



# National Indian Health Board



**Health:** Community Members and key stakeholders have raised concerns about climate change impacts on air quality, diabetes, access to traditional medicines, and shifting disease ranges (such as more tropical diseases moving north). Climate change effects on increased heat stress and dust storms were also major concerns. Climate change can affect the Community in numerous ways. For example, greater wildfire frequency can lead to poorer air quality, which can contribute to an increase in asthma attacks. Increasing drought intensities can result in more pollen and molds in the air, worsening allergies. Poorer air quality and rising temperatures can lead to more time spent indoors and decreased physical activity contributing to problems with diabetes. Community members also identified a number of non-climatic factors that can be exacerbated by the above climatic factors, such as air and dust pollution from farming, building, and sand and gravel industries. The historical legacy of colonization and its associated traumas over generations contribute to poor socioeconomic and education opportunities, which can result in higher rates of drug and alcohol abuse and worsening health impacts.

**Water:** Rising air temperatures and longer, more intense droughts can lead to lower flows and groundwater tables and decreased water supply. Community members are also worried about potential heavier downpours and increased flooding, which can reduce water quality. These climatic factors have led to emerging health concerns about water-borne diseases as well as cultural concerns, such as poor water quality leading to the decline in the quality of basket weaving materials. The damming of the Gila River and water diversions were also noted as important non-climatic factors affecting the availability and quality of water in the Community.

**Food sovereignty:** Increasing frequency, length, and duration of droughts could result in issues providing sufficient water to crops, and rising air temperatures and shifting precipitation patterns could affect the timing of different plant life cycle events. With higher temperatures also comes a loss of freeze time, resulting in some plants no longer going into a dormant stage, which can have consequences for future production. These climatic factors could result in the loss of traditional foods. Non-climatic factors contributing to loss of food sovereignty include legacies from European influences that brought changes to Traditional diet and resulted in the loss of traditional planting and agricultural knowledge and the loss of home gardens.

**Cultural resources:** Community members noted that rising air temperatures can lead to shifts in bird migratory patterns, which can affect cultural practices and songs based on this timing. The increasing frequency and intensity of storms could affect culturally significant plants and wildlife. A combination of rising air temperatures, more extreme heat and more intense and longer droughts could result in the loss of medicinal plants and shifts in their geographic ranges leading to them no longer being available for ceremonies held during specific seasons. Climate-related landscape changes can affect the transfer of traditional and cultural knowledge. Additional impacts from non-climate influences interacting with the above include land use changes and deforestation leading to loss of traditional plants and wildlife, and the lack of availability and familiarity with resources for traditional practices.

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While discussing air quality pollution and loss of vegetation, as well as observing overall human impacts on our Mother Earth, Cecelia Mix, a youth from District Four said frankly, “Who wants to live in that world?”

Many Tribes across the country are being proactive and are planning and preparing for climate change impacts. GRIC has chosen to do the same. Community members and key stakeholders from Tribal elders to youth have shared that it is important to plan for climate change for the sake of the Community’s children – including their safety, health, survival, identity, and mental stability. They felt that it was also important to plan for their livelihoods and economy and for the sake of the environment and the health and sustainability of the planet.

GRIC secured climate change funding from the US Bureau of Indian Affairs to undertake a Climate Change Adaptation and Resiliency Project, aimed at building resiliency that allows social and ecological systems to thrive under stress from the vagaries of natural and anthropogenic activities. The Tribe can draw on past experiences, such as traditional knowledge, to aid in adapting to a changing climate; adopt unique and innovative adaptation techniques; and ensure overall sustainability of the people, land, and community. “This is the first generation that is not just focused on survival,” a GRIC workshop participant shared. “They can be dreamers. The seventh generation is here.”



*GRIC Community Members participate in a workshop to guide the GRIC climate change adaptation process.*

The goals and objectives of the project include data collection and developing a Climate Change Adaptation & Resiliency Plan (“the Plan”) in close collaboration with an assembled body of Community stakeholders; coordinating and hosting educational workshops; and utilizing collected data and traditional knowledge to develop the Plan, which will eventually contain strategies and actions to create a more resilient Community which is able to cope with the detrimental effects of climate change.

The Plan is a comprehensive document that contains various climatic data, climate change impacts, vulnerabilities, strategies, and actions for how the Community will adapt to a changing climate and its impacts. This comprehensive plan is now in its final stages of review. The Tribe plans to circulate the Plan internally during the next few months before making the Plan available for public consumption later in 2019.

The Plan includes the following:

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- Determining the current and projected impacts of climate change on the Community, including impacts on the local environment, agriculture, water resources, air quality, water quality, human health, and cultural resources;
- Determining the vulnerabilities of the Community to the current and projected effects of climate change, and prioritizing key areas for development of adaptation strategies;
- Developing appropriate policies and goals for addressing the effects of climate change on the Community;
- Developing potential programmatic and/or regulatory actions and changes consistent with said policies and goals as appropriate to address the effects of climate change.

Although addressing climate change is an ongoing project, the Community has already taken action to help jumpstart the process.

First, the GRIC Department of Environmental Quality (DEQ) has hosted several climate change workshops in partnership with the Institute for Tribal Environmental Professionals (ITEP), to build the foundation of the planning process. During the workshops, GRIC Community Members, elders, youth, and resource managers shared their knowledge, observations, and experiences related to a changing climate. The workshops included presentations where speakers discussed the evidence of climate change, its causes, and its impacts. The workshops also included activities and discussions in which the GRIC DEQ gathered Community input on climate-related experiences and concerns, ideas for adapting to climate change, and strategies to engage more Community Members in the adaptation process.

Additionally, a climate profile was developed through partnership – compiled by the University of Arizona’s Center for Climate Adaptation Science and Solutions, Native Nations Climate Adaptation Program, and Climate Assessment for the Southwest with funding from the Agnese Nelms Haury Program in Environmental and Social Justice. This climate profile was created for the Gila River Indian Community (GRIC) in central Arizona using available current and historic weather data and computer model projections of future climate.

The climate profile provides:

- Information that summarizes what the climate at GRIC has been like since around 1900 and identifies recent trends in temperatures;
- Background information on climate change trends in the United States and Arizona;
- Projections of possible changes in Arizona’s climate (including GRIC);
- A discussion about why the climate is changing and possible impacts; and
- General information on climate adaptation planning.

Moving forward, there is always work to do. However, GRIC has already completed several key steps - creating a vulnerability assessment, working towards better documenting traditional knowledge and Tribal oral histories, conducting an engagement strategy, and working towards geographic information system (GIS)

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modeling and mapping. GRIC is dedicated to continuing and expanding work that will help protect the Community from the harmful effects of climate change.

This article was compiled with support from the Gila River Indian Community Department of Environmental Quality, including Althea Walker, former Environmental Education & Outreach Specialist; Dr. Russell Benford, Environmental Program Manager, Wildlife & Ecosystems Management Program; and Andra Gutierrez, former AmeriCorps intern and current GRIC DEQ Fuels & Restoration Crewmember. Ms. Gutierrez also contributed significantly to the development, review, and implementation of GRIC's comprehensive climate change adaptation plan.

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- the Merriam-Powell Center for Environmental Research, which helped develop species distribution and ecological niche models, and to identify species of cultural and ecological interest that are most at risk of being negatively impacted by the predicted impacts of climate change.



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