sort of support or service to marginalized or equity-deserving individuals or groups. However, it is more about creating relationships and being openly vulnerable with those around you. Vulnerability is not a sign of inherent weakness – instead, it is a willingness to be courageous and speak the truth (Brown, 2012). There are several ways to show your vulnerability that Luthra (2022) suggests:

- Sharing personal stories
- Sharing your Cultural Thumbprint (Meyer, 2014; Luthra, 2022)
- Establishing your bias compass circle

Storytelling is a powerful tool humans possess because stories appeal to our senses and emotions and make us more relatable to one another. Share your personal stories about time(s) when you were being biased or discriminatory and what you learned from it. This action shows your reflection and growth.

The “Cultural Thumbprint” concept is a representation of your individual cultural identity that informs your allyship actions. While the Wheel of Privilege and Power represents your lived experiences, your Cultural Thumbprint represents your behaviour. Within your Cultural Thumbprint, there are nine elements to consider (Table 2-1):

- Communication
- Time
- Trust

- Disagreement
- Feedback
- Persuasion
- Leadership
- Motivation
- Decision

Take the time to evaluate where you fall within the scales and ask the people you work closely with to provide an anonymized evaluation of your Cultural Thumbprint. Compare the results and share your thoughts with your team members. This exercise creates an opportunity to understand yourself and your colleagues and show your vulnerability within a constructive setting. Note that your thumbprint may change over time and this exercise should be performed periodically.

Lastly, it is important to create your own bias compass circle. A bias compass circle is “a trusted, diverse group of colleagues with whom we are comfortable asking for feedback about our biases” (Luthra, 2022). It is extremely difficult to recognize your own unconscious biases. The bias compass circle is meant to provide you with constructive and motivational feedback, so you can continue to learn and grow as an active ally within your organization. These individuals can be the colleague that sits next to you, someone you are often in the field with, or even someone who may belong to a different functional group as you (i.e. administrator). It is recommended that these individuals are invested in being active allies themselves and that you can provide reciprocal feedback.

Table 2-1. Elements of the Cultural Thumbprint (summarized from Luthra, 2022).

Element		
Communication	Low Context: <i>Simple, precise, and clear.</i>	High Context: <i>Subtle, nuanced, and layered.</i>
Time	Monochronic: <i>Events and meetings are preferred. Punctuality is valued.</i>	Polychronic: <i>Timelines are more fluid and flexible. Deadlines are approximate and subject to change.</i>
Trust	Assumed: <i>Trust is presumed.</i>	Socialized: <i>Trust is built over time.</i>
Disagreement	Confrontational: <i>Comfortable engaging in debate and disagreement – views as trust building.</i>	Non-Confrontational: <i>Avoids situations of conflict and disagreement.</i>
Feedback	Direct: <i>Upfront and clear. The receiver walks away with clear understanding.</i>	Indirect: <i>Packaged and hidden in more positive feedback. The receiver is required to unpack.</i>
Persuasion	Why-first: <i>Reason and rationale are explained before suggestion/recommendation/plan of action.</i>	How-first: <i>Suggestion/recommendation/plan of action is presented before the reason.</i>
Leadership	Egalitarian: <i>The power distance between a line manager and a team member is low. Communication across the flatter structure can skip hierarchical lines.</i>	Hierarchical: <i>The power distance between a line manager and team members is high. Communication needs to follow strict hierarchical lines.</i>
Motivation	Individual Goals: <i>Motivated by personal rewards and benefits.</i>	Group Goals: <i>Motivated by common goals.</i>
Decision	Consensual: <i>Input from all relevant team members is sought. The team reaches an agreement before action.</i>	Top-Down: <i>Leaders/managers make decisions and inform relevant team members.</i>

2.7 Courageous Responsibilities

The last behaviour, and perhaps the most challenging one, is taking responsibility for your actions and influence. It is about bringing all six previously mentioned behaviours into action. So, what does this look like in practice? Here are some ways to show courageous responsibilities:

- Inclusive communication
- Inclusive engagement and participation
- Dismantling systemic bias

Practicing inclusive communication is likely the least resource-intensive responsibility you could take on. As described in Section 2.4, outdated and discriminatory verbiage perpetuates termite biases. The following are additional common terms to replace in our industry:

- ~~Manned~~ Crewed
- ~~Foreman~~ Foreperson/Lead
- ~~Blind~~ Anonymous recruitment
- ~~Mute yourself~~ Please put your microphone on silent.

Encouraging inclusive engagement and participation requires a bit more effort in your day-to-day decisions. It is about going outside of your norm and including others that may not typically be in your subconscious mind. These actions can be casual or formal:

- Ask a colleague that you usually do not eat lunch with to join you
- When soliciting feedback or brainstorming ideas, make sure a diverse group of individuals is considered
- Provide mentorship and opportunities to those who do not think or look like you. What does your succession plan within your role or organization look like? Is it the same demographic?

The last courageous responsibility you could take on may seem outside of your role. However, it is not and your voice and advocacy, along with other allies, can help more than you think. It is challenging systemic biases. Below are some questions challenging the systemic biases within geotechnical engineering and geoscience that pertain to recruitment, talent development, and marketing and communications and actions to address these biases:

Recruitment:

- Are we anonymizing the CVs and related documents when reviewing potential candidates?
- Is the recruitment and selection panel representative of the diversity we would like to see within our organization?
- Do we have a clear criteria-based selection process, including criteria about diversity of perspectives, experiences, skills and backgrounds? Are these clearly stated in the job description?
- Have we done unconscious bias training with our recruiting team?

Talent Development:

- If someone from an equity-deserving group joined your team or organization, would they feel like they belong?
- Do people from equity-deserving groups have mentors to guide them? Are there individuals within the leadership or management they can relate to and look up to?
- Are there clear guidelines and support for parental leave that will not disadvantage career progression?
- Have we conducted a pay equity exercise to identify unjustified gaps?

Marketing and Communications:

- Are our communications inclusive and representative?
- Does our marketing material highlight a certain group more than the others?
- Does our social media communication engagement (including for position openings) target a wide range of demographics?
- Does our company honour or celebrate days of recognition?

So how can you convert these questions into action? If you are not in a position of power, then ask those who are and get curious about policies and procedures that might contain systemic bias. Remember, ask these questions with deep curiosity and avoid being confrontational or demanding. If you are in a position to control resources and decisions, then do the inclusive thing. Engage in conversations and solicit feedback from your employees and managers. We understand that these efforts require careful consideration, time, and resources. So set a goal and timeline to make such decisions. Then share them broadly, as it will keep you accountable and those who are being impacted will appreciate your openness and honesty.

Remember, we are not saying this is simple or easy. It will take time to practice and significant effort to make these habitual but the opportunities enrich our organizations and the experiences of others, including our own, which make this a very rewarding journey.

3 ACTIVE ALLYSHIP EXAMPLES IN GEOTECHNICAL ENGINEERING AND GEOSCIENCES

While active allyship can take many different forms ranging from small day-to-day actions of individuals to major initiatives at an organizational level, it can be daunting to understand where to start first. Below, we have highlighted some recent examples of active allyship within geotechnical engineering and geoscience that may spark creative thoughts about what you can do to be an active ally.

3.1 Field Hygiene

Personal hygiene during fieldwork incorporates elements of psychological and physical safety, particularly for females or gender-diverse persons, and those with chronic

health conditions, such as irritable bowel syndrome. Lack of access to clean washroom facilities can lead to major health problems, including fever, urinary tract infections, difficulty concentrating, nausea, dizziness, fatigue, and problems with bladder retention (**Figure 3-1**).

You can act as an active ally in these environments by recognizing the need to provide equitable, safe, and clean washroom facilities during fieldwork or at construction sites. You can be sensitive to the needs of your field partner(s) and communicate those needs to a project manager, prime contractor, or site health and safety representative.

Prior to fieldwork, consider the following:

- Let employees know what to expect before they go to the field and discuss strategies and personal hygiene tools that will work for everyone.
- Talk to the client or prime contractor about washroom spaces and request reasonable access for the team. For example, ask for porta

potties and privacy tents at drilling rigs or construction sites.

- Confirm adequate supplies and cleaning for washrooms.
- If doing remote fieldwork, carry hand sanitizer, toilet paper, and sealed bags.
- Make sure the field team has enough supplies for the fieldwork duration. For example, if it is a bucket and bag situation, make sure each person who can't urinate standing up has at least two or three bags per shift.
- Let employees know it is okay to drive to take a bathroom break if that is the only washroom option and that they will not be replaced by someone who does not have to make that drive.
- Coordinate bathroom breaks with a field partner. For example, if conducting fieldwork in a remote location, plan a break in a town that will have a public restroom.



Figure 3-1. Options and considerations for field hygiene that can be addressed through active allyship action.
Graphic generated by BGC.

3.2 Professional Development Events

Professional development events, such as conferences, seminars, networking events, and field trips offer important career advancement opportunities within geotechnical engineering and geosciences. These events can provide practitioners with awareness of important advancements in understanding, introduce participants to new colleagues, and provide a sense of social connection within our field. Many of these events also provide participants with professional development hours that can be counted towards professional registration requirements for continuing education.

Given the importance of professional development events in our field, what are the considerations that should be taken to help alleviate barriers to participation, and to be active allies at these events? **Table 3-1** outlines barriers in the following areas of concern, with examples of allyship actions:

- Event planning
- Indigenous Knowledge integration
- Accessibility
- Caring responsibilities
- Financial

While **Table 3-1** primarily describes actions that could be taken by event organizers, it also provides some helpful frameworks for personal allyship actions. For example, if you notice that a speaker is not using a microphone at a conference, you can ask them to speak into one, even if their voice is loud enough to be audible to the room. This action promotes equality, as the use of microphones allows captioning systems to record audio, projects audio across the event space (not just those in proximity to the speaker) and encourages all voices to speak at events (regardless of their voice strength).

Another example of an allyship action is the inclusion of Indigenous co-authors in presentations and a land acknowledgement at the beginning of individual presentations. The land acknowledgement could describe the event location and an acknowledgement of the Indigenous lands on which the presentation content is based. Engineers Canada provides a guide to First Nations land acknowledgments and personalizing land acknowledgements (Engineers Canada, 2021).

3.3 Partnerships with Equity-Deserving Groups

Racial minorities are systemically underrepresented in Science, Technology, Engineering, and Math (STEM) careers when compared to the general population (e.g., American Geosciences Institute, 2020). This underrepresentation is due to systemic inequality in the education system towards racial minorities, and other factors, such as economic inequality. To foster a more diverse group of people who choose applied geotechnical engineering and earth sciences as an area of study, awareness needs to begin before students enter post-secondary education. As such, equity-deserving groups have organized STEM mentoring and tutoring programs to increase career interest in these fields.

The Colorado Association of Black Professional Engineers and Sciences (CABPES) is a non-profit organization dedicated to encouraging Black and other underrepresented youth to pursue STEM careers. The goal is to increase the number of minority STEM professionals while assisting the industry in meeting the growing demand for STEM professionals. Since mid-2023, employees of a consulting firm have been supporting CABPES tutoring programs for students in grades 5 through 12 with their math and science homework. Over the course of this tutoring, they are also exposed to career opportunities in geotechnical engineering and geosciences.

It is important to note that in seeking to improve diversity in STEM, the firm sought to support an existing organization that is managed by an equity-deserving population. In doing so, we acknowledge that the equity-deserving group understands the needs and unique challenges associated with this work. We partner with the organization and do not assume that we know the answers to solve the problem. Rather, as an active ally we come alongside the organization to support them physically and financially in achieving their goals.

3.4 Equitable Communication Practices

Communication, whether it be in written or oral form, is an integral part of engineering and geoscience work. As active allies in geotechnical engineering and geoscience, we must understand that certain colours on figures, maps, and drawings may be unreadable to certain persons or communicate the wrong message. Data presented using a rainbow-like palette, or with diverging red and green colours are generally imperceptible to those with colour-vision deficiency (**Figure 3-2**). The sudden breaks in the commonly used rainbow colour scheme can visualize a perceived break in a visualization that is not necessarily within the data (International Panel on Climate Change, 2019). Additionally, our eyes perceive yellow as the brightest colour, and shades of green do not provide sufficient contrast to distinguish from one another (Cramer et al., 2020).

Table 3-1. Examples of active allyship actions to increase inclusion at professional networking events. This table was compiled from Calisi and a Working Group of Mothers in Science (2018), Chautard (2019) and 500 Women Scientists (2023).

Area of Concern	Barriers to Inclusion	Example Allyship Actions
Event Planning	- Location may exclude participants who have safety concerns about in-person attendance. - The organizing committee may not be aware of personal implicit biases that hinder inclusive attendance.	- Consider the local political climate and public perception of equity-deserving groups during the selection of event location (city, neighbourhood, building). - Develop an organizing committee that includes members of equity-deserving groups. In recognition of economic disparity for equity-deserving groups, consider honoraria or company-sponsored time to attend organizing committee meetings. - Prior to the event launch, develop and publish an event Code of Conduct that outlines clear expectations for appropriate and inclusive behaviour during the event. Describe the process for reporting breaches of the Code of Conduct and make participants aware of this throughout the event. - Ensure presenters represent a vast range of intersecting identities and consider inviting speakers who are members of equity-deserving groups.
Indigenous Knowledge Integration	- Indigenous Knowledge is not viewed as “valuable” or “credible” as Western science and engineering. - Systemic barriers within the education system towards Indigenous Peoples reduce the number of Indigenous professionals in engineering and science careers	- Invite an Indigenous keynote speaker who can speak to engineering or geoscience projects within their communities and/or the integration of Indigenous Knowledge and Western science. - Invite a local First Nation to provide an event welcome that is consistent with their local protocols and customs. If appropriate and in line with protocols, pay an honorarium. - Develop a land acknowledgement that honours the First Nations land the event is gathering on and describes the organization’s ongoing reconciliation actions (e.g., Engineers Canada, 2021).
Accessibility	Event location or activities may be inaccessible for those with physical disabilities.	- In event communications, describe the general accessibility of the event location (e.g., composition and accessibility of washrooms, width and location of accessible entryways, known barriers to access). - Ensure the location has inclusive signage for people with visual impairments, such as the use of brail. - During event registration, ask participants about accessibility accommodations including transportation, attendance of support person(s), and personal care. - Provide alternative attendance options including virtual or blended attendance. An example of a virtual field trip is the Sea to Sky Highway (UBC, n.d) that offers embedded 360° photospheres of each stop along with annotated descriptions of the site stops. - Mandate the use of a microphone for all presenters and audience members asking questions. Include live captioning, transcripts of the presentations, and sign language interpretation. - Ensure that the speaking podium is accessible for those with physical disabilities.
Caring Responsibilities	Caring responsibilities (e.g., children, elderly parents) can inhibit the attendance of equity-deserving persons (particularly women).	- Provide free or paid childcare at or near the event location. - Offer a care-taking grant to cover support at the attendee’s home location. - Consider the timing of the event, as weekend and late-night events are less accessible for caregivers. - Provide private spaces for lactation, breastfeeding, and pumping. - Organize family-friendly events.
Financial	There can be financial and economic barriers for individuals to be able to afford to attend.	- Provide scholarships for members of equity deserving groups that include event registration, transportation, accommodations, and food. - Consider the relative cost of living expenses (e.g., accommodations, food) when selecting an event location.
Other		- Ensure the event location has an adequate number of bathrooms and gender-neutral, or single-stall washrooms. - Provide a prayer room and a mental wellness room. - During event registration, ask participants about dietary restrictions and ensure catering providers can accommodate this request.

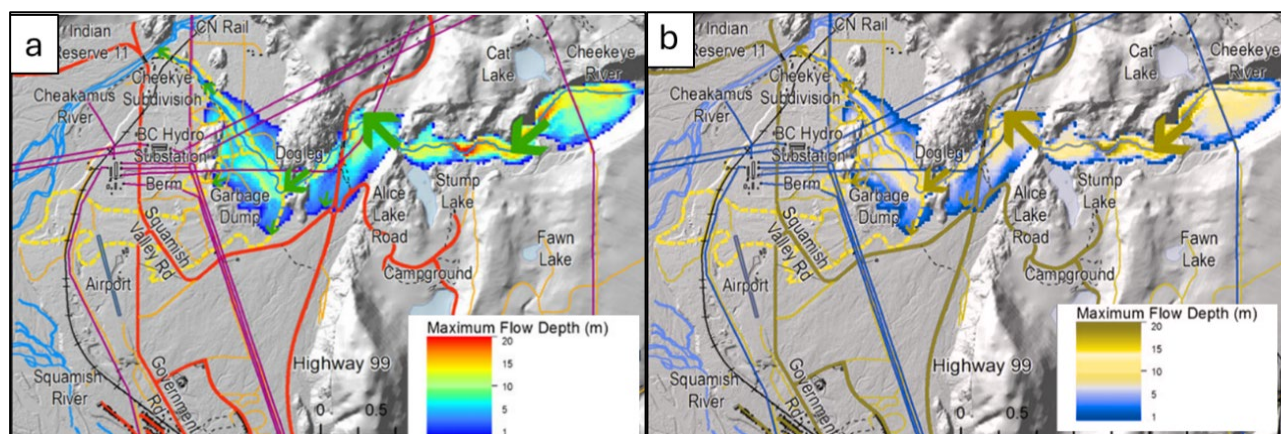


Figure 3-2. (a) Debris flow runout modelling results using a rainbow colour scheme. (b) The same modelling results as in (a) but visualized by a person with red-blind colour deficiency. Modelling results from Jakob et al. (2013).

Knowing this information, we can act as active allies and use equitable communication practices when we visualize datasets. This practice begins by understanding the dataset and what you are trying to convey:

- If the dataset is diverging (e.g., positive and negative values), consider two colours that are perceptible to colour-vision-deficient persons (e.g., orange-blue instead of red-green).
- If you are displaying complex graphs with several different data points and symbology types, consider breaking them out into several sequential graphs before providing the final combined graph. This will allow the reader to build understanding along with you.
- Consider if your data has a commonly perceived colour variation (e.g., red is associated with warm or “bad”, and blue is associated with cold or water). In some regions of the world, different colour associations are used (e.g., green is bad, red is good).
- Provide captions for figures that summarize the complete understanding of the image. Particularly for persons who use screen-reading software, the caption should act as an explanation of the figure and describe any observable trends or important implications of the visualization.

In written communication, strive to ensure your work can be read by multiple audiences with different technical backgrounds and reading comprehension levels. Particularly if your work will be provided to non-technical audiences or members of the public, consider the following:

- Avoid jargon or overly technical language unless necessary (e.g., landslide deposit instead of colluvium, earthquake instead of seismic, and groundwater level instead of water table). If you must use a technical term, try to provide the plain-language definition of this term near the first use of the word, and possibly in a visually striking format (e.g., coloured line breaks or text boxes)

- Avoid the overuse of abbreviations unless it is a commonly understood short-form (e.g., H₂O for water). If you do, make sure to define them.
- Consider the use of plain language and/or visual summaries of the main conclusions of your work.

For both data visualizations and written communication, seek feedback from your bias compass circle to understand how your work is being perceived by others. A good test of this is asking someone what they think is the main message you are trying to convey (IPCC, 2019). If this answer is inconsistent with your main message, seek feedback on how it could be communicated differently.

4 CONCLUSION

In this paper, the authors have shared the importance of being an active ally, the behaviours we can adopt, and practical examples of how you could apply them. Recognizing that this takes time and effort, we encourage you to continue your engagement in being a better ally. This journey does not have to be daunting or be done alone, so bring along others with you – this is meant to be a group effort.

5 HELPFUL RESOURCES

The Wheel of Privilege and Power

(Immigration, Refugees and Citizenship Canada):

<https://www.canada.ca/content/dam/ircc/documents/pdf/english/corporate/anti-racism/wheel-privilege-power.pdf>

7 Ways to Practice Active Allyship

(Harvard Business Review by Poornima Luthra):

<https://hbr.org/2022/11/7-ways-to-practice-active-allyship>

Guide to Inclusive Practices

(Engineers & Geoscientists BC):

<https://www.egbc.ca/About/Programs-Initiatives/Equity-Diversity-And-Inclusion/Guide-To-Inclusive-Practices>

Professional Practice Guidelines: Equity Diversity, and Inclusion (Version 2.0)

(Engineers & Geoscientists BC):

<https://www.egbc.ca/About/Programs-Initiatives/Equity-Diversity-and-Inclusion/Equity-Diversity-and-Inclusion-Actions>

Harvard Implicit Association Test:

<https://implicit.harvard.edu/implicit/takeatest.html>

Native Land

(Indigenous territories, languages, lands and ways of life):

<https://native-land.ca/>

Inclusive Language Guide (GSMA):

<https://www.gsma.com/about-us/wp-content/uploads/2020/11/GSMA-Inclusive-Language-Guide-2020.pdf>

ColorBrewer 2.0

<https://colorbrewer2.org/>

International Panel on Climate Change Visual Style Guide

<https://www.ipcc.ch/site/assets/uploads/2019/04/IPCC-visual-style-guide.pdf>

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