



KARIBUNI TANZANIA

**A PHOTOVOICE BOOK FOR:
THE 2024 SFU-AKU CLIMATE RESILIENT FOOD SYSTEMS FIELD SCHOOL**



ACKNOWLEDGMENT

This photovoice book is curated and developed by the School of Resource and Environmental Management's 2024 Tanzania International Field School team at Simon Fraser University (SFU). SFU exists on the traditional, unceded, and ancestral Coast Salish Territory; the traditional territories of the x̱m̱əθḵəy̱əm (Musqueam), S̱kw̱w̱ú7mesh Úxwumixw (Squamish), sə́lilwə́təʔ (Tseil-Waututh) Nations. The region is still the home to many Indigenous Peoples from across Turtle Island and we are grateful to have the opportunity to work in the community, and on this territory.

We are deeply grateful to our partners at Aga Khan University's Arusha Climate and Environmental Research Centre (AKU-ACER), in particular to Dr. Emmanuel Sulle (Director and Co-Facilitator), AKU leadership and the many wonderful staff members and the AKU interns at the centre. Our learning journey would not be possible without the community partners who supported and welcomed the students on their sites in Tanzania: Mzee (elder) Clamian Kitesho, Nashipay Maasai Initiative; Mzee Alais Ole-Morindat, Arkaria Impact Centre; Warren Steyn and Dr. Kathrin Kraussa of BEEtopia. The staff members at SFU International, SFU International Services for Students, Dean Naomi Krogman (Faculty of Environment) and many other individuals at SFU provided extensive administrative, logistical, academic and financial support.

We would like to also express our deep gratitude to the Jenabai Hussainali Shariff family for their generous financial contributions which made it possible for our students to take part in this transformative learning experience.

SFU is the founding international partner of AKU-ACER. This partnership is part of the university's commitment to addressing global challenges across sectors, disciplines, and geographies.

Edited by: Tammara Soma, Emmanuel Sulle and Belinda Li

FOREWORD BY AKU-ACER DIRECTOR & FIELD SCHOOL CO-DIRECTOR: DR. EMMANUEL SULLE

This photovoice book is a powerful account of students' stories, memories and experience of their field school at AKU-ACER from July 1 to 17, 2024. It reveals their determination, sense of purpose and the transformational journey for their pursuit of knowledge and skills. The AKU-ACER living lab's natural world setting is a perfect place to educate future environmental and food systems leaders by providing them with the skills, attitudes, and attributes necessary to invigorate change and environmental stewardship within their communities and at their workplaces.

Designed in a fully participatory manner, the field school program took the students through diverse learning and exploratory visits. This included visits to the AKU arboretum, planting veggies at demo plots, Materuni's tallest waterfalls in the foothills of Mount Kilimanjaro—Africa's tallest and the largest free-standing mountain rise in the world—and the wildlife-rich Tarangire National Park.

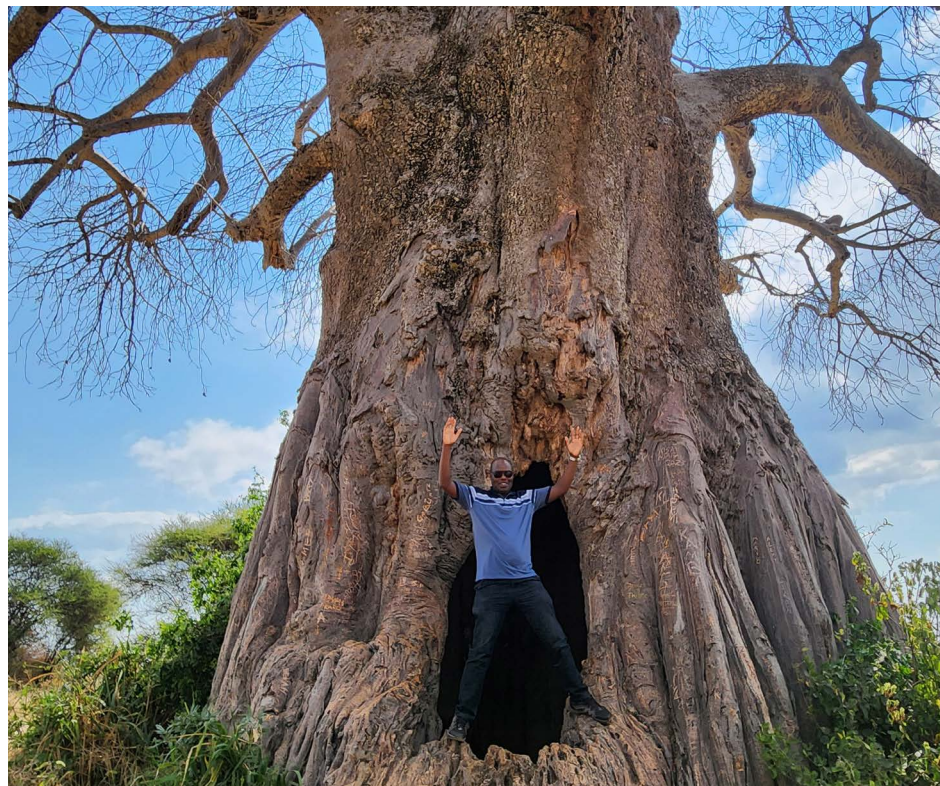
In addition to Tanzania's beautiful scenery, delicious food and lectures from scholars and practitioners, including Indigenous Maasai wazee (elders), the SFU students had a rare opportunity to work together and mingle with four Tanzanian students: two recent graduates with degrees in agricultural economics, one graduate with a diploma in environment studies and one high

school student with strong interest in the environment.

I was privileged to welcome the SFU 2024 International Field School students, which is a continuation of visits following the inaugural field school of 2023. Throughout their stay, students displayed curiosity and asked lots of questions that not only advanced ideas but provided placed-based practical solutions to address the challenges facing communities.

This book is a testimony of the invaluable opportunities the International Field School Program co-implemented by AKU-ACER and

SFU provides to students. It is a lifetime gift to students, society and the world. The program put to action the spirit of our chancellor, His Highness the Aga Khan, in building a new generation of environmental stewards and we are grateful for his generous financial support which runs AKU-ACER operations. We thank the entire SFU leadership team for their support to AKU-ACER and Professor Tammara Soma, who diligently led her student group and for accepting to be a bridge between AKU-ACER and SFU. *Aksante sana* (many thanks), Tammara. We are looking forward to hosting many more SFU field school students and faculty members. *Karibuni sana!*



NOTES FROM THE FIELD SCHOOL DIRECTOR: DR. TAMMARA SOMA

In Maasai culture it's never goodbye, it's just "see you again"

Mzee Clamian Kitesho, Nashipay Maasai Initiative

This message continues to ring true today after emotional tears were shed at the completion of our 2024 international field school in Tanzania on "Climate Resilient Food Systems" in partnership with AKU-ACER.

"Love you, love you all, see you back home! *Asante, asante sana* (thank you, thank you very much in Swahili)," we all remarked to each other as the realization finally sunk in that our class—two weeks felt like two seconds—in Tanzania was finally over. In reality though, our learning had just begun.

Our field school journey began with eight of SFU's best and brightest students coming from diverse programs such as International Studies, Criminology, Environmental Science, and Resource and Environmental Management. As a professor, I am proud to have witnessed their approach to the field school. Grounded in the spirit of humility, and being deeply mindful of their responsibility as scholars and ambassadors of SFU, the students graciously demonstrated the principles of reciprocity in community-engaged learning and their commitment to decolonization.

To bear witness to the quality of the students' work is empowering. It is also empowering to see students troubleshoot, pivot and solve problems together on the ground. From the expansive living lab that is AKU-ACER, tucked between beautiful hills and the towering Mount Meru, to the Maasai bomas (villages/homesteads), school permaculture gardens and other sites, students witnessed firsthand the impact of climate change on the food systems of Tanzania.

They learned from agriculturalists, pastoralists, permaculturists, botanists and local experts such as our co-facilitator Dr. Emmanuel Sulle, on various challenges facing the community, as well as best practices

to design climate-resilient food systems. Most importantly, students had the opportunity to contribute to a community-led cultural preservation project led by Mzee Clamian Kitesho of the Nashipay Maasai Initiative.

As an educator, I did not anticipate the depth of transformation, connection and bonding that we all felt throughout our journey in Tanzania. It would not be possible to communicate all of our learning experiences in this foreword, but as they say, a picture is worth a thousand words. It is my hope that this photovoice book legacy project will enable Simon Fraser University and Aga Khan University to continue to offer this invaluable opportunity to future generations of students.



SFU professor Tammara Soma at the AKU-ACER Farm Demonstration Plot



Belinda pounding coffee at Materuni Village

NOTES FROM THE FIELD SCHOOL ASSISTANT: BELINDA LI

As I reflect on my time in Tanzania, I am filled with gratitude. When Dr. Soma (also affectionately known as Dr. T) asked me out of the blue if I could assist with planning and facilitating this field school, my response was an enthusiastic “yes!” What an unexpected gift this has been. Dr. T, thank you for bringing me along on this transformational experience.

I had the honour of observing a group of undergraduate students who immersed themselves in this experience with remarkable humility and self-awareness. They were not just

observing and taking field notes. They genuinely engaged and learned from the communities that we visited. Their interactions were marked by respect and a sincere effort to understand the cultural and environmental context that shaped the lives of the people they met.

Every day, we were greeted with the phrase karibu (welcome) just about everywhere we went. Beyond its literal meaning, karibu embodies a sentiment of closeness and connection. It reminded us of the importance of slowing down and acknowledging the fellow people who we share this planet

with. The warmth and openness of the people who we met through this field school made a lasting impression on all of us.

This photovoice book captures the essence of our journey through the lens of experiential and relational learning. Each photo captures the hands-on experiences and human relationships that made our time in Tanzania so memorable. I hope that this field school is only one among many more—an opportunity for students to learn, grow and connect in ways that they will never forget.

OUR VOICES



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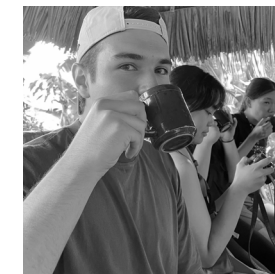
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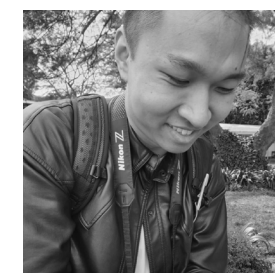
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RUBENA ASHOORI



“ Hello! My name is Rubena Ashoori, and I am an undergraduate student studying Resource and Environmental Management at Simon Fraser University. My hobbies include travelling and meeting new people. I guess that’s why I was interested in attending the Climate Resilient and Sustainable Food Systems Field School in Arusha, Tanzania. I was also interested in visiting the Aga Khan University’s Arusha Climate and Environmental Research Centre, as I had heard a lot about this institution and wanted to visit the centre for myself. The topic of climate resilient and sustainable food systems is interesting for me. I wanted to better understand

how the current environmental and climatic states affect Tanzanian food systems, and how the current food systems in turn affect Tanzania’s climate and environment.

I have learned a lot throughout this field school. Primarily, that academic research must be context based and place based. An agricultural method used in Canada, or any other Western country, might not be effective or desirable in Tanzania. There might be similarities with how climate change affects Canadian and Tanzanian food systems; however, solutions must include social, political, and economic considerations as well. Food systems are intertwined with these factors and

cannot be neglected, otherwise research will not result in effective solutions. I also learned about various food systems components from site visits, overnight trips in other villages and guest lectures.

This field school was truly a holistic experience from all the locations we visited, such as coffee tours, demo plots, eco schools, Maasai villages, and food markets. Visiting these different locations and interacting with experts enabled me to understand the different perspectives and methods incorporated in Tanzanian agriculture and food systems. Overall, the relationships and memories I created will remain with me for a lifetime.

SUNFLOWERS EVERYWHERE

When I first arrived in Arusha, I noticed the sunflower fields along the roadsides. They seemed to be everywhere. In Canada, I only viewed sunflower fields as a tourist destination to take photos at. When I had asked my driver, he mentioned that the fields were used for sunflower oil. The place that I viewed as an excursion and entertainment is someone else’s livelihood and food source. My first impression of the sunflower fields signifies one of the food and economic differences between Canada and Tanzania. I didn’t realize the importance of sunflower oil until I stepped into a grocery store. Different brands of sunflower oil dominated this aisle. I didn’t notice any other type of cooking oil. The high production of sunflower oil is a means for the Tanzanian economy to be less reliant on imported edible oils. Whether this initiative has positive or negative implications for human health, the environment, and the economy is something that I question further.





GETTING OUR HANDS DIRTY!

Fred, the AKU gardener, led a workshop where the SFU group and AKU interns planted collards in one of the demo plots. You can see everyone collaborating to plant the collards. Some participants had experience planting vegetation, while others had minimal experience. Regardless, everyone was able to enjoy planting the collards. This shows that agriculture and gardening can bring people together in collaborative ways. We were all getting our hands dirty and bonding over how tiny the collards were. Gardening knowledge was also being shared during this process.

Although Fred had explained the planting steps beforehand, it wasn't until we began planting that I had a grasp on the process. This type of learning is accessible to people that might not understand or have much knowledge regarding farming methods. It is also accessible to people that might have difficulty or don't prefer learning through text or audio. By having hands-on experience, we were able to connect with the environmental components we were working with, create a connection to the land, and contribute to the AKU demo plots.



COWS IN THE MAASAI BOMA

This is a herd of cows that belongs to a family in a Maasai village. Cows are considered Maasai members themselves because they are the focal point of Maasai pastoralist livelihoods. The Maasai rely on cows and other livestock for meat, milk, and blood to consume. They represent wealth and are the currency of the Maasai economy.

Cows are owned by individual families but will be shared with any families experiencing poverty in the village. The poverty line for Maasai is nine cows and five goats to a family. Anything below the poverty line will not be enough to sustain a family and maintain the herd population. Climate change is

negatively affecting the Maasai's cow population as cows may struggle to look for feed when the temperature is above 30°C. Climate change also increases drought intensity during Tanzania's dry season, which negatively affects cow health and can increase cow mortality.



TAMMY BOSCH



“ My visit to Tanzania was a vibrant and enriching cultural and learning experience. As a criminology student, I was hesitant at first to join the Tanzania Field School trip on food systems and climate change as it was not my area of research. A professor encouraged me to apply because of my interest in human-wildlife conflict which is a tangible issue in East Africa. Now, I am incredibly grateful to have joined this trip and am thankful for the connections and friends I made along the way with the other participants and interns at Aga Khan University.

I am a fourth-year criminology major hoping to work in reducing human-wildlife conflicts and wildlife crimes, such as poaching. Originally from South Africa, I have loved exploring beyond my home country to other parts of this beautiful continent. I hope to apply my knowledge on this topic to East and Southern Africa—this trip helped open the door to this dream.

My interest in solutions for human-wildlife conflict is relevant here as people and wildlife live in close proximity to each other. This causes difficulties for people’s livelihood and

animal’s natural behaviours. On each excursion we went on, the local people we were learning from would speak about these issues such as elephants eating farmers crops or hyenas killing people’s livestock. From this, I learned there is a need for this important work through community-led support, which I did not realize was possible before.

I also learned how deeply connected people are to their land from the Maasai and Chagga peoples and the need for coexistence with wildlife. I look back on this trip with fond memories of learning about the importance of Indigenous knowledge and daily life in Tanzania, and the people we have met and connected with.



CYCLICAL FOOD SYSTEMS

This picture is of Aga Khan University’s (AKU) Garden compost. They fill the boxes with food scraps to ensure no food is wasted and that it is being used within the garden. Fred from AKU gave us a tour of the garden and explained that this is an example of a Cyclical Food System where even the waste is contributing to the growth of food. Food waste is a problem which can be addressed using this method along with others.

At home in Vancouver composting is common, but I feel it is not as common elsewhere. Food waste, with the help of worms, can be broken down into usable soil full of useful nutrients that will help grow vegetables and other foods. I appreciated seeing how AKU is implementing this opportunity to cut waste from food that is not being consumed. Having a circular system is satisfying to see and they are manageable methods that can be used in our home gardens too.



TRADITIONAL KNOWLEDGE

The Central Market in Arusha was an experience filled with lots of learning. There were colourful stalls filled with dried soybeans, veggies, hibiscus and lots of spices. We stopped at one stall with an elderly Maasai man who carried a variety of roots, barks, and powders for traditional Maasai medicine. The (unexpected) guide explained that the Maasai use different flora for medicinal practices to cure or treat all sorts of ailments. This theme of knowledge carried throughout our cultural experiences in Tanzania. We were often informed of how some species of

acacia trees were and are used to treat symptoms, such as fever.

This reminded me of what I have learned in Canada about the Indigenous Peoples' similar use of flora for medicinal and other uses. One assignment I did had us name local flora in British Columbia and research how Indigenous Peoples used them. This is another reason to protect and conserve wild spaces so they can be sustained for future generations and to support traditional Indigenous practices.



ELEPHANT-SIZED ISSUES

Tanzania is filled with lots of diverse and fascinating wildlife species. The country is known for its wildlife-filled parks that many tourists visit to experience the diversity of flora and fauna. As beautiful and interesting as the wildlife is, they can also cause livelihood challenges for many people living in the country near these parks. When we visited Tarangire, villages were right next to

the entrance, with others near the wildlife corridor next to the park. This provides challenges when wildlife, such as elephants, leave the park and wander into the neighbouring farmers' fields.

These huge animals end up trampling and eating people's crops, like maize. This creates a negative relationship between local farmers and the

elephants as they are hurting people's livelihoods. Elephants are intelligent and special creatures that also need to eat, but people also deserve stability and security. This is a challenging topic facing many communities around the world that will require unique solutions. Coexistence is important to protect both humans, elephants, and other creatures.



SAMANTHA BROWN



“ I was torn about my participation in the Tanzania field school. My work as a farmer at home in British Columbia, and my studies in environmental science at SFU drove my interest in the content of the field school but I worried if my participation would be damaging environmentally or ethically. These doubts came up throughout the journey. Most days were overwhelmingly emotional, with many stories bringing me to tears, and many connections filled me with so much joy. I will forever be grateful for my experiences in Tanzania.

The landscape in Tanzania felt surreal and unfamiliar. Many other aspects,

however, felt strikingly familiar. At Aga Khan University we learned about sustainable agricultural practices in Tanzania, and critical social and environmental context in Tanzania. Here, I learned that many sustainable agriculture practices are universal, much of what we do at home for sustainable farming is the same in Tanzania, even with different context.

Meeting the Mzee Alais was a profound experience. He shared his story of being stolen from his home and forcibly educated, revealing the hardships the Maasai have faced due to displacement and government constraints. The parallels between the Maasai's experiences and those of Indigenous

groups in Canada especially struck me. Learning about the Maasai culture, hearing their stories, and seeing their resilience in the face of these challenges moved me.

My time in Tanzania has been an unforgettable journey and learning experience, making me more conscious of my actions and their impacts. It has instilled a deep care for the Maasai people and their culture, and reminds me of how important learning and advocating for Indigenous cultures in B.C. is. My experiences in Tanzania will shape my actions at home. I will forever be grateful for my time there.

BEE HOTELS AND ECOSYSTEM SERVICES

Environmental services such as pollination, food, water, and resources are critical for survival and health. We can support ecosystem services for our benefit. Aga Khan University and Nashipay School on Maasai land both incorporate bee boxes or bee hotels in their farming area to harvest honey so that their plants benefit from pollination services. Bee hotels offer a low-effort and cost-effective way for farmers to boost pollination services and promote biodiversity in pollinators. These hotels can be a home for various stingless bee species or other bee and insect species.

Bee hotels/boxes were used throughout history. In Tanzania, bee boxes were used for pollination services and medicinal honey. Adding a log with some holes drilled into it is a simple yet effective tactic to support local bee populations and take advantage of pollination services! I love the idea of incorporating bee hotels at home or on farms.



PRINCIPLES OF AGROECOLOGY

Our journey in Tanzania began in Arusha at Aga Khan University (AKU) where we were educated on socio-environmental relationships. The demo plots at AKU offered an in-person experiential education on farming techniques and technology. The plots highlighted agroecology principles, focusing on sustainable agriculture that is culturally appropriate. Environmental solutions that are inclusive and

effectively address the local level are critical to addressing our global climate crisis.

When I experienced the demo plots, I was struck by how similar the farming methods from Tanzania are to the farming methods at my workplace in Canada. This highlights that agroecological principles can be universally applied.



TWO-EYED SEEING

When visiting Mzee Alais, his knowledge and intelligence as a Maasai elder and a scholar struck me. He clearly outlined the environmental, economic, and social challenges that the Maasai face. Then, he showed us his land and the adaptations he has made to address these issues. On his land, he has implemented a variety of different food production strategies and grazing strategies, all controlled and monitored.

He knows as a Maasai how to graze his cattle and rotate his grazing times, and as a researcher who is constantly learning, he is not scared to experiment and adapt.

For example, Mzee Alais decided to plant trees on his land even though the shade from the trees would cost him some grazing land. But the trees support the cattle and the people by cooling

them and providing protection from harsh weather. His land management reminded me of the adaptive management approach taught at SFU, where you implement experiments and learn which approach(es) are best for managing your resources. Mzee Alais provides an excellent example of how indigenous knowledge and the scientific method complement each other.





ALYNA DE GUZMAN

“ I have always been drawn to understanding the makings of the natural world. My upbringing in the Philippines is what shaped my curiosities; an archipelago rich with life and character that prompted me to reflect on how I can have an uplifting role within ecosystems. Unearthing my keenness for enhancing socio-ecological systems, I pursued a degree in Resource and Environmental Management at Simon Fraser University with a focus on Planning.

What piques my interest the most is the interconnectedness of climate change, food systems, and holistic

planning. When I learned about the Climate Resilient Food Systems and Sustainable Development Field School in Tanzania, I thought it was a surreal amalgamation of everything I loved learning about. Applying was one of my best decisions.

In our two weeks in Tanzania, I learned about the universal language of people. In the village of Arkaria, I realized the gift of knowledge-sharing as I listened to how Maasai Elder, Alais Morindat, is adapting to climate change as we walked his beautiful grassland home alongside hundreds of cows, goats, and sheep. In the village of Materuni, I saw the cultivation of community as we

danced and sang with Chagga villagers who showed us how they make coffee from harvest to brew.

In the Maasai village in Makuyuni, I practiced the art of co-mobilization as we all assembled into our unique roles in helping create visual and written archives for the Maasai Cultural Centre. Here, I also met sweet children who taught me Maa and Swahili, and even wrote me a letter wishing me well on my future journeys. These are part of my many memories in Tanzania that I will never forget.

The summer 2024 semester was my very last semester. I can wholeheartedly say that this has been a beautiful culmination of my degree.



ARUSHA CENTRAL MARKET

I did not expect to find the feeling of home at the Arusha Central Market. Back home in the Philippines, I would spend many mornings and afternoons in our local market (palengke in Tagalog) with my aunt purchasing our meats, fruits, vegetables, and rice cakes for the week. Over the years, my aunt has developed personal connections with the vendors, so we would spend our visits in conversation with them.

The bustling nature of the Arusha Central Market, filled with conversations and side-by-side stalls carrying assortments of goods such as botanical medicines, fresh fruits and vegetables, spices, grains, and beans was very reminiscent of home.





TREE OF LIFE

I gasped at my first sight of a baobab tree. They scattered the landscape at Tarangire National Park. Giraffes, who can grow up to 19 feet, look small beside them. The baobab tree's nickname, the "Tree of Life", rings true to its nature as a keystone species. They provide production, protection, and regulation

functions, all through their fruits down to their roots.

Our driver told us that if we see a baobab tree with a trunk thinner and damaged at its base, elephants are likely the reason; baobabs hold large amounts of water in their trunks that become

vital sources of water for elephants during the dry seasons. In stores and markets here, I see ubuyu, a locally enjoyed candy made from red-dyed baobab seeds coated with sugar, salt, and spices. These are a few of the many gifts Baobab trees bring during their thousands of years on Earth.

CLIMATE CHANGE

Mzee Alais Ole Morindat welcomed us to his home on our first Friday in Tanzania. We gathered in his sunroom and listened to his story as a Maasai elder and pastoralist. It is akin to a gift, being invited into the intimacy of someone's home and within hours, hear of knowledge that they have acquired over years. With climate change's

exacerbation of prolonged low rainfall and water shortages, I asked "how do you prepare for a drought?"

Drawing on his years of experience tending to his land and learning its language, Mzee Alais offered us his insights. Take good care of the pasture, he notes. Ensure that all of the plants

serve a beneficial purpose and that there is a balance among the plants. Divide the land and allocate them a purpose, so that not all the resources are being used all at once. Collected rainwater, he notes, is also a valuable resource that has allowed people to stay in place for a longer period of time in times of drought.



ERIN SIDNEY SCOTT



“ My name is Erin Sydney Scott, and I am in my fifth and final year of pursuing a degree in Resource and Environmental Management Planning here at Simon Fraser University. Throughout my studies, one piece of advice stood out: if given the chance, participate in a semester abroad or a field school.

With my university experience straddling a global pandemic and many semesters conducted remotely, I often found myself eyeing opportunities abroad but hesitating to apply. As the end of my degree approached, I learned about the Climate Resilient Food Systems field school. I thought traveling

to Tanzania would be an opportunity to bring my degree to a meaningful close by applying the knowledge I gained in the classroom toward hands-on experience. I finally decided to take the leap and submitted my application—I am immensely thankful that I did.

My time in Arusha was transformational and shifted my perspectives on what I thought I knew of sustainability, climate adaptation, and food systems resiliency. One of the most impactful lessons from this field school was understanding that working towards climate resilience looks different in each community. We often tend to think that sustainability and climate resiliency have defined one-size-fits-all solutions. It took me being in

Tanzania to understand the importance of place-based and community-led solutions when addressing global climate and food challenges. Witnessing how community initiatives such as the Nashipay School, Akaria Impact Centre, and the Aga Khan University Arusha Climate and Environmental Research Centre are adapting and building resilient food systems in the face of climate change was encouraging.

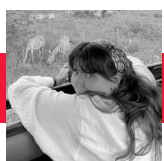
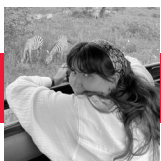
I look forward to integrating the lessons from my time in Tanzania into my continued academic journey and future career, particularly emphasizing the importance of local context in addressing global issues.

BEADING WITH WANAWAKE

I don't think we can discuss the food systems of the Maasai community without acknowledging the integral role that the women, or wanawake, play in the household. We spent time beading with the wanawake one afternoon at the Maasai Eco Boma in Makuyuni. Although we didn't speak the same language, our time was filled with laughter, singing, dancing, and many hand signals as the master beaders taught us how to bead bracelets.

One of the staff members, Marina, explained that beading is a cornerstone of life for these wanawake. Many of them gather under a tree in the shade to bead for most of the day. Without TV or smartphones, this activity is both a way for the women to pass time and socialize but also to support their families. The money earned from selling their intricate beadwork helps to support their families' diets and food supplies.

Despite the language barrier, I felt deeply connected to all the women sitting on the mat that day under the shade of the acacia tree. We spent time together as women, and it felt special that although our lives have been vastly different, we still share the experience of womanhood together.





ALL ABOUT BANANAS

At the base of Mount Kilimanjaro, we hiked under the canopy of banana and Arabica coffee plants, passing the homes of many Chagga tribe community members. The Chagga, or Wachagga in Swahili, are one of the many distinct ethnic groups in Tanzania and call the base of Mount Kilimanjaro their home. As we hiked up towards Materuni waterfall, our guide explained the significance of the banana in the lives of the Chagga people.

The traditional Chagga way of life is based primarily on agriculture, utilizing irrigation on terraced fields. They traditionally cultivate diverse varieties of bananas and coffee in their home gardens, as these plants thrive in high-altitude areas. Bananas are a staple crop for the local community with three main purposes: cooking into savory dishes, eating as fruit, and brewing into banana beer and wine. Throughout the trail, the influence of this fruit on the local community was evident, from bars and clubs made of wood where banana brew is consumed to vendors selling art inscribed on dried banana leaves.

In the Chagga community, food is deeply integrated into their culture, and at the heart of that culture is the banana plant.

FOOD MILES

This was my first time ever seeing an avocado on the tree. This Hass avocado tree was located on the AKU campus, among many other trees they grow there. It was both shocking and exciting to see an avocado growing in real life. In recent years, we have seen a growing global popularity in the consumption of avocados. Like many other consumers, I enjoy avocados at home that have been imported from Mexico or other tropical countries.

That day, I thought about how disconnected we can become when most of the produce we consume is imported. Avocados are a part of my weekly shopping list back home, yet I had never seen them growing on a tree. This highlighted for me how the global supply chain distances me from my food. Although I am glad to have tropical fruit accessible to me during Canadian winters, the next time I purchase avocados, I will think about the long journey the produce has taken to reach my plate.



ROBERTO ESPINOZA VACA



Reflecting on my journey through the Climate Resilient Food Systems field school in Tanzania, I realize it was a life changing experience that connected me in part with my future professional aspirations. Coming from Mexico, where my family has long worked alongside local farmers, I have always been closely tied to agricultural practices and the community that sustains them. This background encouraged my decision to dive deeper into global food systems and understand how different regions tackle similar challenges.

What struck my attention throughout the field school was the similarities between farming techniques and crop

cultivation to the ones back home. Both Mexico and Tanzania share a reliance on certain staple crops such as maize which is being massively grown throughout the region. Other similarities include Indigenous knowledge. Both regions use traditional techniques that enhance biodiversity and optimize the preservation of the land.

Even though I'm currently doing a major in international studies, I have also found similarities that I have studied in my program. This includes post-colonial legacies and how they have influenced the overall farming industry in the region, with the push to introduce GMO crops, which are still prohibited in Tanzania. This topic in particular got my

attention during the field school, leading me to look deeper into the implications of GMO policies in Tanzania.

Moving forward, I plan to do more research regarding the intersection of colonial history, government policy, and biotechnology's role in agriculture. Overall, this program not only broadened my understanding of agricultural ecosystems but also deepened my appreciation for the resilience and ingenuity of farmers who adapt to and mitigate climate impacts. Through this experience, I've gained invaluable insights in such a short time, which I am eager to apply in my career, aiming to foster initiatives and policies that support sustainable practices globally.



THE BEEKEEPERS

The photo displays different types of stingless bee hives, crafted from both logs and wooden boxes. Stingless bees have been important to East Africa due to their role in pollination, which enhances the productivity of crops, fruits, and vegetables. But because these bees are shy and solitary, they tend to

make their hives hidden from anyone such as underground or inside dead tree logs. Their popularity is almost non-existent because of the smaller quantities of honey they produce in comparison to the common honeybee. The honey produced

by stingless bees is considered as having medicinal properties. Some locals create their own stingless bee hives on wooden logs outside their houses almost like a "first aid kit." People can then open and take honey from inside the log whenever they need it for various illnesses.



PRODUCT VARIATION

The photo showcases one of the stalls at the Central Market in Arusha, filled with a diversity of grains and legumes. Multiple baskets and sacks are visible, each filled with various types of beans, peas, lentils, and grains. This market is a representation of the agricultural diversity in Tanzania and highlights the importance of such markets in the

local food systems. Markets like this one play a crucial role in supporting food security by providing access to a variety of dietary staples. They allow small scale farmers to sell their produce directly to consumers, making a resilient local economy and reducing consumption of external imports.

The diversity of ingredients not only reflects the rich agricultural practices of the region but also supports nutritional diversity for the community. Such markets are fundamental to the social and economic structure of the region, promoting local consumption of produce.



MAIZE

Maize is a staple food and an important component of the food systems in Tanzania. While this crop is not native to Africa, since the colonial period, corn was brought to Africa from Central and South America. Since then, people in Tanzania have adopted this nutritious food. It serves as a primary source of carbohydrates and as animal feed, impacting mostly small-scale farmers that depend on it for income.

The introduction of hybrid species has significantly influenced maize cultivation in Tanzania, primarily through the potential to increase productivity of crops. While hybrid maize can be bred to be more resistant to diseases, which is important in a region where such challenges frequently cause crop losses, these seeds have almost replaced the traditional seeds which are far more resilient to many climatic shocks. Furthermore, these hybrid varieties can be bred to adapt to harsh conditions such as droughts, which is common in Arusha and surrounding areas due to climate change.



ELLEN WATTERS



“ I’m Ellen Watters, a fourth-year student in Resource and Environmental Management Planning.

Having a special interest in food systems, and eager to make the most of my university experience, I was inspired to apply for the Tanzania Field School led by Dr. Tammara Soma. I was excited to gain hands-on experience learning about food systems and climate resiliency in a global context, and hoped this experience would deepen my understanding and perspective of these critical issues.

During the field school, I had the privilege of learning from Maasai Elders about African Knowledge Systems, explore Tanzania’s rich cultural and natural history, and engage with local sustainable practices. We covered topics such as sustainable permaculture techniques, local and global food systems, biodiversity conservation, human-wildlife management, and the adaptation strategies of farmers and pastoralists in the face of climate change.

This opportunity was truly an eye-opening experience for me. Learning from and alongside local community

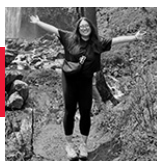
leaders in Tanzania’s stunning landscapes, I came away with a deeper appreciation for the complexities of ecosystem management and the importance of incorporating local knowledge into resource and land use planning.

I also recognized the vital role of preserving and uplifting Indigenous knowledge in a rapidly changing world. These insights have not only enriched my studies but also inspired me as I look forward to my future career. I’m grateful for the chance to have been part of this journey and excited to carry these lessons forward.

MAASAI COMMUNITY-BASED DECISION MAKING

Pictured here are beautiful illustrations (codes) from the Akaria Impact Centre which are used to teach about community-based decision making within the Maasai community. During our visit, Mzee Alais taught us that when there is a problem or issue at the community level, many community members meet to together solve whatever issue is at hand.

The general structure of these meetings is to first have each person objectively observe the issue and make their own observations. Following this, participants delve into making deeper observations to really understand the issue. The group then discusses and analyzes the problem to identify what is wrong. After this analysis, everyone brainstorms possible solutions collaboratively. Finally, the meeting concludes with the creation of an action plan that outlines concrete steps to resolve the issue.





FOOD EDUCATION THROUGH GARDENING

I loved learning about the productive food gardens maintained by the students at Nashipay School. It was amazing to see how much food can be produced and sustained with limited water and space. Reflecting on my own elementary school experience, the lessons that stand out the most are those where we got our hands dirty and learned new skills

through hands-on practice.

Seeing these students grow and care for their food gave me hope that they will develop a deeper and more thoughtful connection with their food, by understanding exactly where it comes from. I was truly inspired by their gardening efforts and hope that similar

initiatives can become a common and permanent part of our education system back in Canada. Ultimately, we all have the potential to contribute to our food systems, and incorporating gardening into education can empower future generations to cultivate a sense of responsibility and stewardship of our environment.



CULTURAL PRESERVATION WITH MAASAI ELDERS

As part of our learning with Mzee Clamian at the Maasai Eco Boma, we assisted in documenting the names and meanings of significant Maasai cultural artefacts. This effort was integral to the creation of a new Maasai community cultural centre. Together, our team transcribed, recorded, and documented the Kisogo Maasai Elders (pictured here) as they shared their invaluable wisdom and insights about their culture and the essence of being Maasai.

Clamian highlighted the importance of ethical, accurate, and culturally appropriate sharing of Maasai culture, emphasizing that this can only be authentically done by the Maasai within their own communities. This belief underscores the significance of establishing the new cultural centre, a project we were privileged to support in a small yet meaningful way. I am proud that we contributed to advancing the vital work being carried out by the Kisogo Maasai at the Eco Boma in Makuyuni.





ZIHAO ZHANG

“ I feel incredibly fortunate and grateful to be a part of the Tanzania Field School. This journey is one of the most precious experiences of my life, filled with unforgettable moments shared with an extraordinary group of people. Over just 14 days, we formed a close community, supporting one another in everything we did. From planting collards and visiting national parks to engaging in meaningful discussions with the Maasai people and filming a video to help preserve their culture, the range of experiences was beyond anything I could have imagined happening in just two weeks.

This trip has profoundly impacted my perspective on the world and my way of life. It offered me experiences that I could never have encountered in a traditional classroom setting. I'm grateful for the opportunity to see another side of the world and live a life that was entirely new to me. Although we came from different majors and streams, each of us gained a deeper and more comprehensive understanding of our studies. Concepts we discussed in class came to life—like how local communities practice adaptive management by growing different types of grass for cattle grazing across seasons, even without formal knowledge

of the term. formal knowledge of the term.

As I reflect on this experience, I realize that the most meaningful lessons weren't just academic but personal. Being immersed in such a different environment encouraged me to step outside my comfort zone, and in doing so, I learned to see the world through a broader lens. And most importantly, this field school has taught me the importance of humility and the value of staying open-minded to learning from others.



A TRAFFIC JAM ON SAFARI

This was the situation when we got very close to the elephant. There were so many cars chasing him and the elephant got very unhappy at the end. You can feel it from his flapping ears and fast-paced footsteps. Honestly, I was a bit worried about the elephant attacking our car but there was no way to go backward. All the cars were stuck behind us.

I've seen a lot of news about elephants attacking safari cars and I feel like this could probably be one of the situations that would happen. Safari on the one hand creates a lot of profits and helps the local economy to grow, but on the other hand, it also causes fragmentation and human-wildlife conflict.





BETWEEN MODERNITY AND TRADITION

This was taken when we were walking with the Maasai warriors in the morning. During the walk, we suddenly heard a noise from behind and two motorcycles were coming very fast and dangerously close. The contrast between the walking warriors and the motorcycles made

me think about the life of the Maasai people now. They still have their culture and practices, but the modern world is affecting them in so many ways. They need the modern world but also need to protect themselves from it.



FRIENDS

This photo was taken at the beginning of this field school. We were on the way to the AKU demonstration plots. At that time, we didn't expect how wonderful this journey would be and how many amazing things we were going to experience. Everyone was so great on this field trip. I was very surprised at the Maasai Eco Boma that everyone would quickly find their best contributions and cooperate when we were supporting the cultural preservation project. It felt amazing that we had the same passion and worked together towards the same goal.

During this whole trip, I felt so happy to be in a group of people who are full of love and share the same kind of love and passion. I love everyone in this field school, and I'll cherish this memory forever throughout my whole life.



