

Environmental Education and Community Engagement:

Narratives, Ideas, and Plans

Cornell University and NAAEE
2022



Cornell University



This book features selected descriptions of final projects by participants in an online course, Environmental Education and Community Engagement, conducted May 16 – June 12, 2022.

Instructors: Dr. Alex Kudryavtsev, Marianne Krasny, and Yue Li
Teaching assistants: Xin Yu (Fish) and Wanying Wu
Course administrator: Kim Snyder
Editor: Nancy Welch

The online course that produced this publication was funded by the Office of Environmental Education at the U.S. Environmental Protection Agency through ee360+, the environmental educator training program led by the North American Association for Environmental Education under Assistance Agreement No. NT 84019001. This publication has not been formally reviewed by EPA. The views expressed in this publication are solely those of the chapter authors. EPA does not endorse any products or commercial services mentioned in this online course.

Cornell University Civic Ecology Lab and NAAEE. *Environmental Education and Community Engagement: Narratives, Ideas, and Plans*. Ithaca, New York: Cornell University, 2022.

Table of contents

Introduction	5
---------------------	---

Part I. Professional Narratives

EARTHCARE’s environmental education and community engagement experiences Gail Woon, The Bahamas	7
Chemung County stormwater education: Community engagement and lessons learned Nikole Watts, USA	9
Humpback whales and community engagement Connie Brown, USA	11
Community nutrition garden: A gender-inclusive approach for empowering livelihood in Maharashtra, India Mahesh R. Maske, India	12
Experience of combating desertification as a student Yujia Zhang, China	13
Lake stewards: Environmental education and community education youth project Joshua Twumasi Amponsah and Benjamin Afful, Ghana	15
Struggle and environmental education: A union of wills Astrid Green and Ingrid Flores, Puerto Rico, USA	17

Part II. General Community Engagement Ideas

Changing the narrative: Assets-oriented community assessment Rose Leonard, USA	20
Cultural competence in environmental education: An example from Panama Holly Hummel, Panama	21
Impacts of diversity, equity, and inclusion on mental ownership Raihab Baig, USA	23
Seeing the future: Reconciling temporality with community engagement Alyssa Armstrong, USA	24
Placemaking as a priority Tessa Sacramone, USA	25
Environmental education and community engagement through stewardship Sandrine Christie, Jamaica	27
Nature-based education for autistic children Samaneh Azizi, Iran	28

Bootcamp project at Araromi community Kayode Ojelola and Olamide Oni, Nigeria	30
Giving voice to community assets in desert coastal communities Diego Rodrigo Azcoitia Rocher, Mexico	32

Part III. Community Engagement Plans

Climate summit to engage tribal youth Zoe Roberts, USA	34
Climate action in the classroom Madeline Zimmerman, USA	35
Caring for our watersheds within indigenous communities Shannon Hart & Conlan Donahue, Canada	37
Creating a curious and caring community Robyn Gotcher, USA	39
Seminar series partnership project with an HBCU Emma Gregory, USA	40
Waiwhakareke community involvement plan Jayden Bradley, New Zealand	42
Setting the table: Improving food security for humans and wildlife Kelsey Low, USA	43
Converting our small arctic town into a pedestrian-friendly community Alaina Bankston, USA	45
Instilling responsibility through experiential learning Madeleine Sherman, USA	46
Visitor centers: An opportunity for civic engagement in Iranian wetlands Amir Mafi, Iran	47
Old guardians of the city Wara Marcelo, Chile	49
Nature near me: Connecting urban families with nature in their local neighborhoods Kailey Setter, Canada	51

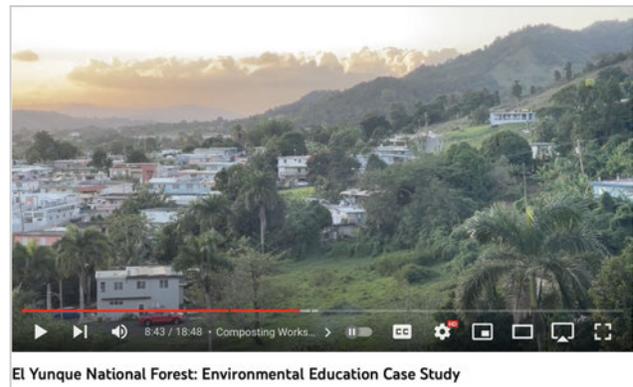
Introduction

Imagine students collaborating with their adult neighbors to create a new garden to address food justice in their community. Or a parent-teacher association helping students reach out to elected officials to discuss environmental regulations that impact their school. Or an environmental education center that collaborates with community members to advance local climate action.

Creating such partnerships between environmental education programs and community members can promote stewardship and advocacy that allows members to achieve shared environmental and social goals. By involving youth and adults in environmental stewardship, environmental educators enhance environmental quality, social equity, and human well-being. By engaging local residents in advocacy, they may influence and even transform social norms, local policies, and regulations that affect the environment.

To explore the role of communities in environmental education, over 900 of environmental educators from more than 60 countries participated in an online course, Environmental Education Community Engagement, during four weeks in May-June 2022. The course was offered by Cornell University as part of the **ee360+** national environmental education program conducted by the North American Association for Environmental Education (NAAEE) and sponsored by the U.S. EPA.

The course participants explored the NAAEE's Community Engagement: Guidelines for Excellence, and discussed how to apply these principles to their own environmental education programs. This course also included lectures, readings, and webinars about community engagement. In addition, participants explored environmental education case studies to become familiar with relevant practices, including a case study that examines educational efforts in Puerto Rico's El Yunque National Forest (available on YouTube).



At the end of the course, more than 400 participants submitted final projects. They could choose among three categories:

- (1) **Professional narratives.** In these final projects, participants share their professional stories related to community engagement.
- (2) **General community engagement ideas.** These final projects are applying various conceptual ideas from this online course or outside this course to environmental education.
- (3) **Community engagement plans.** Many course participants decided to create specific plans to engage people in their local communities in environmental education, which are also shared as chapters in this book.

This book features twenty-eight of these final projects, which explore environmental education and community engagement in various countries and settings. In assembling these narratives, we have made only minor revisions to ensure clarity; we believe that the rich and diverse ways our contributors use the English language to describe their work demonstrates the flexibility and power of cross-cultural communications.

We invite you to learn from our course participants about how we can create more equal, just and inclusive environmental education programs that welcome all community members.

Part I

Community Engagement Narratives

EARTHCARE's environmental education and community engagement experiences

Gail Woon, The Bahamas

EARTHCARE is an environmental education NGO (non-governmental organization) in The Bahamas. Teachers would request our volunteers to come into their classrooms during the first year, 1988, to come and talk about environmental issues affecting the country.

We operated without much funding for many years, though we did receive a few small grants. Our first grant of any substance came from the Ocean Conservancy. With this grant, we were able to make our first attempt at community engagement. We ran several contests about marine debris. We had a mural contest, and also poetry and essay contests within the high schools. We were able to enlist a company on the island to donate computers for the contest prizes. We had great results and even had a prominent conservationist help with the judging. Two schools won first place because both of the murals they created were so good that we could not decide between them. We were able to get great press coverage, and our name and mission were finally in the public eye.

Later, we were able to get some significant funding for our EARTHCARE Eco Kids program, through which students from various schools meet with us on weekends. We teach a lesson about various environmental issues such as pollution, invasive species, sustainable fisheries, humane treatment of animals, habitat destruction and remediation, climate change, and much more. Each lesson is followed by a fun field trip to reinforce the topic of the day with an unforgettable learning experience.

EARTHCARE was given the opportunity to start and build a community garden—we call it Our Garden—in 2020. Once the lockdowns of the COVID-19 pandemic relaxed, we determined that we could hold EARTHCARE activities—but only outdoors, with masks and social distancing. Our EARTHCARE Eco Kids actively participated as we built and nurtured the garden, and within a few months, we were able to donate organic vegetables to the children's home and the old folks' home, and to the hospital.

In October 2021, EARTHCARE was invited to participate in Constructive Visions, an initiative spearheaded by National Geographic to envision a more sustainable future, post-COVID-19. I collaborated directly with Michael Shrenk, of South Africa, who served as the Constructive Visions lead for community engagement. Michael and I were both fellows in Dr. Marianne Krasny's Cornell Climate Online Fellows program. After our fellowships, Michael and I were invited to participate in a podcast with Marianne that was hosted by Curt Bonk, who is with the Indiana University School of Education. The podcast, which was produced by Silver Lining for Learning and broadcast on December 5, 2020, was titled "Fostering Local-to-Global Courses for a Cause: MOOC Contributions to a 'Better Place for All.'" EARTHCARE Eco Kids students began reading Constructive Visions' chapters in November 2021, and concluded their readings in February 2022. We conducted before-and-after surveys to determine if the students' anxiety levels about the future were lowered after reading the Constructive Visions materials.

Fast forward to 2022, and the COVID-19 pandemic is ongoing. While EARTHCARE Eco Kids students were reading the Constructive Visions chapters every week, we also were beginning a new citizen science project, measuring mangrove seedlings at the Bahamas National Trust's Rand Nature Centre. The seedlings are destined to be planted in Grand Bahama Island's East End region. Mangrove forests were decimated on the island due to Hurricane Dorian; to address this loss,

EARTHCARE is now assisting with two mangrove restoration projects. The Inter-American Development Bank is funding the project for the eastern end of the island and parts of Abaco. The Bahamas Protected Areas Fund is funding a parallel project in Dover Sound; this project is a partnership between EARTHCARE, Waterkeepers Bahamas, the Blue Action Lab, and Coral Vita.

In May 2022, we initiated a project we're calling Mangrove Mania. This project is unique, in that we have recruited businesses on the island who have offered sponsorships in the form of cash donations. Teams will be competing to see how many mangrove propagules they can collect and grow as seedlings. We want to gather as many seedlings locally as we can, so we can avoid having to import mangrove seedlings from a foreign country; this will allow us to keep our genetic stocks pure. First Lady of The Bahamas Ann-Marie Davis rang the bell to start Mangrove Mania.



Photo: Dominic Wodehouse

Chemung County stormwater education: Community engagement and lessons learned

Nikole Watts, USA

For the past six years, I have educated residents of Chemung County, New York, about issues related to conservation, agriculture, and stormwater management in our area. I was born and raised on my family's dairy farm and grew up in the soil and water world. Not only do I get the opportunity to educate others about my passion, but I have also been lucky to be able to work and learn from my dad over the course of the six years I've been working as a stormwater educator.

Throughout this EECE online course, the importance of communication has been one thing that really stuck out. In the article "Creating Strategic and Effective Partnerships and Coalitions," the author states that "lack of communication can erode trust, cause misunderstandings, and create problems for a partnership over time." In dealing with this issue in the present time, due to retirements and changes I've witnessed, I can honestly say this statement holds true not only in the office environment, but also while engaging with the community.

The Chemung County Stormwater Coalition is mandated through the New York State Department of Environmental Conservation. The coalition's initiatives include a public education and outreach program. Through the coalition's education program, we work with people from a wide variety of age, gender, race, and economic statuses. While working across these groups, one thing holds true, no matter if you're holding a workshop, teaching a class, or hosting an event: If you have good communications, you will not fail in what you set out to do.

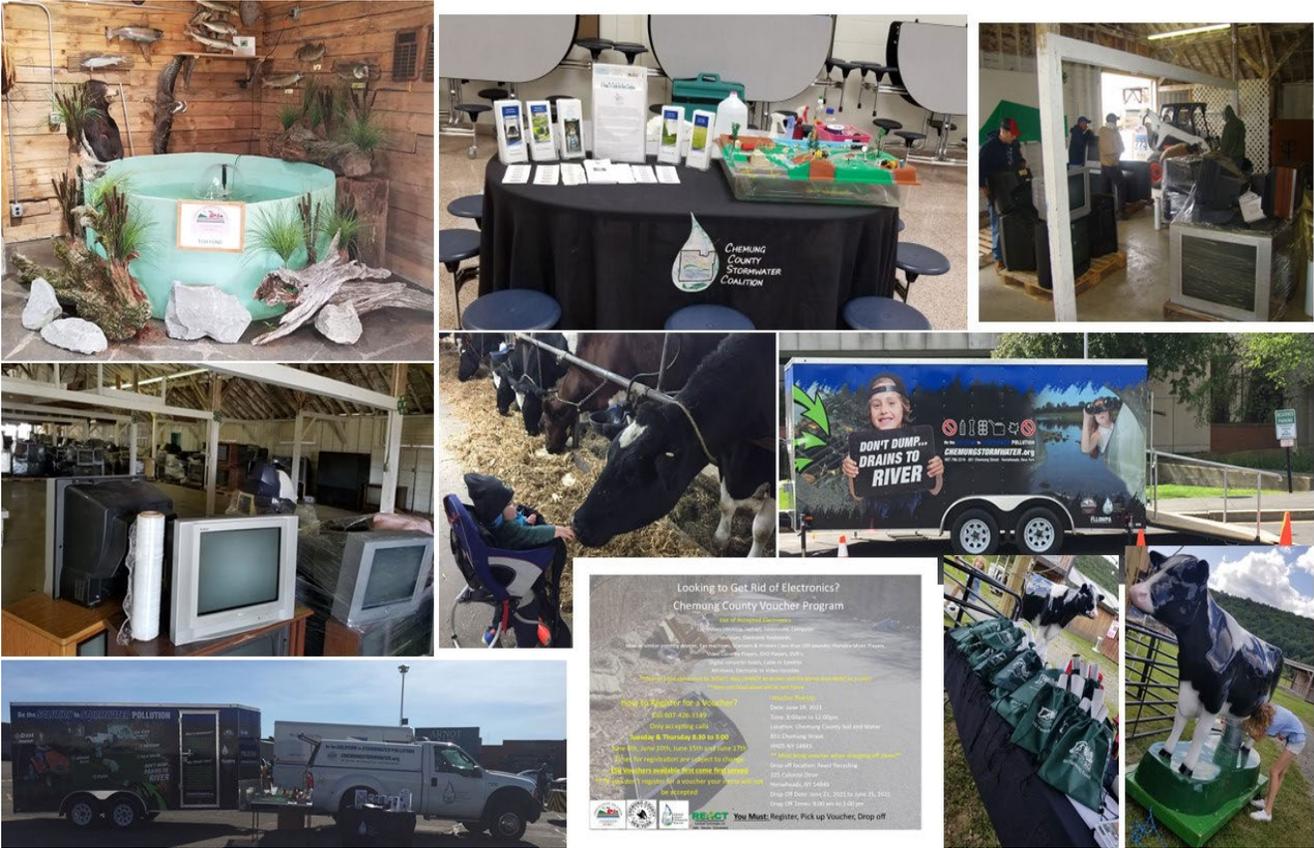
For our youth program, I contacted 500 teachers in twenty-one schools throughout the county to set up times to come into classrooms and do activities with the kids on conservation, agriculture, and stormwater issues. Not only do I have to communicate our message and ideas to the teachers, but I also have to communicate our message to the students, who range from kindergarten through high school. I use many different resources, including the EnviroScape models, which offer students hands-on experiences to learn about environmental issues, including issues related to stormwater management. I also use the curriculum from Project WET (Water Education Today) that has different activities on conservation and stormwater for all age groups. My favorite piece is hosting field trips to the dairy farm, where students can see where the food comes from, meet the farmer and the animals, enjoy a hay ride and—the very best part—have ice cream before they leave. Our goal here is to have the youth realize that they have an impact on the environment and that we need our natural resources to survive.

We host twenty-five events throughout the county where we partner with municipalities, local businesses, and other organizations, though pulling off all twenty-five events is no easy task. There are many steps we take to ensure that we are working together and that we reach our common goal.

We host a free program four times each year that allows community members to recycle their used electronics. This program not only helps the community members but also the highway departments by decreasing the amount of electronics that are dumped on the side of the road.

We also host a workshop during which we teach participants how to make their own rain barrels; they pay only the cost of materials. We also educate participants on more ways they can help decrease stormwater runoff from their home. At the end they take the rain barrel, an information packet, and our contact information home.

I have been so lucky to take my passion, experience, and personal life and wrap it all together to have a career. Planning events and workshops and traveling into the schools is a lot of hard work and takes dedication, but it is so rewarding. Thanks to this online course, I learned that communication is key to everything, no matter what part of the world you're in, or what activity or audience you're focused on. This message goes hand-in-hand with what my dad taught me throughout my time working with him: If you are honest, have integrity, and communicate effectively, then you will always succeed.



Photos: Nikole Watts

Humpback whales and community engagement

Connie Brown, USA

I have over fifteen years of experience in community engagement. My career began back when I was a student at the University of Hawaii and volunteered for a program, doing hammerhead shark research. Little did I know that that experience would begin my career in environmental education and community engagement. With that program, I also participated in educational talks and engaged with many students and teachers.

As I gained experience, I also hungered for more. I began working for a nonprofit that focused on humpback whales in the waters off Hawaii. This position allowed me to connect with government officials and more community members, including volunteers who participated in a citizen science program, an annual whale count that took place at more than one hundred sites on four islands. This involvement really grew my love for environmental education and community engagement. We participated in a number of educational outreach and community events, as well.

I took this education and experience with me to the Honolulu Zoo, where I served as the education programs manager. In my work at the zoo, I was able to not only improve existing programs but create new environmental education programs, as well, as I worked with people all over the world. We partnered with the Japan Tourist Bureau, which gave us the opportunity to put together educational programs for tourists visiting from Japan; we were able to engage with close to 4,000 visitors in six weeks. Through my work with the zoo, I was also able to reach out to underserved communities and take the zoo to students who could not come to the zoo. We also started an outreach program where we were able to visit every third grade class, at no charge to the schools. This allowed students to have experiences they otherwise would not have had.

In my current position, I am director of communications and engagement for a nonprofit that helps conserve land. We run numerous free environmental educational programs for both kids and adults. We aim to reach communities that are underserved and don't have easy access to natural environments. We currently do outreach in communities in five counties, and I am focusing my work on learning about what these diverse communities need and how we can help.

One of the challenges I have experienced is finding ways to talk with community members who may not want to hear about what you are doing. While I was working at the nonprofit for humpback whales, we worked to educate fishermen about whales—why they are here, and why they are important. Having those conversations was difficult at first, but once we built relationships, it became so much easier. Relationship-building is extremely important for any community engagement program. Then there are cultural issues that can hinder conversations. It is important to understand, be empathetic, and most of all, to listen. We have a lot of minority students in our youth program, and they haven't exactly had access to nature in the past. It is challenging to talk with kids about history and educate them—and let them know that nature is for everyone.

Overall, if you are passionate and caring, and you want to spread the word of your mission, it is possible. You just have to network and talk to as many people as possible about your programs and mission. Get buy-in from the community and government entities, and collaborate with other partners in your community. You can accomplish more as a team than you can individually.

Community nutrition garden: A gender-inclusive approach for empowering livelihood in Maharashtra, India

Mahesh R. Maske, India

Women are commonly involved in agriculture in developing countries, though women's roles, responsibilities and access to resources are typically different from men's. Addressing this gender gap requires a broader view of agricultural and food systems, one that recognizes the distinct roles that women have in ensuring food and nutrition security of their households. The most sustainable and affordable way to improve nutrition for the majority of the population, particularly the poor, is to emphasize dietary diversity. Nutrition gardening—and community-based gardening, in particular—can allow communities to achieve this diversity.

Nutrition gardening contributes to household food security by providing direct access to micronutrient-rich food, and community-based gardening offers additional benefits by strengthening relationships and connecting individuals to resources, knowledge, and skills within the community. Nutrition and community gardening can also promote gender equity in vulnerable sections of society and empower individuals across social and economic lines.

The community nutrition garden (CNG) model aims to use common land for gardening, both to supply local residents with nutritious fruit and vegetables and to educate them about gardening practices. One such model, established in 2013, encourages women with limited or even no access to land to come together to set up gardens. We conducted a study to examine how community nutrition gardening could impact women who were active stakeholders in the gardening process. We were particularly interested in looking at whether community nutritional gardening impacted dietary diversity.

We selected five villages in Wardha district of Maharashtra, in western India, to participate in the study and established a community nutrition garden in each village. The gardens were installed with a high level of community engagement and were planted with a broad range of fruits and vegetables that produced seasonally, year round. The harvest from the nutrition gardens was shared equally by participants, and surplus produce was sold locally or donated to the villages' school meals programs.

These are the steps we followed to establish and manage the gardens:

- Renovated garden plots through community participation
- Formed women's groups and encouraged collaborative relationships among participants
- Organized capacity-building programs focused on cultivation methods, waste management, seed bank maintenance, use of small tools and implements, and nutrition education
- Worked with women's groups to establish responsibilities, with a focus on harvesting and distribution of produce
- Provided seeds and saplings according to plans established by the participating nutritionist
- Labeled plants with nutritional properties
- Distributed a small weighing machine and notebook to each CNG for measuring production and recording harvesting, distribution within the community, and sales beyond the community
- Monitored data on a weekly basis

The study demonstrated that establishing community nutrition gardens encouraged more crop diversity and strengthened family and community relationships through collaborative work and sharing of harvested produce. Further analysis may also help us understand the role of CNG models in improved dietary diversity. The model also provides a unique perspective on gender equity that can grow through intentional community engagement.

Experience of combating desertification as a student

Yujia Zhang, China

I am a high school student born and raised in Gansu province in northwestern China, where desertification has always been a problem. Each spring, we see a couple of sandstorms coming to our home, turning the color of the sky from blue to yellow. In my first year of high school, I was craving for a way to ameliorate desertification and decided to look for a chance where I can play a part.

Browsing online, I saw an environmental protection program in Minqin County of Gansu province. The pioneer of this program is Ma, a middle-aged local gentleman who has been running the program for more than a decade. Excited, I reached out to him. I told him how much I hoped to play a role fighting against desertification. Then I asked him if I could take a crew to Minqin regularly to help him plant saxauls, a small type of shrub or tree that plays a critical conservation role in arid regions here. I wanted to take this action not only to protect the environment, but also to enhance communication between my community and his. Ma agreed happily.

I started to recruit peers in my school through social media and campus posters. Within a week, nine people signed up, and I knew we were good to go. In April of 2021, in cooperation with two teachers in my school, I led the team to Minqin for the very first time. The tedious three-hour bus ride itself was not particularly enjoyable, but I just could not hold my excitement.

After we arrived, Ma and his crew welcomed us enthusiastically. He introduced us to the basic situation here in Minqin and taught us basic knowledge about saxauls, including their characteristics and how to plant them correctly. After that special lecture in the desert under the sun, we were ready to get started. I divided my crew into three groups, each one led by a local planter. The lady in my group showed us how to plant a saxaul: gently place several seedlings in a machine-dug hole, cover their roots with the soil, water the soil, and repeat. The whole working process was tiring, but everyone certainly learned and laughed. I glanced over the vibrant saxauls nearly 500 yards away and was deeply impressed to imagine that all of the vigorous plants were grown by the only people living here. The lady in my group told me it usually took a couple of years for seedlings to grow that high, so they were happy to see the progress they had made to transform their hometown. I was touched.

The first saxaul planting experience took the whole day to complete. My crew returned to our city, Lanzhou, the next day. When I got back, I decided to take this action further; I created a school club of Minqin environmental protection to augment my crew. The club soon became popular among students in my school, and three months after I created the club, we already had nearly forty members that shared the same sense of purpose. We talked to Ma and decided to go to Minqin every three months to continue to plant saxauls. We were no longer a small group, but an army. Besides expanding the team, the next thing I did was to raise awareness. I created an official WeChat account to post content about the Minqin environmental protection program. Club members published their thoughts about the program, shared knowledge about environmental protection, and interviewed experts like Ma to share their perspectives. After constant advocating and exposing, our account gained over one hundred subscribers and more than 2,000 views.

By May 2022, the club had been to Minqin five times, with an increasing number of members each time. I hope and believe that the club will keep this action going, step by step, to make gradual changes. The overall experience of helping Minqin not only taught us, the high school students, to be

aware of and take actions towards environmental issues in our hometown, but it also promoted community engagement within our school and community connection between us and Minqin.



Minqin
Photo: Yujia Zhang

Lake stewards: Environmental education and community education youth project

Joshua Twumasi Amponsah and Benjamin Afful, Ghana

Everyone who visits Pipie goes back home with unforgettable memories. Pipie is one of the interesting fringe towns of Lake Bosomtwe, the only natural lake in Ghana, and one of just six UNESCO biosphere reserves in the world. The surrounding area is blessed with mountains and forest. People in the region are gradually adapting to climate-related issues, issues that affect the lake directly as well as communities that depend on it for subsistence. To hasten this adaptive process, a few of the local youth and I decided to write a proposal to secure funds to address two problems: degradation of the lake's immediate catchment resource that is caused by erosion upstream, and inadequate involvement of youth in climate-oriented projects. We secured the funding and assumed that the plans we established in our proposal would work out exactly as we envisioned them.

Initially, we were supposed to plant only forest trees, but later some of the youth also made a case for adding some fruit seedlings to our efforts, due to the short-term benefits derived from them. Unfortunately, those who would have benefited the most from our project scorned it, and the only school we had really recruited turned out to have a different agenda altogether. Thanks to the science teacher, Mr. Shadrach (fondly known in the school as "Ho-nour-able"), we managed to get the students ready for conservation education, even as the school was preparing for a sports competition, instead. In about ten minutes, the students had put a hold on their sports preparations and were poised and ready for conservation education along the banks of the lake.

The few community members who were already preparing the field for planting of the trees were glad to see their young siblings turn out. The students were engaged in conservation education, which included understanding the need to plant trees along the bank of the lake, and also the importance of establishing a buffer. The students brainstormed, after which they described for us the importance of the buffer. Abigail, the first student to raise her hand, focused on reducing erosion into the lake. You could see almost every hand raised to tell their freshly conceived importance of the green buffer—"It will protect the lake and the fish in there," and "The bark of these trees could also serve a medicinal purpose"—and on it went. After this, the students were introduced to the indigenous trees selected for this project: *Terminalia superba* and *Khaya ivorensis*, locally called mahogany and ofram, respectively. Though these indigenous saplings look similar, the trees look quite distinct upon maturity. The students had heard enough, it was time for the tree-planting exercise.

One of the community members demonstrated to the students how to plant a tree seedling the right way by unwrapping the polyethene containing the soil at the base of the seedling. He dug a hole of about ten to fifteen centimeters long and five centimeters in width, and gently placed the seedling in it. This attracted many questions from the students, but then again, they did the brainstorming, and some of them answered on the need to remove the polyethene and firm up the base after planting. Having learnt all this information about trees, what else could prevent them from planting the trees, given all that we were trying to plant in their hearts?

Come see the real stewards of the lake—students planting the tree species, which in five to fifteen years' time, will be thirty to fifty meters tall. Simultaneously, the science teacher highlighted the most significant change this activity would bring to the teaching of science, while the boys and girls also narrated their personal sense of ownership of the project and stewardship of nature. The last exciting thing was that the talented young artist in the school, Prince, made a drawing of the expected

outcome of the project; his drawing showed a big lake with trees around it as a buffer. His artwork clearly communicated the buffer and depicted its contribution to the sustainable livelihood of fishing communities around the lake.

I told you so! Anyone who visits Pipie goes back home full of memories. Are you going to let the stories of environmental education and community engagement end with you?



Photo: Benjamin Afful

Struggle and environmental education: A union of wills

Astrid Green and Ingrid Flores, Puerto Rico, USA

Citizen participation in environmental processes has become stronger in recent years. When we started our work some twenty-nine years ago, our way of education was to prepare talks, workshops, and publications that were delivered to schools. We did not work directly with local communities, and members of these communities did not participate in our processes.

Our more direct engagement with communities began with the struggle of residents of the municipality of Maunabo, in Puerto Rico, who demanded that the government develop a system of tunnels to improve transportation. We organized ourselves as the Comité Pro Desarrollo de Maunabo (Maunabo Pro-development Committee), a community-based nonprofit organization made up of citizens of all political ideologies and religious beliefs, who united to promote quality of life and protect the coastal natural resources in their community. We are working to protect species of plants and animals, especially endangered species, that may be harmed by this construction.

This struggle and efforts began in 1996, and it was not until 2008 that the tunnel project was completed. Through this effort, the municipality was going to receive greater economic development, as the tunnels would provide better vehicular access. Housing complexes were also developed during construction of the tunnels, and this posed an additional challenge for the committee, which decided to initiate new actions to protect a natural area. The committee's efforts led to the Punta Tuna wetland being designated as a natural reserve in 2001.

Within the efforts of our committee, we have also made Maunabo the first municipality here to be accessible to people with disabilities. We achieved this by bringing blind people to tour the reserve and give us guidance about how things should be done. In addition, the sidewalks were prepared for wheelchairs.

Also, members of the community have participated in several workshops offered by different entities, including nonprofit organizations and part of our local academy. The workshops have focused on elements of climate change and environmental interpretation, as endorsed by the National Association for Interpretation (NAI). Participants who completed the four-day workshop received certification from the NAI and could serve as guides, offering interpretive tours in the Punta Tuna Wetland Nature Reserve.

This project has been a great experience and stands as an example of how various sectors of the community—the government, nonprofit entities, and residents—can collaborate to support conservation of natural resources and important habitats for wildlife, including habitats that protect endangered animals and plants, while also protecting coastal habitats that help communities in flood control.

Throughout this learning process with this community, we have improved as educators and as people. Through our efforts, we have also learned to trust each other. The community is learning about their role in environmental protection and also about governmental processes. In turn, those of us in government positions are realizing that when we collaborate, we reach more people and produce better results. In this time of fiscal constraints and lack of sufficient personnel, working in partnership with communities is our best hope of ensuring that the natural resources and the environment are protected.

Capacitan voluntarios de Reserva Natural Humedal Punta Tuna para certificación de la NAI

Por Redacción
LA ESQUINA

Los participantes formaron parte del taller sobre "Aspectos del cambio climático" y cómo llevarlos a la comunidad, a través de la interpretación ambiental, que se ofreció en el Parador MaunaCaribe, durante dos fines de semana (29 al 30 de enero y 5 al 6 de febrero) por la Asociación Nacional para la Interpretación (NAI, por sus siglas en inglés) y auspiciado por el Departamento de Recursos Naturales y Ambientales (DRNA).

El curso de 32 horas fue ofrecido por el instructor, Eliezer Nieves Rodríguez de la NAI, con sede en Fort Collins, Colorado. Una vez culminaron el curso, esperan por la certificación de Guía Intérprete Certificado (CIG, por sus siglas en inglés) de la NAI.

En el taller participaron seis (6) miembros del Comité Pro Desarrollo de Maunabo, Inc. (Marcos Rivera, Paola Rivera, Omayra Rivera, José Lozada, Esteban Rosario y Francheska Almodóvar), quienes ofrecen recorridos guiados en la Reserva Natural Humedal Punta Tuna de Maunabo, como intérpretes ambientales comunitarios. Otros de los participantes fueron empleados del DRNA y de otras entidades. El grupo de participantes recibió la visita del Alcalde de Maunabo, Ángel O. Lafuente Amaro, quien conversó sobre los recursos naturales y atractivos que tiene el Municipio. Acompañó al Alcalde la Directora de la Oficina de Turismo Social de



Participantes del taller sobre "Aspectos del cambio climático", que ofreció el instructor, Eliezer Nieves Rodríguez de la NAI, en el Parador MaunaCaribe, auspiciado por el DRNA.

García Pagán.

Además, estuvo presente el Dr. Pedro M. Torres Morales, presidente del Comité Pro Desarrollo de Maunabo, Inc., quien felicitó a los participantes quienes muy pronto serán certificados como intérpretes ambientales por la NAI, "lo cuales un honor tenerlos como aliados de la naturaleza en la Reserva Punta Tuna".



Lluvias empeoran condiciones de la PR-60

El Alcalde de Humacao, Reinaldo "Rey" Vargas, junto al director Regional del Departamento de Transportación y Obras Públicas (DTOP), ingeniero Waldestrudis Cruz inspeccionaron un tramo de la PR-60, que se empeoró, tras las lluvias reportadas los días 5 y 6 de febrero.

Part 2

General community engagement ideas

Changing the narrative: Assets-oriented community assessment

Rose Leonard, USA

Murder, robbery, violence, gangs, drugs, danger. These are all words used to describe South Los Angeles—and many other neighborhoods and communities around the world. Often, these words are used to describe marginalized communities, communities of color, and neighborhoods that have been deprived of funding for education, affordable housing, clean water and air, infrastructure repairs, and other resources. As a result, deficit narratives are created and perpetuated by the media, educators have lower expectations for their students, and community members feel frustrated with systems that have continued to fail them. When people come from outside the community and want to help advance community engagement and environmental education, they may be influenced by implicit biases and stereotypes about the community they'll be working in. What if we approached a community using an assets-oriented community assessment, rather than perpetuating harmful stereotypes and deficit narratives?

Assets-oriented community assessment is an approach to community engagement that encourages members to identify existing strengths and resources in their communities. Community members are also encouraged to come together to develop collective goals for their community, which allows for greater participation, gives individuals opportunities to share their perspectives, and promotes a more creative and holistic way for community members to collaborate. By inviting community members to become actively involved in creating, planning, and designing short- and long-term goals for their community, we allow them to take the lead. We do not come into their community and decide what we think needs to change. Rather, we listen and learn from the experts of the community—the people living there.

The concept of assets-based community assessment may sometimes be difficult to implement if communities lack basic necessities and adequate resources. People may not feel proud to live in their community and may want to leave, even as they may have no realistic options to do so, or they may simply be exhausted from trying to create sustainable changes for so long. An assets-based orientation can help community members recognize individual and collective strengths they may not have previously identified as assets. For example, some people may have strong connections and bonds with their neighbors, others may know how to speak multiple languages, and some may be passionate about different sports, hobbies, and other activities. The systemic inequalities that many marginalized populations have experienced do not negate their capabilities and interests. An asset-oriented community assessment can encourage individuals to think outside the box when it comes to recognizing their strengths and the value they provide to their community.

Making sustainable, long-lasting community changes is not easy. Such changes take planning, work, and commitment from various people in order to be successful. Oftentimes, community initiatives fail because of low community participation and lack of support from agencies and elected officials. Community members are repeatedly disappointed by empty promises and begin to distrust government officials and people from outside their community who come in to “help” or “save” them. The concept of saviorism connects with deficit narratives, as both can harm communities and slow progress. Rather than perpetuating deficit narratives and saviorism, an assets-oriented community assessment empowers community members to work together to create the changes they want to see in their community. By empowering community members to take an active role in developing a shared vision for their community, we not only encourage greater engagement, but we also allow people to recognize all that they are capable of. More often than not, people do not need to be “saved.” They need to be heard.

Cultural competence in environmental education: An example from Panama

Holly Hummel, Panama

To be a successful environmental educator, it is critical to practice and actively engage in cultural competency. NAAEE's Community Engagement: Guidelines for Excellence provides resources and guidelines to evaluate programs and create a diverse, inclusive, equitable organization. How does this look in practice for a U.S.-based environmental organization working abroad? At The School for Field Studies center in Panama (SFS-Panama), we are dedicated to thoughtful community engagement and cultural competency. As part of our semester-long environmental program for U.S. college students studying abroad, we teach a two-credit course dedicated to cultural competency in conservation, in the context of Panama, and we educate future conservation leaders to be culturally competent in their practice. We include readings from BIPOC points of view, a round-robin discussion with Panamanian stakeholders, and a multimedia project to help students learn about and hone their cultural skills.

The course includes readings about conservation from voices of color. We discuss "The Big Conservation Lie," by John Mbaria and Mordecai Ogada, who challenge our Western viewpoint of conservation and the conservation hero—who is almost always white. While this topic can be difficult to consider, doing so can lead to thoughtful introspection and help us recognize our biases and learn to overcome them. Considering this topic may ideally help us not repeat our earlier harmful practices, too, even as it can be difficult to challenge the images we may have of famous scientists and conservationists. By identifying our biases and building our practices in a holistic way, we can allow others to lead us in the best conservation practices for the people in the regions we work in. This does not mean Westerners cannot participate in protecting wildlife and conserving foreign lands; it means that by incorporating local voices and letting others lead us, we can work to conserve critical habitats together.

An additional resource we use, "Beyond Guilt Trips: Mindful Travel in an Unequal World," by Anu Taranath, is an excellent resource for examining and acknowledging our own biases and learning how to be better conservationists and educators. This book may seem like an odd recommendation for environmental educators, but Taranath guides the reader through stories, reflection questions, and activities on how to build one's cultural competency that may be valuable and relevant for educators in all fields. The resources I mention provide viewpoints from people of color that I see lacking in the environmental education field. Recently, I was updating my references for a field lecture and activity on tropical rainforest ecology. I wanted to include Latinx women's voices and was disappointed when I could not find suitable references in English. As environmental educators, we need to support publishing research by BIPOC and incorporate their voices in discussions and collaborations to ensure that all people are part of developing and advancing environmental education.

Another way that we promote cultural competency in conservation at SFS-Panama is through round-robin discussions with stakeholders in our community. (Neither of our course leaders is Panamanian, and we want to include Panamanian voices and viewpoints in our learning.) We invite Panamanian stakeholders to participate in a one-hour round-robin discussion. We provide transportation to our center and compensate participants for their time and provide translators as needed. The SFS-Panama students are divided up into small groups to design questions based on themes such as waste management, the environment, land rights, and race relations and cultural

practices. The students then get ten minutes to interview each guest and hear their opinions on the topic. The activity allows our students to learn directly from community members and to practice the nuanced skills necessary to learn how to communicate about and study environmental topics in a country that is not our home country.

SFS-Panama intends to continue to improve our cultural competency and build strong ties with our community while developing future environmental leaders.



Photo: Dr. Cinda Scott, SFS-Panama

Impacts of diversity, equity, and inclusion on mental ownership

Raihab Baig, USA

There are many methods available to achieve true community engagement and enhance the quality of environmental education. My main topic of discussion to improve overall community engagement is DEI—diversity, equity, and inclusion—and how it plays a huge role in mental ownership to advance efforts in environmental education. The beauty of integrating DEI is that it can be helpful in environmental education as well as in any other industry; on some level, community engagement is necessary for almost every organization.

I am a steward with the Green Kent Partnership and serve the City of Kent, in Washington State. I have also coordinated events that promote social and environmental justice for BIPOC residents. Through these experiences, I have learned that we cannot achieve true community engagement for environmental education if the people in the community do not feel seen or safe enough to participate. By representing our community through DEI values, we empower individuals to engage in philanthropic efforts of civic engagement.

As a Muslim-American woman and a member of the BIPOC community, I know how hesitant I can be to involve myself in communities if I do not feel like I fit in—even when it comes to environmental education, which is my biggest passion! I have always had an interest in social and environmental equity and in fighting for justice through promoting true community awareness, education, and engagement. That is why I chose to minor in corporate responsibility while earning my Bachelor of Arts degree in business administration management at the University of Washington. After graduating, I learned how important it is to create a trusting relationship within communities to achieve a larger impact. I cannot create a large impact without being part of a community of like-minded individuals fighting for the same causes. In order to build that relationship within the community, we have to give a reason for why people should trust us, why individuals should feel seen and heard, why we need each other to shape a better future, and why that future is even something worth dreaming about and working towards.

Ensuring diversity, equity, and inclusion in organizations and community programs shows that we value individuals for who they are. For me, working with a team of BIPOC individuals to coordinate events primarily for the BIPOC and LGBTQIA+ communities was empowering and fulfilling. Although our events were promoted primarily to those communities, we always invited everyone to attend, no matter how they identify themselves.

Promoting a healthy community starts with an accurate representation of who is in your community and has to focus on being respectful of them and others like them. Once we achieve this, we can show individuals how civic engagement is crucial to the world we live in and hope to cultivate together. Without understanding each other as human beings that reside on this land, we will never be able to understand the importance of creating better programs to promote environmental education through inclusive community engagement.

Seeing the future: Reconciling temporality with community engagement

Alyssa Armstrong, USA

Time is a funny thing. Sometimes it feels endless, the day long and stretching still further. Other times, the hours sprint by. Under this notion, time is elastic. It's flexible, malleable, and changeable. At no other point has this felt so true for me as during the pandemic, where pre-pandemic times feel both so near and yet also like they were a decade ago. Much of this online EECE course and the literature included within it, like the NAAEE's Community Engagement: Guidelines for Excellence, have said that community engagement takes time. But the systems at play and powers that be often don't allow enough time for full and meaningful engagement; the time budget is too small.

In my experiences as an environmental educator, I have traversed a variety of roles within a short period of time, largely in temporary positions with AmeriCorps as well as in short-term and grant-funded roles. Speaking in broad strokes, the career path for much of the environmental field, especially for young professionals, is meandering. Permanence and continuity in a role, an organization, or a community is a privilege and a challenge. Programs, grant cycles, agency support, and even interest at local levels can all face time-allocation struggles. In short, the world moves fast.

Environmental education and community engagement are not always in sync with the speed of the world, by which I mean the socio-economic pressures of capitalism and colonized cultural norms within and beyond the United States. These two concepts and practices have to then live outside of time and nest themselves into community, as community exists through time and across a specific place. When we don't have time, we must ask others and ourselves questions—questions of self, of place, of our lives, and of stories and histories. Many people make up a community, and those people hold an immense number of years between them, a condensed time—even as every community is ongoing and changing, a vibrant living memory.

In her webinar, Dr. Victoria Derr spoke about biocultural memory, which we can interpret as a kind of understanding that reaches above the individual and stores deep, past experiences of the relationship of living beings, including humans, both with one another and within their regions. In "Listening to Elders," J.T. Ibarra explores the idea of what he calls "extinction of experience," which speaks to individuals' increasing separation from nature as we spend more time inside and on screens. As we become more alienated from the outdoors, we risk an individual and collective loss of what it truly means to be in nature.

At the same time, many people are impacted daily by environmental injustices. The environment is then experienced most often through one's day-to-day lived experiences. A model of community engagement that employs people's lived experiences within the environmental work being done will inherently have an advantage. Additionally, including lived experience and the inquiry of community can lay the groundwork for critical pedagogy. As Kimi Waite summarized from a collection of other scholars' work, this allows "an approach to education that is rooted in the essential experiences of marginalized peoples; that is centered in a critique of structural, economic, and racial oppression; that is focused on dialogue instead of a one-way transmission of knowledge; and that is structured to empower individuals and collectives as agents of social change." This pedagogy lays the groundwork for immense change and cultural shifts toward a more just and sustainable world.

By critically examining and confronting oppression and structural power, we can find a way out. We can question the speed at which the world currently operates, we can denounce it, we can change it, and we can finally kick off our shoes and rest in the grass, the blue sky above us, and the day stretching out so far that it is as if we can see the future.

Placemaking as a priority

Tessa Sacramone, USA

This year, I am volunteering with Americorps VISTA for Groundwork Bridgeport in Connecticut, USA, working primarily in evaluations and communications. From my vantage point as a programs assessor, I have had the opportunity to note which activities around community engagement foster the most volunteer participation and buy-in. Placemaking is an element our organization focuses on, and it is an element that particularly attracts volunteers. Placemaking is about transforming public spaces in ways that emphasize and strengthen connections between people as well as connections between people and the spaces they are experiencing. Placemaking encourages both physical and social transformation, as it creates spaces that give life to social, cultural, and environmental development and collaboration. Placemaking is an essential element of stewardship that can and should be folded into community engagement strategies by environmental educators.

Often we find ourselves overwhelmed by the seemingly endless list of environmental disasters and threats we face. It is easy to look at far-off regions around the world experiencing heavily reported activity, such as deforestation in the Amazon, for educational inspiration. I encourage environmental educators, though, to look to their own communities to tackle the very imperative challenges in their own towns and cities. The City of Bridgeport has numerous environmental issues that are worsened by climate change—the heat island effect, risks due to flooding, and a scarce tree canopy, to name just a few. Residents of the city are aware of these issues, as they experience the results of them firsthand. Recently we held an Arbor Day tree-planting event and had about fifty volunteers show up each of the three days we were working. Some volunteers were with local corporate groups, and others were families with kids ranging from toddlers to teenagers. Each tree-planting day focused on a different urban park in the city. By simply planting trees (or not so simply, because tree planting is hard work!), community members were able to socialize while improving their environment. This act of communal stewardship exemplified what it means to participate in a placemaking activity, one with social engagement within a diverse population.

Improving the ecology of a local space encourages ownership and pride in the result, too. As Dr. Marianne Krasny stated in her place-based learning video, “people who attribute ecological meanings to their local place are more likely to want to conserve the environmental features of that place. As volunteers of Groundwork Bridgeport plant trees to restore and regenerate the urban canopy of the city, they are more likely to want to care for the flourishing of the trees. For example, we have a program in which volunteers can “adopt” planted trees by assuming responsibility for watering and pruning them, and providing them with extended care. This commitment to caring for the local environment enforces the idea of community ownership and investment.

To successfully engage our local communities in environmental stewardship, the most effective action we can take is to focus on what issues particularly affect them. Environmental educators and organizations can conduct projects that address local challenges. By fostering a sense of ownership and accountability through placemaking—the social and physical process of public space transformation—we can revitalize and strengthen our communities and local environments.



Photo: Groundwork Bridgeport

Environmental education and community engagement through stewardship

Sandrine Christie, Jamaica

The need to improve our relationship with the environment is becoming increasingly urgent. Many individuals, local communities, environmental organizations, and governments all across the world are taking action and advocating for environmental stewardship—the process of engaging in actions to conserve, care for, and responsibly utilize the environment for the good of all.

In recognition of the significance of human activity in affecting environmental conditions, increasing community engagement in environmental science and stewardship is a top objective. Engaging youth in discussions about the environment in which they live may increase their knowledge and allow them to develop skills and critical awareness that promote healthy behavior and may even lead to policy change. However, engaging youth in environmental initiatives is generally viewed as a daunting task, and there is no one-size-fits-all solution.

One of the pillars of environmental education is community engagement, and community dynamics can be evaluated as a starting point and focus for building a commitment to environmental education. By participating in environmental education initiatives, students can learn to recognize activities that affect the environment as well as their family and friends, and the community as a whole. In the spirit of sharing expertise, university participants should enter the community as learners as well as instructors, rather than as experts.

Environmental education allows students to gain the information and skills they need to be ecologically engaged, responsible citizens who can work together to achieve long-term change. Gaining this kind of insight and experience can help them overcome the powerful beliefs that can influence the cultural, social, political, and economic patterns that factor into how we understand and approach the environment.

Academic institutions have a critical role in educating members of a community and can also contribute scientific, technological, and human resources—as well as emerging knowledge—to promote healthy transformation in a community. Environmental education is one example of an urgent and complicated subject that may be explored through community engagement.

Reach Every Student: Energizing Ontario Education is a program implemented by the provincial government in Ontario, Canada. The program posits that students who are involved in their own learning and social environments are better equipped to develop the skills and knowledge needed to attain their full potential, pursue lifelong learning, and contribute to a prosperous and cohesive community. As we go forward with our education plan here in Jamaica, we will refer to the Ontario program and redouble our efforts to increase academic and social participation among our own students.

Students must take an active role in defining their own future. Student engagement in environmental education, at its best, includes all students actively participating in sustainable practices, encourages strong student input in decision-making, and recognizes their meaningful involvement in the school and community. Environmental educators can encourage student participation by emphasizing the significance of the connections between thought and action, the challenges of local and global environmental issues, and the importance of people's goals and needs.

Nature-based education for autistic children

Samaneh Azizi, Iran

There is general awareness and understanding that children need to have frequent, informal contact with the natural world in order to develop emotional connections to places. In conservation education programs, there are a number of key principles that can enhance and promote the effectiveness of this contact between children and nature.

For instance, programs can focus on the local environment, involving families, friends and communities, and creating opportunities to socialize and have fun. They can encourage child-initiated, open-ended, inquiry-based learning that is age-appropriate.

This paper outlines a model of partnership and advocacy designed to encourage autistic children to connect with the natural world, with the goal of developing their love for nature and a foundation for them to learn responsible environmental behavior. During this project, I tutored children ranging four to seven years old to enhance their environmental awareness by engaging them in a fun, action-oriented, and socially responsible learning process. I oriented them to do art-related activities inspired by nature—activities focused on writing, photography, painting, drawing, and making sculptures.

This project was a comprehensive cooperation among a number of entities here in Iran: the Department of Environment, Ministry of Education, a natural history museum, and psychologists and child counselors. My work with these organizations and individuals emphasized the importance of connecting children and young people to nature, equipping them with a breadth and depth of understanding, and helping them develop a solid basis of attitude and value from which they can make wise decisions and choices about conservation and natural resource use.

We are increasingly turning to experiences in nature as we work with children with autism. Being in nature has positive effects such as reducing stress and instilling calm, arousing curiosity and interest, and attracting attention spontaneously.

Autism affects children very differently and is often not visible. A lot of children with autism experience either hypersensitivity or hyposensitivity to experiences across all five senses—hearing, tasting, smelling, touching and feeling, and seeing. Taking children with autism who are over-sensitive outside and inviting them to connect with nature through sight, sound, and touch can enhance their ability to cope with a wider range of stimuli and reduce their experiences of sensory problems. For autistic children who are under-sensitive, walks in nature with a focus on the sights, sounds, and smells can increase their sensory stimulation in these areas. Recent research has proposed that some of the associated sensory-processing problems that autistic children may experience can be attributed to inefficient neural pathways, but that these neural pathways can be strengthened by experiencing a variety of different sensory inputs in a natural environment.

Skill building in this group must be couched within the context of solving problems that directly affect them at home, at school, or in their community. During the time that I was tutoring these children, the focus was on democratic environment education, rather than trying to influence individual behaviors.

In conclusion, the theme of advocacy and fostering active community members involves promoting a collective public approach and mainstreaming environmental education rather than a private and individual approach. An example of this is informal, nature-based education for autistic

children. This approach challenges education to move away from single actions, such as tree planting and recycling paper, towards a focus on student participation in decision making—participation that allows learners to think and reflect for themselves.

Left to themselves, autistic children can easily feel disempowered by the scale of environmental problems. They need opportunities to work for social and environmental change with others in order to acquire a collective sense of competence. This approach also gives them the experience of collaborating in ways that allow them to accomplish shared goals through unified efforts.

Children with autism showed significant improvements in learning, development, and mental health after enrolling in this specific education program revolving around nature.

Bootcamp project at Araromi community

Kayode Ojelola and Olamide Oni, Nigeria

Araromi is a coastal local community located in Ilaje local government in Ondo State, Nigeria. The community depends almost entirely on marine resources for their livelihoods; while some here farm coconuts, occupations more typically revolve around fishing and trading of resources from the sea. All of the daily activities such as washing, cooking, drinking, and waste disposal are carried out at the seashore.

Human activities are threatening the health of the world's oceans. More than 80 percent of marine pollution comes from land-based activities. From coral bleaching to sea level rise, entire marine ecosystems are rapidly changing. Global warming is causing alterations in ocean chemistry and many oceanic processes, and it is threatening many species of marine animals that cannot cope with higher temperatures. Overfishing is a serious problem in many parts of the world, and conservationists advocate creating expansive marine reserves to protect the biodiversity of the oceans.

Our initiative aims to educate and sensitize community residents about climate change, unhealthy environments, and the hazards and consequences of ocean challenges. It aims to teach students, youth, fishermen, traders, and Araromi's seaside residents how to convert plastic waste into artifacts that can be sold, how to properly manage plastic bottles, how to manage ocean resources sustainably, and how to better protect and utilize the area's ecotourism resources for long-term use and development. We also strive to raise young people to become ocean ambassadors who will advocate for conservation among their fellow students.

To guarantee full participation, all essential community stakeholders will be included in the program, particularly community leaders, youngsters, students, and the elderly—environmental protection is everyone's business. Resource persons with expertise in community education will also be included among the stakeholders. The conservation training program will provide lectures as well as practical examples of how individuals can be patriotic to their environment. These activities will include tree plantings in the community's bare and open places, seashore cleanups, and trainings on how to convert plastics into a variety of things; we will also explore a broad range of sustainable practices. We will hold conservation training programs at two community schools, since one of the program's goals is to develop ambassadors who will advocate for conservation. We will also collaborate with community members to develop and organize initiatives that will address their needs while also benefiting the general health of the environment.

We will incorporate principles from the assets-oriented community assessment, NAAEE's Community Engagement: Guidelines for Excellence, and elements of environmental action civics in this community education plan. The assets-oriented community assessment method of community participation and environmental education will assist us in focusing on resources within the community rather than on deficiencies, which I feel will be a fantastic solution to addressing environmental challenges. Instead of concentrating on the downsides, we will look at the good assets of the Araromi community and use them as tools to achieve our long-term usage and development goals. Focusing on the community's strengths rather than its weaknesses will motivate community members to become more involved in planning and will encourage them to participate.

To promote environmental action civics in the Araromi community, all teachings will be conveyed in such a way that residents, particularly students, are encouraged to act on what they have learned, avoiding passivity and ensuring the wise use of natural resources and biological systems that

support all living organisms. Students will be taught the numerous strategies for doing environmental civic acts and will be encouraged to engage in such actions so they can become environmental stewards.

We will use NAAEE’s Community Engagement: Guidelines for Excellence resource to evaluate our efforts, with particular focus on the things necessary to create effective partnerships and collective actions. All key stakeholders will be invited to participate in open-minded deliberations on individuals’ roles and responsibilities as we work toward our shared goals of environmental sustainability and development of the community's ecotourism resources.



Photo: Elomgreenie organization

Giving voice to community assets In desert coastal communities

Diego Rodrigo Azcoitia Rocher, Mexico

Baja California Sur, Mexico, is a desert state with the lowest population per square meter of any jurisdiction in the country; most of its settlements are rural communities dedicated to fishing and occasionally to ecotourism. It is also one of the states with the most natural areas that have some degree of protection provided by the government. Most of the communities in the region have little fresh water and scarce terrestrial resources, but they do have historical abundance along the coast and in the ocean. Fishing towns in this region feel trapped by conflicting challenges of scientific interest, the pressure of industrial fishing, the tourism market, and environmental conservation laws.

With so many interests and different social sectors involved in environmental decisions, the allocation of resources, and socio-environmental development, we have the conditions for a polycentric environmental governance system. Unfortunately in this case, each sector is poorly articulated and has little coordination with the rest of the players. The historical classism of our country and colonization in education have relegated the fishing communities to the lowest level of relevance.

The region needs cross-cutting community engagement programs that encourage academic, government, business, and community sectors to collaborate in developing a strategic plan that gives priority in the governance process to the people who live in key places of interest.

Democratic environmental polycentric governance is an alien idea in communities where historically there is no belonging to the place and most people feel excluded from decision-making processes. Because of this, a real community assessment process could be the first step towards engagement. Such a process could give voice to the community, recognize and value its history, and identify assets that could be utilized to create environmental benefits. Linking environmental assets to the collective memory of a community is key to creating environmental stewards, those community members who protect not only the land and water resources but also the memories that live in those natural places.

As we identify assets within the community, we will also be able to identify the community's needs that are linked to their fishing objectives. We plan to highlight the needs and assets that complement fishing, which will open doors to other community projects focused on different social and environmental issues—projects in which a large part of the community will be able to take part, including women and children, who do not usually participate in fishing or tourism.

Starting from the voice of fishing communities, and supporting their social and environmental assets, we aim to build a relationship between these communities and non-governmental organizations and academia that will allow coastal communities to begin to heal. Our goal is to prioritize the voices of these fishing communities to provide opportunities through which their needs can be met.

Perhaps in this way, private and government institutions will have accountability when the results of their projects are evaluated, and the people of the communities will begin to feel heard and will want to participate in decision making as members of a polycentric, community-focused system of governance.

Part III

Community engagement plans

Climate summit to engage tribal youth

Zoe Roberts, USA

Engaging communities on the environmental issue of climate change can be difficult at any level, even for organizations that have a plethora of resources and established connections. It can be even more difficult to engage communities with checkered, negative, and emotionally triggering histories, as is often the case in Native American communities. Not only are tribal communities on the frontlines of a changing climate, they are also the victims of decades of discrimination and marginalization. Because of this, executing community engagement can be a daunting task, especially for an outsider stepping into these communities. In an effort to improve the climate literacy, education, and engagement of tribal youth, our organization is working toward developing a mini-climate summit for them. The purpose of this program is to engage tribal youth on climate change in a way that is not only exciting and fun but also respectful of their cultural history. In order to achieve this goal, a clearly outlined community engagement plan is necessary.

We will implement this program throughout the Treasure Valley of Idaho, which includes Boise City. The primary stakeholders in this project are the local departments and agencies as well as the tribal youth and staff. We plan to work with the Boise Watershed, Bogus Basin Mountain Recreation Area, Idaho Power, Boise State University, and the City of Boise.

With a program geared to engaging youth, there are always going to be roadblocks. One roadblock we are facing at the moment is timing and scheduling. We are working to bring together multiple partners and agencies to make this engagement opportunity worthwhile, but every organization has scheduling limitations and conflicting timelines. We also have to work within the confines of the school year, meaning we have a somewhat limited amount of time to bring this program to life. Another roadblock is funding. Our nonprofit is small and may not have sufficient funding to fully implement the program on our own, so we have to work with multiple agencies to help pay for all that is needed, including transportation, food, supplies for activities, camping gear, etc. The solution to this problem is to bring multiple groups together and pull funding from different areas.

Although we face inevitable roadblocks in this plan, we also have many opportunities. One notable opportunity is the chance to build lasting partnerships with local organizations. We hope that if this program is successful, we can make the summit an annual engagement opportunity for tribal youth. There appears to be a lot of interest and buy-in from the local community. They are eager to make this work.

Something from Cornell's Environmental Education and Community Engagement course that applies to this project is the idea of place-based learning. We want this climate program to engage tribal youth on the complex topic of climate change, and to also tie into tangible activities that connect to the land. We are planning camping and rafting activities to help the kids understand the connection between their ancestral land and the changing climate.

The reason this program is so vital is because the tribal youth are the future of their reservations; they will be the leaders of their communities one day. One aspect of the program is having the kids complete a reflection journal during the program. We will give them an opportunity to let us know what aspects of the program they liked, what they didn't find useful, and what they would like to learn more about. I believe this program can be a building block for tribal youth engagement. It will be a continuous learning experience, one that we are all very excited to participate in.

Climate action in the classroom

Madeline Zimmerman, USA

I teach seventh and eighth grade science at a Quaker school in Washington, D.C.; our curriculum primarily focuses on environmental education. In seventh grade (ages twelve to thirteen), students focus on the biosphere. In eighth grade (ages thirteen to fourteen), students study the atmosphere, the hydrosphere, and basics of chemistry and physics as a lead up to their study of climate change. When discussing climate change, most of my students believe that we have the tools to fight the challenges but not the social will to do so. I would like to structure this unit so that students can not only understand the issues surrounding climate change but also have the ability and opportunity to take action.

At the start of our climate change unit, students will learn about the science of climate change, including the greenhouse effect, the evidence of climate change, and its causes and effects. The classes will use the book, “All Things Under the Sun: How to Deal with Climate Change,” by Leslie Davenport, as a resource for learning about young people who are fighting climate change and how to handle any emotions that arise when studying this existential threat.

After learning the basics of climate change, students will work on a project to take climate action either in the school or in the broader community. We will adapt methodology from the Community Action Projects for the Environment (CAPE) program, drawing on ideas of slow democracy and using asset-based approaches to help students decide what they want to focus on and how they can be changemakers in their school or broader community.

First, students will take about one class period to define their ideal community. They can draw it out, list its traits, write a narrative about it, or take another approach to describe the community they envision. Once students have defined their ideal community, they will be asked to use the question, “What am I not okay with?” to determine gaps between the less-than-ideal actual communities they live in and the ideal communities they envision. Students will be asked to come to the next class period with a set of one to three issues in their current community that they are not okay with.

In the next class period, students will share with the group the issues that they are not okay with on a Jamboard so that each student’s voice can be heard. Students will then conduct research, possibly including interviews with people in their community, to learn more about these issues and uncover differing perspectives around them.

Once they’ve completed their research, students will work together to learn more about other issues and decide which of them they want to research more. To decide which issue students will try to tackle, we will use tenets of Quakerism and also slow democracy, as described in “Slow Democracy: Rediscovering Community, Bringing Decision Making Back Home,” by Susan Clark and Woden Teachout. Quakerism values consensus when making decisions and believes that all voices should be heard; it does not mean a unanimous vote, but rather that all voices and ideas have been heard, and everyone agrees to move forward in a particular way. Slow democracy emphasizes local governance through citizen-powered processes that are inclusive and deliberative.

In small groups, students with diverse issues and viewpoints will take time to feel that they are psychologically safe and then share about their experiences with climate change. They will be encouraged to talk about what drives them, exploring the issues that they identified as “not being okay

with,” and discussing their research findings. As a group, they will come to a consensus about what primary issue they are not okay with.

Once students have found the issue that they want to work on, as a group, they will list their assets using the query of “What do I have?” and conduct research on specific ways that they can make change, particularly with respect to their assets. We will use the query “What can I do?” as a way for the group to decide how they want to make change. Again, consensus methods will be used to decide how to move forward so students can implement their changes. In the end, they will have the opportunity to reflect on the project and celebrate their successes.

Caring for our watersheds within indigenous communities

Shannon Hart and Conlan Donahue, Canada

Caring for Our Watershed is an environmental stewardship program that we currently use in our organization of the Oldman Watershed Council in Alberta, Canada. This program is tailored towards high school students and encourages them to identify an environmental issue within their community and come up with a realistic project idea to address it. The students may work alone or in groups of up to four; they are to write a short paper explaining the logistics of their unique and realistic project idea in relation to watershed stewardship or conservation. The students enter their paper into a province-wide competition; if they are picked as a finalist, students are asked to present their paper at a large-scale event. The finalists all receive prize money and have the potential to earn \$1,000 for themselves and their respective school. The projects are judged on innovation, environmental impact, scope, communication, budget, practicality, and visual appeal. Our specific community engagement plan is to deliver the Caring for Our Watershed program to students in schools located on Alberta's Blackfoot Indigenous reserves in the Oldman Watershed. The Blackfoot people are the local First Nations communities in Southern Alberta and consist of three nations: the Kainai, Siksika, and the Piikani people. We believe it is important to include the First Nations people in this engagement plan, since they are communities with strong cultural ties to water and have been stewards of the land here for millennia.

The key concept of introducing this program to this specific audience is to aid the youth in identifying what they define as community assets and strengths as well as the values of environmental resources surrounding them. As mentioned in a study by Jeppe Læssøe that was offered in the EECE course, "Students are trained to become agents who interact with other kinds of agents in the local community. But the world outside is not just a passive medium for participatory actions and learning. Something already happens out there. Our key concepts of participation, action, democracy, environment, sustainable development, and so forth, are already in play, interpreted and managed. This play involves teachers as well. We are all woven into the social construction of cultural norms, discourses, participatory approaches, power relations, and coping strategies." Our engagement plan will build partnerships between staff with our organization and Indigenous students and their teachers, and work to connect these Indigenous schools with other participating schools and students across the province.

Local issues that we have considered in this community engagement plan lie within the historical relationship between the Western settlers and Indigenous communities. Historically, there is a lot of mistrust and systemic exclusion in provincial or federal affairs regarding the future of the communities and the surrounding environment. Stakeholders for this community engagement plan will be our organization, the schools, and community experts located on these reserves who will serve as educational resources. We will offer the students support and two-way dialogue to brainstorm project ideas and aid them in the writing component required by the contest.

Roadblocks in the delivery lie in space, time, and socio-cultural contexts. As mentioned by Kimi Waite in her webinar focused on advancing environmental civic action, “How can a student be inspired to write their own stories and ideas without judgment?” To facilitate this concept, we must be cognisant of the historical relationships and cultural values of each tribe and community. This will allow room for trust, open conversation, relationship building, and camaraderie. The First Nations communities in Southern Alberta already have various stewardship initiatives occurring within their community and are a very hardworking and engaged group. Our organization, the Oldman Watershed Council, currently has an important relationship with these communities. Because of this strong connection we have built with these populations, we are able to collaborate and provide each other with stewardship opportunities and program support. It is our hope that this work will inspire other environmental groups to take similar action and facilitate programs that are tailored to positively impact Indigenous communities.

Creating a curious and caring community

Robyn Gotcher, USA

I teach fourth grade science and math in a Texas Title 1 school. Our elementary school has one trash can on the playground; it fills fast, and trash blows around the field—this is a part of my environment. We also have a large field with ample space to continue the field activities, and the field has room for a school/community garden. I would like to establish one with my students. I would like to encourage my students to become aware and desire to make a change.

I plan to start my garden action plan by presenting a timeline to my administrators. I have support from them, and I need funds to get the project started. I feel the next step will be to acquire funds by writing a grant or partnering with a program such as EcoRise, which is a program here in Texas that works to inspire the next generation of environmental leaders. The student side of this plan will begin with identifying what you like and would like to change in your neighborhood or school. I would like to begin with a service-learning workbook from the New York Resource Project titled “What’s Good in My Hood?” This workbook has over fifty pages of ideas to promote environmental awareness in one’s neighborhood.

Within my plan, I will allow time for students to identify stakeholders—local environmental organizations, volunteers from the local master gardener program, and individuals who can help us and educate students and their families along the way. Students will need to research common drought-tolerant plants, including plants that grow in our area, and how to prepare the soil for planting. They will also have to research how to maintain the garden and come up with plans for watering the garden when school isn’t in session.

I envision structuring time on weekends, with parents building garden beds and shoveling soil donated by a local garden center or paid for by a grant we receive. A group of students could stay after school to plant and water bushes and flowers that they have chosen, based on their research of what grows best in our area of Texas. I envision a garden lush with color and full of pollinators, where families gather after school and weekends. I would like to eventually have this as part of my curriculum with each class, but I may need to start small with an after-school club.

There were abundant resources I found valuable during the EECE course, in particular, the case study of the Community Action Projects for the Environment (CAPE) program. The main take-away I held was that their program offers youth a lot of time to think about a project before they take action. It allows the students to think about who they need information from and why they are doing it before they pursue the project. The students in my class could actually think about this garden as just a school project, but I feel it will be beneficial to involve the community of families that already utilize the school for recreational purposes. Another resource presented during the course was “Conservation Education and Outreach Techniques,” by Susan K. Jacobson, Mallory D. McDuff, and Martha C. Monroe. This paper outlined several ways to engage the community. Each idea laid out the planning, implementation, and evaluation of the action. I feel this will be vital to refer to as I create lesson plans to start this journey towards creating a school garden.

Finally, what will creating a school garden do for the community? From the evidence in this EECE course, I have seen that no matter where you are in the world, if you include the local community with what you are planning, you will have valuable input and positive results. A parent meeting will create stakeholders with resources and skills and will also strengthen the parent-teacher relationship. You will have people promote awareness and hopefully continue to improve their surroundings. There are multiple benefits in including the community with an outdoor environmental education project.

Seminar series partnership project with an HBCU

Emma Gregory, USA

The Alliance for the Chesapeake Bay (the Alliance) is committed to increasing diversity, equity, and inclusion in watershed-wide efforts to protect and restore Maryland's Chesapeake Bay. As one strategy for achieving these goals, we are piloting an initiative to build partnerships with Historically Black Colleges and Universities (HBCUs). Through these partnerships, the Alliance is able to offer professional development and educational opportunities to students from a diverse array of backgrounds. By leveraging the Alliance's resources to strengthen pathways to green careers, we hope to empower students to pursue conservation after graduation.

Presently, the Alliance works with Bowie State University, located in Maryland, to support their on-going sustainability efforts, coordinate a seminar series about Bay-related issues, engage students in water quality monitoring, and offer a paid internship. We collaborate closely with Bowie State's Climate Commitment Coordinating Council, their sustainability and energy coordinator, several professors, and the Student Green Ambassadors, which is an on-campus student organization focused on climate change and other environmental issues. Thus far, all of these stakeholders have expressed interest in and excitement about working with the Alliance, and our relationship has been mutually beneficial for everyone involved.

This community engagement plan will focus on enhancing the Alliance's seminar series by evaluating the program's cultural authenticity, integrating placemaking and placekeeping activities, and embracing the co-creation of knowledge through civic inquiry. Since the inception of this project, students have driven the development of the seminar series by choosing seminar topics. Alliance staff then invites speakers—and BIPOC professionals, in particular—who can address the students' topics. Our model intentionally reflects students' interests, which promotes both student engagement and the project's relevance to Bowie State's values.

This fall, I plan to further evaluate and enhance the cultural authenticity of the seminar series by creating more opportunities for knowledge co-creation and placekeeping. We will launch the series with a discussion activity designed to guide students in exploring the concept of a watershed and identifying their own connections with nature. This exercise will build a deeper understanding of how students at Bowie State conceptualize nature, will emphasize the diversity of students' experiences, and will support students' voices by having them tell their own stories. Through these outcomes, which are adapted from Running-Grass's presentation on culturally authentic community engagement, we hope to align the seminars with the Bowie State community's values and educational goals.

Community building is another important outcome from this activity. By engaging students in conversations with one another and encouraging them to share their stories, this activity will allow the seminar series to build a safe learning community for exploring complex environmental issues. As Kei Kawashima-Ginsberg expressed during our online EECE course, this is an important first step for effective civic inquiry.

Building on this momentum, we will invite students to take pictures of places in their communities where they feel connected to the watershed. We will collect these pictures, along with short narrative descriptions, and they will be included in an exhibition focused on telling the story of nature at Bowie State. Through this project, which is inspired by Victoria Derr's presentation on bio-cultural memory, we will empower students to create their own stories of nature and share

knowledge about their communities. Our hope is that by taking pictures and writing short narratives, students will connect more deeply with the watershed and reflect on their relationship with it.

Based on these exercises, the seminars will be tailored to the interests of the students and leveraged to uplift student voices. The biggest challenge that we have faced so far has been recruiting student participants, and we expect this challenge to continue; between coursework, family responsibilities, extracurricular activities, and more, college students have a great deal on their plates. We hope, however, that students will be motivated to attend our seminar series by the fact that it is designed to reflect their interests and is highly interactive. By allowing them to shape most of the seminars, we aim to create a meaningful educational experience for all student participants.

Waiwhakareke community involvement plan

Jayden Bradley, New Zealand

Waiwhakareke Natural Heritage Park is a 65-hectare area of farmland in New Zealand that is currently being restored as a native forest. Planting at Waiwhakareke started twenty years ago, but the park only opened to the public in 2019. The park is situated in urban Hamilton and provides people the unique opportunity to experience New Zealand's native flora and fauna on their back doorstep. Waiwhakareke is in close partnership with the local zoo, which is just across the road; together, the park and the zoo intend to install a predator-proof fence. The zoo may be used as a source population for introductions of New Zealand's native species.

I have been working at Waiwhakareke for around four months in the role of lead ranger, and during this time, I have noticed Waiwhakareke is not being utilized as well as it could be by the community. We currently only have one volunteer day a month with the same ten people showing up every time. Most people that I talk to do not know Waiwhakareke exists. With proper advertisement of the park, the frequency and the number of people doing volunteer work would be greatly increased.

The first step of my community engagement program is to create social media accounts through the Hamilton Zoo account, which has a large online presence. My goal is to reach a large number of people, informing them of volunteer opportunities as well as community programs such as yoga in the park, bird watching walks, story time for children, an outdoor cinema, and community science activities. I would also like to use this platform to see what the park means to the community, including what they think are the most important aspects of the park, what needs to be done, and how they would like to be involved with the park. If my social media efforts are successful, community engagement could increase dramatically.

The park also provides great educational opportunities. I am currently in talks with some professors at Waikato University about incorporating some practical work at the park in their courses, many of which lack a proper practical aspect and often leave students without the skills required for the workplace. Here at the park, students would be given the opportunity to do work such as plant identification, planting and weeding, and plant monitoring. We are also considering having them base their thesis topic on the park. I am also interested in setting up an outdoor classroom and allowing students to come up with environmental problems and take part in the actions to solve these problems.

Lastly, I would like to increase the cultural involvement at the park. This is quite a difficult area to work on, as there are four separate iwi—iwi the largest social units in New Zealand Māori society—that have ownership of the land, so relationships can be easily damaged. We are currently working with a cultural leader who has connections to all four iwis in an effort to increase the involvement of more cultural leaders. I am going to incorporate Running-Grass's teachings in my work so I can increase culturally authentic community engagement in the park, and I will strive to increase access, emphasize inclusiveness and belonging, and focus on authenticity and vision. Our cultural and traditional science is just as important as Western perspectives, so I am working on getting local cultural leaders and knowledgeable members of the different iwi to run presentations and share their knowledge about the significance of the land and traditional uses for the flora.

In conclusion, I am very excited to start implementing the different techniques and strategies I have learnt over the duration of this EECE course, and I am eager to turn Waiwhakareke into the center of environmental education and community engagement that it has the potential to be.

Setting the table: Improving food security for humans and wildlife

Kelsey Low, USA

Everyone needs food—this is true for both humans and wildlife. However, in a highly urban area like Houston, Texas, the fourth largest city in the U.S., food can be hard to come by. While Houston is burgeoning with restaurants and markets and has nearly 40,000 acres of green space, not everyone has equal access to resources. According to the Houston Food Bank, nearly one million people in southeastern Texas are food insecure (have limited or uncertain access to safe and healthy food), and according to the Trust for Public Land, only 60 percent of Houston residents live within walking distance of a park. There are many areas within the city where humans and wildlife do not have safe or reliable access to food.

The Houston Arboretum & Nature Center is in a unique position to raise awareness about food insecurity in Houston and connect community partners with different tools to address this issue. We have a large membership and wide social media reach. We also have relationships with outside groups that work to increase green space through native-plant gardening, groups that promote local farms and organic gardening, and groups that educate people how to responsibly utilize natural resources for food through hunting, fishing, and foraging. I plan to reach out to these community stakeholders and to Houston Arboretum visitors to develop a program, “Setting the Table,” about food access in Houston’s human and non-human communities.

Following NAAEE’s Community Engagement: Guidelines for Excellence, my first step will be to learn what my community already knows about food insecurity, identify assets available in Houston to address food insecurity, and determine which aspects (if any) are most relevant to community members. To do this, I will create an interactive display in the Nature Center building focused on overlapping food resources for humans and wildlife and provide paper surveys as part of the display for visitors to fill out. I will also send out digital versions of the survey to our members. The survey will ask questions such as, Where can you find food in your neighborhood? Where can wildlife find food in your neighborhood? Do you think people and wildlife in your area have enough access to food? What could you do to improve access? Which methods of addressing food insecurity do you think are most important or interesting?

Based on the results of the survey, I will move onto the next step: reaching out to community stakeholders. Depending on the community’s interest, I will contact groups that work to educate people in my community about gardening, composting, local farms, beekeeping, hunting, fishing, and foraging. We can then discuss opportunities for collaboration through social media outreach, educational displays, or an open house event. We have had great success with simple open house events where community partners run booths and activities alongside arboretum staff; these events are free to the public, are low-cost for the arboretum and participating organizations, and often incorporate skill-building or service activities that may give participants a sense of ownership. The design of the event will depend on the needs of all organizations involved; they will likely have ideas I haven’t thought of, but by working together, we will determine what format will work best for all of us.

I will give participants at the community engagement event the same survey to see if responses vary and also to gauge interest in follow-up events. One problem I foresee is that I can't guarantee that the pre- and post-event survey participant groups will overlap. However, I will be drawing from the general community of arboretum visitors and members both times, so I hope that the survey results will be representative. I will also discuss with the community partners their feelings about the event and will support any new partnerships that might emerge. I will also identify other groups that might benefit from joining our collaboration. Ultimately, I will share the final results of the surveys with the community partners and work with them on a method to present the information to the public. I hope to also include resources about advocacy and other tools for civic engagement to affect broader change in Houston's food landscape.

Converting our small arctic town into a pedestrian-friendly community

Alaina Bankston, USA

In the City of Utqiaġvik, a small town on the North Slope of Alaska, walking is not the preferred mode of transportation. Our winters are harsh, with blowing winds and snow, so driving everywhere in the winter is understandable. But the summer months average about 35 degrees Fahrenheit, and walking is a bit more pleasant. Our goal is to create a more pedestrian-friendly environment where residents feel safe and choose to walk when the weather is reasonable.

By walking rather than driving, residents will reap the numerous benefits, including getting more daily exercise, reducing gas usage and wear on their vehicle, and hopefully reducing stress. Despite these benefits, there are still obstacles to making walking a preferred option for most people who live here. The air is polluted by road dust—the ground here is unstable, due to permafrost, so our roads aren't paved, and cars raise the dust. Water trucks spray the roads to keep the dust down in the summer months, but this only temporarily relieves the problem. A short-term strategy could be to educate the public on the dangers of breathing in road dust and encourage drivers to reduce their speed. Reduced speeds may also make pedestrians feel safer when walking.

One thing that would help immensely would be to create more walking paths through the tundra and sidewalks along the roads. Currently, there are no designated sidewalks, but the roadways are wide enough to allow for sidewalks. There is one boardwalk along the central lagoon, and it could be updated and expanded. The tundra can be wet and marshy, with lots of mounds, so adding a boardwalk there would make traveling across the tundra much easier and might even shorten travel distances. Tundra is fragile and susceptible to damage, even from our walking on it. By creating a specifically designated path, we will prevent multiple paths from being carved out on the tundra, which could take hundreds of years to recover from such random paths and return back to its natural state.

Community involvement will be crucial to this plan's success, and we realize that we cannot implement any ideas without community input and participation. We will focus on a bottom-up approach rather than a top-down approach, which would not gain community approval. We will work to get the ideas to come from the community and involve leaders who can make things happen. All residents in Utqiaġvik are stakeholders, and we will work to include everyone in our efforts to create a pedestrian-friendly town. We would like community input and involvement, from the initial planning stages all the way to implementation. For initial engagement, we will reach out to key stakeholders and advertise on the local radio station and post flyers. We can host a barbeque or recruit interested members during our annual spring cleanup event. We would like to involve community members, including pedestrians and drivers as well as businesses, local organizations, and even other nearby municipalities. Some suggested solutions that the community can discuss and possibly vote on include:

- Educate the community to be aware of pedestrians and that pedestrians have the right of way
- Encourage drivers to reduce speed and consider lowering speed limits on roads that pedestrians use frequently
- Obtain funding to create walkways along roads and across tundra areas
- Research funding to pave roads and sidewalks

Instilling responsibility through experiential learning

Madeleine Sherman, USA

Educational experiences outside of the classroom greatly improve students' understanding of the environment around them. Unfortunately, schools can not always create outdoor activities; this is especially true for schools in urban environments like East Honolulu. Compounding the problem are limitations due to the COVID-19 pandemic, with many programs being paused and schools lacking access to supplemental activities outside of their classrooms. There is an emphasis on place-based learning, and Maunalua is a special area to its residents, but not many know of its rich culture and history. Outdoor educational experiences place emphasis on identifying issues that are causing a decline in the overall health of the Maunalua watershed, and how students can be stewards of the land and promote sustainable living.

Field excursions will be offered to students K-12 to build on classroom lessons about conservation, sustainability, and environmental science. The field excursions will be broken up into three units: background and culture; present-day Maunalua, with a focus on anthropogenic changes to the watershed; and Maunalua Bay. Students will experience the culture firsthand as they visit existing fishponds, ahupua'a walls, and heiau and survey developed areas to see what may have existed historically.

To fully understand the importance of a place, students must learn its background and history. The field day will begin at Kuli'ou'ou Beach Park with an introductory lesson about the cultural history, mo'olelo, and place names and traditional practices. Students will also be introduced to aspects of Native Hawaiian watershed management of Maunalua. Students will be asked to envision how they would have managed the watersheds prior to Western contact. Their management schemes will be compared to the methods of how Native Hawaiians managed the environment.

Students will then transition to the second unit about present-day Maunalua and walk from Kuli'ou'ou Beach Park to Paiko Lagoon Wildlife Sanctuary (Paiko), which provides a habitat to endangered and native migratory water birds. At Paiko, students will learn about the different species that are present in the bay, both native and non-native. Students will also study an ecosystem board that depicts species/habitat interactions and learn about how each species could benefit from or disrupt the watershed. Working together, the students will build what they think is a balanced ecosystem. As the students work, facilitators will start to inject new elements in the process, such as information about invasive species, that may disrupt the students' ecosystem, and the students will have to brainstorm what they can do to restore the balance.

The tour will continue from Paiko to Kanewai fishpond, where students will see firsthand how development and urban stress has degraded the fishponds and learn about the role these ponds played culturally—and still play as a nursery for certain fish species. The use of a watershed model will illustrate how terrestrial actions impact downstream health of waterways and the bay.

In the last unit, students will walk from Kanewai to the bay, where they will learn about the different marine species, such as coral, fish, and native and invasive algae. They will also be introduced to the corals found in Maunalua Bay through visuals and skeletons, and they will learn about the history and importance of coral and other species to the ecosystem. Students will have the chance to use ocean viewers to see organisms in the water and take surveys with transects and quadrats. Allowing students the opportunity to see these organisms in their natural environment will further deepen their connection and result in stewardship. Students will be asked to identify the species they find (native, non-native, or invasive), discuss the species' ecological roles, and determine if the ecosystem is healthy and balanced. The final component will be open for students to reflect on what they've learned and apply it to come up with solutions on how to further help present-day Maunalua.

Visitor centers: An opportunity for civic engagement in Iranian wetlands

Amir Mafi, Iran

As the deputy national project manager with the Conservation of Iranian Wetlands Project (CIWP), I am involved in a specific community engagement plan. CIWP is a joint effort by the Iranian Department of Environment and the United Nations Development Programme (UNDP), with the funds from both parties as well as the government of Japan. CIWP's focus is on three components:

1. Mainstreaming the ecosystem management approach and structure for the country's wetlands;
2. Promoting climate-smart practices for better management of water, soil, and biodiversity; and
3. Increasing public participation and understanding of wetlands through communication, capacity building, education, participation, and awareness.

For the latter, CIWP is planning for civic engagement of the people living around wetlands in the project sites. There are visitor centers at these sites that will serve as the physical basis for civic engagement. So far, we have managed to equip the centers by providing office furniture, computers, supplies, and educational items. Now we are planning to operationalize them. In this process, CIWP endeavors to provide an enabling environment for the local community's engagement, with a focus on engaging with the local NGOs.

First, each year, the local network of NGOs will elect one NGO to take charge and run the visitor center. The local environment agency will regulate and monitor the performance of the elected NGO and report to the NGO assembly at the end of their term. It should be noted that a memorandum of understanding involving CIWP, the local environment agency, and the local NGO network will govern the process.

Next, the elected NGO will take the lead in providing environmental education and awareness-raising, mainly focusing on children and tourists visiting the wetland. Other focus groups include the local officials, especially the district governor. The NGO is expected to increase the public awareness about the wetland values and services by disseminating materials and holding wetland-related events. Wetland tours are considered a strong tool for creating understanding of the local environmental issues, as well. It is hoped that increasing the social demand will influence policy makers and decision makers at the local level.

The lead NGO is required to ensure the highest level of outreach to engage the whole range of stakeholders and beneficiaries—nonprofits, local government, public schools, businesses, tourists, city residents, and other relevant parties—who will be encouraged to gather on a regular basis to discuss wetland issues and solutions. CIWP's primary contribution will be to support their collective capacity regarding planning, budgeting, implementation, monitoring, and evaluation of the agreed solutions. Lastly, involving businesses for investing in wetland values and service is another opportunity that the center should explore. As the major opportunity of wetlands is ecotourism, the NGO running the center should work to attract the interested tourism actors, as well.

I will use my takeaways from the EECE course to enhance the above plan. The three concepts that specifically interest me are the following:

1. Community assessment, based on the assets rather than deficits;
2. The Climate Action Now app; and
3. Participatory budgeting.

By taking the community assets into account, participants can ensure synergy between their capabilities. The NGOs may devise a volunteering plan based on the assessment of the community assets. Regarding the mobile app, an environmental startup may be engaged to develop an application through which the real-time events and measurements of the wetlands will be shared with community and officials. Also, this mobile app should provide an option for the community to reflect on the issues facing their wetland that can then be shared with the respective local government agencies and officials. (Ideally, this app would be linked to the CIWP's existing online wetland monitoring platform that collects data from wetlands.) Last but not least, a participatory budgeting process may be used for planning the budget for running the centers; we hope to secure this budget through the country's National Environment Fund.

Old guardians of the city

Wara Marcelo, Chile

Valdivia is a city located in southern Chile; it is surrounded by rivers and immersed among wetlands, which represent part of the identity of the city. This city is the home of 170,000 people, but streets and parks are also the home of over 500 large centennial trees, both native and exotic. Several of these trees are older than 300 years and are survivors of the ancient forest that existed before the territory became a city. Other trees were planted by German migrants in the 19th century and are around 150 years old. All these trees have not yet been recognized as an important asset of the city.

While participating in the first research to identify these heritage trees of Valdivia, I thought about how to involve the community so that these trees become part of the city's identity. How to work in a participatory and collaborative way to be able to conserve this urban natural heritage? I don't have the answers, but I have an idea! First, I want to change the narrative from the idea that something old is decaying to an appreciation that the living old is a valuable treasure. I want to re-signify what it means to be old by connecting old trees and elderly people, and by doing this, give voice and empowerment to the community of senior adults in Valdivia. As the old trees are habitat for wildlife and provide shelter and shade in cities, old people are sources of stories and testimonies, and are important members of families and society. Elder people can have an active role in the use and care of green spaces; they can also have a key role in the design and participation of environmental education activities about heritage trees. I think the word "old" can connect trees and people. I made a plan using the lessons I learned during the online ECE course. I imagine a long-term project, implemented step by step. Now I present the first steps of this community-engagement project entitled "The Old Guardians of the City."

First step is making partnerships with public and private institutions related to urban trees and the environment. These institutions could include the Municipality of Valdivia, Universidad Austral de Chile, the World Wildlife Fund, Activa Valdivia Consortium, and the Ministry of the Environment. Partnerships with heritage institutions could include the Ministry of Culture and the Arts and Cultural Heritage Association of the Región de los Ríos, and partnerships with older adults could be established through the National Service for the Elderly as well as through neighborhood associations and elder clubs. Together we should achieve common goals that benefit the community and the environment. These goals could focus on the inclusion and participation in educational activities of a minority group such as the elderly; the consideration of heritage trees as key urban green infrastructure for the well-being of the population and for a more resilient city; and the maintenance of environmental services of large old trees, including the regulation of water flow, fixation of CO₂, oxygen production and biodiversity support.

To achieve these goals, it will be necessary to co-create the environmental education and community engagement activities that would be conducted in the same places where these heritage trees are located; this will allow the community to feel part of it and will develop a newfound attachment that allows community engagement to be sustained over time. I think that place-based education activities could be developed as an intergenerational practice, with older adults in the community becoming facilitators and co-educators. For example, work done by volunteers could contribute to keeping these sites and trees well preserved, and community monitoring could be carried out to learn about the biodiversity associated with these trees, rescuing and safeguarding their biocultural memory.

I imagine a future with a polycentric governance of this natural resource and Chilean cities with routes of heritage trees, routes where people can learn, enjoy, and engage, all while understanding the importance of aging. I imagine this process giving prominence to old trees and carried out by elder people who are proud of being old.



Photo: Wara Marcelo

Nature near me: Connecting urban families with nature in their local neighborhoods

Kailey Setter, Canada

Children today are more disconnected from the natural world than they have been at any previous point in history. The average child spends less than thirty minutes playing outside each day and typically more than five hours in front of a screen, though research shows that time outside makes children healthier, happier, and smarter. Research has also shown that children who play outside are more likely to develop a conservation ethic as adults—something that is critical to the future of the environment. However, inequities exist when it comes to accessing safe outdoor spaces, particularly in urban communities.

This community engagement plan focuses on engaging urban parents with kids under the age of five (i.e. preschoolers) to help them connect with nature in their neighborhoods. We will first identify real and perceived barriers to accessing nature in local communities and then work to create resources and opportunities for nature connection that help address those barriers. The project plan will incorporate key characteristics of community engagement, as highlighted by the NAAEE's Community Engagement: Guidelines for Excellence. The project plan will take a place-based approach to environmental education.

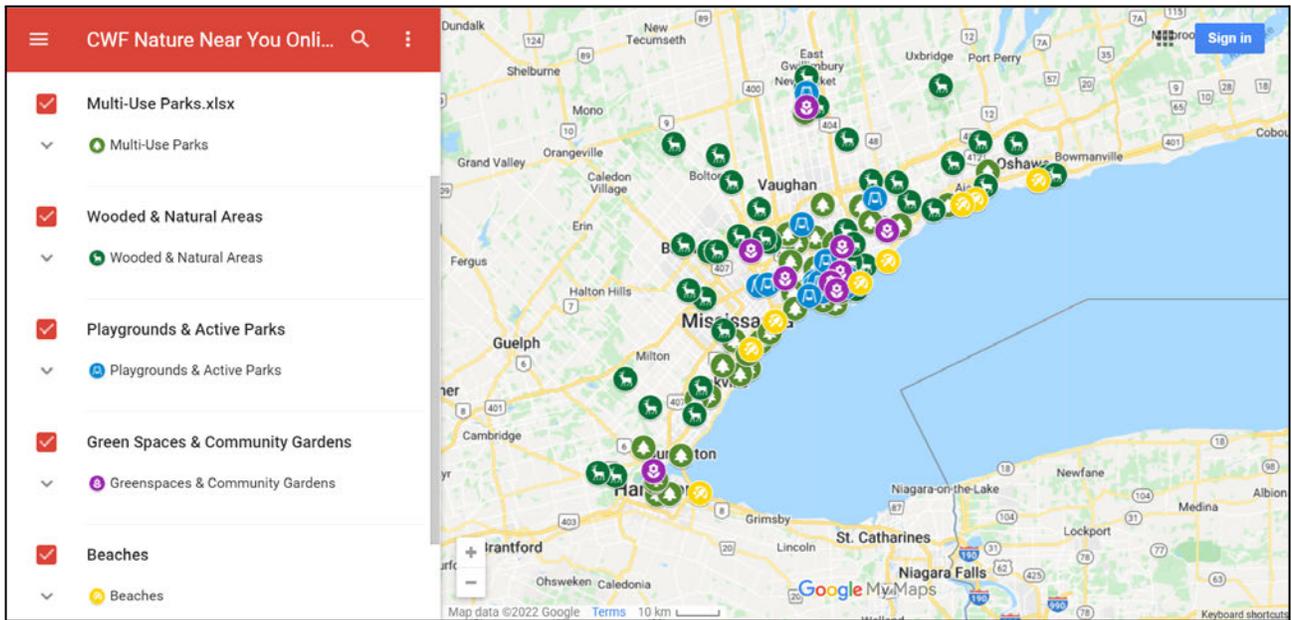
Initial research for this project was conducted in 2021 to identify and categorize urban outdoor spaces in fifteen major cities in Canada. Categories of outdoor space were intentionally broad and included everything from parks and wooded areas to community gardens and playgrounds. Through this research, we were able to identify key nature deficit areas in specific neighborhoods within these urban areas. Unsurprisingly, most of the neighborhoods facing a nature deficit were lower-income areas.

The next step of the community engagement plan will be to identify key family-serving organizations in these neighborhoods, such as public libraries and community centers. This community-centered approach will allow us to gain a better understanding of the family-based programming already happening for parents with young children within these neighborhoods and identify opportunities for collaboration. Shifting the focus from deficits to an assets-based approach will also allow us to tap into the existing strengths and networks within these communities. By connecting with groups that already have ties in the community, we will also be able to engage more local families in conversations about nature in their neighborhoods.

Through community forums and family-friendly events, we will seek to learn directly from families how they feel about nature, what barriers prevent them from spending time outdoors, how often they spend time outside, and what their favorite outdoor activities are. In gaining this deeper knowledge through local needs assessment, the project team will then be able to design specific resources and opportunities to meet each community where they are at. In gaining a deeper understanding of local knowledge, skills, and attitudes, we will be able to design effective resources and programming opportunities that work in each community setting. This may include hosting facilitated outdoor family events, supporting local nature clubs or groups, supplying educational resources (such as nature backpacks) to local libraries or community groups, or even translating existing resources into additional languages so community members will be able to access information more easily. In all cases, the goal will be to build community capacity for nature connection and environmental learning by partnering with others.

From an environmental education perspective, focus will be put on local plant and animal species, with a special focus on those that can be observed within local neighborhoods (e.g. urban birds, native plants, pollinators, and insects). By focusing on local species, the goal is to help urban families realize that nature can be found everywhere, not just in remote national parks.

Since creating opportunities for community conversations will take time, and this is just the beginning of the project, the project team will initially focus its efforts on a small number of neighborhoods and cities. By adopting a pilot model, we hope to increase our own internal capacity and hone our community engagement tools so that we can apply any lessons learned with additional communities and cities in the future.



Map of nature sites in the Greater Toronto Area (GTA), Canadian Wildlife Federation
Courtesy of GTA Nature