



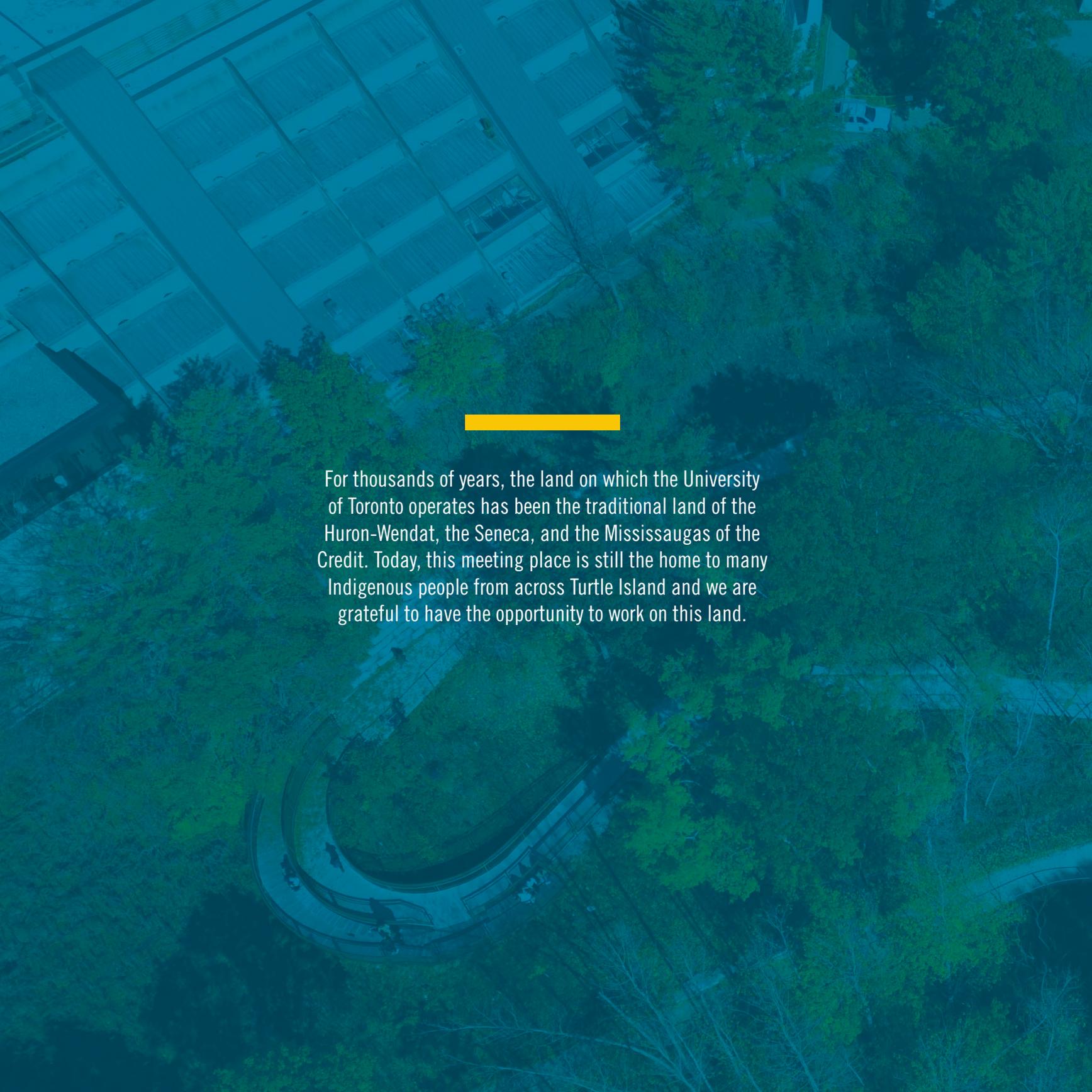
**AT A GLANCE:**  
**U of T Scarborough  
Implements the  
UN Sustainable  
Development Goals**



UNIVERSITY OF  
**TORONTO**  
SCARBOROUGH



**SUSTAINABLE  
DEVELOPMENT** **GOALS**



For thousands of years, the land on which the University of Toronto operates has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.





One of the striking features about University of Toronto Scarborough (U of T Scarborough) is the combination of talent, vitality, and passion that students, faculty, and staff exhibit every day to advance our shared Vision of being the: **embodiment of inclusive excellence, a bold community of conscientious and adaptable global leaders in scholarship, innovation, teaching and learning who constructively disrupt the status quo, connect the world, and advance transformative change for the good of all.**”

With a mission that is anchored in intentional inclusion and expressed through accountable stewardship and mutuality in support of healthy, thriving, resilient, and sustainable societies and ecosystems, it is not surprising that the UTSC community finds a natural affinity with the United Nations’ 17 Sustainable Development Goals (UN SDGs). We are active participants in the collective effort towards achieving these goals.

Our students are inspiring in their determination and creativity as they address the goals in their learning; in their clubs and volunteer work; and through innovative and entrepreneurial problem-solving.

Our faculty’s exceptional research and teaching are facilitating positive transformations that advance the UN SDGs. The goals are, in fact, a foundational thread connecting our three new research institutes: the Institute for Environment, Conservation and Sustainability; the Institute for Inclusive Health and Well-Being; and the Institute for Inclusive Economies and Sustainable Livelihoods.

The ingenuity of our students, faculty, staff, and partners translates into sector-leading innovations in our facilities and operations, making them more sustainable and showcasing the campus as a living laboratory from which to share our experiences of what is possible. Several cutting-edge construction projects exemplify these contributions, demonstrating both the next generation of sustainability thinking and inclusive practices that support socio-economic development in our communities.

The projects described in this volume each address one of the 17 UN SDGs. We invite you to join us in our mission as we lead the way together in developing knowledge, pursuing actions, and sharing experiences that will help to build a just, equitable, and sustainable world.

**Wisdom Tettey,  
Vice-President and Principal  
University of Toronto Scarborough**



Left to right: William Gough, Irena Creed, Wisdom Tettey, Andrew Arifuzzaman

**“ Sustainability in the broad sense set out by the SDGs is at the heart of our teaching and learning, research, scholarship, university operations, investments, engagement, and partnerships. Our twin missions in higher education and advanced research are informed by a third mission: to advance sustainability within our institution and beyond. ”**

**Meric Gertler  
President, University of Toronto**

**“ It’s an inspiration to engage with, and a privilege to support, our students in their determination to find solutions to global challenges, many of which their generation did not create but must live with. The UN SDGs serve as a guide to finding those solutions. ”**

**William Gough  
Vice Principal Academic & Dean**

**“ The UN SDGs are visible in the world-class research, innovations and the social and technological entrepreneurial activities that are being pursued by the dedicated faculty, staff and students of U of T Scarborough. ”**

**Irena Creed  
Vice-Principal, Research & Innovation**

**“ Our team is not only taking actions to reduce our carbon footprint, but we are working with industry to develop and implement new technologies. We are sharing our findings around the world to help break down risks for future builders and make technologies more accessible to all. ”**

**Andrew Arifuzzaman  
Chief Administrative Officer**

Blankets for T.O. Co-Founders  
Nimit Vediya, Rushil Dave  
and Naman Sharma

1 NO  
POVERTY



# Blankets for T.O.

In 2019, a trio of childhood friends all went to U of T Scarborough for neuroscience, where in their first year they created Blankets for T.O., an organization that has donated more than 6,000 items to those experiencing homelessness and expanded to five chapters at other universities.

Nimit Vediya, Naman Sharma and Rushil Dave began with blankets, handing them out to people in need around downtown Toronto.

“The first time was one of the coldest days of the year,” says Dave. “We walked seven kilometres around downtown Toronto, and handed out around 50 blankets. It was so eye-opening for us to meet so many people and hear their stories.”

“Even though this issue is pretty prevalent, we realized it’s also quite hidden,” says Sharma. “Many people we come across have a negative stigma associated with homeless people, and they often blame the individuals themselves for the situation they’re in. They never take the time to hear their story.”

A blanket can be a lifeline to someone in the cold with no place to go, but the students knew they needed to think bigger.

“We’ve built relationships with four MPs in the area,” says Dave. “In the beginning, we were giving out a lot of donations, but we know that just donating items won’t solve this problem.”

Tackling the root causes of homelessness requires advocacy, awareness and engagement, Dave says. The organization uses its blog, podcast, Instagram account, annual general meetings and fundraising events to educate the public on the realities of homelessness, and ways to get involved.

“With the three of us, we were able to do things very quickly and grow exponentially,” says Vediya. “Now we’re one of the biggest organizations at U of T Scarborough and we’ve helped over a thousand people. I think that speaks to the fact that any student on campus with an idea can start something huge.”



2  
ZERO  
HUNGER



# The Campus Farm

Sitting on a 10 acre stretch of property on U of T Scarborough's north campus, the Campus Farm provides students and community with the opportunity for interdisciplinary, experiential, land-based learning.



Professor Liat Margolis and Elder Whabagoon (left) with members of Nikibii Dawadinna Giigwag.

The farm integrates aspects of regenerative agriculture, including water management practices, crop rotation, companion planting and soil regeneration. Seeds from their fruits, vegetables and medicinal plants are kept and collected in partnership with the UTSC Seed Library, then replanted in the next season.

“The spirit of the farm is for teaching and research, but also a way of showcasing alternative approaches to farming” says Campus Farm Coordinator Beatrice Lego. “Of doing things differently, in a way that is more resilient.”

As a teaching resource, the farm hosts a wide variety of U of T Scarborough courses. Food studies courses recently planted and maintained a garden of native Mexican plants. Biology courses have been growing medicinal herbs and studying their chemical properties. Art classes come out to connect with nature. A management course brings students out to study how food banks could receive more fresh produce through urban farming.

“Some courses only come out to the farm once,” Lego says. “It is not always so much about the gardening, but exposing students to this environment and really reconnect with the land.”



**Beatrice Lego**  
Campus Farm  
Coordinator



## The Campus Farm

The farm's Indigenous Garden features plants native to the Americas. Many of these plants are more productive, less resource demanding and their fruits more nutrient dense than the plants farmed in industrial agriculture. Every stem, leaf, root, tuber and flower is edible, or can be used for medicine, ceremonies, building materials, or artistic practices.

But the Indigenous Garden is not just about production, it is about process.

"People always want to learn about Indigenous gardening techniques," says Indigenous Agriculture and Plant Knowledge Keeper Isaac Crosby. "What I need you to do is go through your own history books and learn what your people did back in their country. What you'll find is that we all did the same things at one point, just different variations. Then we can share that knowledge together."

Frequent farm visitors are the participants of the Nikibii Dawadinna Giigwag (NDG) Indigenous Youth Access Program. Founded by Professor Liat Margolis and Elder Whabagoon of the Daniel's faculty of architecture, landscape and design at U of T St. George, the program provides educational and employment pathways for Indigenous youth in the field of landscape design. The youth are mentored by Elders and industry partners, weaving together traditional knowledge and professional development.

"Finding land available to host our program has always been a challenge," says Margolis. "U of T Scarborough has been an invaluable partner in this regard. It's incredibly important for the youth to have this opportunity to connect with land in a meaningful way."

The youth have also gone on foraging expeditions on campus land with Grounds Supervisor Mark Neilson as part of the Edible Campus Initiative, which seeks to plant native edible species on campus grounds. In partnership with the Culinarium Research Centre, they took their finds back to the kitchen to prepare delicious meals and reconnect with traditional practices such as fermenting, smoking and preserving.

The Campus Farm, Culinarium, the UTSC Seed Library and the Edible Campus Initiative form the basis for talking about food, food sovereignty and sustainability on campus. The Seed Library collects seeds and donates them to the community. The farm and landscape department provide produce and learning opportunities for the Culinarium Centre and its programs. A new vermiculture system collects Culinarium's food waste to produce valuable compost that is then used by the farm. The Seed Library receives new seeds grown by the farm at the end of every season.

"It is about completing the loop," Lego says. "Everything is interconnected."



**Isaac Crosby**  
Indigenous Agriculture & Plant Knowledge Keeper



# FLOURISH

One of four inaugural Clusters of Scholarly Prominence, the FLOURISH: Community-Engaged Arts as a Method for Social Wellness cluster brings together 10 faculty members of different disciplines to investigate the convergence of arts, wellness and community. Led by Andrea Charise, associate professor and associate chair of research in the department of health and society, the cluster has collaborated with community partners to engage in interdisciplinary, community-centred research funded by the Social Sciences and Humanities Research Council, the Connaught Fund and the New Frontiers in Research Fund.

“Arts engagement can be a low-barrier, low-risk way to define and promote health and wellness outside of a clinical or institutional context,” says Charise. “When it comes to sustainability, and what it might mean to thrive and flourish in a decent society, I find it extraordinary that the arts are rarely, if ever, included in these conversations.”

benjamin lee hicks, PhD, is a postdoctoral fellow and visual artist. Drawing on their experiences as an elementary school teacher and a queer/trans person working in Ontario schools, their research for FLOURISH focuses on how the arts can help deepen and personalize teacher professional learning so efforts towards equity and diversity education are more meaningful and sustainable for all school community members.

“On paper and in policy, governments are always talking about the value of the arts and physical education in promoting good mental health,” says benjamin. “But when it comes to planning and funding for teacher



From The Resemblage Project, Andrea Charise

FLOURISH's diverse projects employ a range of arts approaches in different settings and communities. One project, titled The Resemblage Project, engages in collaborative digital storytelling by students, scholars, artists, activists, and community members to examine what it means to grow older in Scarborough.

“In many communities, story is the medicine,” says Charise. “The relationship between the telling, receiving, and evolution of stories is inseparable from the wellness of both the individual and the community past, present and future.”

education, these subjects aren't given the time and resources they need, which gives the sense that they aren't actually valued.

“If you as a teacher truly want to be hearing stories and voices that aren't usually heard in schools, then you need to become literate in forms of language other than traditional Eurocentric written practice, and those are the arts. You don't need to be a practicing artist yourself, but you do need to be open to all the different ways your students might be capable of communicating creatively if given the opportunity.”

An upcoming collaboration adds a research layer to Scarborough Arts' EAST Youth Collective program, an arts and health initiative directed

towards 2SLGBTQ+ youth, many of whom are also racialized. FLOURISH researchers are collaborating with program participants to define what it means for young queer people to live in a state of wellness, how the arts might enhance aspects of wellness such as belonging and justice, and what resources they need to continue to develop and evolve.

“The arts have long been at the centre of community and social activities, allowing people to come together and share or explore things that they have in common,” says Charise. “One of our goals is to make a bigger argument for the profound importance of the arts. Is our idea of the arts limited to some nice hobbies to do on the weekends? Or is our society ready to support arts access as an integral, deeply entangled part of what it means to be well?”

Associate Professor Andrea Charise



4 QUALITY EDUCATION



## The Curriculum Review

ESTB03, otherwise known as Land, is a course split into three parts: food, clothing and imagination. The course is taught by Associate Professor Nicole Klenk in the department of physical and environmental sciences, who was a member of the working circle that led U of T Scarborough's curriculum review. "Land" seeks to embody the recommendations of the curriculum review by providing hands-on opportunities for decolonized learning.

Fourth-year student Divya Dey was required to take "Land" as part of U of T's sustainability certificate program. But Dey found that the course altered her understanding of learning in a university setting.

"Professor Klenk doesn't make you memorize lectures. It's more of a discussion," Dey says. "It helps you reflect on your actions and analyze them in an academic sense. It gives you sense of curiosity, too, wondering, 'How is this all related?'"

**"ESTB03's interpretation of land-based learning involves supporting student's relationship to land through all their senses," says Klenk. "Vision, sound, taste, touch, smell, as well as movement and imagination. We want students to take an active and embodied engagement with content that too often is taught as abstract concepts rather than experiences."**

Throughout the course, students are exposed to issues surrounding two essential material goods — food and clothing — and are then encouraged to relate their personal relationship to these goods to the broader context of sustainable development. Through hands-on workshops, the students learn to bake bread, spin wool and weave on a loom. The textiles workshop was piloted as part of a multi-year arts and science curriculum development collaboration with Associate Professor Erin Webster in the department of arts, culture and media, York University Professor Dawn Bazely and Supervisor of Collections and Conservation at the City of Toronto Alexandra Avdichuk.

"The very roots of sustainability involve learning how to take care of things — knowing the



Associate Professor  
Nicole Klenk

**"A big part of this course is thinking through relationships," says Klenk. "For textiles, the weaving workshop allows us to start right at the beginning, from the raw natural fibers. How are they grown? Where are they grown? By whom? What kind of knowledge does it involve?"**

materials and learning those techniques that let us prolong the life of our material things," says Webster.

One might argue that all of this could be taught in the format of a more traditional lecture. Klenk and Webster disagree.

"It's important to try the skills yourself, and see yourself fumble through them a few times," Webster says. "Students learn about the level of skill, the type of decisions, the incredible knowledge that goes into making something that they can hold in their own two hands. It also helps push our theoretical understandings into new directions, because you can't start asking new questions or forming new theories until you've been exposed to different kinds of knowledge and ways of learning."

"In ESTB03, we work to decolonize education by including the voices and knowledges of

Indigenous and marginalized peoples through course materials," Klenk says. "We also explore different ways of knowing by enabling students to feel how they come to know and relate to each other and the land through their emotions and senses, creating spaces where students learn and practice empathy. In sustainability education, empathy is considered a crucial skill to develop in order to understand and respond to the complex problems facing humanity and the natural world."

"Sometimes people listen to me and say, 'How are you a science student? Those are arts classes!'" Dey laughs. "But it's all related. A scientist, a political scientist, a geographer, an artist and a business manager are all going to approach the exact same environmental problem differently. This way, you get a little insight into where people are coming from, and you can find middle ground."



# The Hub

Kristina Knox and Stephanie Tien are the co-founders of Arbre, a company working to develop more wearable, sustainable and inclusive SPF products. Both trained scientists, they turned to The Hub at U of T Scarborough to help get their project off the ground through the annual start-up intake pitch competition. With their first product in production, the duo recently returned to The Hub as mentors to encourage other female entrepreneurs.

“We started formulating and testing our product in our own kitchen,” says Tien. “But we didn’t know where to start when it came to building our business. Incubators like The Hub have provided us with the foundational knowledge for starting a business and understanding the financial, legal, and operational aspects.”

Knox and Tien were both U of T students when they founded Arbre in 2019, when the pair began to formulate a mineral sunscreen that could protect the scalp without weighing hair down, and could be worn by people of all skin tones and hair types.

“There’s a huge myth that the darker your skin tone, the less you need sunscreen,” Knox says. “But anyone can get sunburnt, which can increase your risk of skin cancer.”



“It’s important for women to continue to advocate for representation and resources,” says Tien. “We are very lucky to have found a supportive network of mentors, incubators and entrepreneurs who strongly support us and advocate for women entrepreneurs.”

Both founders are passionate about arming consumers with knowledge about the health risks of UV rays and the environmental impact of conventional sunscreens on coral reefs. In September 2022, Arbre began production on their first product: Spruce, a tinted powder dry shampoo with SPF 20.

Arbre participated in The Hub’s annual startup intake competition in 2020, winning seed money to invest in their business and becoming a part of the wider community of entrepreneurs at U of T Scarborough. In October 2022, Knox and Tien returned to the Hub as part of The Women’s Initiative, a project working to support women founders in business, research and innovation, sponsored by Founder and CEO of Jot Tech Elina Chow. The two discussed their experiences in the entrepreneurship space and the long journey to this point.

“Women entrepreneurs can face a lot of conscious or unconscious bias,” says Tien. “There are many statistics which show the

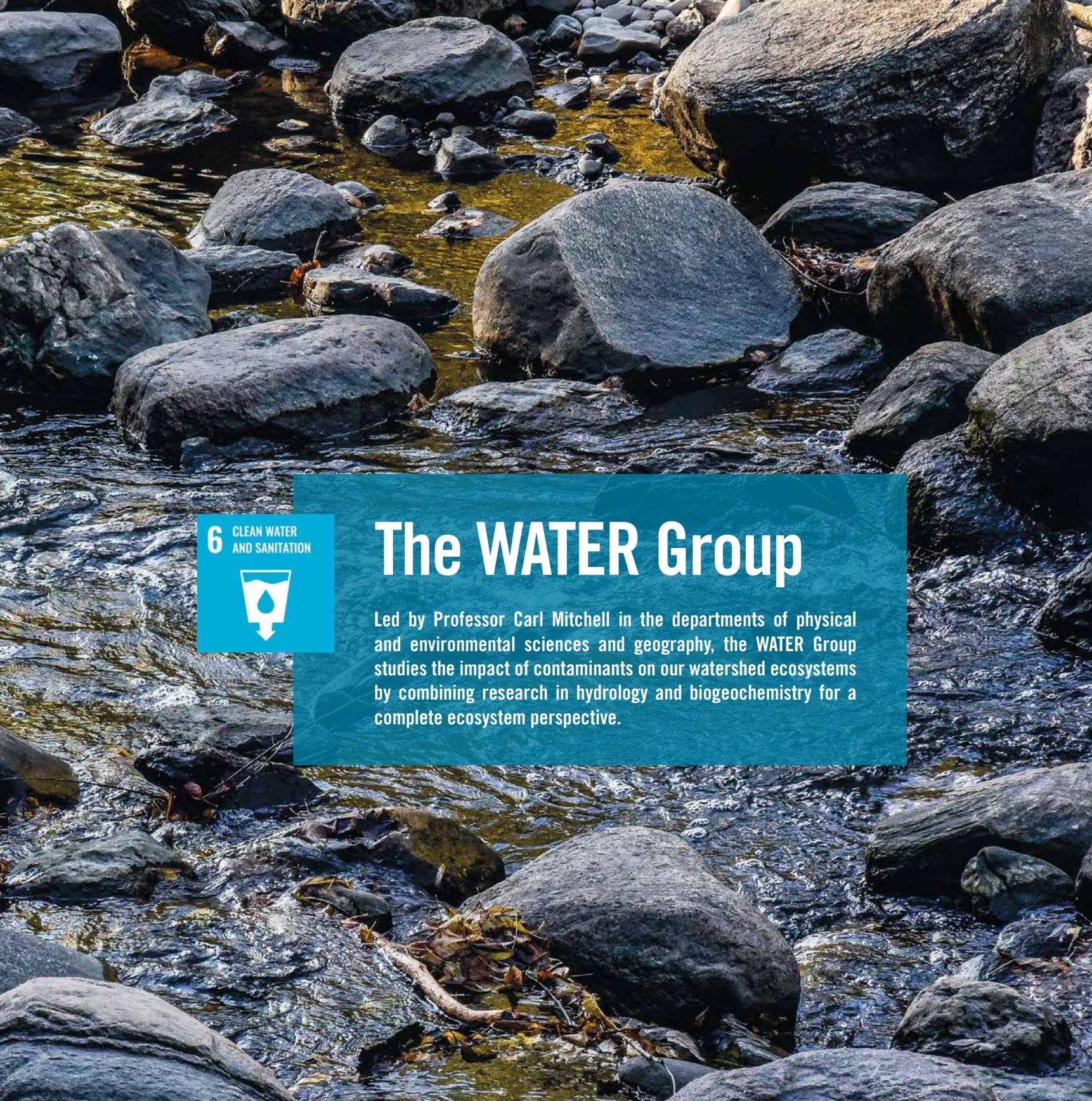
disparity in funding that goes towards women-owned businesses.”

Knox and Tien, for example, have found that other women tend to understand their product easily, but it takes more work to convince investors or judges at pitch competitions (who are largely men) of the necessity and promise of their idea.

“With The Women’s Initiative, we are looking to build leaders like Stephanie and Kristina,” says Interim Director of The Hub Donovan Dill. “We’re looking to create a blueprint for how we can support women at U of T Scarborough with innovation, entrepreneurship or commercialization of their products while supporting the sustainable development goals.”

For other women entrepreneurs, Knox has the following advice: “You are the boss. Only work with people that make you feel comfortable and that you want to work with. You are the expert on your own company and product, and it’s important to have that confidence in yourself.”





6 CLEAN WATER AND SANITATION



## The WATER Group

Led by Professor Carl Mitchell in the departments of physical and environmental sciences and geography, the WATER Group studies the impact of contaminants on our watershed ecosystems by combining research in hydrology and biogeochemistry for a complete ecosystem perspective.

Yao Yan Huang, Professor Carl Mitchell, Wai Ying Lam and Planck Huang in the field.



One of the research group's current studies focuses on the impacts of forestry activity on methylmercury transport in northern Ontario, collecting water, air, soil and vegetation samples for analysis.

“People who live in cities don't often realize how impacts in headwaters can have significant impacts downstream,” says Wai Ying Lam, PhD candidate and WATER Group researcher. “It's on a scale that a lot of people don't see. When we think about a watershed perspective, land health is water health. It is also wildlife health, vegetation health and human health.”

The research site is in the vicinity of the Grassy Narrows First Nations Reserve, whose land and people were poisoned by mercury dumping in the 1960s, the effects

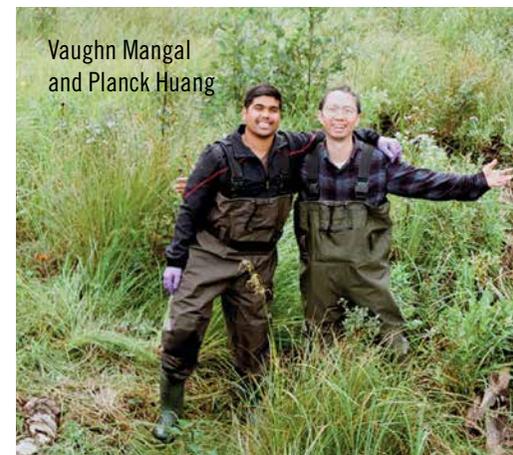
of which continue to be seen today. Forestry is a primary industry in this area, but a moratorium on harvesting has been put in place until there is better understanding of the impacts of harvesting on environmental mercury levels. The WATER Group works to understand whether forestry practices can be modified to minimize impact and protect communities from further harm.

“We've found that these remote watersheds are incredibly resilient,” says Lam. “In the absence of disturbance, they have an incredible ability to rebound to a healthier state. Urban watersheds, on the other hand, are subjected to so much human activity and are super vulnerable to disturbance. That ultimately has impacts on drinking water quality and human health.”



Wai Ying Lam

Vaughn Mangal and Planck Huang



7 AFFORDABLE AND CLEAN ENERGY



# Sustainable Operations

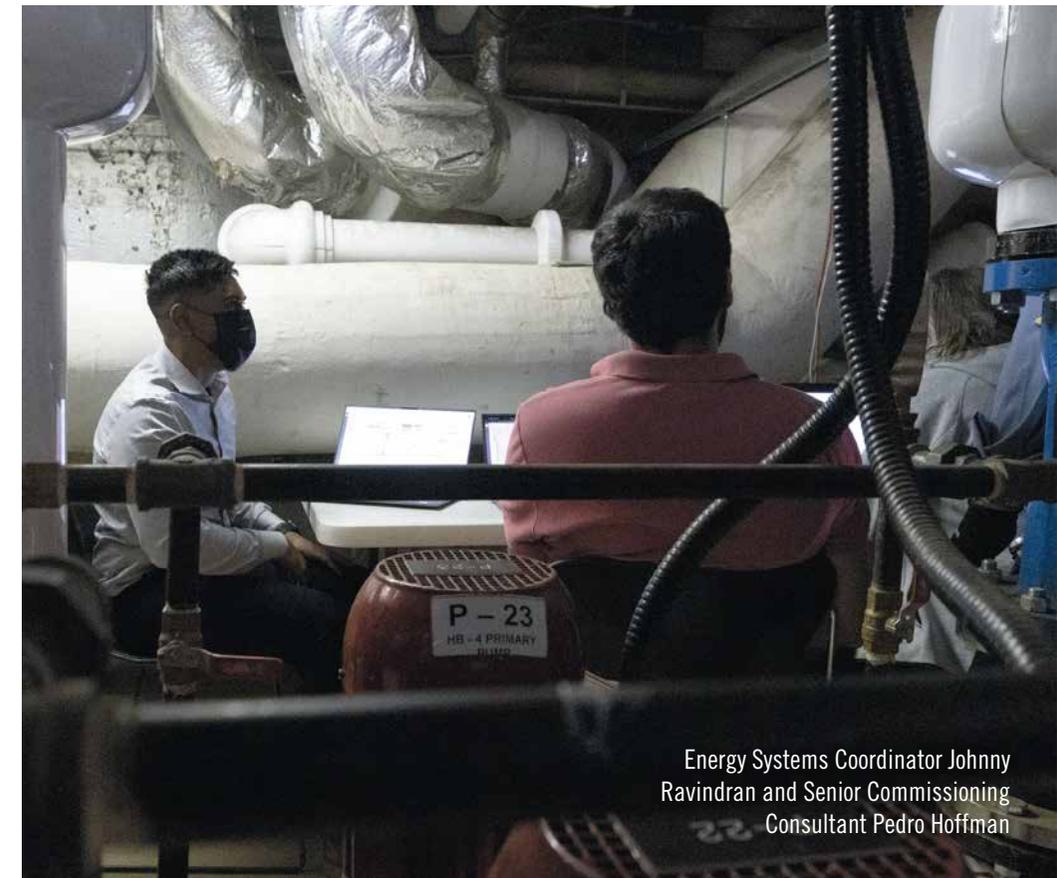
As the campus continues to grow, U of T Scarborough has made great strides towards energy efficiency with the installation of solar arrays and the latest heating and cooling technologies. However, the sheer scale and age of the campus provides a massive challenge for reducing carbon emissions—a challenge that the Facilities Department tackles in every phase of design, construction, operation and maintenance.

Director of Facilities Management Jeffrey Miller says that with the ongoing construction, U of T Scarborough is approaching 2 million square feet of buildings, all requiring vast amounts of utility consumption to operate. Natural gas, which is primarily used for heating, accounts for more than 85 per cent of U of T Scarborough's carbon emissions, something the facilities team is constantly working to improve.

Beyond more visible aspects of energy efficiency such as solar panels, there are innovations to be found behind the closed doors of the campus' utility rooms. A recent upgrade involved the installation of a massive ConDex Energy Recovery System, which uses hot water to heat buildings on south campus instead of steam, as in most old buildings. This improves efficiency by eliminating the energy lost by heating water into steam. A new condensing economiser completes the loop, recovering excess heat and recycling it to preheat the water in the building's boilers, saving on natural gas consumption.

Innovations can also come in smaller packages, such as with the new unified effort to replace all lightbulbs on campus with LEDs. These lights interact with motion sensors and daylight sensors to reduce energy consumption and provide a consistent experience for all users.

"It's not something people usually notice, but they appreciate the comfort that comes with it," says Manager of Facilities Assets and Utility Planning Hoorik Yeghiazarian, "To me, sustainable design means considering the environment as well as the people using the space."



Energy Systems Coordinator Johnny Ravindran and Senior Commissioning Consultant Pedro Hoffman



Earth tube construction



## Sustainable Operations

One of the biggest challenges facing energy efficiency on campus is the mix of new, technologically sophisticated buildings, and heritage buildings that require constant maintenance.

“Things were built very robustly in the past, but they weren’t very efficient. Now, systems are more efficient, but not necessarily longer lasting,” says Assistant Director of Engineering and Physical Plant Doug Lauzon, “When systems become more complex, they become more maintenance intensive. I think that speaks to the dedication of our staff, because it is a challenge to integrate new systems into old ones.”

One new system employed by U of T Scarborough is the ground source heat pumps that serve the Science Wing and the Environmental Science and Chemistry Building (ESCB). More than 400 geothermal wells have been installed across campus, acting as passive heat storage. In the summer, excess heat can be pumped into the ground and stored—only to be pumped back into the building in the winter, reducing the demand for natural gas heating.

ESCB also makes use of earth tube technology. The tubes take advantage of the stable temperature of the earth, drawing in air from

the surface and sending it underground in massive tubes which modulate its temperature. The air then flows into the building, providing ventilation at a stable ambient temperature for its inhabitants, with less reliance on natural gas. ESCB’s earth tube system is one of the largest in Canada, and will be studied in the years to come as part of an effort to publish national guidelines for their design.

**“Universities have an opportunity to provide leadership in innovation,” says Miller. “It is part of what the fabric of a university is. Universities never stop researching or building new things. They’re always striving to be an inviting asset to any community that they’re in.”**

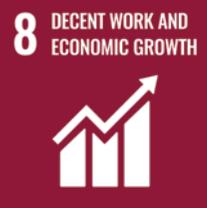
**“The students coming in right now are the future,” says Yeghiazarian. “There’s a saying—how can you predict the future? By creating it. In our case, by designing it. That’s our role at the university. We’re designing the future by meeting current needs and trying not to jeopardize the future generation’s ability to meet their own.”**



Director of Facilities Management Jeffrey Miller, Sustainability Manager Patricia Escobar, Manager of Facilities Assets and Utility Planning Hoorik Yeghiazarian (seated), Assistant Director of Engineering and Physical Plant Doug Lauzon and Manager of Technical Services Clarine Gordon.



Hammer Heads Program Field Representative Nana Aburam and Hammer Head Participant Fayaaz Asmal



## The Hammer Heads

A creation of the Central Ontario Building Trades (COBT), the Hammer Heads Program trains youth from under-resourced communities in the trades and connects them with apprenticeship opportunities. U of T Scarborough has been a partner of the program since 2014, creating employment pathways to life-changing careers by offering apprenticeships on construction sites across the ever-expanding campus.



“I have spent my entire placement on site at U of T Scarborough. It is so rewarding to see the entire building process from the ground up, in my own community.”  
Fayaaz Asmal, second-year plumbing apprentice with UA Local 46

“Trades workers are in high demand,” says Director of Business Operations and Campus Development Therese Ludlow. “Yet there are many obstacles to obtaining a position. Training, various certifications, unions and other costs—it can be overwhelming, and difficult to navigate.”

Hammer Heads guides participants through all steps of the training and certification process. The participants learn a little bit of everything, from operating forklifts to electrical work to plumbing. After graduation, participants receive a placement in their most successful field. Participants have a 98 per cent job retention rate after one year says Hammer Heads Program Director James St. John.

“Part of the work we do is breaking down the stigma associated with careers in the trades,” says St. John. “It is a resilient industry that offers good pay, good benefits and a good pension. For those with fewer resources, it can be a life-changing and life-long career.

“U of T Scarborough is unique in that there are so many projects with so many big construction partners. It means that participants who are placed on these construction sites as apprentices can start to build those relationships, which is incredibly valuable.”

Program graduates on U of T Scarborough sites are also exposed to the many sustainability features being built into campus infrastructure, such as solar arrays, geothermal wells and passive house construction.

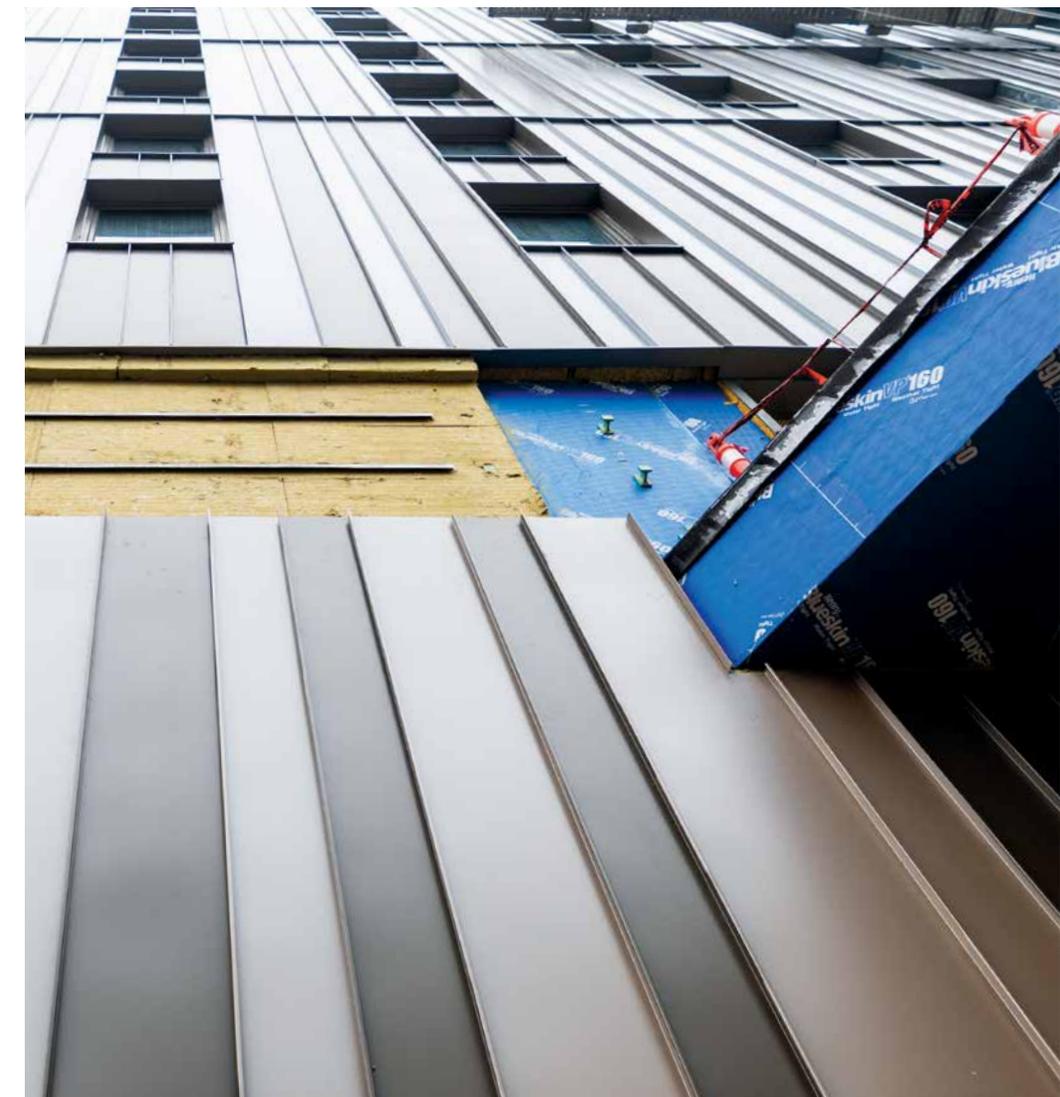
“We take the participants out to the Kortright Centre every year to see their renewable and energy efficient technologies,” says St. John.

“At U of T Scarborough, they have the opportunity to help build them.”

The Hammer Heads partnership is indicative of a much deeper ethos held by U of T Scarborough as an institution dedicated to inclusive excellence. U of T Scarborough now includes requirements for trade apprentices in its procurement documents, meaning that any construction company bidding on a U of T Scarborough project must agree to take part in the apprenticeship program.

“For us, it isn’t about numbers as it is about creating pathways” says Ludlow. “It is about the university mandate itself, about inclusive excellence. We are an anchor institution; we’re not going anywhere. If we can help even one person in our community by opening doors, why wouldn’t we? I think we have a responsibility to do so, and that is instilled in the work we do every day.”

Assistant Project Manager Fatoumata Diallo, CAO Andrew Arifuzzaman, and Project Coordinator Intern Andres Roa on the student residence construction site.



9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



# Passive House Student Residence

In fall 2023, a new student residence is set to open at U of T Scarborough, located on the north side of Ellesmere Road. Now in construction, from the outside it may appear unassuming, but hidden within the walls is a state-of-the-art building technology known as passive house.

Passive house is a construction technique that uses layers of insulation and a sophisticated ventilation system to capture all heat generated in the building—from cooking, clothes dryers, even body heat. This heat is then recycled to warm the building, resulting in extremely high energy efficiency.

U of T Scarborough's new residence will be one of the largest passive house buildings of its kind in North America. For Chief Administrative Officer Andrew Arifuzzaman, it is important for public institutions like U of T Scarborough to be at the forefront of new environmentally friendly innovations such as passive house.

9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



## Passive House Student Residence

“In the construction of this building, we have sourced materials, made relationships with overseas suppliers and trained workers in new, highly specialized skills,” Arifuzzaman says. “Private industry is very risk averse, so by leading the way in this, we are able to make construction of passive house buildings less risky for others to follow.”

An added benefit to passive house construction is how the layers of insulation make the building very quiet. In 2023, 700 students will move into the new residence and witness this first hand as they live and study in their dorms. Beyond reducing the campus’ carbon footprint and paving the way for the adoption of new technologies, a project like passive house makes U of T Scarborough a living lab—exposing students to new ideas and innovations in every moment of their academic career.



10 REDUCED INEQUALITIES



## Mobilizing Justice

Beginning as a two-day workshop that brought academics, government and industry partners to the same table to discuss inequity in transportation, Mobilizing Justice is now a multimillion-dollar research project funded by the Social Sciences and Humanities Research Council of Canada. Led by Associate Professor Steven Farber in the department of human geography, the team includes 33 academics, 15 universities, federal and municipal governments, non-profits, unions and industry partners.

Associate Professor  
Steven Farber

The project has three main goals, says Farber. Goal one is to document the causes and effects of transport inequity in Canada by conducting a new, in-depth national transportation survey. Goal two is to help decision makers set meaningful goals and targets for implementing a more equitable transportation system. Goal three is to evaluate new kinds of transportation pilot projects in both policy and technology, to see how innovations in this space could benefit members of marginalized communities.

“Transportation is integral to so many aspects of people’s ability to participate in daily life activities, so a lack of transportation can entrench social exclusion for those on the margins,” says Farber, “Transportation has a role in poverty reduction. It has a role in economic prosperity. It has a role in health access and education access. It has a role in equity—do women, disabled people and racialized people have equal access to it and all the opportunities it provides?”

11 SUSTAINABLE CITIES  
AND COMMUNITIES



## The Valley Land Trail

Opened in 2019, the Valley Land Trail is 500 meters of accessible trail descending into the Highland Creek Valley at a five-percent slope. Created in collaboration with the Toronto and Region Conservation Authority (TRCA), the trail has won multiple awards for its design, which incorporates elevated boardwalks that provide both stunning lookout points and avenues for animal migration.

Campus Architect Jennifer Adams Peffer, says the Valley Land Trail fulfills the original intention of U of T Scarborough's architecture, providing a link between the brutalist campus on the ridgeline and the natural greenspaces in the valley, a designated environmentally significant area.

"Before, we had students graduating who didn't even know that we had a ravine here," says Adams Peffer, "Our first commitment was to our university constituents, making sure our faculty, staff and students have access, but it has become an added benefit to see the wider Scarborough community enjoy the trail as well.

“The trail is a bit of a pilot, or a proof of concept,” says Adams Peffer. “We worked very closely with the TRCA on this project because they were interested in how we should address access to our ravine system across Toronto. How do you get people into these places in a way that respects the environment and doesn't cause damage to these important spaces? How do we allow for everyone to have access, to enjoy them, learn from them and take solace in them?”

Campus Architect  
Jennifer Adams Peffer





12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



# Waste Reduction Week

In 2022, U of T Scarborough participated in its first ever Waste Reduction Week from Oct. 17 to 21, joining a 20-year national campaign promoting public awareness about reducing every day waste, reusing items and materials, and recycling responsibly.

Waste management is a complicated and largely invisible process to all except those directly responsible for its collection, such as members of the caretaking staff at U of T Scarborough.

“A lot of people are completely oblivious about what they waste on a daily basis,” says Service Worker Robyn Maitland. “But I see it every day. It makes me sad, because climate change is something that you don’t really have control over as a single person. If everyone just did something small — one tiny item throughout their day — it can make a big impact.”

Educating the public about proper waste disposal is one of the most difficult challenges facing sustainable waste management, which is why U of T Scarborough’s sustainability office organized its first annual Waste Reduction Week, hosting a week of talks, pop-ups, workshops and waste collection events to get campus talking about the circular economy and every day waste practices.

Service Workers Roby  
Francis, Robyn Maitland  
and Francesca Suba

# Waste Reduction Week



On Waste Wednesday, the sustainability office hosted a drop-off station to collect electronic waste and used batteries, ensuring the responsible disposal of hazardous chemicals and recycling of metals.

On Circular Economy Thursday, the student group Regenesis UTSC hosted a pop-up of their Free Store, where students were able to take home used household goods and books that may have otherwise ended up in a landfill. In return, students could donate their own unused items.

“It isn’t difficult to attract students with free stuff,” says Regenesis Co-President Charlotte Wargniez, “It provides incentive, and helps make talking about the circular economy more accessible.”

“The term circular economy means something different to everyone,” says Project Co-ordinator Jordan Termini, “It even means shopping at your local small businesses. Being sustainable isn’t just about the things you buy or throw away, it’s also about the practices that make them.”



On Textile Tuesday, students received a crash-course in how to mend and repair clothing to extend its lifecycle, and learned how to book time at the free sewing machine located in the UTSC Library’s Makerspace.



13 CLIMATE ACTION



# Urban Just Transitions

Headed by Professor Matthew Hoffmann in the department of political science and Assistant Professor Laura Tozer in the department of physical and environmental sciences, Urban Just Transitions is a 2021 Cluster of Scholarly Prominence that seeks to address both climate change and social inequities as cities transition to net-zero futures. The cluster will pave the way for a new community-centered research model that enables social and environmental change.



Professor Matthew Hoffmann and Assistant Professor Laura Tozer

“Just transitions” is a set of principles originally conceived by trade unions and environmental advocates to ensure workers’ rights while the world transitions to a low-carbon economy. Now, the term encompasses a wider vision to incorporate notions of social justice, merging climate action and the concerns and priorities of marginalized communities.

The Urban Just Transitions cluster is still in its planning stages, but already Hoffmann and Tozer have found that community organizations are just as passionate about the intersection of climate action and justice as they are.

“Awareness isn’t the problem anymore,” says Hoffmann. “Almost every community organization, no matter their primary focus, lists climate change near the top of their list of priorities. The notion that equity and justice coincide with climate action is really resonating in the community.”

““ One of the projects we’re working on is a Just Transition Listening Project. We want to focus on the voices of the community. How do they conceive a just transition? What do they see as the relationship between climate and justice? ””

“We want this project to help resource the work that’s already happening,” says Tozer. “How can we leverage resources to help do more, or make it more effective? How do we help involve more people from marginalized communities?”

One upcoming project addresses energy-efficient retrofitting to Toronto-area homes. Making homes more energy efficient is a climate issue that has already drawn significant attention and resources, but Urban Just Transitions will shift the focus to include an examination of energy poverty, centring low-income families who often find themselves having to choose between heating or eating. How does this issue intersect with energy efficiency and zero-carbon heating? What kind of solution will best address both?

“This project is a potential high leverage intervention that could catalyze just transitions in the city,” Tozer says. “Many of the researchers and partners we are speaking to are especially interested in seeing policy-engaged outputs to our work. It is important to come at these issues from all angles, on an individual level, a community level and a policy level.”

““ With the Just Transition Listening Project, we are hoping to empower community members to see themselves as climate actors. Their priorities are priorities for the city, and priorities for the climate. ””

“The everyday issues of individuals are closely connected to larger policies and contexts,” says Hoffmann. “Change happens when people are empowered to see the connections between issues, and how bringing together climate concerns and equity is a means for moving ahead on both agendas.”

# The Mandrak Lab

Dedicated to the conservation of freshwater ecosystems, the Mandrak Lab is an 18-person team of researchers studying both endangered and invasive fish species. The lab is led by Professor Nicholas E. Mandrak in the department of biological sciences and Co-Chair of the Freshwater Fishes Specialist Committee of COSEWIC.

Some may not expect that one of the more successful invasive fish species in Canada is the common goldfish. People who keep goldfish as pets sometimes release them into nearby waterways when they no longer want to care for the animal. The goldfish, originally from Eurasia, is a remarkably adaptable fish that thrives in Canadian freshwater environments, outcompeting native wetland fishes and wildlife. Goldfish have lived in the Great Lakes for more than 100 years, says Mandrak, but recently their numbers in the wild and ponds have increased dramatically, partly due to recent regulations that require the installation of stormwater ponds in the construction of new subdivisions.

There are limited resources for conservation efforts and, for now, the goldfish's harmful impacts seem to be restricted to these stormwater ponds. However, these goldfish now have the opportunity to adapt to harsh environments similar to those expected under climate change, and Mandrak's team studies what will happen if these goldfish make their



Other invasive species, such as Tench, Flathead Catfish and Asian carps are also being studied by researchers at the Mandrak Lab, using cutting-edge technologies in genomics, environmental DNA, and even physics.

“The biggest stressors for freshwater fish are habitat degradation and loss, and invasive species. Undoubtedly, climate change is also a stressor, although we haven't yet determined exactly how it threatens aquatic species,” says Mandrak, “Most of the Great Lakes Basin's wetlands are gone, and those are nature's water filter. The organisms we study are indicators of ecosystem health, which ultimately correlates to human health.”

way into wild ecosystems. For goldfish and other species, researchers take water samples, by hand or drone, and analyze them for DNA, which can determine which fishes are swimming in that water without having to catch or even see them.

“When I was a government scientist, I learned that the role of science in policymaking is to provide advice,” says Mandrak, “There are elements other than science that need to be considered, like socioeconomic impact, and public opinion in general. I lead a professional master's program where 30 students a year learn how to use their scientific knowledge to inform policy decisions. How do you translate science for the non-scientist, such as policymakers and the general public?”

Despite the imminent threats facing the health of our freshwater ecosystems and ourselves, communicating this urgency to policymakers and the public is a skill in itself.



Professor  
Nicholas E. Mandrak

15 LIFE ON LAND



## The CUBES Lab

The Cadotte Urban Biodiversity & Ecosystem Services (CUBES) Lab researches the two-way relationship between human activity and biodiversity—how human activity impacts biodiversity and how, in turn, biodiversity shapes the environments people live in. Researchers at the CUBES Lab, led by Professor Marc Cadotte in the department of biological sciences, study the effects of human impacts such as pollution, compaction, salt, nutrients and temperature changes on the urban environment and the diversity of its plant and animal communities.

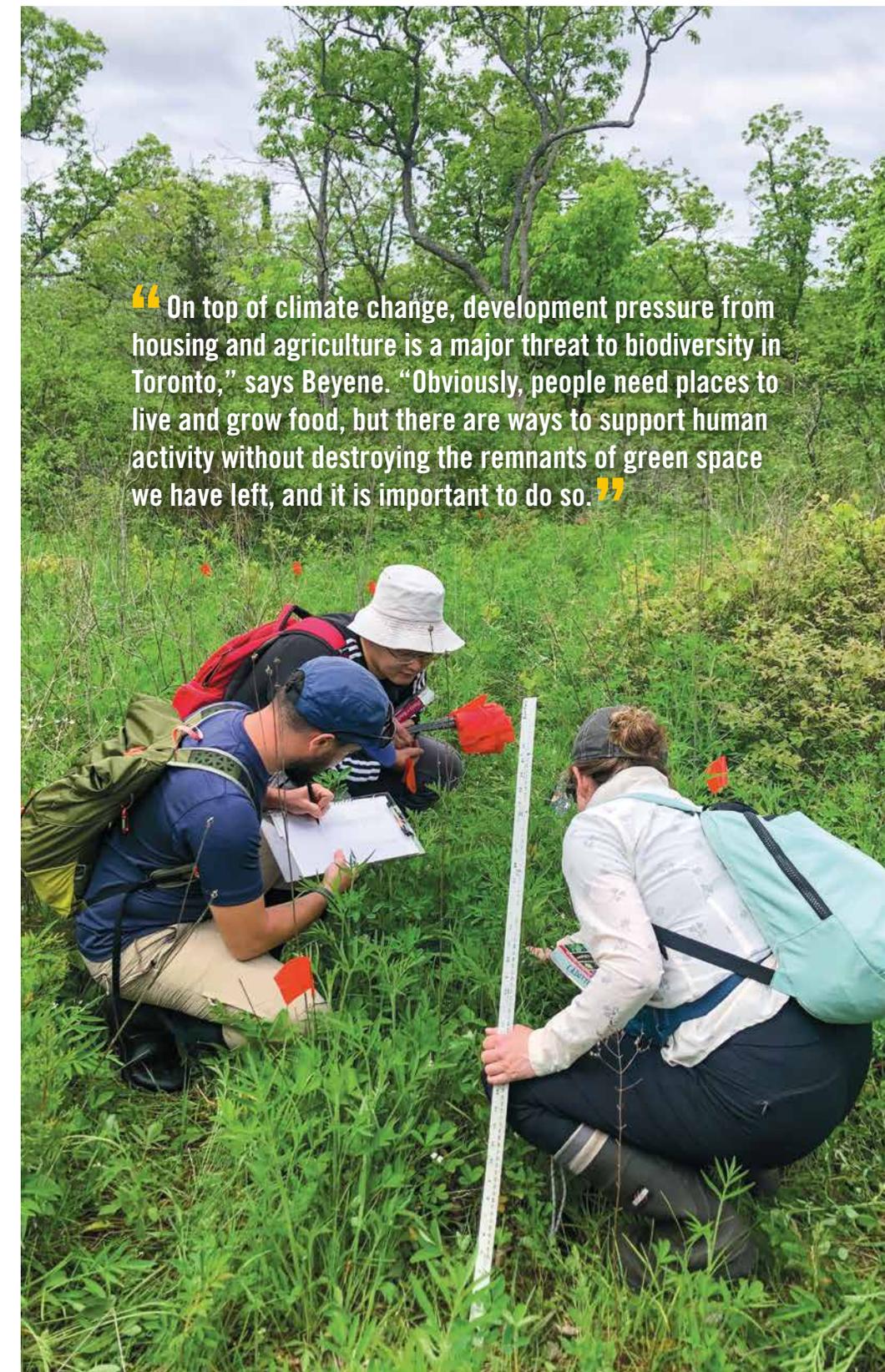
Professor  
Marc Cadotte

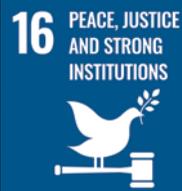
“Plant biodiversity and ecosystem function go hand-in-hand,” says Cadotte. Different species of plants do things differently—some may cycle specific nutrients; some may sequester more carbon dioxide than others. These specialized ecosystem functions extend to wildlife, as well.

“Right outside my window, U of T Scarborough’s ravine harbors a complete food web. For these native species that have co-evolved together, they have the capacity to reduce the impacts of pest outbreaks. We see the consequences of low species diversity in certain events, such as when Emerald Ash Borer hit Toronto. We lost a significant portion of our urban trees that could have been sequestering carbon dioxide or absorbing stormwater or providing shade. Another consideration is climate change. If we have a higher diversity of species, it is more likely that at least a few of them will be able to adapt to the changing environment and make our cities more resilient.”

The CUBES Lab works closely with several organizations dedicated to conservation efforts in the city, such as Parks Canada and the Toronto Regional Conservation Authority (TRCA). PhD candidate and CUBES Lab researcher Menilek Beyene studies forest restoration projects, working closely with the TRCA, which has planted hundreds of forest restoration sites around the city. He notes which trees, plants and insects are thriving and collects soil samples to check for increases in organic matter and the presence of contaminants. Indicators of failure or success are shared with the TRCA to help them better plan future restorations.

“On top of climate change, development pressure from housing and agriculture is a major threat to biodiversity in Toronto,” says Beyene. “Obviously, people need places to live and grow food, but there are ways to support human activity without destroying the remnants of green space we have left, and it is important to do so.”





## Community Voices

The Community Voices project began in 2016 as a partnership between U of T Scarborough, U of T's School of Cities and the Wellesley Institute. The study covered five inner-suburban neighbourhoods of Toronto with lower socio-economic indicators, including two in Scarborough. The team conducted door-to-door surveys and qualitative interviews to determine what residents valued in their neighbourhoods, the factors that drove their preferences, and their views on local government.

“We wanted to capture the nuance and diversity of views,” says Kofi Hope, report author and senior fellow at the Wellesley Institute. “We were pretty sure that in these neighbourhoods, which have such huge ethnocultural diversity and diversity of lifestyles, that we would also see diversity in priorities. We were actually surprised how many things were similar, but there was a lot of nuance.”

“Which makes sense because these are basically cities,” adds Daniel Silver, report author and professor of sociology at U of T Scarborough. “Scarborough would be a big, big city anywhere else in Canada. So you see a whole variety of communities with different needs and aspirations.”

Across self-described political lines and ethnocultural divides, residents of these neighbourhoods shared a few priorities: a desire for safety, good transportation options, high-quality neighbourhood services and amenities, diverse communities, and affordable housing. Another common theme found in the data was a general low level of confidence in municipal government.

“We encountered a diversity of opinions,” says PhD candidate Umair Majid, report author and survey team supervisor. “But there are still a number of people who are not very trusting of institutions.”

“There is a widely shared low level of trust in Toronto City Hall and municipal government,” says Silver. “From our interviews, many had a strong desire for tangible results from municipal officials. They want more open lines of communication with city councilors. They want to see city staff participating in the community. It can also mean very simple things — for example, is the grass overgrown on the street dividers? Are there mice in the community centres?”

“We’ve got dilapidated buildings, pot holes, the washrooms aren’t working in the parks,” Hope adds. “We can talk all we want about grand transformations around transit and green economies, but right now, the government is failing to deliver on the basics. Now the whole city is talking about these things with the recent municipal election. It’s really affirming for us to hear that the data we collected predicted the current public conversation.”





17 PARTNERSHIPS FOR THE GOALS



# TAIBU Community Health Centre

Based in Scarborough's Malvern neighbourhood, TAIBU Community Health Centre offers Black-identifying citizens of the Greater Toronto Area with culturally-affirming primary healthcare, social services and community programs. TAIBU is a long-standing partner of U of T Scarborough, and together with the department of community partnerships and engagement, they work to provide resources and advocate for Black Canadians.

“The original vision was for TAIBU to be a centre of excellence,” says TAIBU’s Chief Executive Officer Liben Gebremikael. “This required a strong relationship with an academic institution, and U of T Scarborough has proved to be an invaluable partner.”

“This is an institution with a lot of resources,” says Community Partnerships Co-Ordinator Jessica Rayne in the department of community partnerships and engagement at U of T Scarborough. “We’re always asking: how can we leverage these resources to center community priorities?”

“Reciprocity is very important,” says Executive Assistant and Office Co-Ordinator Mina Ganguli. “It’s not a matter of just offering support, but learning from communities as well.”

TAIBU and U of T Scarborough’s partnership manifests in projects both big and small. U of T Scarborough students mentor community members, and researchers and community members collaborate on research studies. Gebremikael also teaches a course at U of T Scarborough on anti-Black racism in Canadian healthcare. The Black Governance and Leadership project is an ongoing initiative working to dismantle anti-Black racist barriers hindering Black Canadians in participating at imperative governance and decision-making tables.

“Our mandate is to serve the Black community and support their health and wellbeing,” says

Gebremikael. “Anti-Black racism is systemic, which means looking at the health of Black Canadians through a wider lens that includes research, policy and governance. By partnering with the university, we are able to gain influence in these spaces. And we are also able to influence the institution in return.”

“We are constantly in dialogue with community members, TAIBU included,” says Team Lead Melanie Blackman in the department of community partnerships and engagement, “What we hear consistently is that the community needs to come together and think about what we mean when we say equity.”

“Where you’re situated matters,” says Director of Community and Learning Partnerships Kimberley Tull. “As a university, you can’t create civic-minded individuals in a bubble. The institution needs a moral compass. We need to be accountable not only to our students but to the folks that we live next to, and the folks we share this world with on an international level.”

“We talk about community, we talk about anchor institutions, but really, our work is about people. Making sure they are seen and treated with dignity as full human beings. We need to have a level of care and humility when we come into their spaces because we don’t have all the answers, and from there we can build relationships of trust.”



From the Great Explorations speaker series with TAIBU

# Acknowledgments



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Learn more at [blanketsforto.ca](http://blanketsforto.ca)  
Photo by Sean Liliani



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Find Nikibii Dawadinna Giigwag on Instagram @nikibii\_dawadinna\_giigwag

Photos by Dylan Farley Toombs and Kasia Peruzzi



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Learn more at [flourishcollective.ca](http://flourishcollective.ca)  
Photo by Sean Liliani and artwork by Andrea Charise



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Learn more at [utsc.utoronto.ca/curriculum-review](http://utsc.utoronto.ca/curriculum-review)  
Photos by Sean Liliani



### The Hub

Thank you to Donovan Dill from The Hub and Kristina Knox and Stephanie Tien from Arbre

Learn more at [utsc.utoronto.ca/thehub](http://utsc.utoronto.ca/thehub)  
Find Arbre at [weararbre.ca](http://weararbre.ca)  
Photos by Albert Hoang



### The WATER Group

Thank you to Wai Ying Lam and Professor Carl Mitchell from the Departments of Physical and Environmental Sciences and Geography.

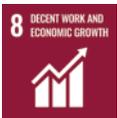
Learn more at [carlmitchell.myportfolio.com](http://carlmitchell.myportfolio.com) and [waiyinglam.wordpress.com](http://waiyinglam.wordpress.com)  
Photos by Ken Jones, Wai Ying Lam and Sayuri Sagisaka



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Photos by Sean Liliani and Ken Jones



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Learn more at [hammerheadsprogram.com](http://hammerheadsprogram.com)  
Photos by Sean Liliani



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Photos by Sean Liliani



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Learn more at [mobilizingjustice.ca](http://mobilizingjustice.ca)  
Photos by Sean Liliani



### The Valley Land Trail

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Photos by Sean Liliani and Kasia Peruzzi



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Get involved with Regenesis UTSC on Instagram @regenesisutsc  
Photos by Dylan Farley Toombs and Sean Liliani



### Urban Just Transitions

Thank you to Professor Matthew Hoffmann from the Department of Political Science and Professor Laura Tozer from the Department of Physical and Environmental Sciences.



### The Mandrak Lab

Thank you to Professor Nicholas E. Mandrak from the Department of Biological Sciences.

Learn more at [mandraklab.ca](http://mandraklab.ca)  
Photos by Cole Burston and Nicholas E. Mandrak



### The CUBES Lab

Thank you to Menilek Beyene and Professor Marc Cadotte from the Department of Biological Sciences.

Learn more at [cubes-labs.com](http://cubes-labs.com)  
Photos by Marc Cadotte and Ken Jones



### Community Voices

Thank you to Umair Majid and Professor Daniel Silver from the Department of Sociology and Kofi Hope from the Wellesley Institute.

Read the full report at [community-voices.report](http://community-voices.report)  
Photos by David Blackwood and the Community Voices Team



### TAIBU Community Health Centre

Thank you to Melanie Blackman, Mina Ganguli, Jessica Rayne and Kimberley Tull from the Community Partnerships & Engagement Office and Liben Gebremikael from TAIBU.

Learn more at [taibuchc.ca](http://taibuchc.ca)  
Photos by Melanie Blackman and Nancy Masocco

## Afterword



The 17 Sustainable Development Goals (SDGs) have been ratified by the 193 member states of the United Nations. Together, they provide a global framework for action aimed at people, the planet, prosperity, and peace. At their best, they have been invaluable in generating widespread attention and agreement on what it is important for the global community to do, and how to do it.”

At University of Toronto Scarborough, the SDGs have informed the numerous research projects discussed in this volume, and will certainly help to shape the ongoing work of GTA-RISE and its three new research institutes: The Institute for Environment, Conservation and Sustainability, the Institute for Inclusive Economies and Sustainable Livelihoods, and the Institute for Inclusive Health and Wellbeing.

As our institutes begin to develop programs over the coming year to amplify and animate research on campus, we will be guided by these foundational goals. But we will also be looking beyond them, striving to identify and shape the next set of goals, which research at U of T Scarborough will help to bring into greater focus by the end of this decade.

Our vision is to promote research at U of T Scarborough which will change our relationships with the Earth and with each other, and which will have a significant impact in both Canadian communities and in places around the world. These goals encourage the development of sustainable environments, healthy societies and inclusive economies considerate of intersectionality. The current SDG framework also encourages the three of us to ask questions about how we understand the challenges facing the world at the present time. Finally, it reminds us about the importance of people-focused solutions to our global problems and the importance of learning from knowledges and voices too often excluded from academic inquiries.

**Imre Szeman, Director, Institute for Environment, Conservation and Sustainability**

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**Charles Trick, Interim Director, Institute for Inclusive Health and Wellbeing**





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DEFY  
GRAVITY