

## Teaching Climate Change

Academic commentary - Jody Smothers-Marcello, Independent Academic Consultant

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Climate change is a global issue that impacts the world at every scale from the local to the regional to the global. As action about climate change is demanded at each of these scales and because the scales of the impacts of climate change often overlap, citizens who possess a spatial perspective are in unique positions to respond to climate change. These equal concepts—scale and the spatial perspective—join with human-environment interaction, cultural understanding, and sustainability to put geography at the forefront of teaching about climate change.

Climate change requires thinking and action at every scale. Individual actions, community action, regional policies, and global perspectives are all at the forefront of climate change. Geographic education is central to building the human capacity to be responsive across all of these scales. At the community level, the U.S. Department of the Interior supports the Voluntary Community-Driven Relocation Program in which tribal communities implement climate resilience projects. One such project involves the Yurok Tribe near California's Redwood National Forest. As climate change impacts their locale, the tribe is working to ensure food access for their members. (U.S. Department of the Interior) The Bureau of Indian Affairs (BIA) has created a StoryMap to aid geography educators in teaching about community-driven tribal climate resilience projects. (See: <https://biamaps.geoplatform.gov/TCR-CDR/>)

Climate change is also impacting communities in the Arctic regions of the United States. Jackie Qataliña Schaeffer eloquently reminds us of the importance of understanding the culture of local communities as policies created at a national or regional scale impact the local place. What is created at one scale may be a mismatch to the other scale. One barrier to implementation of policy at the local level is language. Policies not communicated in indigenous languages can create barriers as can the issue of outsiders making decisions for a tribe or an indigenous community. (Qataliña Schaeffer in Ulmer, et al.) Again, geography comes to the forefront as cultural understandings at all scales underpin effective geography education, as does teaching from the indigenous perspective rather than the outsider perspective.

The National Strategy for the Arctic Region also speaks to the indigenous perspective as well as to human-environment interaction in its "Pillar 2—Climate Change and Environmental Protection: Build Resilience and Advance Adaptation, while Mitigating Emissions." Within this Pillar is the objective, to "Conserve and Protect Arctic Ecosystems, including through Indigenous Co-Production and Co-Management." (The White House) The intertwined nature of geography—scale (local to region), human-environment interaction, and culture—appears in this one objective. Someone

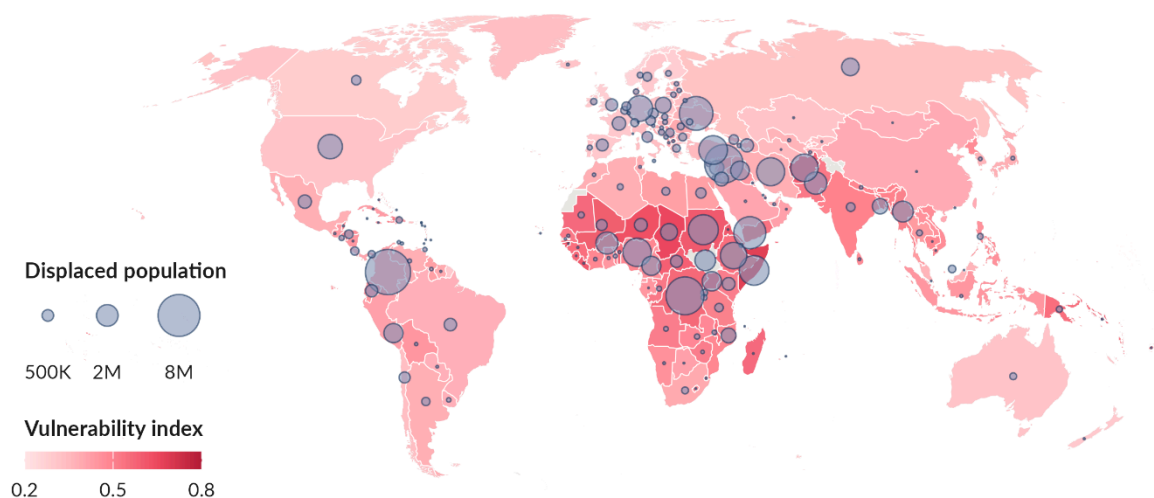
well-educated in geography is at an advantage in implementation of Pillar 2 and the objective regarding the ecosystem scale while recognizing the necessity of drawing upon indigenous knowledge.

Inherent to an understanding of climate change, whether at the local or regional scale just discussed, is the spatial perspective central to the discipline of geography. The ability to apply the spatial perspective at multiple scales is critical to building understanding of the ways to adapt to climate change and to mitigate its effects. Whether building a climate change adaptation plan at the local level, as has Telford and Wreken of the West Midlands region of the United Kingdom (Price) or engaging in wrestling with multiple effects of climate change, including displacement, sea level rise, high temperatures, or ocean acidification (United Nations Development Programme) as are many of the Small Island Developing States (SIDS), the spatial perspective is an imperative of all concerned.

Maps aid in creating this spatial perspective. While SIDS appear as small dots on this map (UNHCR Staff), for example, it illustrates a spatial perspective necessary to understand the global nature of how climate change and forced displacement are interlinked.

## Converging crises: forced displacement and climate vulnerability

The majority of the world's refugees and displaced people live in highly climate-vulnerable areas



*The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Note: Vulnerability data for South Sudan is unavailable. Sources: UNHCR Refugee Data Finder, University of Notre Dame*

Ocean warming is not just a concern of SIDS, ocean warming is impacting fisheries worldwide. The Pew Charitable Trust recommends adaptive strategies at the regional level to respond to fish species movement from warmer to cooler waters. A second recommendation from Pew is for fisheries managers to put more emphasis on the

ecosystem scale in order to understand the movement of fish and their role in providing food for humans. (Clayton, et al.) Changes in managing worldwide fisheries is but another example of the importance of human-environment understanding.

Sustainability in fisheries (SDG 14 Life Below Water) is one of the 17 UN sustainable development goals, as is climate change itself. In discussing SDG 13--Take urgent action to combat change and its impacts--the UN highlights "Earth's tipping point." The issue is made clear: "The world is on the brink of a climate catastrophe and current actions and plans to address the crisis are insufficient." (UN) In terms of progress and targets, the UN further notes that there are major gaps in the delivery of climate change education.

Target 13.3: An analysis of 100 national curriculum frameworks reveals that nearly half (47%) do not mention climate change. In 2021, despite 95% of teachers recognizing the importance of teaching about climate change severity, only one-third are capable of effectively explaining its effects in their region. Additionally, 70% of young people can only describe the broad principles of climate change in 2022.

Geography educators can play a vital role in helping to meet the Target 13.3 to "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning." (UN)

The whole spectrum of sustainable development inherent in the ability to meet all of the sustainable development goals is the need to use complex thinking linking the global economy, social interactions, governance, and Earth systems (Sachs). Said another way, "Sustainable development is economic, social, and environmental development that ensures human well-being and dignity, ecological integrity, gender equality and social justice, now and in the future." (UN Women, 2014) With gender equality central to the SDGs and to geographic education, geography education can serve to be a leader in demonstrating how to create "explicit commitments" and "inclusive deliberation processes" to create climate change policies and actions. (UN Women, 2014)

The need for explicit commitments and inclusive deliberation processes is particularly important because "The world is facing two seemingly distinct yet intertwined crises, whose links are often overlooked in climate discussions." (UN Women, 2023) The intertwined crises of climate change and the role women and girls play in providing care work, which is "a vital public good" which "underpins well-being and a thriving, sustainable economy." (UN Women, 2023) The "disproportionate share of care work" is "unpaid, unrecognized, and undervalued." (UN Women, 2023) Ultimately, "Recognizing the irreplaceable value of care is essential, as is addressing the unequal care burden that women and girls bear, and increasingly so amid the climate emergency." (UN Women, 2023) As already noted, geographic education is well-suited for bringing both the climate crisis and gender issues to the forefront. Bringing the intertwined nature of these issues to the forefront is also the role of geography educators.

Finally, using the geographic lens to study climate change is an imperative both in the short-term as well as in the long-term. Today's four-year-old preschoolers understand about the habitat of polar bears being endangered. The future is theirs. How we educate them and those students who are older is critical to building what John Holdren calls "durable climate policy," policy development that takes decades of work, should not be interrupted, and which allows for enough flexibility to respond to evolving events and knowledge. (Holdren comments in Ulmer, et al.) Climate change education from the geographic perspective is a PreK-lifelong education goal.

## References

Andrew Clayton, Grantly Galland, Ph.D. & Peter Horn. "As the Ocean Heats Up, Governments Should Prepare for Future Climate Changes." May 13, 2024. <https://www.pewtrusts.org/en/research-and-analysis/articles/2024/05/13/as-the-ocean-heats-up-governments-should-prepare-for-future-climate-changes>

Branch of Geospatial Support, Bureau of Indian Affairs - Branch of Tribal Climate Resilience. Tribal Climate Resilience: Community Driven Relocation. October 17, 2023. <https://biamaps.geoplatform.gov/TCR-CDR/>

*Gender Equality and Sustainable Development: World Survey on the Role of Women in Development 2014*. 2014. New York, UN Women. [http://www.unwomen.org/~media/headquarters/attachments/sections/library/publications/2014/unwomen\\_surveyreport\\_advance\\_16oct.pdf](http://www.unwomen.org/~media/headquarters/attachments/sections/library/publications/2014/unwomen_surveyreport_advance_16oct.pdf)

Price, Richard. "Climate plan will build resilience, says council." May 19, 2024. BBC News, West Midlands. <https://www.bbc.com/news/articles/cqqq34nzp6lo>

Sachs, Jeffrey D. *The Age of Sustainable Development*. 2015. New York: Columbia University Press.

Ulmer, Fran; Balton, David; Thiele, Raina; Holdren, John; Qataliña Schaeffer, Jackie. Crafting Climate Change Policy That Sticks: An Arctic Case Study. May 14, 2024. Seminar of the Harvard Kennedy School, Belfer Center for Science and International Affairs.

United Nations, "Goal 13 | Department of Economic and Social Affairs." Accessed 1 June 2024. <https://sdgs.un.org/goals/goal13>

United Nations Development Programme. Small Island Developing States are on the frontlines of climate change – here's why. April 30, 2024. <https://climatepromise.undp.org/news-and-stories/small-island-developing-states-are-frontlines-climate-change-heres-why>

UNHCR Staff. UNHCR. Climate crisis fuels flooding and deepens displacement. May 22, 2024. <https://www.unhcr.org/news/stories/climate-crisis-fuels-flooding-and-deepens-displacement>

U.S. Department of the Interior, Bureau of Indian Affairs, Branch of Tribal Climate Resilience. Voluntary Community-Driven Relocation. Accessed May 31, 2024.

<https://www.bia.gov/service/community-driven-relocation>

“Unpacking the Care Society: Caring for People and the Planet.” UN Women, November 28, 2023.

[www.unwomen.org/en/news-stories/explainer/2023/11/unpacking-the-care-society-caring-for-people-and-the-planet](http://www.unwomen.org/en/news-stories/explainer/2023/11/unpacking-the-care-society-caring-for-people-and-the-planet)

The White House. Washington, DC. National Strategy for the Arctic Region. October 2022.

<https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf>