Briefing Note

YES / AND: Inclusive Pathways for Arctic Environmental Data Systems

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The Arctic's gender and environmental data development landscape

Environmental data is the backbone of critical decisions made across the Arctic today, influencing everything from community climate adaptation plans to international policy agreements. Rapid environmental and social change across the Arctic has underscored both the need for more effective observing systems and the importance of international collaboration in a region where sustained data collection is inherently difficult. Since the fourth International Polar Year (2007-2008), internationally coordinated observing and data sharing have become increasingly central to Arctic science cooperation. This momentum led the Arctic Council and the International Arctic Science Committee to co-establish Sustaining Arctic Observing Networks (SAON) as a mechanism for Arctic and non-Arctic states, Indigenous Peoples' organizations, and other partners to make collective progress toward sustained and coordinated Arctic observing. Observing and data systems also featured prominently in the first three Arctic Science Ministerials (ASMs) – high-level political convenings that brought governments and major Arctic science partners together around shared research priorities, coordination needs, and international cooperation.

By the third ASM, co-hosted by Iceland and Japan in 2021, progress on observing was beginning to intersect more visibly with questions of representation and diverse knowledge systems. This ASM took place concurrently with Iceland's 2019–2021 chairship of the Arctic Council (Arctic Council, 2021), during which gender equality received heightened attention within Arctic cooperation and resulted in the *Pan-Arctic Report on Gender Equality in the Arctic* (add citation). Together, these developments pointed toward a need to understand whose realities might be included or excluded in system designs and partnership development.

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One tangible outcome of the first ASM was that SAON's partners generated a consensus framework from national Arctic policies and strategies to better align their efforts. The result was the *International Arctic Observing Assessment Framework* (IAOAF, IDA 2017) – an objectives-based framework that outlined 12 broad societal benefit areas (Box 1), which collectively contained more than 160 key objectives that well performing Arctic observing and data systems should address. It quickly vitalized important conversations about strategically aligned investments around impacts. Yet for a framework organized around societal benefit to fulfill this strategy for all, its priorities must reflect the range of people, knowledge systems and lived experiences those observing systems are intended to support. In this, it has been the subject of critiques from those who felt that the top-down and linear arrangements of the framework did not reflect their needs (Starkweather et al 2022, Starkweather et al 2024), particularly those of Indigenous communities. Revisiting the framework has been a consistent recommendation from grassroots Arctic observing system convenings like the biannual Arctic Observing Summits (https://arcticobservingsummit.org/).

1. Disaster Preparedness
2. Environmental Quality
3. Food Security
4. Fundamental Understanding
5. Human Health
6. Infrastructure and Operations
7. Marine and Coastal Ecosystems
8. Natural Resources
9. Resilient Communities
10. Sociocultural Benefits
11. Terrestrial and Freshwater Ecosystems
12. Weather and Climate

Box 1. The twelve societal benefit areas of the IAOAF organize more than 160 key objectives to serve as performance benchmarks for internationally coordinated efforts. It supports systems level evaluation and advancement.

The Horizon 2020-funded Arctic PASSION (Pan-Arctic Observing System of Systems: Implementing Observings for Societal Needs) project examined gender in the context of Arctic observing systems and its societal impacts, bringing gender into the broader effort to make the framework more inclusive. An Arctic PASSION led assessment of current Arctic observing systems (Women of the Arctic 2025) has found that they remain largely gender blind – the collection of gender- and sex-disaggreagated data is scarce and fragmented, compounded by inconsistent statistical systems, limited database interoperability, and the absence of a centralised regional or global repository for gender-and-environment data. Collectively these efforts pointed to a need to support more dialog, with an emphasis on bringing visibility to excluded perspectives.

Towards inclusive pathways for gender-aware system development

"YES/AND: Inclusive Pathways for Arctic Environmental Data Justice" (YES/AND) is a project led by Women of the Arctic (WoA), a Finland-based non-profit association that focuses on issues

of gender equality in the Arctic. WoA previously authored the chapter on "Gender and Environment" in the *Pan-Arctic Report on Gender Equality in the Arctic* (2021) and was a partner in the Arctic PASSION project, where it focused on the gender dimension of a pan-Arctic Observing system. WoA expanded its team to support this work uniting expertise in gender and social science with that in Arctic observing and data-system assessment, reflecting the interdisciplinary bridge the project sought to strengthen. It is important to note that, given the focus on gender, several members of the project team were working outside of their normal institutional settings to engage in this project.

YES/AND is a concept derived from (applied) improvisation (Dudek and McClure, 20210) that seeks to build (YES) on the value of using societally-focused frameworks like the IAOAF in observing/data system design, (AND) while drawing from feminist evaluation (e.g. Podems and Negroustoueva, 2021) and Indigenous data principles (Carroll et al., 2020) to elevate voices that were not explicitly included in the original framework design. The project's purpose is not to serve as a narrow gaps analysis of the IAOAF but to illustrate where excluded perspectives can limit network design and improvement tools.

The work is supported by a small grant from the Gender and Environment Data Alliance (GEDA), a global initiative working to improve the quality and use of gender-and-environment data in climate and environmental decision-making. GEDA's funding model itself takes a feminist approach by providing a flexible, small scale grant that encourages experimentation and context-sensitive research over administration.

The project team envisioned a series of dialogs to elicit feedback on the IAOAF and broader topics related to gender and environmental data (Fig. 1). It was initially envisioned that the team could convene discussions alongside other relevant events like the Arctic Observing Summit and the UArctic Congress and in partnership with organizations like the Arctic Mayors Forum. What evolved was an open scoping discussion at the Arctic Observing Summit, followed by a diverse series of focus groups and organically structured gatherings to meet participants where they were at and to best support dialog.

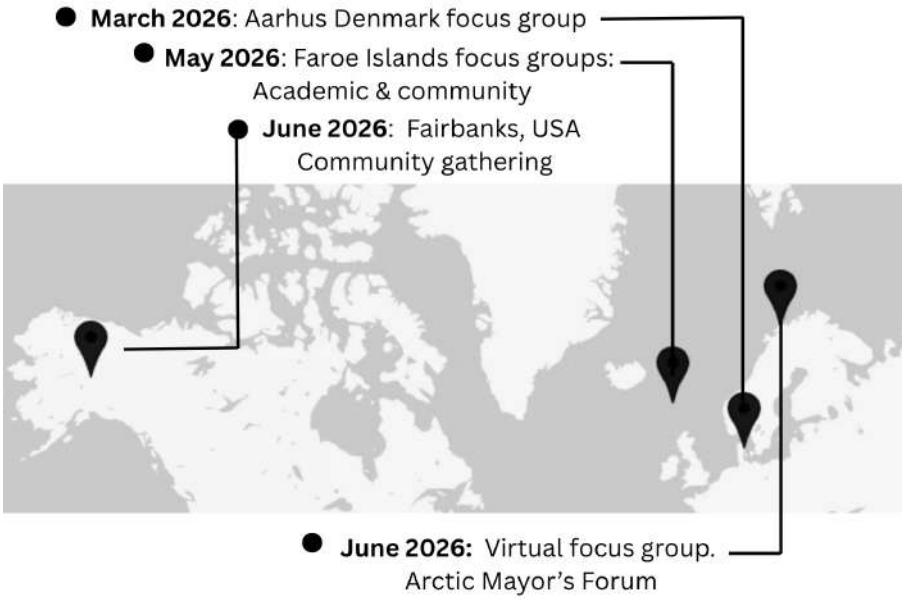

Figure 1. Timeline and location of focus group and community sessions

Mobilizing useful conversations about gender and environmental data in Arctic settings

As we synthesize the results from our focus groups, we reflect in this briefing note on what was fruitful in our approach, what was unexpected and some early takeaways about moving toward gender-informed and intersectional environmental data collection.

An initial hurdle concerned proceeding with ethics. While the research team carried experience in ethical research protocols in the context of their institutions, working under the umbrella of *Women of the Arctic* surfaced unique challenges to implementing ethical protocols in non-traditional, cross-jurisdictional, hybrid settings resulting in the absence of explicit requirements from a funder or institutional framework. Recognizing the potential sensitivity of the discussions and subsequent data gathered, the research team built an ethics protocol modeled after university-like Institutional Review Board practices, but drew also from the Finnish National Board on Research Integrity model for ethical self-regulation with attention to relevant local protocols in the Faroe Islands and the state of Alaska. The project's funder, GEDA, was cognizant of these challenges and adopted a supportive stance, given the sparse resources available for projects such as this to obtain ethical oversight.

YES/AND was initially envisioned as a series of focus groups using a common set of prompts about the IAOAF, gender and environmental data. In practice, the project evolved toward a more adaptive approach. Conversations took place among people with very different relationships to environmental information – from observing scientists and academics to community members and municipal leaders – so, aligning discussion format to settings proved centrally important to creating conditions in which people felt able to speak freely and effectively. . Rather than treating this variation as a departure from a prescribed approach, we came to understand responsiveness to context as an important part of the inquiry methods themselves.

At the Arctic Observing Summit, where participant anonymity was unrealistic, the more academically minded participants were given framing talks followed by specific dialog prompts and reported back group findings in plenary. In the Faroe Islands, local knowledge of research ethics - particularly those focused on small island communities (Hayfield, 2022) - and partnership with a familiar research institution helped establish an appropriate setting for discussion where anonymity could be upheld within a given group. In Fairbanks, the gathering was deliberately informal and relational: a trusted local convener brought people together, food was shared, and participants were invited to bring children or dogs rather than leave parts of their everyday lives at the door. The Fairbanks gathering was also explicitly *not* designed around "data collection" from participants, though participants were invited to voluntarily share letters about their experience of living and observing Arctic change with the research team. Members of the Arctic Mayors Forum acknowledged the importance of anonymity, affirming that there were risks to discussing gender openly in their roles. In the evolving methods of the project, GEDA proved a very supportive partner. Their own feminist approach to grantmaking recognizes the need for flexibility in project implementation. These experiences reinforced a central lesson from feminist evaluation: safety, trust and attention to power relationships shape what knowledge can emerge from a conversation and what inclusive framework production might entail.

The diverse dialogues also revealed that gender can be surprisingly difficult to address directly. Participants sometimes expressed uncertainty about whether gender was relevant to their work, reluctance to speak outside their expertise or to make intuitive statements, or concern about the professional or political risks of doing so. This led the environmental science academics at the Faroe Island focus group to conclude that more interdisciplinary research that united their work with gender-informed social science was needed. Similarly, at the Arctic Observing Summit, dialogue revealed that gender-environmental data intersections only become visible in real-world contexts where multiple systems interact - like climate, energy system development and gender or aging. This further emphasized the importance of interdisciplinary approaches. While in a community like the Faroes, the gender dialogue was more accessible - perhaps owing to the longstanding public dialogue surrounding the differential impacts of harvesting whale meat on men's and women's health. Here the depth of the dialogue around gender roles in professional society was significant and far-ranging, supporting discourse toward other intersectional identity divides like rural v. urban or Faroese v. immigrant. Across discussions, gender became most visible when participants moved away from the abstract category of gender roles and considered concrete questions: Who carries particular responsibilities? Who makes decisions? Who experiences the consequences when environmental conditions change?

While the entry points for effective dialogue were not always obvious, the conversations also provided reason for optimism. Initial uncertainty often gave way to curiosity, collegiality and recognition. Academic participants grew more comfortable raising topics that they intuitively felt might be relevant. Participants in the Arctic Mayors forum found ample common ground for continued dialogue related to disaster preparedness, natural-resource development, environmental quality, and community planning. In some cases, conversations generated new professional connections and interest in carrying the questions into participants' own work. Rather than indicating an absence of concern about gender, the early hesitation often seemed to reflect a lack of spaces, language or institutional permission for making those connections.

Taken together, these experiences suggest that building more gender-responsive Arctic observing and data systems is not simply a matter of adding gender-disaggregated variables to existing frameworks. It also requires creating settings in which people with different forms of expertise and lived experience can identify what existing systems make visible – and what they leave unseen.

Moving Forward

YES/AND builds on a broader discussion about gender and environment data in the Arctic by adding concrete experience from a range of observing, research, community and decision-making settings. The project also demonstrated the value of bringing together expertise in gender and social science with expertise in observing and data-system design—fields that often approach questions of societal need from different starting points.

Moving forward, we will synthesize and publish the project findings, and bring recommendations into ongoing SAON discussions about observing-system assessment and the evolution of frameworks such as the IAOAF. Our aim is not simply to add gender as another variable or "layer" within existing systems, but to encourage greater attention to who is represented in the processes through which observing priorities are identified, whose knowledge becomes visible, and who ultimately benefits from the information produced.

References

Arctic Council. (2021, May 20). *Reykjavik declaration.* https://oaarchive.arctic-council.org/items/4e4d237c-9570-49b3-b815-c22b605e8296

Carroll, S. R., Kukutai, T., Rodriguez-Lonebear, D., Hudson, M., Garrison, N. A., et al. 2020. The CARE Principles for Indigenous Data Governance. *Data Science Journal* 19: 43. https://doi.org/10.5334/dsj-2020-043

Dudeck TR, McClure C. 2021. The applied improvisation mindset: Tools for transforming organizations and communities. Bloomsbury Publishing.

Hayfield, E. A. (2022). Ethics in Small Island Research: Reflexively navigating multiple relations. Shima, 16(2), 233–249. 10.21463/shima.164

IDA. 2017. International Arctic Observations Assessment Framework. IDA Science and Technology Policy Institute, Washington, DC, U.S.A., and Sustaining Arctic Observing Networks, Oslo, Norway p 73. https://www.arcticobserving.org/images/pdf/misc/STPI-SAON-International-Arctic-Observations-Framework-Report-2017.pdf

Podems D, Negroustoueva S. 2021. [accessed 2025 Dec 19]. https://www.betterevaluation.org/methods-approaches/themes/feminist-evaluation

Starkweather S et al. 2022. Equity and Shared Benefit – Revisiting the Concepts and Practices of the International Arctic Observing Assessment Framework. https://arcticobservingsummit.org/wp-content/uploads/2022/02/2022_027_Starkweather.pdf

Starkweather S et al. 2024. Guiding Observing Network and Data System Development with Societal Impact Approaches: A Short Statement Calling for an Arctic Community of Practice. https://pubs.aina.ucalgary.ca/aos/aos2024/AOS2024_Starkweather_short-statement_WG4.pdf

Women of the Arctic. (2025). Deliverable 8.4 White Paper: Gender Dimension of Arctic Observing Systems (T8.4) (Version 3). Zenodo. https://doi.org/10.5281/zenodo.17822556