Environmental Data Management Best Practices

Acquiring Traditional Ecological Knowledge Data

This subtopic sheet provides considerations for acquiring TEK data. It also provides recommended approaches for developing trust, including early engagement, creating a transparent and mutual communication flow, and goal alignment. Aspects of translation and quality control critical to successful consumption of TEK data are also outlined.



Overview

Unlike the acquisition of traditional quantitative data types associated with environmental and risk assessment, and remediation, there may be significant work to first develop trust and a mutual understanding with the traditional ecological knowledge (TEK) holders of how the information will be used. This is a crucial step in acquiring TEK data and may curtail all future processes; if trust is not obtained, the information cannot be collected. This trust and understanding can only be developed through a principle-centered approach to a shared vision, two-way communication of knowledge, alignment of goals, and understanding the data transfer process. After trust and understanding are established with the

TEK and Intellectual Property Rights

Intellectual property (IP) law is largely derived from European cultural interpretations of knowledge, ownership, authorship, private property, and monopoly privilege (Anderson 2010).
TEK is not protected by the current US or international system that grants protection for a limited period to inventions and original works by named individuals or companies (WIPO, Undated; NPS, 2018).
World Intellectual Property Organization (WIPO) members are working on efforts to establish these equivalent protections for TEK, but developing trust, an appropriate data management plan with a binding agreement on intellectual property rights, and establishing the intended end use of the information (for example, the information will be used to clean up contaminated property for community reuse) remains the best method to protect TEK. Many Indigenous nations and sovereign communities have established research protocols that include IP rights and must be strictly followed.

knowledge holders, it must be nurtured and maintained throughout the entirety of the acquisition and data usage timeline. There also must be an understanding and acceptance by the knowledge holders to provide the requested data willingly and with full consent and intellectual rights associated (see Sections 2.1and 2.2 of the Public Communications and Stakeholder Engagement White Paper for information on the CARE and FAIR principles).
An approach to developing trust and understanding with traditional knowledge holders may generally include:

- **Communications:** A two-way approach to sharing information, in formats that are easily understood by the traditional knowledge holders, with clear future use to ensure all participants' expectations are in alignment, is important to successful transfer of information.
- **Alignment of goals:** It is important to communicate and establish with the knowledge holder the goal or end

use of how the data will be collected, used, and retained. These aspects must be communicated and aligned before any transfer of data occurs.
- **Development of knowledge holder understanding:** It is important to try and see and hear through the eyes and ears of the knowledge holders. This is a crucial aspect for many other steps and stages of TEK data acquisition and use as it sets the lens from which the knowledge holder views their environment and their knowledge.
- **Collaborative engagement:** Early engagement with traditional knowledge holders using respectful and efficient interactions is important to build a foundation for the longer term development of trust. This early engagement is essential for developing a strong relationship with knowledge holders who are the point of entry for acquisition of traditional knowledge. One of the early points of engagement should be a meaningful discussion on how any TEK is shared, protected, and used. It is also best practice to have formal consent with the knowledge holder prior to any transfer of knowledge occurring.
- **Adopting a "cause no harm" philosophy:** Projects should benefit the community and people involved. Do not undertake a project that could benefit others at the expense of indigenous systems or tribal communities. Every care should be taken to design projects that maximize benefits for participating communities.

After trust and understanding have been successfully established with the knowledge holders, there may be some initial translation and quality control that is required before the TEK data can be properly used.

- **Translation:** As described above, it is important to develop knowledge holder understanding that may be based on history and community knowledge and experiences. Thus, the information obtained from them may have to be translated into a usable form (see Managing TEK Data subtopic sheet) for environmental assessment and remediation. This translation may be required in addition to any language barriers (that is, cultural translation).
- **Quality control:** In many cases, the information received from traditional knowledge holders is told from an oral tradition, storytelling perspective. As such, some of the information presented (for example, myth, legends, anecdotes) may need to be vetted and fact-checked to make sure it is grounded in truth. This could be as simple as hearing the same observation from multiple people, or by getting clarifications from individuals noting contradictory observations and noting discrepancies in the metadata and final report.

Note that TEK can be quantitative (for example, "We harvested nine caribou at this geographic location this year."), qualitative (for example, "I have noticed there are many changes in the environment recently."), or both ("I have noticed that changes in the environment have affected the caribou; they are further north and we count many fewer."), In this example, the information could be vetted by comparing that knowledge to information collected via modern science methods (for example, herd counts and location records for the last 10–25 years).

After TEK is obtained from the knowledge holders, it may be used for environmental assessment and remediation purposes that include:

- land use surveys as part of assessment and risk management
- mapping of culturally or ecologically sensitive areas (see the Geospatial Data fact sheets and the Public Communications and Stakeholder Engagement White Paper for strategies and other considerations regarding protecting privacy of data that is tied to a geographic location)
- infilling of historic knowledge gaps
- country food studies as part of assessment and risk management
- setting site baselines prior to substantial anthropogenic land use
- setting background or control for contaminated sites
- remediation design support, such as borrow area spotting or revegetation/silvicultural prescription support
- identification of invasive species against historic baseline
- knowledge of site/regional changes over time

Resources

- Canadian International Development Agency (CIDA). 2014. Handbook on Project Planning and Indigenous

Traditional Knowledge. https://climatetkw.files.wordpress.com/2014/09/tks_guidelines_v1.pdf
- Interagency Arctic Research Policy Committee. 2018. Principles for Conducting Research in the Arctic. https://www.iarpccollaborations.org/uploads/cms/documents/principles_for_conducting_research_in_the_arctic_final_2018.pdf
- American Anthropological Association Statement on Ethnography and Institutional Review Boards. https://www.americananthro.org/ParticipateAndAdvocate/Content.aspx?ItemNumber=1652
- Sherman, Brad, and Susannah Chapman. 2020. Rethinking Intellectual Property Law's Relationship With Agriculture. In Intellectual Property and Agriculture (pp. xiii-xviii), edited by Brad Sherman and Susannah Chapman. Cheltenham, UK: Edward Elgar.
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- Chapman, Susannah and Tom Brown. 2013. Apples of Their Eyes: Apple Trees and Memory Keepers of the American South. Seeds of Resistance/Seeds of Hope: Place and Agency in the Conservation of Biodiversity, edited by Virginia Nazarea, Robert Rhoades, and Jenna Andrews-Swann. Tucson, AZ: University of Arizona Press.