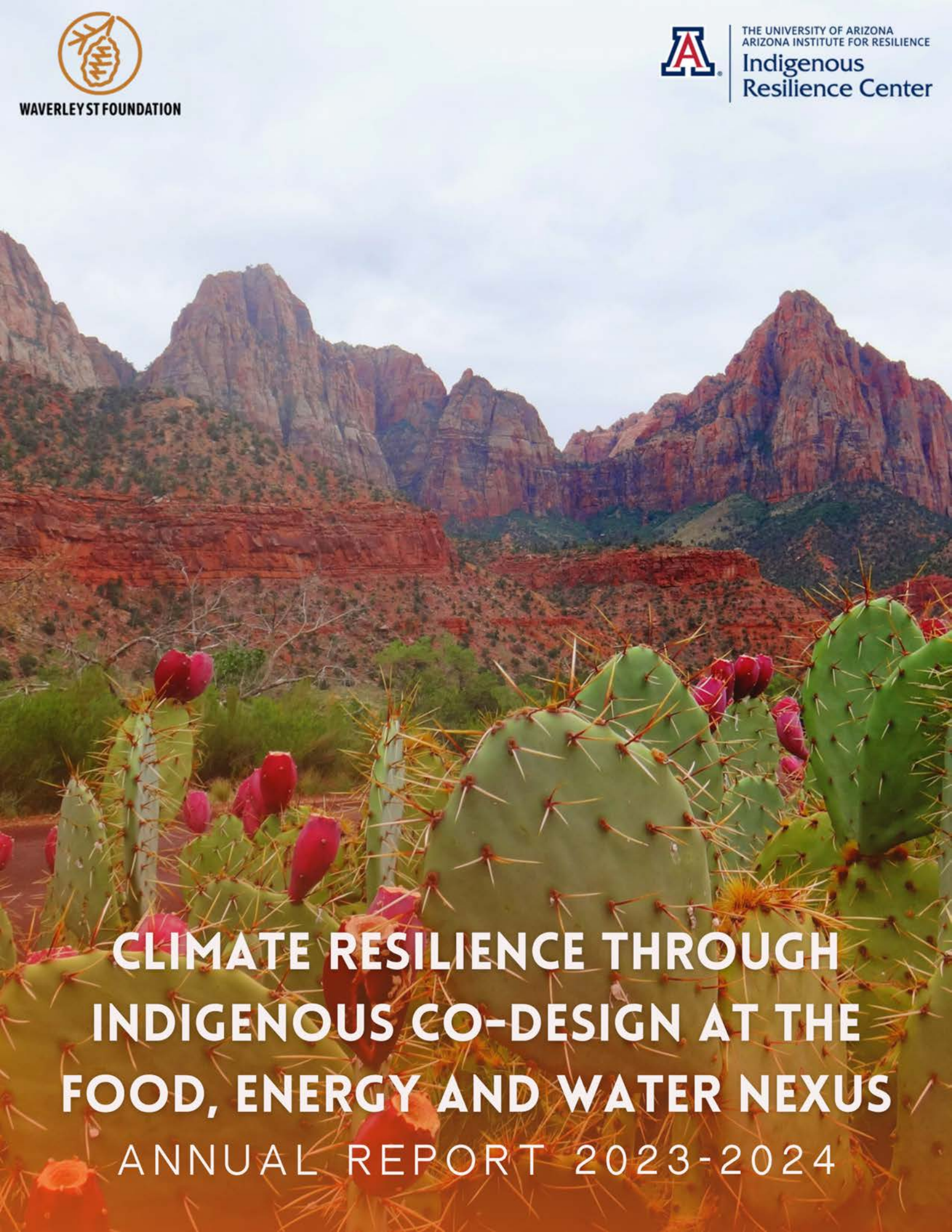
WAVERLEY ST FOUNDATION

THE UNIVERSITY OF ARIZONA
ARIZONA INSTITUTE FOR RESILIENCE
Indigenous
Resilience Center



CLIMATE RESILIENCE THROUGH INDIGENOUS CO-DESIGN AT THE FOOD, ENERGY AND WATER NEXUS

ANNUAL REPORT 2023-2024

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EXECUTIVE SUMMARY

With the support of the Waverley Street Foundation (Waverley), the University of Arizona's Indigenous Resilience Center is beginning its long-term commitment to becoming a Climate Hub. The IRes Climate Hub (the Hub) is utilizing its financial support from Waverley to develop various components of the overall Center. Throughout its first year, the Hub has developed efforts around its four pillars of strategic engagement.

Climate change, pandemics, droughts, and floods are among a list of perturbations disproportionately impacting Indigenous communities and amplifying food, energy and water (FEW) insecurities. Indigenous communities are only 5% of the world's population yet they maintain 90% of the cultural diversity and 80% of the world's remaining biodiversity.

INDIGENOUS PEOPLES ARE DEEPLY CONNECTED TO THE SACRED SPACES ON WHICH THEY HAVE LIVED SUSTAINABLY FOR THOUSANDS OF YEARS AND GAINED A REPOSITORY OF DEEP PLACE-BASED LOCAL KNOWLEDGE.

Tribes have an urgent need to prepare for and respond to climate change impacts and to do so in a way that is holistic and considers cultural and traditional values. There is inconsistency in predicting these impacts because of uncertainties in predicting these impacts because of uncertainty in model projections, lack of community-specific climate and water resources data, and unpredictable interactions among changes, impacts, and factors. Climate adaptation strategies would be most effective if integrated into a broader sustainability agenda rather than as a stand-alone effort. For Native Americans, who have often been left out of discussions, it is also important that adaptation planning be participatory and transparent.

Climate adaptation is directly related to community resilience. Resilience is the ability to maintain the desired structure and function of a Food, Energy, and Water (FEW) socio-ecological system under perturbation, such as that associated with climate change or COVID-19 for example. Yet outside of health metrics, FEW resilience frameworks often fail to consider Indigenous perspectives.

Existing resilience frameworks aimed to co-manage resources and empower Indigenous people still remain part of an unjust and colonial system and fail to consider political, social and cultural perspectives. Engaging Indigenous perspectives in examining Indigenous resilience may improve, for example, sustainable water resources research and management and facilitate addressing FEW insecurities among Native American communities. FEW technologies can augment adaptive capacity to transform system state to desired structure and function thus increasing resilience, at multiple scales (e.g., household, community and Tribal nation).

From 2023-2024, the IRes Climate Hub has worked to address the unmet needs of Indigenous communities while working to develop capacity at a local level and support overall resilience efforts. Through this report, the IRes Climate Hub will provide key highlights of achievements made throughout the year.

OVERVIEW

The Indigenous Resilience Center (IRes) was launched in September 2021 to sustain the successes of Indigenous Food, Energy, Water, Security and Sovereignty (Indige-FEWSS), a program developed and led by Dr. Karletta Chief at the University of Arizona (UA). During its development, IRes secured commitments from UA leadership, and other campus partners to leverage existing strengths and greatly expand its capacity to advance Tribal resilience goals. IRes is a hub for frontline communities leading on climate change and Indigenous resilience and adaptation. IRes seeks to respect and build upon the resilience knowledge that Indigenous communities can offer to all working to address critical resilience and sustainability issues posed by climate change. The vision of IRes is that "We see a world in which Indigenous communities are thriving and adaptable to meet environmental and societal challenges."

Our mission is to center Indigenous ways of knowing into co-designed environmental solutions, and train the next generation of community leaders. We partner with Tribal Nations to co-develop Indigenized placed-based solutions to environmental perturbations that will support Indigenous resilience. IRes builds upon UA's land grant mission and historical partnerships with Arizona's 22 federally recognized Tribal nations, and Indigenous communities nationally and globally. Additionally, IRes builds off of UA's world ranked research in the environment, climate adaptation, and innovative solutions.

In order to solve the environmental challenges that our world faces today, we understand the need to maximize creativity and recognize the need for a workforce that consist of diverse thinkers that also represents the demographics of our world and is inclusive of people from all racial, ethnic, geographic and socioeconomic backgrounds, sexual orientations, gender identities and to persons with disabilities. In IRes, we see a diversified future workforce as key to effectively addressing climate change and reaching sustainable solutions. We regard this as our most important legacy to have contributed substantially to creating such a workforce. As such, IRes is committed to training and supporting the next generation of community leaders to enact change, engage in co-design and respectful problem solving with Indigenous communities in an equitable Indigenous centered manner. IRes develops strong, transdisciplinary pathways for students who seek to engage in Indigenous resilience work and develops powerful alliances with community partners centered on co-design and Indigenous ways of knowing. IRes seeks to decolonize resilience science and train students, researchers, and outreach colleagues to conduct their work using Indigenous knowledge and with respect for Tribal governance, data sovereignty, and laws.

IRES IS PARTNERING WITH THE WAVERLEY STREET FOUNDATION (WAVERLEY) TO:

- Catalyze resources to frontline Indigenous communities and climate leaders.
- Train and support the next generation of climate innovators.
- Mobilize Indigenous youth and place-based partners for advocacy.

IRES IS COMMITTED TO THE VALUES OUTLINED BY DR. SHAWN WILSON OF RESPECT, RELATIONSHIP, RECIPROCITY, AND RESPONSIBILITY THAT ARE FOUNDATIONAL TO THE WORK OF IRES:

RELATIONSHIP guides the pathway to meaningful and deep collaboration and connection. Our framework and guiding principles are focused on establishing long term relationships.

To kindle a meaningful relationship, **RESPECT** must be at the heart of its functionality. Transparency, consistent communication, and respect for place, beliefs, culture, history, language and ways of knowing must be elevated to serve as avenues for respect.

RECIPROCITY grounds the work and commitment to Indigenous communities. Breaking the stigma of research and institutions, IRes recognizes and prioritizes the cyclical nature of collaboration and emphasizes the need for balanced cooperation with partners.

It is the **RESPONSIBILITY** of IRes to elevate sovereignty, self-determination, and Indigenous ways of knowing through our work both internal and external. It is the responsibility of the Center to care for and nurture the relationships and collaborations that have and will be in place.

IRes understands that place-based work with, and effective solutions for, Tribal partners is relational at its core. This means place-based engagement must precede resilience planning, research, education and outreach. It must be authentic, trust-based and ongoing, and mindful of a history of unsuccessful, extractive Tribal engagements that must be understood, acknowledged and overcome –not only by universities, but by all who seek to work for and with Tribal partners.

Planning for Tribal resilience projects must always consider the importance of first-step relational engagement, the considerable time and effort involved in such genuine ongoing engagement, and the need for Indigenous leadership to guide all partners to assure they understand these fundamental obligations.

Place-based Tribal resilience solutions also must be transdisciplinary insofar as they entail science, public health, agriculture and engineering (among other disciplines), must grasp Indigenous knowledges and governance principles, and must appreciate the complex interactions of Tribal, federal and state law and policy (e.g., allocation of water rights) that inevitably affect climate change policy and solutions. IRes thus is strategically located in UA's Arizona Institute for Resilience (AIR) – an Institute that is committed to transdisciplinary, "non-siloed" and place-based STEM work as the proper model for UA resilience research, education and outreach.

MEET the STAFF

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Graduate Researcher

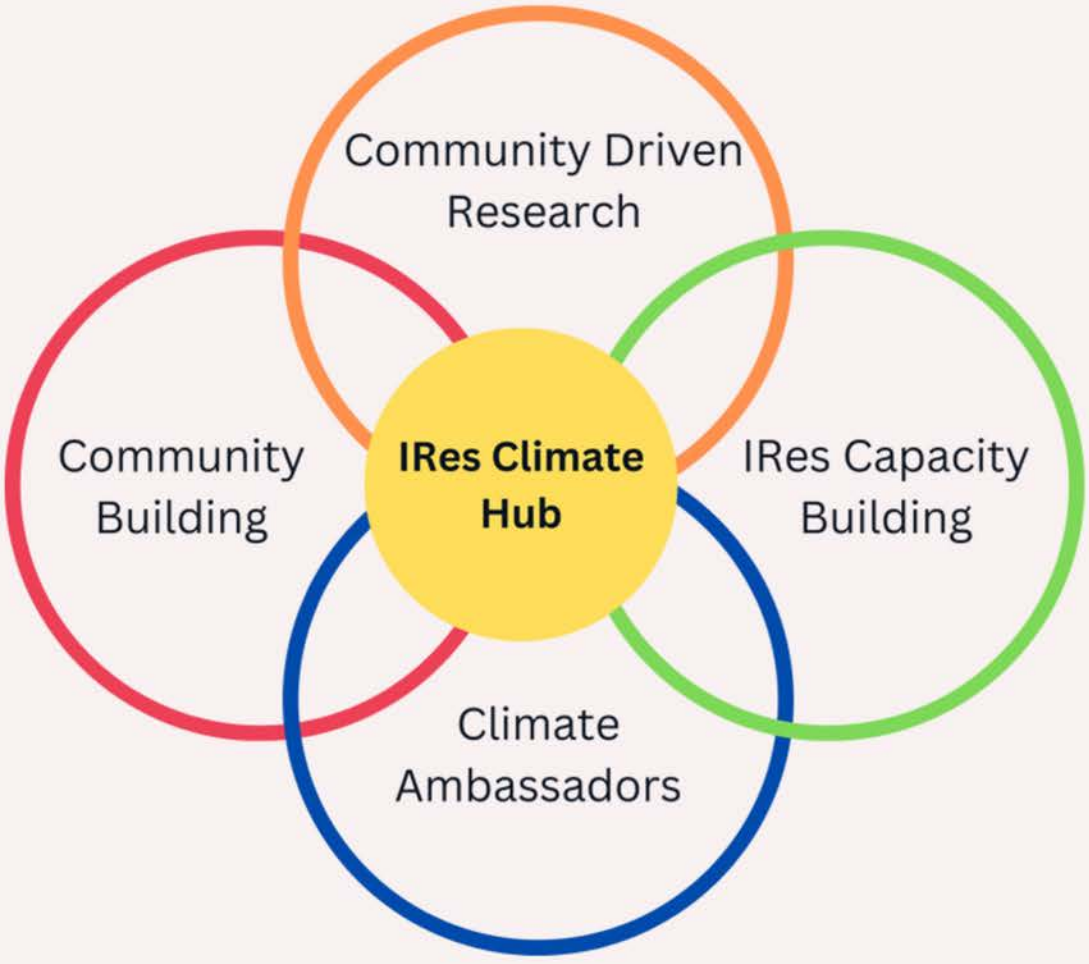
ANDEE LISTER

Postdoc Researcher

THE BUILDING OF THE IRES CLIMATE HUB MODEL

To position itself as an Indigenous Climate Hub, IRes has developed a model that focuses on 4 pillars of strategic engagement and commitment to resilience.

Through community capacity building, the Hub has issued mini-grant awards for community organizations, Tribal entities and non-profit organizations to address climate impacts. Additionally, the Hub has provided grants training, travel, stipends, and training support for community members. With its effort to assist in empowering our community, the Hub has also initiated steps to engage in policy development in various sectors to address the inequities that exist in Tribal communities.



Continuing its effort to engage in community driven research, the Hub will allow IRes core faculty members to continue projects with specific Tribal nations. Additionally, IRes has developed efforts to implement an official system to create a Faculty Affiliation process and award faculty with start-up funds for pilot research projects in respective communities.

As a key component, IRes has committed resources to build its own capacity to address the needs of Tribal communities. Waverley's support has allowed IRes to leverage funding for salary and operational support. Additionally, as a prime deliverable, the IRes Hub has started to develop a community toolbox/resource portal that will allow Tribes to access data, house programming information, and provide technical assistance.

Lastly, at its foundation, IRes has utilized funding to support student and community focused programming. The Climate Ambassador Programs, serves as a vehicle for IRes to focus its efforts on student centered programming while including youth and community members with a particular emphasis on youth involvement.

All four components of the engagement model for the Hub work together in a holistic approach to address community resilience in an effort to build capacity, address climate change, and empower community members to become the best advocates for themselves and their respective Nations.

COMMUNITY

BUILDING

COMMUNITY BUILDING

IRes seeks to support the resilience of Indigenous communities through its Community Environmental Impact Award, aimed towards strengthening the Hub's mission of centering Indigenous ways of knowing into co-designed environmental solutions and training the next generation of community leaders. This year, seven community partners were each awarded $50,000 grants funded by the Waverley Street Foundation.

COMMUNITY GRANTEES INCLUDED:

- Black Mesa United
- Hopi Tutskwa Permaculture Institute
- HUBitual Learning & Outreach
- IndigePlanted, LLC
- Nalwoodi Denzhone Community
- New Mexico Social Justice & Equity Institute
- Sixth World Solutions

BLACK MESA UNITED: A JUST TRANSITION POST-COAL MINING PLAN FOR BLACK MESA UNITED

Black Mesa United
Dziłíjiin Bee'Áhóta'

The Black Mesa community on the Navajo Nation has been the central location of a large-scale coal mining operation operated by Peabody Western Coal Company (PWCC) that installed infrastructure to operate including the development of a large-scale conveyor built to transport coal, high voltage transmission lines, industrial water lines, facilities for its business services, roads, etc. In part of the reclamation process, any infrastructure that has been put in place has to be removed if the Navajo Nation or its enterprise the Navajo Tribal Utility Authority does not request for that infrastructure. There is a lack of dialogue between the residents, Peabody Western Coal Company, Navajo Nation and the Department of Interior's Office of Surface Mining Reclamation and Enforcement. As a community organization we are acting as covenier to ensure there is a beneficial transition of which is of best interest of the community and its surrounding communities.

The goal of the project is to restore and heal the community while enhancing a just transition for the community. An important focus area is "partnership building" to support the community's vision through capacity building to rebuild a more sustainable community that incorporates climate resilience through a culturally sensitive manner.

Goal objectives include the following:

- Develop a comprehensive community engagement strategy to ensure all residents are informed of post-mining.
- Update Community Demographics of residents using census data and on the ground GPS data.
- Develop an online tool that encompasses maps of roads, Peabody Western Coal company infrastructure, water infrastructure, soils, residences, and grazing districts that will be utilized during the application process for other post-mine just transition grants and provide residents with a visualization for planning purposes.
- Update goals and objectives for the post-mine plans that were developed from 2005.

BMU has updated the goals and objectives through a series of workshops conducted this summer and August and September 2024 and is currently underway in developing a 2025 land use report, "Balancing Restoration, Conservation, and Growth: Dzilijiin's Community Driven Land Use Plan for Peabody's Black Mesa and Kayenta Mines Leasehold Area" (working title). This project is being carried out by BMU sector leaders with the assistance of consultants JJ Clacs & CO.

The goal of this project is to develop a report that incorporates a post mine transition plan. The objective of this project is to bring together residents of the Black Mesa community to examine options for infrastructure buildout, enhance community engagement, outline community needs, and consider opportunities for economic development.

Key activities for this project are to host a series of community meetings and workshops, presentation of the land use plan followed by a public comment period. BMU is providing time and space for the community to attend these key activities to ensure transparency and provide opportunities for the community to provide input.

- Host work sessions and public meetings with key organizations and stakeholders.

BMU has held a number of sector meetings (i.e. White House, White Grass, Yellow Water, Great Springs, Sand Springs, and Sage Brush Springs) and all sector works sessions see Appendix B of dates. In addition to these meetings we have had several meetings with key organizations/entities such as Grand Canyon Trust, Nizhoni Ani, Western Clean Energy Campaign, Hooghan LLC, Black Mesa Review Board, Indian Health Services, Navajo Nation Minerals, Navajo Nation Division of Natural Resources, Navajo and Hopi COVID Relief, Navajo Department of Transportation, Indian Health Service, Navajo Department of Water Resources, Navajo Tribal Utility Authority, Red Cross, Navajo Division of Transportation, etc.

- Develop plans to secure Peabody Western Coal Company assets to renovate as a community hub.

BMU strives to strategically organize to govern land development and achieve the goals of the community members. BMU members know firsthand the need to protect, reserve and restore environmentally sensitive areas on the Black Mesa. BMU perceives the need for vital infrastructure, residential, commercial and recreational needs for the community to thrive in a competitive world.

- JOANNA AUSTIN MANYGOATS, COMMUNITY MEMBER

HOPI TUTSKWA PERMACULTURE INSTITUTE:
HOPI TUTSKWA LAND STEWARD FELLOWSHIP

The **Hopi Tutskwa Permaculture Institute (HTPI)** is an Indigenous-led non-profit organization that is based in Kykotsmovi Village on the Hopi Reservation. We offer holistic community education that is rooted in Hopi culture, permaculture practices, and community empowerment. We work to address a wide range of issues that impact Hopi people, including growing culturally significant food, stewarding traditional seeds, restoring local watersheds and foodsheds, developing sustainable housing, and renewable energy, developing business opportunities, and supporting regional Land Stewardship.

The Hopi Tutskwa Indigenous Land Steward Fellowship supports capacity building among land stewards in the following ways: skill building, training, mentorship, and financially via an award. This opportunity strengthens pathways for community leaders to gain the skills and training to continue the process of rebuilding healthy, vibrant, culturally sustainable and regenerative tribal communities. The Hopi Tutskwa Indigenous Land Steward Fellowship is an opportunity for land-based practitioners to share their vision of land stewardship, to identify and invest in their continued land-based work, and to provide opportunities for fellows to strengthen their personal healing and wellbeing. The Hopi Tutskwa Land Steward Fellowship supports Indigenous Land Stewards from throughout the Indigenous Southwest. This Fellowship is designed to support, uplift, and recognize visionary leaders who are actively engaged in generative land-based solutions within their communities.

Applicants come from all life experiences and professional backgrounds, working or aspiring to work towards Indigenous land-based stewardship practices that bring healing to communities and revitalize Indigenous culture, tradition, language, and ways of life. The program upholds Hopi Tutskwa Permaculture's values, including recognizing the interconnectedness of all living beings, continuing intergenerational practices to strengthen community while working together to reinforce Nami'nangwa and Sumi'nangwa, Hopi cultural values that promote cooperation, reciprocity, respect, resilience and kinship.

HUBITUAL LEARNING AND OUTREACH:
ANALYZING THE ENVIRONMENTAL IMPACT OF ILLEGAL DUMPSITES ON THE NAVAJO RESERVATION

On the Navajo Nation, only three waste management companies serve communities, compelling residents to travel up to 60 miles for waste disposal in border towns. This situation, exacerbated by transportation challenges, off-grid living, and remote locations, has led to illegal dumping, normalizing the scattering of waste across the reservation. However, crucial information on dumpsite locations, their frequency, persistence, and environmental impact must be included. HUBitual Learning and Outreach, a local non-profit, aims to address this issue by collaborating with scientists and utilizing GIS tools to identify dumping sites. The project includes the development of assessment protocols and community engagement strategies for clean-up efforts. Our overarching goal is to catalyze community action and raise awareness about the impact of illegal dumpsites on the ecosystem, food sources, and water sources.

The project adopts a comprehensive approach to environmental stewardship and priorities include training initiatives, peer-to-peer exchanges, and collaboration with professionals. In its planning and coordination phase for over four years, the project prioritizes three key areas: community collaboration, environmental education, and youth empowerment. The collaborative, educational, and youth-centric approach ensures the project's viability and long-term success. HUBitual projects are uniquely informed by an Indigenous perspective, with project leads being members of the community they serve. Recognizing the impact of generational differences and historical trauma on our community, we strive to improve lifestyles and enhance the quality of life for all residents. This year, HUBitual Learning performed more outreach and in-the-field assessments to determine the level of priority and community concern. These efforts have gained more traction at the Tribal Chapter level in clean-up strategic planning.

Support from the *Waverley Street Foundation* and *the Indigenous Resilience Center* has allowed HUBitual to curate its approach to addressing environmental challenges head-on at the community level. HUBitual team members and volunteers have successfully cleaned up illegal dumpsites, organized community litter clean-ups, and educated others on preventative measures. These efforts are about cleaning up and safeguarding our environment for future generations and holding ourselves accountable as stewards of this land.

HUBitual's outreach efforts included presenting to local Chapterhouse representatives to increase knowledge of these dumpsite initiatives and produce more active volunteers to assist. HUBitual formed collaborations with Tribal departments, regional grassroots efforts, and community leaders with active objectives involving climate change and environmental justice. Discussions explored the current waste management initiatives that some Chapters have initiated, the need for cost sharing, and the need to emphasize recycling programs and knowledge sharing at the community level.

Initially, HUBitual's Youth Empowerment Program consisted of three high school individuals in attendance to assist leads with the project and procedures associated throughout the first half of the year. During the summertime, HUBitual hired two more individuals to aid in projects – five youth interns thus far in 2024. Tribal departments, regional grassroots efforts, and community leaders with active objectives involving climate change and environmental justice. Discussions explored the current waste management initiatives that some Chapters have initiated, the need for cost sharing, and the need to emphasize recycling programs and knowledge sharing at the community level.

"The environmental stewardship program is significant as it demonstrates to our community the importance of advocating and working together to increase the longevity of our environment. Growing up on the reservation, there seemed to be a lack of community members that joined efforts on various issues, including trash pick ups. As a member of my community I've always wanted to be a part of the bigger picture when it came to advocating for the importance of plants and wildlife. As well as, showing my appreciation for the environment by participating in clean up efforts. Now, being a lead within the project I'm excited because we can actually make a change in our community for the better and hopefully inspire others to join in our initiatives."

-MONIQUE NAKAI, PROGRAM DIRECTOR, HUBITUAL LEARNING & OUTREACH

NALWOODI DEZHONE COMMUNITY (NDC):
SAN CARLOS APACHE REGENERATIVE SILVOPASTURE PLANNING AND DESIGN PROJECT

The mission of the Nalwoodi Dezhone Community (NDC) is to cultivate a community that enables personal holistic transformation. Since its inception in 2012, NDC has developed programs to include food security and community revitalization for all ages. NDC has taken the responsibility to create a food system that leads to greater health and food security on the San Carlos Apache Reservation. NDC works to apply regenerative agriculture principles to produce nutritious foods while healing the land. Through Tribal and non-Tribal partnerships, the focus of NDC is to bring greater holistic health to the San Carlos Apache people.

The San Carlos Apache Regenerative Silvopasture Planning and Design Project is Nalwoodi Dezhone's Community's next step to maximize the sustainable carrying capacity of the land to nurture food sovereignty. Silvopastures deliberately integrate trees and grazing livestock on the same land. Approximately 40 acres of the land being stewarded sits treeless due to clearing efforts made decades ago. Starting with this planning project, this area is set to once again become treed with crop-yielding species that can feed livestock and people. The rotation of livestock in this area will continue the symbiotic processes already utilized to restore the land while producing exceptionally nutritious foods.

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During the planning design stage, the existing well will be evaluated for sustainable production rates, the water will be tested for safety, and a conscientious silvopasture plan that includes infrastructure and plant selections which utilize resources efficiently will be completed. Plan completion is expected to occur in early to mid-2025 with plan implementation to follow.

NDC has had this project in mind for a number of years. Support from the Waverley Street Foundation and the Indigenous Resilience Center is enabling the project to move forward from the "idea stage" into the "planning design stage" with a goal of implementation in the near future. Funding has enabled internal design meetings, meetings with external partners, travel, employee technical training, the identification of contractors, technical expenses, and plant selection research. Construction of the silvopasture will lead to an increase in overall food production while adhering to NDC's values of Tribal land stewardship.

"We are blessed to be able to grow crops that are culturally significant to San Carlos. The Apache giant squash, Apache red sugarcane, and Apache red corn are a few that are highly requested. Our culture is connected to our food and we are introducing them to a new generation."

- NDC

INDIGEPLANTED, LLC: PLANTED RELATIVES

INDIGE PLANTED

The mission of IndigePlanted, LLC is to encourage others to reconnect with plants and the growing process from an Indigenous perspective. As part of its core values, IndigePlanted works to support communities in developing intentional educational materials that respectfully incorporate language and cultural components. IndigePlanted believes that representation is important when creating culturally appropriate and community-centered health, nutrition, and garden education.

The aim of IndigePlanted's Planted Relatives Projects is to: 1) develop culturally relevant curricula for Indigenous communities and Tribal schools to expose students to STEAM fields and careers and, 2) provide a guide book for Indigenous growers and communities to implement both traditional and hightech food production solutions that are inclusive of climate and natural resource challenges many communities face.

Additionally, the Planted Relatives Project will respectfully incorporate aspects of Indigenous culture, art, and perspectives to demonstrate the connections between climate change, food systems, food sovereignty, and relatives (seeds, water, land, and plants). The backbone of the curriculum will come from team members' expertise, education, and lived-experiences in working with indigenous communities and programs. The Planted Relatives Project will be the first equitable STEM curricula designed to increase access to technical knowledge for Indigenous students, educators, and communities to support Indigenous resilience, agriculture, and ways of learning.

The goals for the Planted Relatives Project are to develop meaningful educational resources centered on STEAM fields including biology, plant physiology, agriculture, and hydroponics to respectfully integrate culture, food justice, and community centered climate solutions through academic learning opportunities and hands-on activities for 7th-12th grade students. Additionally, a grower's guidebook will be developed to provide Indigenous individuals, farmers, and organizations with information to encourage implementation of traditional and high-tech agricultural growing methods that connect science, crop production, and food sovereignty efforts to promote access to locally and community centered foods.

KEY ACTIVITIES:

- Develop and maintain current relationships with Tribal schools, Tribal departments, and educators to assess immediate needs for hydroponic educational resources.
- Develop proofs of educational resources and growers guidebooks for review and feedback from tribal communities and educators.
- Distribute educational resources to Tribal schools and Native-led organizations.

Funding from the Waverley Street Foundation and the Indigenous Resilience Center supports IndigePlanted with content development and graphic design by consulting personnel which includes one controlled environment agriculture professional, one biosystems engineering professional (PhD), two Indigenous educators, and one Indigenous graphic designer. Additional work completed by these team members include administrative tasks, project management, and community relationship management. Expected additional expenses include purchasing program software for graphic design, data storage, marketing materials and fees, and minimal accounting tasks to ensure the project is moving forward.

MCKINLEY COMMUNITY HEALTH ALLIANCE:
COMMUNITY BASED NATURAL LEADERS LEARNING CIRCLE

The McKinley Community Health Alliance (MCHA) was formed in 1998, to address Medicaid Managed Care's effect on recipients in McKinley County, New Mexico. In July 2004, MCHA and the McKinley County Maternal Child Health Council merged. As the Counties Health Council, MCHA's focus and definition of "health" has broadened immensely since its formation and believes that the health priorities/concerns of McKinley are best addressed collaboratively with the community.

Established as an open non-hierarchical participatory advocacy organization, MCHA is a working partnership of more than 100 diverse community members including; community advocates, cross sector agency stakeholders, health & human service providers/workers, non-profit organizers, county, tribal, and other entities throughout the community of McKinley County, New Mexico. It is MCHA's mission to affect and facilitate change in systems that perpetuate health, education, economic and environmental inequities by engaging individuals and agencies to understand and address the underlying "root" causes of poverty/income inequity, institutional racism and multi-generational trauma.

Primarily, MCHA serves as a hub in the McKinley Community for multi-disciplinary/cross-sector collaboration among its membership as well as an initial point of access to information and/or engagement in community driven health priorities/concerns.

The Community-Based Natural Leaders Learning Circle is a project that aims to identify and prioritize environmental justice/resilience and climate adaptation issues in collaboration with the community using an Indigenous Health Impact Assessment (HIA) tool. The project is led by a group of facilitators from the McKinley Community Health Alliance who are trained to use the tool and facilitate discussions. The next step is to use the Thrive Rural Framework, Aspen Institute, and Justice40 initiative to develop a plan of action, including a cohort, to address the identified issues. Land-based curriculum will be utilized to address preparation for climate adaptation from an Indigenous Radical Public Health solutionary-centered lens. The data from the HIA will help to identify the top three policy recommendations and three implementation plans. The training can be duplicated to share with local grassroots communities, Navajo Chapter communities, and other interested partners.

The Natural Leaders Cohort goal is to equip Becenti Land Use Planning Committee and other McKinley County community members and leaders with critical information on funding opportunities, community-based participatory research workshops, and social and physical infrastructure planning and development. The fifth community planning meeting is scheduled for October 2024. Zunneh-bah Jim, Community Organizer along with Anna Rondon, Project Director have planned the past four workshops with the Becenti Chapter Secretary, Arlene Arviso and Beverly Becenti, President, Community Land Use Planning Committee and attended by the chapter president and interested community members.

To date, the community has identified 3 top priority projects for the Thrive Rural Framework worksheets and Justice40 templates for federal funding. An important factor identified is having access to information on current historical federal funding referred to as Justice40, where 40% of federal funding is to be focused on historically underrepresented and underserved communities. Indigenous peoples and people of color need to have equity access to information that is not being provided by the local decision makers.

"I had no idea of the Justice40 funding sources, and feel that the Navajo Nation is not providing this important information to the Navajo Chapter governments. The past learning sessions have been invaluable because we have water projects and other developments we want to see for our community."

ARLENE ARVISO, BECENTI LAND USE PLANNING COMMITTEE

Measurable results are based on the increased interest and participation of the Cohort. Attendance of the planning meetings and work sessions have increased by 20% in participation from May 2024.

SIXTH WORLD SOLUTIONS: HOME-SCALE PURIFICATION OF CATCHMENT WATERS AT OFF-GRID LOCATIONS IN NAVAJO NATION PROJECT

Sixth World Solutions (SWS) takes a systems-based approach to develop socio-economic solutions for Indigenous Peoples, Nations, and communities. The organization centers community leadership and rights-based approaches for regenerative, place-based solutions. Guided by Indigenous principles of kinship, community, environmental responsibilities, traditional principles of leadership, and strategic planning modeled after seventh-generation philosophy, Sixth World Solutions aims to create models of development to meet complex challenges through community leadership, capacity building and alliance building for transformative change. It is their belief that the key to creating pathways to regenerative economies and self-sufficiency is through community-led solutions based on centering Indigenous knowledge systems, sciences, wisdom, livelihoods and practices.

THE HOME-SCALE PURIFICATION OF CATCHMENT WATERS AT OFF-GRID LOCATIONS IN NAVAJO NATION PROJECT is a continuation of ongoing cooperative efforts involving Sixth-World Solutions (SWS), Dine' College (DC), and the University of Arizona (UA) to advance off-grid, solar-powered water purification in the Navajo Nation. The work extends beyond previous efforts on behalf of off-grid water provision to include:

- detailed analysis of predominant water-quality issues (both microbiological and chemical) specific to those who haul water, sometimes from informal sources, for domestic uses,
- measurement of water quality improvements arising from available off-grid treatment processes, and
- direct community participation in process evaluation.

SWS is a Navajo-staffed organization serving Navajo needs at the food-energy-water (FEW) nexus, particularly in relatively remote parts of Navajo Nation. Many such residents are without in-home water and electrical services—in part due to low population density and the cost of service extension to individual homes. This project work builds on personal relationships with individual Navajo families resulting from SWS installation of home-scale rainfall catchment systems during the Covid-19 pandemic.

A four-phase effort is envisioned to:

1. Establish the magnitude of water quality issues (microbiological and metals contamination) at representative, off-grid homes.
2. Evaluate alternatives (membrane filtration, ultraviolet irradiation) for solar-driven, point-of-use water treatment.
3. Construct, install, and monitor performance of home-scale, demonstration systems.
4. Establish best treatment practices with recipients of treatment units.

The project aims to advance objectives related to partnership building, community resilience, technical capacity building, and practical water/energy research on behalf of off-grid civil services.

Particularly in low-population-density areas, COVID-19 motivated SWS efforts to collect rainfall from rooftops for home-scale use. Such efforts helped satisfy the water supply needs of families served. Previous work could not, however, generate water quality data relevant to water collection, off-grid treatment, or storage pending use. That work is continued here with modest assistance from UA and DC.
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Project Activities Are Designed to Satisfy the Following Primary Objectives:

- Measure specific pathogenic and indicator bacteria in rooftop catchment waters and other informal water sources, both before and after storage pending use.
- Evaluate alternative methods for inactivating bacterial contaminants in catchment waters based on efficiency, cost, convenience, and public acceptance.

Support from the Waverley Street Foundation and the Indigenous Resilience Center is enabling the project to move forward and engage with the community to share the information we gather from this project. All water quality results will be shared with immediate families served by in-home water treatment devices.

Additionally, report findings will be shared with the Navajo Nation elected representatives and appropriate chapters with permission by community members. SWS has been working with local knowledge holders to identify alternative ways to share data, taking advantage of technical advances in the use of QR codes and social media posts. As the project progresses, we will remain vigilant, finding additional ways to share information with the community at large.

TRAININGS

Throughout 2023-2024, the IRes Climate Hub worked to co-convene opportunities for training, community dialogue and overall to assist in building out community capacity. IRes supported gatherings based on the listening sessions and needs as outlined by tribal representatives and community members.

SWAF 2024

The 2024 Southwest Adaptation Forum (SWAF) was held in partnership with the USDA Southwest Climate Hub, the USGS Ecosystems Mission Area/Southwest Climate Adaptation Science Center, Southwest Decision Resources, the Southwest Fire Science Consortium/Arizona Wildfire Initiative, the Department of Defense Strategic Environmental Research and Development Program, and the USFS Rocky Mountain Research Station. This regional forum was co-convened in Tucson, Arizona and gathered 165 participants from the southwest region, including a strong delegation from tribal partners. This event provided an opportunity for managers, stakeholders, and educators to come together to discuss the current issues facing the Southwest and how we might adapt to them while considering how unity between different levels of management could help alleviate these challenges. Additionally, the forum provided opportunities to review the National Climate Assessment, host Solution Cafés, provide training with adaptation tools, tour local community projects, engage in dialogue around nature-based solutions, explore cross-boundary collaboration and prepare accelerating adaptation funding opportunities.

2024 U.S. Indigenous Data Sovereignty & Governance Summit

The 2024 U.S. Indigenous Data Sovereignty & Governance Summit brought together Indigenous scholars, Tribal leaders, data practitioners and allies in a forum dedicated to moving Indigenous self-determination on data governance forward. As part of the ongoing conversation for the Indigenous Resilience Center and the Climate Hub, this forum highlighted important work surrounding data governance and how its application is critical to tribal sovereignty and resilience work. Led by the U.S. Indigenous Data Sovereignty Network, this gathering provided the opportunity for over 400 attendees to engage in Tucson, Arizona on the lands of the Pascua Yaqui Tribe and more than 200 individuals who joined in remotely. Overall, the attendees had a choice of more than 50 oral presentations, 18 roundtable discussions, nine lightning talks, and six "unconference" sessions to engage with.

2024 National Tribal & Indigenous Climate Conference

In early September 2024, the **Institute for Tribal Environmental Professionals (ITEP)** convened the third Biennial National Tribal and Indigenous Climate Conference (NTICC). This year's theme was Shared Responsibility for Indigenous Climate Resilience. The IRes Climate Hub was excited to join in the conversation as a strategic partner and collaborator for the event. During this time, relatives, partners, and colleagues from across Mother Earth gathered to share their knowledge about their efforts to address the climate impacts on their communities, natural environment, and non-human relatives. This included the sharing and honoring of Traditional and Indigenous Knowledges while ensuring that these knowledges belong to the Indigenous communities and people from where and who they came from. With over 800 attendees in person and online, 275 tribes, villages, and Indigenous communities represented and over 20 countries represented, this was an opportunity for the Climate Hub to present itself formally to collaborators from across the world. Additionally, the Hub was able to extend an invitation for seven of its grantees to attend the NTICC. IRes staff and grantees were able to engage in full dialogue about project progression and work to establish a support network for future collaboration among cohort members.


COMMUNITY DRIVEN
RESEARCH

COMMUNITY DRIVEN

RESEARCH

Three University of Arizona IRes faculty members have portions of their work funded by the Waverley Street grant. These faculty members are Dr Joseph Hoover, Dr. Michael Kotutwa Johnson and Dr. Vasiliki (Vicky) Karanikola. Their contributions to the new IRes Climate Hub are described below and centered on Community Driven Research.

Dr. Hoover contributes to the IRes Climate Hub by centering his work in Community Based Participatory Research (CBPR) working with rural and Indigenous communities. In CBPR, community members actively participate in setting the research agenda and questions, making decisions throughout the process, and being part of reporting out results. Importantly, he adheres to the principles of data sovereignty, with Indigenous communities determining what results, if any, are released to a wider audience.

Dr. Hoover's work location for the Waverley Street grant is in Northeastern Arizona, on the Navajo Nation in Nahata Dziil, Arizona (a Navajo chapter within Apache County) and Sanders, Arizona (a census designated place). This land is home to both Indigenous and non-Indigenous populations and is known for livestock ranching.

Dr. Joseph H Hoover, PhD

ASSISTANT PROFESSOR, ENVIRONMENTAL SCIENCE, UNIVERSITY OF ARIZONA

The area has been heavily impacted by the legacy of uranium mining, affecting the safety of its water supply. In 1979, a uranium mill tailings pond operated by the United Nuclear Corporation unexpectedly released several tons of uranium-contaminated wastewater into the Puerco River. That water flowed downstream, impacting the water resources of several Northern Arizona communities, many of them Indigenous, including the Sanders area. For several years after the spill, the mine continued to dewater into the river, causing concerns for many residents. Dr. Hoover and his students are working with Sanders residents to address legacy issues from this uranium mining disaster using the tools of spatial modeling with field data collection to answer the questions communities pose.

Over the years, many groups and organizations have tested the water wells in the area. As is typical, the data sets have not been combined or made accessible to the communities the data was collected from. Without this data, communities do not know the safety of their water supply or how to respond to climate change and plan to mitigate it. Dr. Hoover's work changes this completely. First, he starts by co-developing the research questions and frames the work by the community priorities. Next, he engages often with the community and leadership to hold "water workshops." He is present in the community with his team of students and fellow researchers every couple of months. The importance of "face-time", or being present in person, is essential for building the trust needed to engage effectively in CBPR.

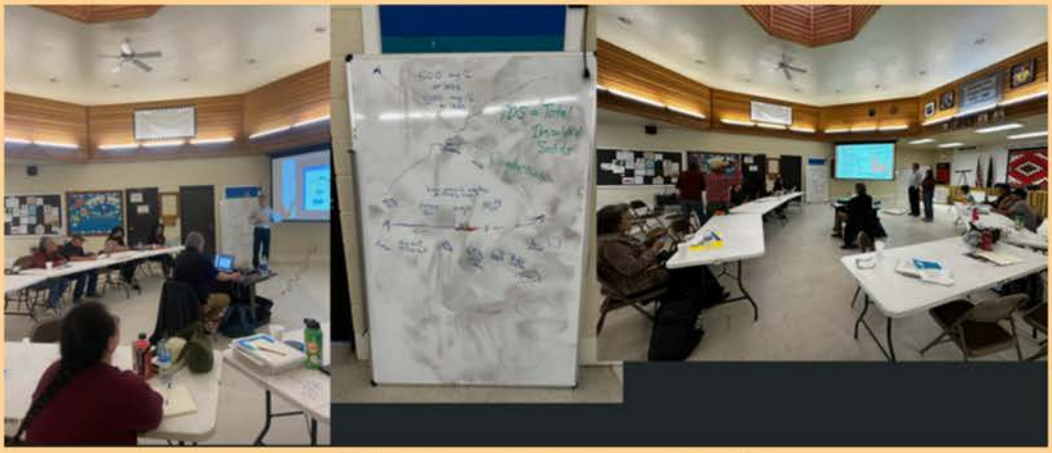
Describing the work done through the Waverley Street Funding, Dr. Hoovers states:

Our group developed a relational database to house existing and newly generated water quality data. We pulled data from multiple existing sources, including the US Water Quality Portal, and the states of Arizona and New Mexico, yielding several million data records. A student is now working up a database interface to facilitate interacting with these data in a quick and straightforward manner. We developed data workflows to streamline checking data for quality control issues, visualization, and statistical summary. This is a critical step because the community-based water project necessitates sending samples to five separate labs, each with a different reporting procedure. To ensure we can track data back to individual samples we needed a process to clean and summarize the new data in a uniform manner. This process was fully established by the end of Summer 2024.

We visited the community site four times in the last year for community meetings and sampling. Over the last 12 months we worked with community-members to identify and then sample water sources to better understand the geographies of uranium groundwater contamination. We sampled 29 wells, and have received most results but not all. We organized the first of several water workshops to discuss the community's water experience

and their future plans. Our team successfully held a first "water workshop".The workshop began with a three hour listening session, where we were able to gather community concerns and hear about resident priorities. The second half of the day was filled with an educational session on basic water quality and hydrogeology concepts, with plenty of time for question and answer. During our first workshop, it was clear how much water meant to the community, with attendees stating "water is life" and "water is power". Workshop participants were keen to learn more about regional water quality issues to solve the problems they have identified from their lived experiences. In particular, attendees at the workshop were keen to switch out one water source at a local school which contained high levels of uranium with another water source which is of much higher quality and void of high metal concentrations. Future plans will include more outreach to non-leadership and make use of multiple gathering venues in the community. We plan to host more workshops and continue discussing climate adaptation for water and ranching, and other issues that may emerge during conversation.

The Waverley Street funds are allowing Dr. Hoover to collaborate authentically and in co-leadership with the Navajo and non-native communities in northeastern Arizona, in order for these communities to prepare for climate change impacts and the enduring detrimental impact from legacy mining by non-Indigenous people on their lands.



WATER WORKSHOP

WATER SAMPLING

Dr. Vicky Karanikola, PhD

ASSISTANT PROFESSOR OF CHEMICAL AND ENVIRONMENTAL ENGINEERING, UNIVERSITY OF ARIZONA

Dr. Karanikola is known for her work in Community Driven Research contributing to the IRes Climate hub in this way on two essential projects. One of these projects is also a collaboration with Dr. Hoover's work on the Navajo Nation. She has also contributed to the focuses of IRes Capacity Building and Community Building through the Waverley Street grant. Similarly to Dr. Hoover, Dr. Karanikola uses Community Based Participatory Research to focus on answering community questions and having the community drive the research by their priorities. All work in Indigenous climate resilience must recognize and honor the relationship between Indigenous people and water. This relationship goes beyond simple measurements most Western scientists use and considers the cultural relationship with water. In finding co-developed solutions, Dr. Karanikola addresses water quality and the cost economics to sustainably and affordability provide a safe rural drinking water supply.

Prior to COVID-19, Drs. Karanikola and Chief were co-designing and co-developing with individual families and communities, off grid water treatment systems for rural areas of the Navajo Nation. These units were solar powered and designed to treat for the unique water quality conditions of the area. By frequent consultation and in-home testing with the potential users of the units, they were able to take off the shelf parts, and design units at the household scale, maintainable by household members. The units could eliminate the need for long distance and frequent water hauling by many Navajo families, and the use of non-regulated water supplies for drinking and cooking, just because they were closer sources of water. The Waverley Street grant has been key to Dr. Karanikola being able to expand and continue that vital work.

During this year Dr. Karanikola has received a 1-month summer salary support that has enabled her to lead community-based research in the Karanikola Optimized Research for Environmental Sustainability (KORES) Laboratory. The first project is testing the disinfection performance of Solar Ultraviolet (SUV) systems for off grid water supply. Her team identified the need for disinfection systems on the Navajo Nation based on the following:

- **RURAL WATER SOURCES ARE CONTAMINATED MORE FREQUENTLY THAN URBAN AREAS, 41% VS 12%.**

- **PREVIOUS RESEARCH HAS IDENTIFIED A NUMBER OF DISEASE-CAUSING MICROBIAL CONTAMINANTS IN DRINKING WATER ON THE NAVAJO NATION INCLUDING E.COLI AND CRYPTOSPORIDIUM.**

- **HAULING WATER *(WHICH UP TO 30% OF NAVAJO FAMILIES RELY ON FOR THEIR WATER NEEDS)* INDUCES ADDITIONAL RISKS OF BIOLOGICAL CONTAMINATION DUE TO THE RISK OF IMPROPER STORAGE OR CONTAMINATION FROM THE ENVIRONMENT.**

Dr. Karanikola's previous work funded by multiple sources allowed her to pilot two district water treatment technologies in the Navajo Nation. From work that was funded by NSF, her team built two solar UV disinfection systems that were installed in two homes in the Monument Valley Park community within the Oljato Chapter in the Navajo Nation. UV can be used to disinfect water as point of use treatment with no disadvantages such as disinfection by products, low maintenance and ease of system use. In addition, the new design is very receptive from community collaborators in terms of appearance and how it fits within their homes.

While the systems have been in operation for a year, collaborators at Diné College identified two instances of the SUV systems failing to fully disinfect the water for one system that was used once a week rather than every day. The team hypothesized that this may be due to extended periods of downtime that allows for excessive growth within the system.

During this year and with the help of the Waverley Street funding, the team has designed and built a bench scale system to test this hypothesis and have developed a method for testing the system and are currently performing the first round of experiments to calibrate the system before the teams start testing for intermittency of use.

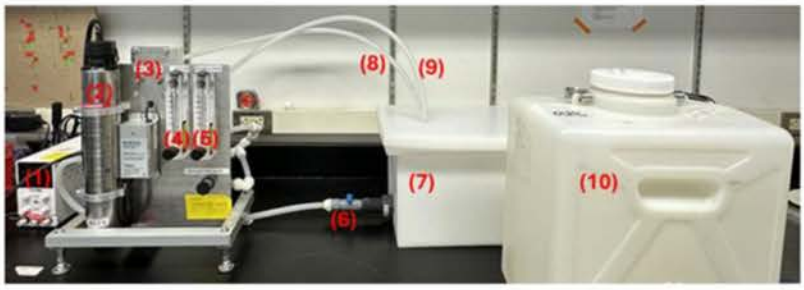
The second project is supporting and collaborating with Dr. Hoover to conduct water quality assessment of different water sources on the Navajo Nation. The KORES lab has supported Dr. Hoover's project by looking into the transport and occurrence of uranium along the Puerco River in Sanders, AZ. Dr. Hoover's team has sampled over a dozen wells and performed water analysis on inorganics and radionuclides. The KORES lab then performed ion chromatography analysis for major and minor cations for six water sample trips. One of the KORES doctoral students also assisted with one of the water sampling trips. Moving forward, KORES will continue to provide support in this capacity. Additionally, one of the KORES members may attend an upcoming workshop to inform the public about the project findings. They will be able to provide information about water treatment options if this information is requested.

The Waverley Street Foundation funding has been pivotal for my work as it allows our lab group to work with communities and support their needs for access to clean water. If it wasn't for this funding, the KORES lab would not be able to fund half a postdoc to help develop the project in the laboratory. Also, the funding is supporting part of her summer salary which has been very important as it allows for her time to work for the project and not having to apply for multiple other grants to perform this work. In the field of environmental engineering that is very fundamental. Applied research which makes an immediate impact to people is not always funded by federal grants. Thus, it is hard to do this work without funding such as the one from the Waverley Street Foundation. More importantly, it allows our group to work and travel within the communities which is critical and highly rewarding as the knowledge we exchange is invaluable. The people of the land know their land better than anyone and are the original engineers and scientists. As university researchers, we must learn from our community partners.

- Dr. KARANIKOLA

MONUMENT VALLEY PARK COMMUNITY AND VA TEAM IN MARCH 2024 ASSESSING OUR DEMONSTRATION UNITS

SOLAR UV BENCH SCALE SYSTEM BUILT IN THE KORES LABORATORY TO TEST FOR THE INTERMITTENCY EFFECT ON PERFORMANCE OF THE SYSTEM



(1) DC Power supply (fixed at 12 V).
(2) UV lamp and chamber
(3) Pump and lamp switches
(4) UV flow meter (circuit to the UV chamber)
(5) Recirculation flow meter (recirculation to feed tank)
(6) Feed tank valve
(7) Feed tank (15 L)
(8) Outlet tubing (system outlet)
(9) Recirculation tubing
(10) Outlet tank

Dr. Michael Kotutwa Johnson, PhD

ASSISTANT PROFESSOR, COOPERATIVE EXTENSION SPECIALIST
SCHOOL OF NATURAL RESOURCES AND THE ENVIRONMENT

For the IRes Climate Hub, funded through the Waverley Street Foundation, and in his everyday life, Dr. Johnson is the bridge between two worlds often separated from each other by vastly different ways of understanding knowledge. He is well sought out in the academic world as a scholar and educator sharing the ways of knowing and expertise his people from Hopi have used to thrive for millennia. He is also known on Hopi as an elder welcoming all to his home and farm to (re)learn about Hopi dryland farming. He moves through these roles seamlessly, with his contagious laugh and optimism.

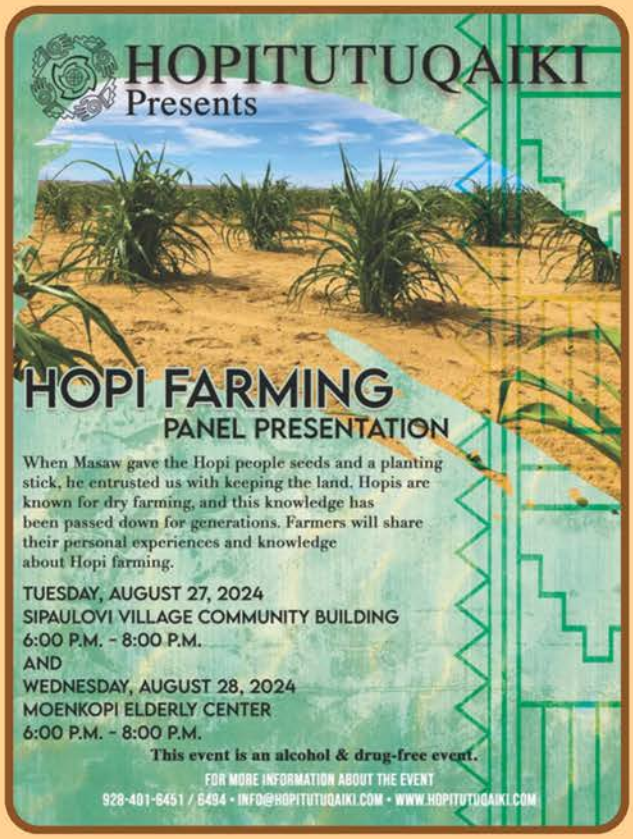
In his words, **"We are at a critical intersection of climate resilience. Tribes face an uphill climb in terms of the resources they need to adapt to climate change and continue a way of life that defines them apart from American Society in general. The work I am doing is trying to build a bridge to not necessarily live in the past, but preserve those subjects that have aided Tribes, such as culture and belief systems for the generations of Tribal youth today and into the future."**

Dr. Johnson has contributed immensely to the IRes Climate Hub through multiple focuses, though his main interest and area of work from Waverley funding is through policy development to support Tribal communities and community building. The funding he received from the Waverley Street grant was used to hire a Research Associate who is vital in gathering information necessary to develop and publish a series of papers on Indigenous sustainability, and explores the legal, moral, and political dimensions of climate policy in relationship to Indigenous peoples, with an emphasis upon the lands, waters, and peoples of the Southwest. This will be initiated through the Natural Resources Users Law and Policy Center of which Dr. Johnson is a part of. He is laying the groundwork to provide much information to Tribes not necessarily to stop climate change, but continue to adapt to it.

Through his advocacy for community driven research and in partnership with the Flower Hill Institute, a Native-led, community-directed nonprofit dedicated to improving the outcomes of climate change, and the Rockefeller Foundation, Dr. Johnson was able to conduct an agriculture needs analysis for the 22 Pueblo Tribes in the Southwest to open the door and create opportunities for those Tribes who wish to continue to practice

traditional agriculture. Additionally, Dr. Johnson has begun to lay the foundation for the American Indian policy arm with the Natural Resource Users Law and Policy Center as well as paved a way for the seminar this spring on Indigenous Resiliency in the Southwest. The Waverley funds allowed Dr. Johnson to hire a Research Assistant to compile much needed materials for this work.

Corn from 800 year old seeds gifted to Dr. Johnson



Hopi farming panel presentation flyer

Dr. Johnson as panelist at meeting conducted with Hopi farmers, August 27, 2024, Sipaulovi village

MAJOR MILESTONE IN COMMUNITY DRIVEN RESEARCH:

THE NAVAJO NATION AND UNIVERSITY OF ARIZONA MEMORANDUM OF AGREEMENT (MOA) IS SIGNED

On August 6, 2024, a major milestone was achieved in moving forward Community Driven Research between the IRes Climate Hub and the Navajo Nation. After four years of collaborative dialogue, the Navajo Nation and University of Arizona came together in Window Rock on the Navajo Nation to sign a MOA which will pave the way to a better understanding of the risks of Diné to COVID-19 infection. At the start of the COVID pandemic, IRes was part of a multi-university and agency team to determine if the first COVID-19 infection wave could be linked to socio-economic factors such as lack of access to running water or electricity, and household size. That research was limited in its ability to make definite conclusions due to a lack of infection data from the Navajo Nation. This MOA will allow the sharing of Navajo Nation data to better inform the research. The results of this study will allow the Navajo Nation to better prepare for future pandemics and improve emergency response and public health messaging. IRes thanks the Navajo Nation for their partnership and the support of Navajo Nation President Dr. Buu Nygren. They look forward to continuing to work with Tribal officials to support the resilience of the Navajo Nation while training Diné college students.


IRES CAPACITY
BUILDING

IRES CAPACITY

BUILDING

With the support of the Waverley Street grant funding, IRes has been able to build out a team that is able to meet the needs of the community, this includes staff, researchers, students, and affiliated faculty. In particular, IRes was key on developing a cohesive unit that brings together expertise and experience in a number of areas. All the team members have either played a direct role in community driven research or capacity building.

Christina will focus on the development and implementation of program components of the IRes Climate Hub. In her role, she will administer community mini grants, provide grant writing training, and manage post-award activities for community organizations, Tribal entities, and non-profit organizations to address climate impacts. Prior to joining IRes, Christina was the Program Manager for the Office of Native American Advancement & Tribal Engagement involved with implementing priority projects that support the University of Arizona's institutional commitment to Native American advancement. Her experience at the University includes the administration of grant application cycles for several environmental research grants and managing the Carson Scholars graduate scholarship program dedicated to training the next generation of environmental researchers in the art of public communication. Christina also provided academic coordination for the Global Change Graduate Interdisciplinary Minor Program.

CHRISTINA GARCIA

GRANT AND PROJECT COORDINATOR

DoorAE LEE

POSTDOCTORAL RESEARCH ASSOCIATE

Doorae Lee is a postdoc working for Drs. Karanikola and Sáez. He completed his PhD in Environmental Engineering at the University of Arizona, and holds a BS and MS in Environmental Engineering from Yonsei University, South Korea. During his PhD, he primarily studied aquatic photochemistry, with a particular focus on photolysis of emerging contaminants. He also focused on UV-AOPs (UV/H2O2 and UV/S2O82-) and coagulation during his MS.

ABBY HAAN

UNDERGRADUATE RESEARCHER

Abby is an undergraduate student majoring in chemical engineering and minoring in math. On campus, she is involved in the Society of Women Engineers and intramural sports. Abby is excited to be working on the solar nanofiltration project with Dr. Karanikola.

WINONA LITTLE OWL-IGNACIO

WAVERLEY STUDENT ASSISTANT

Winona Little Owl-Ignacio is Lakhota and Tohono O'odham and belongs to a family of 9. She comes from the villages Komckud E-wa'osidk and Ihankthunwanna. She is a Juris Doctorate candidate at the James E. Rogers College of Law, within the Indigenous People's Law and Policy Program. She has a Bachelor's from the University of Arizona in Law, but is most proud of their Associate of Arts in Liberal Arts from Tohono O'odham Community College.

Trinity Norris

MARKETING/COMMUNICATIONS
GRADUATE STUDENT ASSISTANT

Trinity Norris grew up in Sells, Arizona, and is a graduate student in the College of Social and Behavioral Sciences studying, Studies of Global Media in the School of Journalism at the University of Arizona and recently graduating with her Bachelor of Arts in Digital Journalism. Trinity is interested in delving into the complexities of global media, exploring its intersections with culture, society, and technology. Through her studies, Trinity aims to contribute to the ever-evolving landscape of media communication.

Chrisa Whitmore

GRADUATE STUDENT

Chrisa Whitmore is a PhD student in Environmental Sciences. She comes from a background of environmental health and biosystems engineering. She is working on a project that incorporates community engagement, water resources, and the use of fungi for bioremediation.

Maria Suarez

GRADUATE STUDENT

Maria is a 5th year PhD student in the University of Arizona. She studies soil microbial communities using bioinformatics approaches. She is interested in uncovering the less represented fractions of soil microbial communities and their relationship with soil processes and ecosystem services.

Andee Lister

POSTDOCTORAL RESEARCH ASSOCIATE

Andee is a postdoctoral research associate at the University of Arizona and graduated from Northern Arizona University (NAU) in the summer of 2024 in the School of Earth Science and Sustainability (SESES) with a focus on environmental science and statistics. Her dissertation work focused on uranium accumulation in livestock that grazed in communities that had a history of uranium mining. She is currently working on a project that focuses on climate change, climate, and social vulnerability indices and how they can be used to inform policy in Arizona.

AFFILIATED IRES FACULTY – EXPANDING AREAS OF INDIGENOUS EXPERTISE TO ADDRESS CLIMATE CHANGE

With the Waverley Street grant funding, IRes has been able to continue to increase its capacity to serve Indigenous people. One way IRes serves communities is through its faculty - their relationships, and area of expertise. At the time the grant was awarded, IRes had five faculty members in three departments – Environmental Science, Natural Resources and the Environment, and Chemical and Environmental Engineering. The Waverley Street funding has provided a mechanism to invite additional faculty to contribute to IRes and the IRes Climate Hub through an affiliated status.
In the summer of 2024, three University of Arizona Indigenous faculty members from various interdisciplinary fields, were invited to become formally affiliated with IRes. With their acceptance to join IRes in this capacity, the expertise and collaboration across campus instantly increased.

In the summer of 2024, three University of Arizona Indigenous faculty members from various interdisciplinary fields, were invited to become formally affiliated with IRes. With their acceptance to join IRes in this capacity, the expertise and collaboration across campus instantly increased.

The three faculty members have immediately begun to collaborate through participating fully in the IRes strategic planning process occurring through the Fall of 2024. The previous strategic plan was developed for the first three years of IRes and in this time, IRes has grown substantially in staff and influence, both at the University and into Indigenous communities, and programming.

THE THREE NEW AFFILIATED FACULTY ARE:

ANDREW CURLEY, PHD

(Diné)

ASSOCIATE PROFESSOR- SCHOOL OF GEOGRAPHY, DEVELOPMENT & ENVIRONMENT
UNIVERSITY OF ARIZONA

Dr. Curley's research focuses on the everyday incorporation of Indigenous nations into colonial economies. Building on ethnographic research, his publications speak to how Indigenous communities understand coal, energy, land, water, infrastructure, and development in an era of energy transition and climate change.

STEPHANIE RUSSO CARROLL, DRPH, MPH

(Dene/Ahtna)

ASSOCIATE PROFESSOR
MEL AND ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH
UNIVERSITY OF ARIZONA

Dr. Russo Carroll's research explores the links between Indigenous governance, data, the environment, and community wellness. Her interdisciplinary lab group**, the Collaboratory for Indigenous Data Governance Research**, develops research, policy, and practice innovations for Indigenous data sovereignty. Indigenous data sovereignty draws on the UN Declaration on the Rights of Indigenous Peoples that reaffirms the rights of Indigenous nations to control data about their peoples, lands, and resources.

CHRISTINA BELL ANDREWS, JD, MPH, MBA, MA

(Hia-Ced O'odham & Pascua Yaqui, Member of Tohono O'odham Nation)

EXECUTIVE DIRECTOR -WASSAJA CARLOS MONTEZUMA CENTER FOR NATIVE AMERICAN HEALTH
UNIVERSITY OF ARIZONA

Christina's role within the Wassaja Center uses an Indigenous-led framework to work with Tribal Nations, students, practitioners, and community to assist Indigenous families in healing the body, mind, spirit, and environment. Wassaja uses a culturally appropriate holistic approach through Indigenous knowledge, research, data, public health, law, and policy.


CLIMATE
AMBASSADORS

CLIMATE AMBASSADORS

The overall Climate Ambassadors Program follows two tracks: the Climate Ambassadors and the Ilíiaitchik: Indigenous Correspondents Program (ICP). Both programs intertwine the Climate Hub's commitment to storytelling, raising awareness of environmental issues in Indigenous communities, and training the next generation of leaders.

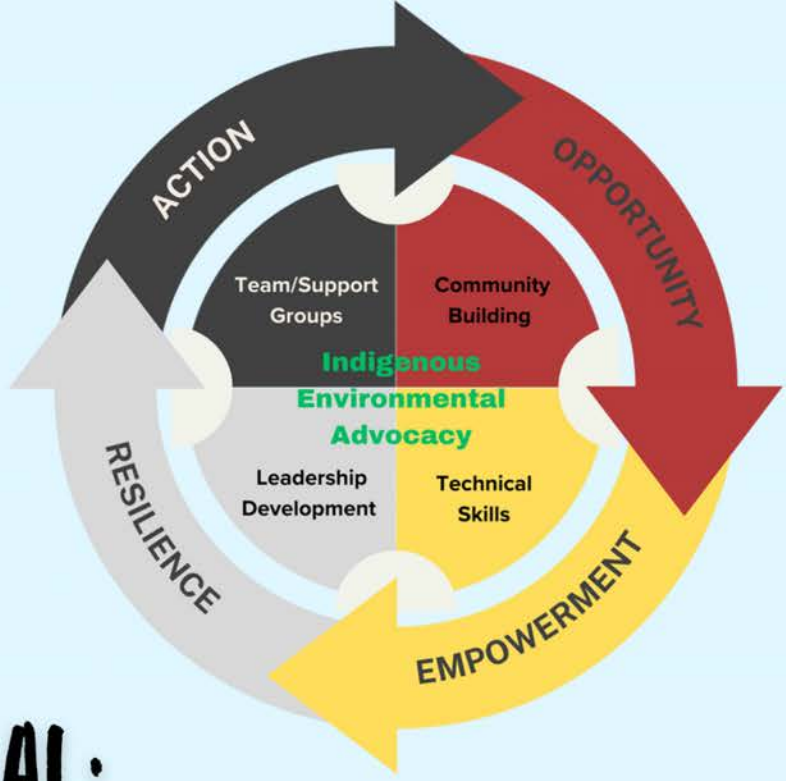
Currently in development, the **Climate Ambassadors Program (CAP**) will train 12 Indigenous community members through an 8-month professional development program that follows the Indigenous Environmental Advocacy Model. Participants, including college students from Tribal colleges and universities and the University of Arizona (all majors), will develop leadership, science, and technical skills, as well as actionable solutions to address environmental challenges. They will join a network of Indigenous activists and thought leaders and receive a stipend upon successful completion. Monthly virtual sessions will cover leadership, advocacy, and additional cohort-specific topics, and will include well-being activities and elder reflections. At the end of each cohort, there will be a virtual convening of current and past participants to foster collaboration and networking across regions.

The ideal Climate Ambassador will honor Tribal Sovereignty and Self-Determination, aiming to transform the often grim narrative of climate work into one that acknowledges histories, traumas, beauty, love, and thriving communities. This personal growth journey is challenging, requiring resilience and a commitment to "heart" work, ultimately creating strong community advocates. Ambassadors should embody five key values:

- **COMMITMENT TO THEIR HOME COMMUNITY'S FUTURE AND WELL-BEING, UTILIZING LEADERSHIP ROLES TO RAISE AWARENESS OF LOCAL ISSUES.**
- **WILLINGNESS TO DEVELOP AND IMPLEMENT ACTIONABLE SOLUTIONS TO CHALLENGES.**
- **UNDERSTANDING OF THE COMPLEX HISTORIES AND TRAUMAS OF TRIBAL COMMUNITIES, AND A READINESS TO UNLEARN AND RELEARN AS NEEDED.**
- **EMBRACING INTERGENERATIONAL KNOWLEDGE BY LEARNING FROM PEERS, COMMUNITY LEADERS, KNOWLEDGE HOLDERS, AND ELDERS.**
- **RELATIONSHIP TO ENERGY AND ENVIRONMENTAL JUSTICE ISSUES, WITH EXPERIENCE IN ADDRESSING COMMUNITY NEEDS, RAISING CONCERNS, OR CREATING SOLUTIONS.**

With this program, the Hub is working to implement its commitment to the mission of IRes by creating these spaces for training the next generation of leaders by providing the tools and support from our Indigenous communities. In creating this, the team has focused on four different areas to support our Ambassadors through this that we call the Indigenous Environmental Advocacy Model.

The Indigenous Environmental Advocacy Model centers on community health and well-being, using the Medicine Wheel to focus on four critical aspects: **Emotional, Spiritual, Mental, and Physical well-being.**



Emotional:

Community building fosters long-term commitment and emotional bonds, helping participants support each other and drive forward community advocacy through the CAP program.

Spiritual:

The program enhances spiritual balance by providing traditional knowledge, science, and technical skills, empowering participants to control environmental narratives in their communities.

Mental:

Workshops focus on leadership development and fostering a positive mindset, crucial for self-efficacy and resilience in advocacy work.

Physical:

The program emphasizes teamwork and support networks, creating trust-built relationships and empowering participants to take physical action for themselves, their families, communities, and Nations.

ILÍIAITCHIK: INDIGENOUS CORRESPONDENTS PROGRAM

The Ilíiaitchik: Indigenous Correspondents Program (ICP) supports 10-12 Indigenous students through a year-long professional development program led by Indigenous mentors in fields such as environmental journalism, science, photography, and music production. Students interested in environmental science-related fields, finding and sharing resilient, innovative solutions, and effective storytelling in media spaces are encouraged to apply.

As part of this commitment, the program has allowed students from the University of Arizona and Tribal colleges and universities to gain training in storytelling and sharing their lived experiences on a national platform.

The Indigenous Correspondents Program is a partnership between Planet Forward, an environmental storytelling initiative of George Washington University's School of Media and Public Affairs, and the University of Arizona.

The program's co-founder, JoRee LaFrance, comes from the Apsáalooke/Crow Nation and selected a word from her language (Ilíiaitchik, meaning "to speak good words"), that encompasses the program's goal to amplify voices bringing about positive change. ICP is supported by a team of faculty and staff at the University of Arizona and Planet Forward, including an **Indigenous Editor/Story Mentor, Ivey Camille Manybeads Tso (Diné)**, and two **Program Managers, Alexander Cotnoir (Nulhegan Band of the Coosuk Abenaki Nation)** and **JoRee LaFrance (Apsáalooke).**

Participants periodically meet with fellow cohort members, Indigenous activists, journalists, storytellers (i.e. journalists, musicians, photographers, etc.), and scientists to advance their storytelling and communication skills while building their professional and community networks. Participants also receive one-on-one mentorship and guidance in creating and publishing a final environmental communication piece (e.g., essay/article, multimedia story, podcast, short video, etc.) through meeting one-on-one with an Indigenous Editor/Story Mentor and/or peer review sessions.

THROUGHOUT THE PROGRAM, PARTICIPANTS' EXPERIENCES CENTER AROUND FOUR MAIN GOALS, INCLUDING:

Personal growth: Reclaiming/gaining confidence in their narrative and voice, telling personal stories, healing through creative expression, and connecting with the land and their communities through storytelling.

Skill building: Learning effective science communication strategies and storytelling techniques, including multimedia software skills, interviewing, creating, editing, publishing and pitching story content.

Networking/community building: Accomplished through one-on-one discussions, meetings, and guidance from/with Indigenous speakers and ICP's Indigenous Editor/Story Mentor, monthly virtual social gatherings with fellow cohort members, access to the Native American Journalists Association, Indian Country Today, National Museum of Natural History, National Museum of the American Indian, National Geographic, and other platforms and experts as applicable.

Publishing: Participants work on a storytelling piece to be published on Planet Forward's platform, which will also be shared through the University of Arizona and George Washington University's networks. The final story can take various forms, either as a short written article, a podcast, musical piece, photo essay, exhibition, multimedia story, podcast, or written piece showcasing the participants' communication skills highlighting an environmental issue and/or solution of their choice.

With this support of the Hub, the Indigenous Correspondents Program convenes in Washington D.C. for the Planet Forward gathering hosted by George Washington University where participants are able to engage with fellow correspondents and attendees. More highlights of this program can be found in the Indigenous Correspondents Program annual report.

THE ESTABLISHMENT OF THE IRES CLIMATE HUB &LESSONS LEARNED

As with any new endeavor, there is much to be learned and lessons to be shared. The IRes Climate Hub is not the only climate hub in the country focused on Native Americans or Indigenous peoples, however, the Hub is unique to the desert Southwest and the University of Arizona. By understanding its positionality, the Hub has been able to garner momentum and prosper in its niche and area, at the nexus of food, energy, and water. Throughout its short existence and with the support of the Waverley Street Foundation, the Hub has expanded its reach and expertise, built its own capability to meet the needs of communities, sought to invigorate community capacity building and continue to train and empower individuals to become leading advocates in their respective communities.

This is a momentous effort to broaden the scope of the Indigenous Resilience Center, but understanding the long term potential and impact, provides the strong foundation to continue to engage and charge forward within this realm of climate adaptation and building community resilience. Indigenous communities face many challenges ahead and are often left unprepared and alone in climate conversations and needing to address climate impacts head on and in real-time. The Hub is leading the charge in perspective, lived experience, research and relational accountability to its collaborators and has a strong commitment to advocacy and community resilience.

In this section, our team shares how it has contributed to important dialogue on a national level with the support of our community collaborators, details steps that were taken to navigate the bureaucratic systems within an R1 institution, and shares key lessons learned in engaging with Indigenous communities.

CLIMATE CONVERSATIONS:

Members of the Hub sought to expand its relationships with other established and new climate Hubs by intentionally participating in broader climate conversations and in learning together. As part of this work, IRes faculty sought out and participated in multiple convenings throughout the first year of the grant. Here are some examples of those gatherings:

CENTERING JUSTICE IN CLIMATE & ENVIRONMENTAL JUSTICE CENTERS IN HIGHER EDUCATION:

In **January, 2024,** Dr. Karletta Chief and Dr. Michael Johnson represented the IRes Climate Hub from the University of Arizona at the Centering Justice Symposium at the Tishman Environment & Design Center in New York City. This symposium was recommended by Alex McBride, Strategy Director, Waverley Street Foundation. It was also attended by several other Waverley Street Foundation cohorts such as the NYC Environmental Justice Alliance.

Dr. Chief reported to the full IRes Climate Hub following the conference. She shared the concerns she heard regarding such issues as funding not getting into communities, or institutes of higher learning not recognizing communities for their knowledge and expertise. These were messages the IRes Climate Hub has taken to heart and is working to change.

WHILE THERE, DR. CHIEF SIGNED ON TO THE CLIMATE JUSTICE MANIFESTO WHICH HAS THREE MAIN AREAS FOR COMMITMENT:

ESTABLISH JUST, EQUITABLE, TRANSPARENT PARTNERSHIPS, BASED ON RECIPROCITY AND TRUST.

ENSURE INTERNAL ASSESSMENT AND ACCOUNTABILITY SYSTEMS WITHIN UNIVERSITIES, WHILE PROMOTING ALIGNMENT FROM PHILANTHROPY AND FEDERAL AGENCIES.

EXPLORE FORMATION OF AN ONGOING COMMUNITY OF PRACTICE WITH TRUSTED UNIVERSITY CENTERS AND EJ PARTNERS THAT MODELS AND SUPPORTS ACADEMIC-COMMUNITY PARTNERSHIPS.

As part of the Climate Justice Manifesto, many ideas and suggestions were shared for implementation. Prominent among these that the Hub is leading in as part of the Waverley Street funding:

- The IRes Climate Hub has shared a substantial portion of funding with partners carrying out the work through their mini grant program awarding $50,000 per grant directly to Tribal community partners.

- Tackling institutional barriers to justice centered partnerships, such as contracting and intellectual property rules. IRes worked diligently with the University of Arizona contracting department to allow them to provide the $50,000 awards upfront in entirety and not on an invoice basis.

- Disseminating research related to communities back to communities. IRes Climate Hub adheres to Indigenous data sovereignty and ensures the community maintains control and ownership of their own data.

HIGHER EDUCATION CLIMATE LEADERS SUMMIT

In **February 2024**, Dr. Karletta Chief, Dr. Michael Johnson and Daniel Sestiaga attended the Higher Education Climate Leaders Summit in Long Beach, California. The conference was co-convened by the Waverley Street Foundation and hosted by the Intentional Endowments Network and Second Nature.

Over 450 changemakers dedicated to advancing sustainability through higher education gathered to learn and exchange ideas over the course of this three-day conference. University presidents, sustainability directors, students, endowment decision makers, were among those engaged in the Summit's 35 total sessions and numerous networking opportunities. This provided a chance for IRes staff to develop a working relationship with other Waverley Street Foundation grantees and become an effective partner with other Climate Hubs.

Dr. Karletta Chief joined Denae King, Associate Director of the Bullard Center for Environmental and Climate Justice at Texas Southern University, Angela Mahecha, Director, EJ Disrupt Design Fellowship at the New School Tishman Environment and Design Center, Mathy Stanislaus, Vice-Provost & Executive Director at the Environmental Collaboratory (TEC) to host the session: One Foot in, One Foot Out: The Role of Universities in Climate Justice Partnerships.

COMMUNITY CAPACITY BUILDING: IMPLEMENTING PROCESSES TO SUPPORT GRASSROOTS MOVEMENTS

One of the key elements to our overall approach as a Climate Hub, was to echo what we were learning in on-the-ground conversations with local Tribal communities. Our team has been committed to letting communities drive solutions to address the perturbations that they face and as such, the Hub is committed to providing necessary resources that are often limited by lack of capacity, capital, or positionality. The Waverley Street Foundation funding has allowed IRes to award the Community Environmental Impact Awards (mini-grants) to local and Tribal organizations, nonprofits and movements that are doing on the ground work.

Through its granting efforts, the Hub continues to share with the Waverley Street Foundation, federal agencies and other private foundations that simply due to their locations in remote parts of the State of Arizona, many potential community collaborators frequently lack access to technology and reliable internet that most of us take for granted. Including the inability to engage in large scale funding mechanisms, and to respond to major RFPs from federal agencies. In this section, we share three lessons as examples of what we have learned or what has been reinforced by this process awarding mini-grant funding.

Please note these challenges are experienced by under-resourced communities everywhere; but in particular, we offer them in community for Indigenous relatives that are often left out of the conversation and where they are frequently amplified even further.

CHALLENGE: THE GRANT ENVIRONMENT IS EXTREMELY COMPLEX AND ORGANIZATIONS MAY HAVE DIFFICULTY NAVIGATING OPPORTUNITIES FOR FUNDING.

Many Indigenous organizations can be overwhelmed by the potential number of federal grant opportunities that exist by the numerous agencies. Without training in grant navigations and dedicated human resources to this task, opportunities are lost.

SOLUTION: IRES CREATED A FUNDING MECHANISM THAT CREATED AN OPPORTUNITY FOR A SOLICITED CALL FOR PROPOSAL BASED ON EXISTING RELATIONSHIPS THAT WERE BUILT ON TRUST AND COLLABORATION.

This meant that IRes had familiarity with the type of work and solutions being created in local communities that were relevant to each location.

CHALLENGE: GRANT APPLICATIONS ARE COMPLICATED AND CREATE A BARRIER FOR APPLYING, ESPECIALLY FOR SMALL ORGANIZATIONS THAT MAY BE VOLUNTEER STAFFED ONLY OR HAVE VERY LIMITED PAID STAFF.

For example, many federal funding opportunities require setting up an online account that takes time to create and get approved. Many applications require multiple agencies to lead and support and may require formal letters of participation from each.

SOLUTION: IRES CREATED A SIMPLE APPLICATION PROCESS THAT CONSISTED OF A SHORT NARRATIVE OF THE GOALS OF THE PROJECT AND TIMELINE, HOW THIS WORK WILL BUILD CLIMATE RESILIENCY IN THEIR COMMUNITY AND PROVIDED A SIMPLE BUDGET TEMPLATE.

If while applying, applicants had questions, they were able to speak with someone at IRes they *already knew* to help answer them.

CHALLENGE : MOST GRANTS ARE INVOICED BASED, MEANING THE ORGANIZATION MUST DO THE WORK FIRST AND BILL AFTERWARDS.

Indigenous grass roots organizations and nonprofits do not have the operating resources to do this work without funding. This precludes them from applying for these funding sources.

SOLUTION: IRES WORKED CLOSELY WITH BOTH THE WAVERLEY STREET FOUNDATION AND THE UA CONTRACTING OFFICE TO OBTAIN PERMISSION TO PROVIDE THE FULL MINI-GRANT FUNDING AMOUNT UP FRONT TO AWARDEES.

This was largely due to the incredible flexibility of the Waverley Street Foundation and the trust between IRes and community partners. Additionally, this was also led by efforts from the IRes team to be the strongest advocates possible and continue to implement efforts and narratives that did not waver in its message and needs on behalf of our communities.

NAVIGATING UNIVERSITY POLICIES

One of IRes' goals in this work is to create systematic change within the University of Arizona and be a leader for other institutions of higher learning on how we work with the community. Universities are enormous, seemingly immovable structures, yet IRes believes we can be instrumental in making change happen, bit by bit and every day pushing the boundaries and questioning why, when we center our work in our Indigenous core values of respect, reciprocity, responsibility and relationship.

Being housed at a major land grant university in the Southwest is an immense opportunity for service to our 22 federally recognized Tribes in Arizona. The Center has close proximity to substantial resources, area expertise in climate resilience and adaptation, as well as an immense wealth of knowledge from a robust student population.

However, understanding the proximity in which we operate must be coupled with our positionality that we have to our community partners and the Tribes we are accountable to. We, as a Center, understand that the University of Arizona has benefited from neighboring Tribes in which the university sits (the Tohono O'odham Nation and Pascua Yaqui Tribe), and how our cultural responsibility paves the pathway in which we operate. We must carefully navigate the university climate, while being accountable to and uplifting community concerns, voices and needs to a western institution. Thus, a framework was created, guided by core values that the IRes team implements in every aspect of its operations.

We see facing bureaucratic challenges and making institutional changes a major and very significant part of our work.

- **WORKING WITH THE UNIVERSITY OF ARIZONA CONTRACTING OFFICE TO FULLY AWARD MINI GRANTEES UPFRONT.**

This was a long and arduous process that included much conversation and education. We had to navigate policies, legal teams, program officers, many approvals and finally centering trust and commitment at the heart of a long narrative. Team members had to continuously push the narrative and advocate (on behalf of the grantees to the university) the limited capacity in which they operate and the need to build resilience. The main driver was the flexibility and unyielding support of Waverley Street Foundation supporting this effort and looking to support on the ground initiatives without any stipulation.

- **CHALLENGING STRICT POLICIES REGARDING PROVIDING GIFTS OR SMALL MEMENTOS TO TRIBAL AND COMMUNITY REPRESENTATIVES, INCLUDING THE NEED TO INCLUDE FOOD AS RELATIONSHIP BUILDER.**

  This small component of the overall project is key to working with Indigenous communities. This challenge was addressed by sharing cultural protocols with the University of Arizona systems and helping to educate how relationships are built and maintained, this includes providing food for community gatherings and providing culturally appropriate mementos to communicate good faith and intentions.

- **ENSURING COMPENSATION TO COMMUNITY MEMBERS FOR THEIR PARTICIPATION IN WORK.**

  In every effort in which the Hub has operated, IRes has maintained that community members need to be compensated for their time and energy. The knowledge provided is not free and should be compensated accordingly.

- **NAVIGATING THE PRESSURE TO PUBLISH FINDINGS/DATA THAT MAY NOT OR SHOULD NOT BELONG TO IRES.**

  Because this work lies with the community, the data and key findings are theirs to keep and share as warranted. In upholding the C.A.R.E. Principles and honoring a commitment to data sovereignty, IRes does not claim ownership of key findings.

- **CHALLENGING THE STATUS QUO IN ABIDING BY UNIVERSITY INTELLECTUAL PROPERTY LAWS.**

  Because universities have a long history of claiming ownership, we had to navigate hesitation from potential grantees about the university claiming Intellectual Property Rights on community based projects. We had to clarify, but ultimately, because Waverley had not requested nor stipulated requirements in formal agreements, we were able to ensure that whatever solutions are created in the community, will remain there. This has led IRes to ensure that future grant agreements detail this language explicitly.

- **CONDUCTING WORK THAT IS EXTRACTIVE IN NATURE THAT HAS SO LONG DEFINED SCHOLARLY WORK.**

  IRes is committed to honoring sovereignty and self-determination. As such, it is important to exercise engagement strategies and research that are rooted in reciprocity and respect.

- **BEING PRESENT IN COMMUNITIES.**

  IRes is also committed to showing up in communities and ensuring that we are committed to where the work is being done. We have aimed to dismantle continuous narratives across many universities where community is expected to come to campus. In this instance and the way in which IRes operates, this is the opposite.

- **SUSTAINING WORK AND CONTINUING THE RELATIONSHIP WITH OR WITHOUT FUNDING.**

  The reality is, the team that is working in the Hub belong to, are affiliated, or committed to long term trust built relationships. This is essential to understand that existing collaborations must be maintained, and will exist beyond grant cycles.

CENTERING COMMUNITY PRIORITIES TO BUILD LASTING TRUST-BASED RELATIONSHIPS

The IRes Climate Hub's existence is based on the need to address the priorities and demands that Indigenous peoples are facing as a result of climate change and the impacts that have been exacerbated by its swiftness and intensity. Bearing this in mind, IRes recognizes that communities have the solutions and are able to meet these challenges head on and continue to be resilient in times of great uncertainty.

By centering community priorities, actively listening to what resources are needed to be successful, and committing ourselves to this initiative, IRes has become an advocate for Indigenous peoples at a highly regarded university that is focused on research and development. Too often the intricacies and the bureaucracy of the university sheds negative light on how it approaches its work with Indigenous peoples and communities. IRes has maintained a framework for community engagement that centers Indigenous knowledge while honoring community driven priorities, Tribal sovereignty and self-determination.

Our last lesson to be shared is that no work, no collaboration or partnership can exist without trust at its foundation. IRes faculty, staff, and students all recognize that in order for our Center to operate effectively and continue to navigate the complexities of community resilience, having trust lead the way for engagement is crucial to success.

For example, none of the work that is being supported by the Hub would have been possible, without the trusted relationships of faculty and staff.

- Community partners would not have felt open nor comfortable with pursuing the funding that was available to support their on-the-ground efforts.

- Community partners are willing to be flexible and open to transparent and honest conversations. This stems from the time it took to ensure that the funding got to the grantees organizations. It took months to navigate at the university level, but ultimately, trust and patience paved the way for IRes to implement its vision of non-stipulative funding for grantees.

- Community Driven Research would not be possible without a trust-based relationship. Given past histories of universities and the historical negative implications of research, IRes has been able to create an approach that is rooted in reciprocity so that communities set the tone for work being studied and completed.

- Trust also guides the expectation for the Hub to approach its work in a culturally responsive way. Collaborators, students, community members, have trusted IRes to carry out its mission and vision overall, and this has allowed for IRes to be successful in its programming and efforts throughout this past year.

With the generous support of the Waverley Street Foundation, IRes continues to forge new ground and build upon its existing relationships while nurturing new ones. The faith and the belief in IRes to broaden its impact and serve Indigenous communities is appreciated and wholeheartedly accepted. Climate work is often difficult and disheartening, but the continued partnership with Waverley Street continues to foster much hope and allows us to implement new solutions in community resilience where Indigenous peoples will continue to thrive and prosper as they have done since time immemorial.

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