

# WEBINAR 1: WHAT IS ARCTIC SCIENCE?

MONDAY, 21 FEBRUARY 2022

TRANSCRIPT (RECORDING AVAILABLE ON THE [UNITAR WEBSITE](#))

## **Prof. Paul Arthur Berkman - 00:02**

Welcome to this Webinar Series on Enhancing International Scientific Cooperation: Arctic Science and Technology Advice with Ministries

My name is Prof. Paul Arthur Berkman and I have the honour as well as pleasure to coordinate this webinar series that is funded by the Ministry of Foreign Affairs of Japan, starting today with Webinar 1; Webinar 2 (10 March 2022) and Webinar 3 (24 March 2022).

I thank Consul General Setsuo Ohmori from the Japanese Consulate in Boston for introducing the opportunity for this webinar series two years ago and Ms. Marisa Yamamoto for her efforts subsequently to enable this important dialogue, building on the 3rd Arctic Science Ministerial, which was convened in Tokyo in May 2021 by Japan and Iceland.

I especially thank Dr. Jenny Baeseman as well as Prof. Akiho Shibata at the Polar Cooperation Research Center, Kobe University, for their fundamental contributions to implement this project.

I thank Ms. Clara Lopez at the United Nations Institute for Training and Research (UNITAR) for managing the logistics of this webinar series, which was kindly enabled by Mr. Rabih El-Haddad who directs the Multilateral Diplomacy Program at UNITAR.

Importantly, I thank the wonderful team of scholars from the Harvard Kennedy School (Tulio Andrade, Teruaki Fujii and Nadia Filimonova) and the Arctic Challenge for Sustainability program in Japan (Zia Madani, Osamu Inagaki and Jugo Sato) who are contributing as rapporteurs with passion, initiative and creativity to synthesize the insights that will emerge from our dialogues.

We are on a journey together and, importantly, I thank each of you from across the 43 nations and many time zones, with deep appreciation for sharing your insights to help enhance international scientific cooperation “for the benefit of all on Earth across generations.”

The goal of this holistic (international, interdisciplinary and inclusive) project is to help enhance international scientific cooperation with transdisciplinary integration of international law, ministries of nations, Indigenous peoples and science inclusively.

The Arctic will be applied as a global case study, considering climate and planetary challenges to balance national interests and common interests, promoting cooperation and preventing conflict for the sustainable development of our globally-interconnected civilization.

Research and action contributions to produce informed decisions that operate short-to-long term with science in the Arctic are highlighted by the 2017 Agreement on Enhancing

International Arctic Scientific Cooperation that is binding among the eight Arctic states and the Arctic Science Ministerial (ASM) process that began in 2016 among Arctic and non-Arctic states with Arctic Indigenous Peoples' Organizations.

This project builds on contributions from experts involved with the ASM process since 2016, including: ASM1 in Washington, DC with the United States as the initial host; ASM2 in Germany with Finland and the European Commission as co-hosts in 2018; ASM3 in 2021 with Japan and Iceland as co-hosts; and ASM4 in 2023 with the Russian Federation and France as co-hosts.

Each webinar will involve an opening plenary session for an hour with keynote presenters who will introduce expert insights, addressing a set of questions, designed to build common interests. I will facilitate the panel dialogue among these experts, providing opportunity for the audience to raise questions in the chat. The opening plenary panels will be recorded.

After the first hour we will break into pre-assigned sessions where you will have the opportunity to interact with these experts, who will further facilitate dialogues with your inclusive input about addressing these questions. I will explain details of these breakout sessions at the end of this panel, which will address:

#### **What is Arctic science?**

- ❖ **How do natural sciences, social sciences and Indigenous knowledge 'fit together' and enhance each other?**
- ❖ **How is science facilitated/conducted? Who is needed to do 'the science'?**
- ❖ **Is international cooperation needed? If so, to what degree?**

It is an honour as well as pleasure to briefly introduce the four keynote presenters for today:

- **Mr. Henry Burgess** – Head, UK Arctic Office, Vice-President, International Arctic Science Committee (IASC).
- **Dr. Kirsi Latola** – Vice-President Networks, University of the Arctic, Finland; former Chair and current member of the European Polar Board.
- **Prof. Andrey Petrov** – Associate Professor, University of Northern Iowa, US; Former President, International Arctic Social Sciences Association (IASSA).
- **Hon. Mikhail Pogodaev** – Vice-minister for Arctic Development and Indigenous Peoples Affairs of the Sakha Republic; Special Envoy of the Russian Chairmanship in the Arctic Council on Indigenous Peoples and Regional Cooperation; Former Chair of the World Reindeer Herders Association; Former Executive Director of the Northern Forum.

The three breakout sessions for each webinar (which will be unrecorded) will involve initial discussions (30 minutes) followed by a plenary reporting from the three sessions (15 minutes) with continued breakout group discussion (30 minutes) and final reporting (15 minutes). The breakout sessions will be managed by UNITAR.

The reports from each breakout session will be treated as data to synthesize for each webinar with leadership from the scholar-rapporteurs. The syntheses from the three webinars will be further distilled with your input into a Science Diplomacy Action publication (as previously), capturing insights from the webinar series that will help to enhance international scientific cooperation in the Arctic and globally as the umbrella goal.

**Hon. Mikhail Pogodaev – 08:04**

Thank you and hello dear friends. First of all, I would like to thank all the organizers of this webinar for the opportunity to share my thoughts and experience on Arctic science and I welcome everyone in my capacity as the special envoy of the Russian chairmanship, in fact, of the Council on Indigenous and Regional Cooperation in general. Science, in my opinion, should mainly serve to the wellbeing of humanity, for people and nature.

It should help us to comprehend and understand the processes taking place in the world around us and make people live better, so that nature also remains resilient. Indigenous peoples are originally the first searchers, because indigenous knowledge is tested knowledge, it is working knowledge. It is in our peoples' nature to survive and thrive in some of the most inhospitable places on the planet.

This is a system of knowledge that has been accumulated and transferred by many generations of indigenous peoples and indigenous knowledge systems. Indigenous peoples have their own ontologies epistemologies and methodologies. Indigenous knowledge is key to accurate interpretation of changes in the natural and social systems in the Arctic. Science and policy that are not inclusive of indigenous knowledge cannot be considered as adequate to address the Arctic system.

The Arctic is changing, and we need to have the best available knowledge to better understand the processes of this change, and ensure a sustainable development, in accordance with our 2030 Agenda. Therefore, in my opinion, it is necessary to talk about the corporate action of knowledge. When scientific knowledge is combined with traditional knowledge, we can obtain something new. It seems to me strange to divide knowledge into natural scientists and social scientists from the point of view of indigenous peoples.

For example, it would be difficult for me to imagine that my uncle, when he was going reindeer hunting would say: "Oh well, we need to think about natural scientists here".

So what is Arctic science in Russia? We have a long experience in the development of the so-called northern studies and one of the brightest representatives of indigenous people. He was an outstanding scientist and first head of the world's only institute for Indigenous Peoples on the Siberian branch of the National Academy of Sciences, and he used to talk about the introspective approach to research. This is when indigenous knowledge holders do science and combine scientific knowledge with indigenous thought. By that time, at this institute of indigenous peoples in Yakuts, 80% of the research staff were representatives of Indigenous Peoples. And thanks to this, the institute conducted a large number of new studies and received new scientific results which were acknowledged by many scientists in the world.

Today we are observing an explosion of scientific activity in the Arctic, including from Indigenous Peoples.

All sorts of scientists get into the indigenous communities, sometimes quite unceremoniously and engage in the extraction of traditional knowledge and thereby learn their scientific name.

Here it is necessary to develop ethical principles and guidelines, which should be followed in any process of scientific research. Indigenous communities today are unfortunately not immune from this kind of researchers. There is no protection of the rights of indigenous people. The process of co-production of knowledge should be fair and equitable for indigenous peoples and scientists. It is necessary to create and support institutions of indigenous peoples, including educational and scientific ones.

I often say that an unfair situation is building up in our science arena when competition for scientific funding becomes practically impossible for indigenous peoples, given that the few and small educational and scientific institutions of indigenous peoples cannot compete with big universities and research centers for funding.

Therefore, it is necessary to develop special models for supporting the indigenous institutions, especially trans boundary institutions, which are very important from the point of view of international cooperation in science and the co-production of nodes. International cooperation in science in the Arctic is certainly needed. And I firmly think that we need even more cooperation in Arctic nowadays. I have been involved in international cooperation regarding Indigenous Peoples for more than 30 years. When I was working in the association of World Reindeer Herders, the first festival in Tromso was held 30 years ago in 1983. Since then, we have managed to establish cooperation between Reindeer Herders, scientists, governments, and businesses, which has evolved into a big movement. We believe that it is imperative to invest in young people in order to increasingly involve them in research, and also the research of traditional knowledge and science.

Now, together with the Federal Agency for nationalities in Russia, GMO, the National Center for Reindeer Husbandry, and others, we wish to create a training course on traditional knowledge. Traditional knowledge has been used in the Arctic Council on diplomacy for decades. We see that archetypes are now developing, for example, religious people, Serbian participants of that council, develop the tradition of traditional knowledge principles. There is a lot of work and movement inside the Arctic Council, which I think it would also be very useful for science in general.

I believe that with international cooperation in the field of science and co-production of knowledge, we can conduct the comparative analysis and exchange best practices. Again, when we combine these two, two plus two is five, we can achieve optimal results. In conclusion, I would like to underline that stability and cooperation are based on respect for each other.

Thank you. I think I will stop here and ready to discuss these points.

**Prof. Paul Arthur Berkman - 17:03**

Thank you very much. We call for your important insights and observations. Kirsi, I invite you to share your observations as well please. Thank you for that.

**Dr. Kirsi Latola – 17:04**

Thanks for inviting me here. It's not easy to follow you Mikhail because you put it so nicely. I would like to give three points on openness, and openness and inclusiveness with the values of the University of the Arctic that I work with, as Paul mentioned. And first I would like to call for an open mind and everyone to give a chance for a new way of thinking on what is Arctic research, how it's done, and how it's kind of handled. We all know that traditional western knowledge and Western science is often understood as physical hard sciences, experiences to the Arctic and so on. Sometimes, it's also thought that this type of research and science is a standalone science. So, it's kind of done completely on its own. But, is that actually the case? Wouldn't it be beneficial for scientists and researchers to learn what people indigenous or non-indigenous know about the place they have lived for 1000s of years? and also, how the research benefits the peoples who live in the region?

If you think about climate change, it is their home life and they are directly affected by climate change.

Secondly, I wanted to point out something that I quite recently heard from my colleagues in International Central Reindeer Husbandry, because they pointed out that in second icon in 2005, it was a starting point of a new era, because it stated that for future activities and implementation and I quote now, "the key issue is the ownership and active participation of other indigenous peoples in research activities, and it should be reflected in future programs and the implementation of science plans for each of the four focal points". In this hypothesis science plan, scientists, unconscious indigenous persons and communities should be given the opportunity to propose specific research plans that break new ground. That was 17 years ago, and since then, we have had ICARP in 2015. We have, as Paul mentioned in his opening statement, three Arctic science Ministerial meetings and statements. We have had other political statements, including the European Union's Arctic policy, where they stated the importance of inclusion of indigenous traditional knowledge using the participatory research method, co-production of knowledge.

However, now, almost 17 years later, since we were in Copenhagen in 2005, we know that there has been a lot of improvement, and we know that there are good examples of the corporate as research, but as Mikhail has said it has also caused a kind of a negative effect that the ethical guidelines and all these good practices have also been forgotten. I say that there's still a long way to get the full understanding on why indigenous knowledge or local knowledge should be used together with Western science, how the different knowledge systems could actually work together in an ethical way. And how they could benefit each other, both locally and globally. As we have said, two plus two is actually five.

Thirdly, I wanted to point out something in relation about the social sciences and humanities because I see that very often. The social sciences and humanities are not actually considered as sciences.

They are often thought to be less important, and they are less funded. We know that if you look at the statistics, for example, in Europe, the most research funding has gone into the natural sciences and also societies. However, we cannot get the holistic understanding and knowledge on studied issue, whatever that is, without working across the disciplines. We can't work in silos we have to have a full complete understanding. And we know that there isn't a single factor, which will not influence another factor. Everything relates to everything. We need actors to cooperate across different disciplines.

We need to cooperate across the players via the research and educational organizations, public bodies, businesses, and so on. And of course, we need to cooperate with the people who live in the Arctic, whether they are indigenous or not. We very often forget that there are actually non-Indigenous peoples as well in the Arctic. Those who live in the Arctic, we know our lands. We know what is going on here. We know what the issues are, and we do have a competence. We do have a highly ranked number of scientists and researchers and we do welcome a cooperation because we know that that is the key to the success to have a really full cooperation.

Thank you.

**Prof. Paul Arthur Berkman - 23:08**

Thank you Kirsi for helping us better understand two plus two equals five. For the next presentation, I invite Mr. Henry Burgess from the British Antarctic Survey to share insights as well, Henry, please.

**Mr. Henry Burgess - 23:11**

Oh, thank you very much indeed. Thank you to the previous two speakers and thank you to all for being here. I recognize some of the faces on my screen but not all, but it's a pleasure to see you all, thank you for this opportunity. My name is Henry Burgess, as Paul said I work at the British Antarctic Survey in Cambridge, in the UK. The role I do is as head of the UK Arctic office, and our job is to connect researchers from lots of different disciplines in the UK to researchers across the rest of the world with a view to kind of increasing scientific cooperation and coordination wherever possible.

The particular point I wanted to share at the start was that I come at this from a slightly different aspect, I think, perhaps, compared to the previous speakers, I don't have a science background. I'm not from an Arctic state, but the UK is a non-Arctic state, of course. My academic background is as a working professional for government, essentially. I moved into this role five, six years ago.

Therefore, I wanted to kind of think about one issue in particular, which is in my mind, and then three responses to that issue. I think we've been very good as a community at creating a powerful, necessary narrative about the importance of the Arctic and the impact of environmental and social change in the Arctic. And I think that cuts across lots of people who wouldn't consider that they know much about the Arctic or about science in general, that sense of kind of rapid change in the Arctic, the way that the Arctic is important for itself and for the people that live there, indigenous, and local people. but also, for its global connection, the impact that that change in the Arctic has had on the rest of the world. I think that narrative

is very strong. Whenever I speak to policy and decision makers in the UK or more broadly, they get that message essentially that that hits home. All of us have kind of worked very hard on that message over decades. Nonetheless, I think we've been less successful. It's naturally the case about kind of the science response to that message about how science organizes itself to respond to that change in a way that's kind of as timely as possible as powerful as possible. And it's partly because this is a court of international effort. The way that science is funded in all our different countries is completely different from some it's very directed from the top. Here, the government sets the priority. "This is what we will study, these are the ships that we have available". And then in other countries, it all comes from the bottom, it comes from a science idea. Someone's kind of sitting on their own or working with colleagues to create a kind of an idea that then becomes a funded program on a project. Nowadays, we have all kinds of different ways of sharing data or not sharing data.

I think that narrative about change in the Arctic is very strong. And I'm not yet sure that we're in the right place when it comes to how science responds and particularly how science responds in connection with indigenous and local communities. What are their responses to that? The first response is the state of Arctic science report, which comes from the International Arctic science committee. The first one of those was produced in 2020. The second one was last year. And this is not about the science itself in the Arctic. It's not about how the Arctic is changing. It's about the state of the science century. It's where the gaps are, where we can cooperate, where is the beginning of knowledge in some particular areas, and that is going to be a huge priority in the future. And so that's something that we can focus on in the future. That's something that I think the international Arctic science committee has been a particular kind of a really positive step forward because we know a lot about change in the Arctic. Of course, we need to know more, but it's that sense of the other side's communities in the right place. Are we asking the right questions in order to respond to that change? I will put a link in the chat shortly to the state of Arctic science report. But I think that's a powerful response to that to that issue.

The second response I wanted to raise was the creation of the Arctic science founders forum. Because of course, we know we need to understand more about changing the Arctic. We know that the Arctic is absolutely not a homogenous environment, but it's very different in different places. We don't have anything like the coverage and the depth of knowledge about that change yet. And of course, all of that happens because government states are keen to understand that change and to fund it fundamentally.

The Arctic science founders forum should bring together the key nations who have an interest in working together and in funding the understanding of change in the Arctic. The organization is very young. It's essentially only a couple of years old. And we're still working towards our Terms of Reference in our first meetings and kind of making something obvious, but I hope in the next year or two, as we build up to the next Arctic science ministerial meeting, this forum will be a really good place to think about some of these really big questions, because we're increasingly seeing that the biggest questions in the Arctic need the biggest responses in terms of international coordination.

The third response I wanted to mention just quickly, is a specific response. The UK and partners in Canada have undertaken thinking about how we can respectfully engage between traditional western science, if I can use that term, and indigenous and other local knowledge.

This is a new Arctic research program and got UK Arctic research program and it will run from 2021 to 2025. It will be several million pounds in the UK and several million dollars on the Canadian side.

What makes it different we hope is that this is started, planned, governed, assessed, and delivered, and the data will be owned by all the different partners in the program. So right from the very start, this has not been about teams in Canada and the UK deciding we want to work on your opinion and get the final for Canada. And here's what we'll do. It's actually a bit about how we can combine teams research from anywhere, Canadian research teams, UK research teams, all together and work together to support those principles of self-determination and research which are very important in the communities of the North and I'm hoping to talk a bit more about that later on or in the facilitated breakout sessions.

For us, this is a really big step up, and it's been quite difficult to be honest, because all founders and organizations have their red lines. And working together in this way has been difficult for us but it's been intensely rewarding. We are now at the stage having signed a memorandum of understanding with all the different partners in Canada and it didn't get a year or so ago. We have the applications, and we're just at the stage now of deciding what are going to be the successful applications. Successful projects will now run for three years, we have joint teams between all the three different sets of partners, and they will own that data together. They will publish that data together. We hope this will be an interesting model for the future. So, we're not saying it's perfect. That's the last thing I'm saying but we've made a big leap forward I think in our understanding and hope that will make a significant difference. Thank you, Paul. I'll leave it there but happy to come back to any of these points in the subsequent discussions. Thank you.

**Prof. Paul Arthur Berkman - 32:15**

Thank you very much Henry for your helpful observations. The last keynote presenter today is Professor Andre Petrov from the International Arctic Social Science Association and Iowa.

**Prof. Andrey Petrov - 32:30**

Thank you very much for the opportunity to speak. I'll try to be short and concise. I have a few points to deliver. I am the former president of the International Social Science Association, which of course brings together about 700 social scientists across the Arctic and beyond. I'd like to begin by reminding everyone that arctic scientists are diverse, and the social sciences and humanities are part of it, as Kirsi already mentioned, and it's growing rapidly. I think it is very important to recognize the diversity of the Arctic sciences family. At the same time, we must remember that Arctic research is incredibly and increasingly international, the University of the Arctic has done a study a few years ago, comparing generally research across the globe, whether using the Arctic regarding international cooperation, and we see that Arctic is much more international than research in other regions of the world. At the same time, most of the Arctic researchers are keen on international cooperation. About 90% of Arctic researchers in one way or another are interested in pursuing international cooperation

when there's access to it, and data being in the field of sharing knowledge with each other or working with communities across the Arctic. Therefore, it's very important that these points, of course, keep on being highly considered.

Paul mentioned that the Arctic science cooperation agreement is an interesting instrument that's been developed with the cooperation of the science community, and it mentions some of the organizations that are involved here. Specifically, he asked, who can be one of the leading forces and implementing it alongside the rest of the countries that are part of that agreement by creating a data platform or by establishing procedures? That's for sharing and exchange for generating support from the funding agencies to the diverse research that is taking place in the Arctic. At the same time, it's also important to remember that arctic sciences have been changing quite rapidly. As well, in terms of their methodological, even epistemological underpinnings from a very disciplinary science perspective that science organizations had years ago. We dominated heavily by nature of sciences, and really not embedded with Arctic communities. We need to quickly sign that as an interim term discovery, in which different science disciplines are working together and most importantly, which different knowledge systems are acknowledged.

That is the future Arctic science that we would like to have. We are still experiencing a pandemic and in terms of Arctic research, we could deem this event as a strategic pause. This pause gave us an opportunity to reflect on our work as scientists. Arctic communities were also given an opportunity to reflect on what sort of science they would be welcoming in the future. And I think it is an opportunity for all of us to sit down and reflect on these things. In a recent paper, approximately written a year ago, we outlined four important things that should be part of this reflection that are taking place right now. One of them is embracing the local turn. The other is fostering knowledge coproduction. The third is focusing on the next generation. And the fourth is emphasizing global nature of Arctic research.

Regarding the local turn, is really a turn to localization and decolonization of Arctic research enterprises, which can increasingly foster the role of indigenous local communities, as we know that that is really important. We knew this before the COVID-19 outbreak, but the actual situation demonstrated us the need to double, tripled those efforts. We are representing the investment in local infrastructure and connectivity management with Arctic residents. Scientists and researchers who would conduct research in the Arctic must all shift to a paradigm where we prioritize locals, as I would have early career student first, and now we're finding principles. It is important to focus on community driven research, not just computer based, but also increase the role of citizens' science, which are important elements. At the same time, we must remember that the resilient Arctic science we can build should be based on a fruitful global coalition and meaningful collaboration of scientists, local and indigenous rights, as well as knowledge holders, policymakers, science advocates, citizen scientists, industry partners, research and financing institutions and many others. Just one group by itself cannot do it and even the Arctic Council just acting alone can't deliver it.

It is an international corporation that is at the forefront of this effort. And that would be of course, a part of the process is taking place right now. As an example, the preparation for the international conference or the research planning in Denver in 2025, and the International Polar Year 2030 to 33, which we truly hope they can be duly held. These efforts also contribute

as a force, as a decolonization of Arctic research enterprise. This depicts a part that contributes to co-production knowledge, of course from multiple dimensions, ensuring that indigenous and non-Indigenous research partners share a common vision of what the research priorities are, what these methods are, what are the goals and the products that are obtained by Arctic research, and what practical results important for indigenous communities are brought about with this research. It means co-identifying research needs, co-creating research ideas, co-designing research questions called defining research objectives, co-developing research programs for authoring results in co-implementing them together and of course, working to evaluate them collectively.

What does it mean for researchers? It means that a researcher or an agency must recognize and respect indigenous knowledge and other knowledge systems but, first of all, in the Arctic, conduct the indigenous knowledge support needed to identify indigenous peoples' research priorities and act upon their own. I think it's very important for us to keep that in mind, not just the priorities that science community is bringing, but also the ownership that indigenous communities have earlier on, enabling and encouraging development for an equitable relationship, and understanding between indigenous peoples and researchers, and very importantly, focusing on reciprocity and researchers. This should be a mutually enriching process which can support capacity building, and communities, both in our Arctic partner communities and in the science community itself, by expanding an understanding of the role and the opportunities that this co-production and collaboration can bring us. I think we are in a very interesting moment right now. Given all the circumstances, we can invest our efforts to changing the landscape of Arctic sciences, whether it's natural sciences or social sciences, by embracing this pause, reflecting on what we have done and developing and sharing best practices.

**Prof. Paul Arthur Berkman - 42:09**

Excellent message. Indeed, Andre, might I request you to put the reference for the paper you were speaking with those four points into the chat? I think that will be helpful and instructive. We have now about 20 minutes there for a dialogue among the panelists. And rather than being presumptuous and asking questions myself, do any of the four panelists have questions for each other that you would like to raise? Andre, Henry, Mikhail and Kirsi, any question that you would like to raise? Otherwise, let me start with an observation that Mikhail made about how strange it feels to divide knowledge systems, from the perspective of indigenous communities and as researchers. We should embrace all of these different components from natural sciences, social sciences and indigenous knowledge, they're all knowledge systems. Is the concept of a knowledge system more helpful than thinking in terms of science? Are all these together at a higher level, knowledge systems that operate to in concert to consider societal relevant approaches. I would just put that out there as a question, do any of the four of you like to respond?

**Dr. Kirsi Latola - 43:47**

Maybe I can respond if I may. I have often heard, and I also know that for myself, as a non-Indigenous person, it's not easy to understand what indigenous knowledge outside the different knowledge systems is. Therefore, we definitely need more understanding and more information on it. But there has been a lot of discussion on how we could increase researchers and people's understanding about indigenous knowledge and different knowledge systems

because they are so different. I understand that but I can't explain, for example, very thorough, what is editor's choice because it, of course, depends on the communities but I know that Mikhail knows this much better than I do.

**Hon. Mikhail Pogodaev – 44:48**

I think that I probably don't know about the more general kind of system of knowledge which can provide with more understanding to indigenous knowledge. And I think, of course, for researchers who are not indigenous, it's often quite difficult to understand. The system and as I said, for example, in our region, our scientists who were indigenous he proposed this introspective approach. When indigenous representatives' holders of this knowledge were educated as researchers, they started to combine knowledge and got something new. And as I said, we got very good results after this.

**Prof. Andrey Petrov – 46:20**

This process is mostly capacity-building, institutional, but also individual. I think the best way is to always listen, and that's something we not always do, and we should therefore put it more into practice. That's also the way to learn about different knowledge systems. Just sit down, step back, open your mind and listen and that's really the first step that we all need to undertake.

**Prof. Paul Arthur Berkman – 47:00**

In this consideration of knowledge systems of science and thinking how they originated in the first instance and why we have natural sciences, social sciences, indigenous knowledge, and observation, it aimed to establish additional discussions. Each of these knowledge systems emerged to help with decisions that would potentially change the world. And it has always happened in the past and we created humankind systems to reveal understanding about patterns, trends, and processes. Ultimately, for the purpose of decision-making. Is it appropriate to think of science in a sense as a study of change? That all of these knowledge systems have a purpose, to understand the difference in the context of making decisions, so I throw that out as a question.

**Mr. Henry Burgess – 47:59**

I recognize what you said. I think that's a perfect way of looking at it. When you consider that "traditional western science" is better for those operating within it, it sort of aims to challenge each other professionally and respectfully, and in order to understand that change of history, the systems of peer review, publishing, and academic challenges, all that kind of dialogue.

That professional way of politely, meaningfully disagreeing with each other is all built-in. Furthermore, it is not always polite that everyone understands how to challenge respectfully and how to change that sense of what is collectively known within that information system. I imagine a similar way within local communities on how that indigenous and local knowledge can potentially evolve. We're struggling with how we can combine those two ways. Because sometimes it is more important to understand, to comprehend a conflict rather than an agreement in a situation where western scientists think about change for a particular case.

Because if we still have western scientists thinking about change in a particular way, and local indigenous communities are thinking about it differently, I am not sure we have an appropriate and effective language for our lab. Both communities need to define a way of communicating and agreeing with each other in a meaningful and polite way to achieve a successful resolution. There must be a first learning stage at the beginning of the process, rather than running to an end or a goal.

**Prof. Paul Arthur Berkman - 50:24**

So your observation, Henry, about starting with questions is the essence of the webinar series itself, in the sense that it is designed around questions when ultimately, if we're successful, to reveal questions of common concern. Arguably, the questions are more critical in the process than the answers. And indeed, in terms of this evolution that Andre had mentioned going from disciplinary to interdisciplinary to trans disciplinary, it's the design of questions among stakeholders, rights holders and actors together, this CO design that becomes important. Mikhail, Kirsi or Andre, do you have additional observations based on the notion that science and systems knowledge systems originated to assist in decision-making?

**Prof. Andrey Petrov - 51:21**

I can quickly say, in addition to what Paul mentioned, we also talk about emerging from convergence research, which actually turns into disciplinary research. That is focused on addressing critical, specific challenges, in our case in the Arctic for Arctic communities. That's really, again the future of Arctic science and its collaboration with indigenous knowledge systems because of course; CO production is the best way to conduct such convergence research.

**Dr. Kirsi Latola - 52:18**

I might be taking this in a different direction because I have been thinking that initially, when we started talking about the funding, that kind of sets the frame for the research. And then, when we discussed co-production and planning the research together, I wondered who makes the decision and who has the power to decide what is conducted because that is one of the critical questions. There has to be someone who decides whether to fund or not. Therefore, there is still this kind of power question on who makes the final decisions and who has been causing problems? Sorry, go ahead.

**Hon. Mikhail Pogodaev - 53:17**

Thank you. Yes, it's a very important thing, and I would like to follow your talk by mentioning the importance of who has the power and the right to identify what kind of research should be done. The rules on legislation are based on a core scientific understanding of these processes and scientific research. But sometimes, we see that religious knowledge about nature is subject to different results, and occasionally, indigenous people do not have an opportunity. Or more capacity to change and present their vision for the issues are particularly important to them. So I think it's crucial to always discuss who is identifying research agenda in the beginning. Therefore, if we start working together on enhancing scientific knowledge, it would best to enhance decision-making.

So I see two questions in the chat from Yulia Zaika. One is an observation along these lines, how can we ensure the proper application of knowledge systems of expertise across these different communities? For example, the aspiration of co-production, co-design, but how do we facilitate that?

**Prof. Andrey Petrov - 56:04**

I mean, probably there's no recipe for that. I was curious about what Jenny was talking about, maybe there are experiences to share, but really, it is an investment, an investment of time, an investment of resources. Providing opportunities that can foster this idea needs a commitment. Again, it's all about funding agencies for this purpose.

**Mr. Henry Burgess - 56:54**

I think the key for us has been giving everyone an equal stake in the program development. So, the reality is that, if you live in Uganda, the northern part of Canada, then you will be experiencing this environmental social change firsthand. And the things that are happening to you and around you are of kind of huge interest to Western scientists. So it's a difficult starting point. The key is to work together, and the key is that during the setting of questions, the themes for what the program would cover, that has to start off by responding to the concerns of the local community and those are in lots of cases. It is also important that in the funding program, researchers from all the different funding partners and from the local communities have equal status. So we made sure that when we were going to the application setting process, and nine months or so ago, it wasn't that you had to have a letter of support from the local organization. You had to have that engagement in the program and they will be funded through the program. So if you're a Canadian and a UK researcher and you had a brilliant idea, that's not enough, you have to have the agreement of the local community to take part in your project and only then, it will be funded through the project. Following that, there is not just the typical Western peer review process that we all know about, but there is also an assessment process that is run by indigenous communities themselves to assess whether that is something that is really worth looking at and whether they want to see that happening in their community, is it a priority? In this case, we would work together, share the data, and publish together, and therefore, the credit of the work would be extended to both ends as well. And then ideally, of course, there is a legacy that's left, our project is our program is a three-year program. But we hope very much that there will be a legacy format. And it's not just legacy in terms of explaining the science to school children a year later. It is something really meaningful to create the next generation of researchers who can really work on the next things together in international partnerships.

Did you have Canadian partners who knew the community beforehand or how did you build the trust how you started that? It is always said that you have to have this trust. So on the Canadian side, the partners are Polar Knowledge Canada, the National Research Council, Parks Canada, and the funding councils in Quebec. Together with ITK in new capital.

So, yes, to all of those links, people were in an excellent place to start. Because you're right, you can't just start from scratch in many cases. It would be best if you had those links already to have the confidence to put an application together, but we did do a two-stage process. So the first thing was just a simple two sides of the paper, you know, do you are the other three groups, and together you got something in mind into agreeing to work on something. And

once we got through that stage, people had to develop an entire application, so you know, you can have the idea first, and then come to it kind of later on for six months.

**Hon. Mikhail Pogodaev – 01:01:31**

Thank you. As it said at the beginning, we have small educational and research institutions in the Arctic with the US, as well as in Norway, for example, in New Delhi, in Finland, in the Russian Arctic, and other places. As I said, it is challenging for them to compete with prominent universities for funding, when there is quite a large pipeline of funding for research in the Arctic, usually from more renowned universities or consortium States. Those remote and smaller institutions never get support to deliver their research and development projects on indigenous people's knowledge. So I have 20 years of experience trying to get this support and achieve an efficient response and disposable income. Therefore, there is a need for an extraordinary approach or a particular model for small institutions to have a different solution when they get funding for their projects. Moreover, they would have opportunities to participate in international cooperation, which is also very costly for small indigenous communities. It is challenging and we should deem the complexity of the situation. It starts from education, the general education. Now we have federal standards in education, and from the very beginning, it is impossible to pull it off in people's knowledge development movements equally. We also have to look very seriously into the education standards.

**Prof. Paul Arthur Berkman – 01:03:36**

Thank you very much, Mikhail, Andrey, Henry, and Kirsi for your helpful insights and observations. Let me just briefly share the objective of the breakout sessions. Clara has identified three breakout sessions, roughly the same size and we've gone through and tried to balance this in an international context as well.

Therefore, Clara will push a button and we will all disappear into the breakout sessions. The general framework is that we'll have about half an hour in the breakout sessions to address the questions for this webinar. Then we will reconvene for about a 15-minute debrief from each of the three breakout sessions and go back into a breakout session again for the remainder. Up until 15 minutes before the end. And then a final debrief. The objective for each of the breakout sessions is to thoughtfully consider each of the questions that were used to frame this webinar about what Arctic science is.

I think Henry, your observation about a dual review system where the indigenous communities are in parallel with the formal national funding agencies is very important, and perhaps something that can be formalized more broadly. In terms of national responses, I think that would certainly send a clear and compelling signal of co-production in terms of shared review so that was a very important insight that he shared with us.

Kirsi, Andrey, Henry or Mikhail, do you have any final observations before we press the button that we all disappear into our breakout sessions?

Again, I thank all the presenters and all of the participants, I saw that there were many thoughtful questions in the chat. I encourage you all to make a copy of the chat to look at the questions. We will produce a report from this workshop which will become available for the

second webinar, and so on. So again, I thank you and look forward to speaking after your first half-hour of dialogue.

## **FIRST BREAKOUT-SUMMARY SESSION**

### **Prof. Paul Arthur Berkman – 01:07:03**

Thank you all for your contributions to these dialogues. We have about 15 minutes for the three breakout sessions to share observations. So roughly five minutes for each breakout session. And starting with breakout session number one, I would like to call on either the facilitator, the keynote presenter or the rapporteurs to share observations, please.

### **Mr. Henry Burgess – 01:07:50**

We had a good discussion in our group. There was a report discussion at the start about the value of transdisciplinary research and making sure that that was appropriately respected. There was then a discussion around the kind of practicalities of dealing with funding proposals that have co-development at their heart and making sure that there's enough time to form the partnerships and genuinely give people the ability to create interesting and innovative proposals, recognizing that funding agencies deal with very short deadlines. The money comes in and then you've got to get it out the door very quickly and that works against real projects that have co- development. So mainly, we discussed how we could get over those hurdles.

There was a discussion about the role of intermediaries' interlocutors in connecting between funding agencies and local communities, and we didn't get much into detail about that, but there was discussion around the role of those bodies. That might be something that we could come back into in the future, whether that's, in many cases very valuable to identify local experts who can connect to funding agencies and others, but also the tension perhaps about whether that takes away some agency from the local communities in some form.

Then, we discussed how you resolve some of those conflicts between researchers and local communities, indigenous researchers, and how you can put that into practice. We looked through some examples of how that might work.

I think we focused attention on making sure that both parties had equal stakes financially and in governance terms in the outcomes of that, although we recognize that it is very, very difficult, particularly when it comes down to disagreements on the data about wildlife and mammals in particular.

We touched on the issue of how indigenous communities should be involved in Arctic science that doesn't relate directly to their life experiences. So, we were talking there about the funding of icebreakers and satellites, as well as aircraft. So, things that don't relate to the daily lived experience of communities and whether there was a role for indigenous involvement in those decisions.

We acknowledge that there's no day-to-day engagement in the reality of what happens in the central Arctic Ocean, but actually indigenous communities are stakeholders in the wider Arctic.

What happens in the central Arctic Ocean would affect them more quickly than what it would affect other people? We are just beginning to get into some of that discussion. We also talked about learning from other indigenous communities across the world, in the Amazon or Canada, in Asia, and elsewhere, about their experience and their example of how you resolve some of these complexities and move forward.

Then we talk a little bit about funding and how we could be creative in funding new programs and projects, and whether that should be done internationally by individual partners giving money, making a project with another partner, or whether it is possible for countries to begin sharing funding in a central fund that is then available for more people. So, a Circumpolar Arctic from the arrangement, which we recognize is difficult and doesn't really exist at the moment.

Hopefully, that is reflective. If anyone remembers anything from my group that I have misrepresented or that I might have missed out, please let us know.

**Prof. Paul Arthur Berkman – 01:12:25**

Thanks. Before inviting the second breakout room to share observations I just wanted to add a comment. Henry, we did an analysis of the five binding agreements that entered into force in 2009. And curiously, the central Arctic Ocean High Seas fishery agreement includes the term indigenous more than the search and rescue agreement, more than the pollution preparedness and agreement, more than the polar code, and more than the Arctic science agreements. Therefore, the term indigenous is actually most well represented in the central Arctic Ocean High Seas fisheries agreement.

The second break breakout session, please. Jenny has requested a health break. Please, proceed without concern. Jenny from your session.

**Dr. Jenny Baeseman – 01:13:37**

Andre is incredibly eloquent and trying to do my best and if anyone from this session has other thoughts or additions to what I'm about to say please, go ahead just when I finished.

**Prof. Andrey Petrov – 01:13:48**

There has been a very intense discussion and some of the topics are similar to what we were talking about, but I do want to highlight a few different ones that may be of interest to everyone. Firstly, was the thought about co- production of knowledge and how to go about it. We returned to the discussion about listening as the best way of starting and conducting co-production or beginning this relationship. But I think there were other interesting concepts involved that require for listening to be successful on one hand, but also for an understanding that no knowledge system, no matter how long term and elaborate it is, is not perfect. is also an important, important kind of prerequisite for success. And there is a corporate active process. There is a need for different knowledge systems to work together to attain the knowledge that would be actually beneficial for communities, for our planet. I think that is an important thought that could be there. The other element we discussed is whether or why Arctic science is somewhat different or special in the way that this co-productive work is being conducted or in general, what do we bring, a global society, a global science community in that experience. Another context is the Arctic Council which has been on for many years now,

which recognizes and generalizes efforts to elevate indigenous knowledge and its own work. And that's, of course, the representation of Berman participants as one of the ways in which in those discussions in the Arctic Council, the indigenous knowledge could be brought up and could be placed on a relatively similar footing as other knowledge systems of scientific knowledge system, or Western science. It was discussed that same designed ministries have anyways different structures and different ways in which that is done and the full for a variety of reasons.

Of course, there are ways to go with understanding how exactly indigenous communities could be represented, but also, there is a variety of other parts of a dynamic state part of it and so kind of how this complex system could work. To further highlight and elevate indigenous knowledge. I think they've been quite a bit of effort made.

Another interesting thought that I actually didn't think of before, was about time. Both knowledge systems, whether of course in a digital system that I developed throughout millennia, and on the side soldiers that were developed in the last few 100 years. I mean, they're long-term evolving systems, but we really have a short time to develop a way that we could work successfully together to address very urgent needs. So how do we work across the different timeframes? That is, I think, an important question that we have not answered, but I think is really a very important question to ask. Thank you, and if there are any additions, please, go ahead and add any of the members from the breakout session.

**Prof. Paul Arthur Berkman – 01:18:15**

Thank you very much, Andrey, just as an observation. The whole concept of informed decision operating short-term to long-term has as the framework working across time, it's a security timescale, dealing with immediate risks. And at the other end of the scale, it's at a sustainability timescale, trying to balance environmental, economic, and societal issues across generations.

For the third breakout session, Mikhail, would you like to share observations, please?

**Hon. Mikhail Pogodaev – 01:18: 54**

Yes, thank you. I would also say that there were many similar issues discussed in our session.

Today, we started our discussion with the question of how to make it happen that we just always also be incorporated into decision-making processes.

We all agreed that the most important thing is to begin with no fundamental disease about the need for respect and trust between researchers and indigenous formulas. Because sometimes it is difficult to understand each other's different understandings of what science is working. So, we agreed that the spectrum test was very important. Then we also were discussing what could be the possible models or problems which could incorporate storage into research and into risk making process. We also discussed dual model for validation of different ways of knowledge.

And also, some participants were asking about, for example, different events like Arctic resilience Forum, which could be also useful for the discussion on multidisciplinary ways of understanding different types of knowledge and

We were also thinking about how we could provide funding opportunities to small institutions, and indigenous peoples. And again, we had some discussion about what different programs there are to support research and use people for solutions. Of course, I said that it's difficult for many small and remote institutions to be supported because they have limited access to all these international funding institutions and also at a national level. We also had a discussion about what are the differences between the situation of weakness between the Arctic States and non- Arctic States. It was also said that there are similarities between other indigenous peoples but that they face just the same challenges with regards to the use of their knowledge. Another question was, how to use traditional knowledge, and understanding of climate change, which is also a global challenge. There are many similarities in this regard, and of course the Arctic is very special.

These are my observations, maybe someone could also add something I might have forgotten. Thank you.

**Prof. Paul Arthur Berkman – 01:23:11**

Thank you very much Mikhail. The objective here is to continue to break out session dialogues. The idea is that we will be punctual and try and complete the activity on time, which is at in another 34 minutes. So why don't we plan to have a discussion for about another 20 minutes and then we'll have a brief wrap-up in terms of any final conclusions from the keynote presenters from today. So why don't we return to the breakout sessions Clara, please. And then we'll meet in about 20 minutes.

## **FINAL BREAKOUT-SUMMARY SESSION**

**Prof. Paul Arthur Berkman – 01:25:48**

Thank you, everyone, for your kind collaboration. The intention in the last few minutes is to identify any overarching key points that emerged from the various breakout sessions.

In terms of parity, perhaps Kirsi, you'd like to comment on breakout session one since Henry provided the last helpful observations.

**Dr. Kirsi Latola – 01:26:20**

And he actually was willing to do that, but maybe I'll just say one thing and then I will give the floor to Henry because I know that he is preparing excellent notes. I wanted to point out that I think that it's really important and good that we have in this group also a lot of people who come from a different background in the Arctic countries and the Arctic context, we are very often facing the same faces in these webinars, and we are here to say we know what each other is going to say. What I realized in this webinar is that we can certainly learn from each other from Asian Pacific and other countries, and we should kind of use that opportunity and maybe even often connect to the other parts of the world. Because the issue of climate change, for example, is exactly the same and it's an issue with how it works with the small universities or small colleges. So, there's a lot for us to learn from the others. And I think that's

that has been really good. So that's maybe also my conclusion. Paul, if I may, but I think that that was what I was sustaining. We can read if you have anything to add, please.

**Mr. Henry Burgess – 01:27:54**

I think you covered it very well. Actually. We have good contributions in our group from people that have experience of working with small island developing states, in the Asia Pacific and the Caribbean and beyond, and some really extreme experiences of using the Green Climate funds and transboundary funding. And we have experience of putting together programs and projects between different universities over several years.

There is definitely a potential to share some of that learning more broadly at venues like the Arctic Circle assembly, where it's happened, I think in the past but you know, potentially doing that again in the future. It was also an interesting point that was made about non-Arctic indigenous groups looking with envy a little bit towards the north and thinking about how well integrated and how well connected some Arctic indigenous communities are for decision-making process. I'm not saying that's universal, but definitely, some people who were thinking kind of that way.

It is important to share practical experiences amongst Asian Pacific communities about dealing with some of the issues that we're going to be dealing with in the Arctic as well, for example, kind of shipping and access to shipping straights and sort of international waters and national waters issues where that's a very live issue in some parts of the world and will increasingly become so in the Arctic.

And then Kirsi mentioned, particularly the University of the Arctic and the 61 thematic networks and how those are particularly valued, I think, by small institutions because it gives people who have a kind of a specific niche interest, a higher profile than they would normally have in a much bigger group. So you can find even as a small institution, you can find your niche in one of those thematic networks and have a role in helping to set the priorities and potentially have some funding through that route.

**Prof. Andrey Petrov - 58:05**

Thanks.

**Prof. Paul Arthur Berkman – 01:30:03**

Thank you, Kirsi and Henry, Andrey, please.

**Prof. Andrey Petrov – 01:30:08**

Yes, thank you. I think it was a very, very fruitful discussion. I guess maybe I'll summarize by saying that the time of action is now, and the burden is upon us to do stuff to pull off the work and make sure that what we talk about is implementable. I mean, they don't want us to miss the importance of the moment and actually, maybe the fact that this webinar did actually contribute to larger processes like international conference obligations planning, which really is the process that will lead us to have priorities and Arctic research, including priorities around co-production in the next 10 years. That will lead us to the International Polar Year. There are small deals and then the large things we could do. I mean, in our second iteration, we talked about funding mechanisms and a variety of funding mechanism that already exists, or could

be modified to ensure that indigenous communities and knowledge holders have access to funding, whether it's a small funding process or big funding. I think the idea is that we need to incorporate mechanisms in both very large-scale elements and then create small-scale opportunities as well. Another thought was that the Arctic's science community is working in many ways. There are not only major needs and certainties about climate and other environmental change aspects but also work with businesses to develop economic opportunities in a private-public partnership, but we are also part of the discussion, and we don't need to forget about it. Our collective future planning is also changing. Again, it's not just the funding agencies and ministries, there's also the society and business and that's, I think, something that is important for us to keep in mind as we move forward. The general sentiment is that we come from various disciplines, various backgrounds, various knowledge systems and ways of life, and we need to unite forces now into building this resilience for Arctic science that would address the needs of the communities while of course providing us with fundamental knowledge that will help us change the world. Thank you.

**Prof. Paul Arthur Berkman - 1:32:47**

Thank you Andre. Mikhail, I invite you to share observations from the third breakout session, please.

**Hon. Mikhail Pogodaev - 1:33:04**

Yes, thank you I think it was a very interesting discussion. We've discussed many things and in general, for enhancing scientific cooperation in the Arctic, we have, as the previous speaker said, we have everything we need. All the mechanisms are in place. We just need to continue and have more cooperation.

Of course, the pandemic gives us challenges and it became, for one side more difficult to cooperate, but on the other hand, we can meet online and discuss and have this webinar available. So opportunities are here and I think that we should use the best practices that we already have on how to conduct research on the Arctic. As Andrey said, there are already certain mechanisms and we just need to maybe think about modifying them to meet the needs of these communities and make science more sustainable, as we spoke about sustainable development in the Arctic. We also need that science, which is dealing with the development of the indigenous communities in the Arctic, becomes increasingly sustainable.

**Prof. Paul Arthur Berkman - 1:35:21**

Thank you very much. Mikhail. So before leaving today, I just want to share that the second webinar will be on March 10. And the question there is how can science transform data into evidence for informed decision making so much of the discussion today is about roll up the role of science and indigenous knowledge with regard to decision making? That will be the focus of the second webinar, dealing with how are the decisions on what priorities are to be addressed, and made? Who are the decision-makers again, the questions that came up in the discussion today and what evidence is needed, and how is that evidence defined?

The next webinar will involve Professor Larry Hinzman who's the director, Executive Director for the Interagency Arctic Research Policy Committee, Assistant Director for Polar Sciences of the Office of Science and Technology at the Executive Office of the President at the White House, and then president of the International Arctic Science Committee. And the third

distinguished presenter in the next session will be Dr. Volker Rachold, who is involved with our discussions today as a head of the German Arctic office, former executive director for the International Arctic science committee, and co-host of the second Arctic science ministerial.

It's truly been a pleasure and an honor to have the opportunity to convene this webinar series and to begin today with the distinguished speakers, Keynote presenters. I'd like to thank Mikhail, Kirsi, Henry, and Andrey for your excellent contributions. I'd like to thank the scholars for their excellent job and reporting. I'd like to thank you UNITAR for their facilitation of this webinar series. And to all of you, I wish you good health and I look forward to our next discussions. We will report on this, and we will share in the next webinar the synthesis from today's dialogues. I look forward to the next steps and I wish everybody well.