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International Collaboration, Policy, Indigenous Peoples Session

The Indigenous Sentinels Network: A Model for Collaborative Research that Weaves Local and Traditional Knowledge with Science in the Arctic

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In 2002, the Indigenous Sentinels Network (ISN) was launched by the Tribal Governments of the Aleut Communities of St. Paul and St. George Island as a technology-based tool for integrating diverse knowledge systems for environmental monitoring in the Bering Sea. Over the past 20+ years, ISN has become increasingly recognized for its flexibility in implementing community-driven and Indigenous-led environmental data collection programs, allowing it to expand its geographical focus from the Bering Sea region to areas in mainland Alaska and beyond. ISN aspires to bridge complex divisions between institutions, cultures, and knowledge systems through the development of community-driven and owned environmental databases. Indigenous, traditional, and local knowledge (ITLK) is commonly understood as an alternative way of knowing, rooted in intergenerational transfer of knowledge and inseparable from the place-based cultural contexts in which it is produced. ITLK has been increasingly recognized by research institutions for its valuable contributions to ecology and climate science. However, there remain procedural and methodological gaps in understanding how ITLK can be respectfully accommodated in environmental research and resource governance. Though Arctic Indigenous communities have stewarded practices and inter-relational knowledge production for millennia, it is only recently these ways of knowing have begun to be widely and respectfully recognized by conventional academic and government research institutions. During this panel session on “International Collaboration, Policy, Indigenous Peoples” we will examine the Arctic as a space for innovation and collaboration in how natural science research, social science, and emergent technologies can contribute to community well-being and empowerment, while also sharing in the benefits offered by engagement with ITLK and local knowledge holders. We seek to demonstrate how communities and researchers can collaborate on understanding diverse environmental data to better inform management and decision-making. Japan's new Arctic research vessel can serve as an excellent platform for international collaboration in Arctic research by implementing the following strategies:

1. **Establishing Collaborative Agreements**: Japan can form partnerships with other countries and Tribal communities to facilitate joint research projects. Initiating joint research projects that span multiple disciplines. For example, studying the effects of climate change on the Arctic ecosystem could involve collaboration between biologists, climatologists, oceanographers, social scientists, and local knowledge holders that are experience-based experts.

2. **Practice Creative Science Communication and Open Access to Research**: Encourage open access to research findings and data, ensuring that the information gathered from the

vessel is widely available and co-produced by both global scientific community and communities so that information is shared in ways that are educational, engaging, and usable for local entities.

3. **Capacity Building and Training**: Offer training programs and workshops onboard to help researchers and local community leaders learn new techniques, share best practices, and build capacity. For example, training workshops and programs on the use of specialized equipment, methodologies, fieldwork techniques, data analysis software, or specific research methodologies can be organized onboard the research vessel.

4. **Technology and Data Sharing**: The vessel can be equipped with state-of-the-art technology for data collection and analysis. Establish systems for sharing technology and data with international partners and local communities. Develop standardized data collection methods and appropriate sharing protocols across nations and with Tribes to ensure compatibility and accessibility of data. This can involve setting up centralized databases for research findings, satellite imagery, climate models, and sharing ITLK.

5. **Long-Term Monitoring Programs**: Collaborate on long-term monitoring programs to study the Arctic's environmental changes, enabling multiple nations and local communities to contribute to data collection, analysis, and capacity sharing over an extended period. Engage already established long-term monitoring networks and involve multiple countries to track environmental changes over time. Continuous data collection and collaboration in maintaining monitoring stations, buoys, and observatories across the Arctic can provide valuable insights.

6. **Engaging Indigenous Communities**: Involve and respect the knowledge of Indigenous Arctic communities. Collaborate with them in research and take time to understand their perspectives from the beginning of research design. Focus on co-production of knowledge that often occurs through sustained and reciprocal interactions between researchers and communities that will enable a more holistic understanding of complex issues; thereby fostering a more inclusive understanding which can significantly contribute to scientific insights.

7. **International Funding and Resource Sharing**: Encourage international funding agencies to support collaborative projects and initiatives, allowing the pooling of financial resources to tackle larger research endeavors. This can involve seeking grants from entities like the Arctic Council, the European Union, or various national scientific funding agencies. The vessel can be a hub for these discussions and initiatives and help foster collaboration on climate policy research and collaborative funding support.

By implementing the strategies summarized above, Japan's Arctic research vessel can facilitate global collaboration and a deeper understanding of the Arctic. Learning from ISN, the vessel can spearhead community-driven environmental data collection, blending modern science with ITLK. This approach ensures comprehensive insights into the Bering Sea and Arctic ecosystems, bridging modern science with millennia-old Indigenous knowledge.