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Shared Voices

2021

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UArctic

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Shared Voices 2021

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Letter from the President

By LARS KULLERUD
President, UArctic

UArctic has grown from a fantastic idea into circumpolar reality over the past twenty years. This success is an outcome of the creative minds in the Arctic Monitoring and Assessment Program of the Arctic Council back in 1997, followed up by strong leadership from the Arctic Indigenous peoples' organizations, the Arctic Council and its member states, the Standing Committee of the Parliamentarians of the Arctic Region, and not least the visionary Circumpolar Universities Association leaders and staff of member institutions who took responsibility and leadership in the development of UArctic.

The Board of UArctic has launched an ambitious decade-long strategy for the network with the vision of a "strong, engaged, informed and dynamic North, creating better lives and environments for all northerners". This implies that the Indigenous peoples and other northerners should have the keys to determine their own futures. UArctic shall be active in making sure that the purpose for and the way in which education and research are carried out actually serve the peoples of the North. This is essential in achieving the United Nations' (UN) Sustainable Development Goals in a way that benefits both the North and the world.

Over the coming decade, UArctic will therefore:

Bring northern voices and knowledge to the global stage, increasing understanding and respect towards the region. UArctic engages higher education institutions in the non-Arctic regions in close cooperation with the North, and will continue to work with the Indigenous peoples' organizations and the Arctic Council to bring northern knowledge and understanding to the world. Cross-border cooperation over generations, both within the Circumpolar North as well as between the North and more southern regions, is essential in securing the Arctic as a region of peace and cooperation for all futures.

Increase human competence and capacity in the North. The core of UArctic is collaboration in education and research through our 60+ Thematic Networks and Institutes. UArctic will continue to focus on sharing northern- and Arctic-relevant knowledge, solutions and innovations, and generating new knowledge that strengthens northern economies and creates safe jobs for northerners. Through collaboration between higher education institutions, it will be possible to develop new solutions that can serve the North, while providing resources demanded by the South.

Improve lives and communities for all northerners. UArctic's mission is to develop knowledge to address local and global challenges of relevance to Arctic peoples and societies. Finding northern solutions to northern problems creates job security and makes it possible for northern youth to have a realistic vision of a good future in their homeland. Arctic solutions need to be relevant to the region, whether addressing health issues, energy sources, or how to organize communities and smart cities.

Create a healthy environment that serves the North and the world over generations. The changing Arctic environment has severe consequences for the world and for living in the Arctic. UArctic shall support and engage in the development of new ways to adapt to this changing world, and secure living ecosystems on land and under water that serve future generations. Life in the North will not be like it used to be. It is important that the choice of solutions and the ways to adapt are developed from a northern perspective, addressing the problems as seen in the North.

The UArctic Thematic Networks and Institutes, together with the UArctic Chairs, are a powerful structure for cooperation and sharing and finding solutions in a circumpolar framework. This way, UArctic members have the opportunity to be part of the front line in Arctic knowledge on an equal basis, independent of the size of the institution.

By OUTI SNELLMAN
Vice-President
Organization,
UArctic

I am quite certain that when we celebrated the UArctic Launch almost twenty years ago to the day, nobody could have imagined that by 2021 UArctic would have grown into a strong global membership organization with over 220 members in 22 countries and nearly 70 interdisciplinary Thematic Networks and Institutes.

It is easier to look back and try to recall the past than it is to imagine the future. Nevertheless, in this issue of the Shared Voices Magazine we celebrate UArctic's 20 years since the launch through stories about the future: visions and aspirations. What is important for the sustainable development of the Arctic? What is important for its peoples? And most importantly, what is the future like for the generations that are now in the university?

We also pay tribute to Professor Bill Heal, who passed away in early 2021. He was instrumental in the early history of UArctic – the history that led to the Launch. Bill and the numerous early founders of UArctic shared a vision, and I do not believe any of us have had reasons for regret. UArctic has been true to its promise to the governments, to the Indigenous peoples' organizations, and to its members.

Finland's Minister of Science and Culture Annika Saarikko analyses the role of UArctic in her article: "UArctic has contributed in many ways to education, science, sustainability, and policy-making, and its active role in connecting researchers and policy-makers has been important. […] Another central aspect has been its ability to bring northern voices and knowledge into the larger discussion arenas. This increases not only understanding and respect towards the region, but it also contributes to the sustainability work. This immensely important outreach work is an area worth amplifying through UArctic's cooperative network at large." This same perspective is highlighted in the interviews of Michael Pogodaev and Evon Peter, from Sakha (Yakutia) and Alaska, both representing Arctic Indigenous peoples. As to the member organizations, the growth and breath of activities is perhaps the best indication of the need and also success of UArctic.

Finally, a few words about the cover photo. In early 2021 UArctic organized a photo competition with the theme "Arctic Polarities", resulting in excellent submissions from around the North. The cover photo, taken by Esa Pekka Isomursu of the Reykjavík skyline, came second in the staff category. For me, this is what UArctic represents: nature, built environment, art, and the very purpose of UArctic – peace – represented by the light monument designed by Yoko Ono. This spring we were all supposed to gather in Iceland to celebrate the end of the Icelandic chairmanship of the Arctic Council and the start of the Russian one, as well as gather in science discussions in the UArctic Congress. This is not how things turned out in this COVID-19 era, but we can be amazed by this history of environmental cooperation and peace-building through governments and people and peoples of the region working together. We can imagine being there.

Photo by: LAURI HEIKKINEN / Prime Minister's Office

UArctic - an Indispensable Arctic Actor

"Finland highly values UArctic's work."

By ANNIKA SAARIKKO,
Minister of Science and Culture,
Finland

Since its official launch in Rovaniemi in 2001, the University of the Arctic (UArctic) has been an important part of the Arctic cooperation in a range of fields, including education and research. It is fair to say that UArctic is the main international forum for Arctic cooperation for the Finnish universities and universities of applied sciences. The University of Lapland, hosting the International Secretariat of UArctic, and the University of Oulu, hosting the Thematic Networks and Research Liaison Office of UArctic, carry considerable responsibilities. In addition, many other higher education institutions take actively part in UArctic's Thematic Networks and activities.

Finland has made substantial investments in Arctic activities, notably in the form of intellectual capacity and infrastructure. This is, however, only natural for an Arctic country. Several administrative fields, starting from Ministries, are involved in resourcing of Arctic activities. Cooperation between parties has been excellent, and it has resulted in a lot of useful information on Arctic issues. A similar constructive approach to cooperate and share information applies to international, intergovernmental cooperation as well.

The Arctic Council, as the leading intergovernmental forum among the Arctic states and Arctic Indigenous peoples, promotes cooperation and coordination on Arctic issues. Activities of the Arctic Council are based on high-quality scientific research and globally recognized assessments regarding Arctic nature and human development. UArctic is intimately involved in this ongoing work. It is noteworthy that UArctic has been an official observer of the Arctic Council since 2002 and is a recognized collaborator in the Arctic Council's work. UArctic is also a recognized partner by UNESCO, in particular through the 2018 establishment of a four-year UNITWIN Cooperation Programme between UNESCO and the UArctic Thematic Network on Teacher Education for Social Justice and Diversity in Education.

The importance of the United Nations' Agenda 2030 and its Sustainable Development Goals (SDGs) in agenda setting is presently well recognized. While the SDGs are global in scope, they are adjustable to the sustainable development of the Circumpolar North. Finland's new Arctic strategy, which will be published this spring, will also clearly highlight and thus strongly echo the Agenda 2030. UArctic, as a forerunner in sustainability issues, has for a few years brought the Agenda 2030 at the centre of meeting agendas and discussions, for example at the UArctic Congress 2018. Therefore, it seems obvious to me that this global and most current sustainability policy frame also fits well in UArctic, thanks to the network's inherent alertness and timely activities.

With respect to UArctic's alertness and activity in Arctic issues, I want to highlight the Arctic Science Ministerial meetings as well. UArctic has been an active and important player in the preparation of and carrying out the Ministerial meetings throughout the years. This concerns also the next Arctic Science Ministerial meeting that is planned to take place in Tokyo in May 2021.

UArctic has contributed in many ways to education, science, sustainability, and policy-making, and its active role in connecting researchers and policy-makers has been important. These are extremely important areas of international cooperation to advance. Another central aspect has been its ability to bring northern voices and knowledge into the larger discussion arenas. This not only increases understanding and respect towards the region, but it also contributes to the sustainability work. This immensely important outreach work is an area worth amplifying through UArctic's cooperative network at large.

Finland highly values UArctic's work and its impressive network of over 200 institutions in all Arctic countries and beyond. In my view, this is very much worth supporting also in the future. At Finland's Ministry of Education, Science, and Culture, we are especially proud of our joint history and our merits in supporting UArctic since its very establishment in 2001.

We look forward to the UArctic Congress 2021 and other major future Arctic conferences and activities.

I wish UArctic a happy 20th anniversary and continued success for many more decades ahead.

Photo by: OUTI PAASI / Vastavalo.net

Growing Connections Between

Scotland and UArctic

By RICHARD LOCHHEAD, Minister for Further Education, Higher Education and Science, Scottish Government

Scotland and UArctic share deep and long-standing links dating back to the inception of the network. In 1997, the late Professor Bill Heal, then a researcher at the University of Edinburgh, chaired the international steering group tasked with developing the first feasibility study on an Arctic university. Four years later, when UArctic became a reality, the University of the Highlands and Islands was among its founding members. The University of Aberdeen followed suit in 2013.

In 2020, Glasgow Caledonian University initiated a new wave of Scottish enrolments, followed this year by another four prestigious institutions: St Andrews, Strathclyde, Edinburgh, and Robert Gordon. Scotland's growing contingent is now the second largest non-Arctic group within the network.

The strong partnership that Scotland has established with UArctic is reflective of a deep understanding of Scottish-Arctic similarities. As the world's northernmost non-Arctic nation, Scotland is directly affected by the profound and accelerating changes that are occurring in the region. Hosting Europe's largest glaciology group (the Scottish University Research in Glacial Environments), and thanks to its global reputation in fields such as energy technologies, marine science, carbon capture storage and climate justice, Scotland is well equipped to inform fair, sustainable and research-driven responses to these changes.

But Scotland and the Arctic have much more in common than mere geographical proximity. Scotland has 96 inhabited islands, with population numbers often in the single digits. As much as 98% of our landmass is classified as rural, but it contains only 17% of our population, including some of the least densely populated areas in Europe. Pursuing knowledge exchange with international partners who face similar challenges is essential if we are to deliver increased resilience and wellbeing for our communities, no matter how rural. Notably, education and higher education provision in sparsely populated regions is in itself a crucial area for collaboration.

Like the Arctic, Scotland has also a proud multilingual tradition, a vibrant cultural heritage, and a rich natural environment. Together we can promote and protect our tangible and intangible resources in a way that is inclusive of Indigenous knowledge and encourages participation by local communities.

Reflecting on the issues and ambitions that we share with the Arctic region, in September 2019 the Scottish Government published *Arctic Connections*, Scotland's first Arctic policy framework. The document aims to serve as a prospectus for greater cooperation and mutual learning, encouraging Scottish and Arctic partners to pool their expertise to develop joint solutions to common challenges.

The policy framework underlines the important role that increased Scottish participation in UArctic can play in cementing and informing Scottish-Arctic cooperation. We know that international exchanges are integral to the success of Scotland's universities and colleges. A study of Scotland's top international collaborating countries in research placed six Arctic states in our top twenty. Since 2000, institutions in Scotland have contributed to well over one thousand academic publications about the Arctic. Also, over 9,000 higher education students from Arctic nations studied in Scotland in the 2019/20 academic year.

It is therefore inspiring to see our partnership with UArctic go from strength to strength.

The deep and multifaceted effects of the pandemic have made transnational research efforts all the more crucial. From informing a green recovery from COVID-19 and developing digital health solutions, to promoting mental wellbeing and improving connectivity, there is a lot Scotland and the Arctic region can learn from each other, and even more that we can achieve together.

Happy 20th anniversary to UArctic! Scotland has been a committed partner throughout the last two decades. Together, we can look forward to an even stronger partnership in years to come.

CANADA'S VISION FOR

Arctic Youth Empowerment

By DAVID SPROULE,
Senior Arctic Official, Global Affairs Canada

Canada's vision for the Canadian and circumpolar Arctic is guided by our Arctic and Northern Policy Framework, released in 2019. Co-developed with federal, provincial, territorial and Indigenous partners, the Arctic Framework acts as our roadmap to build a future where Arctic and Northern communities are thriving, strong, and safe. In order to achieve this overarching goal, Canada is working with international partners to provide increased opportunities for Arctic and Northern Canadians.

For Canada, the Arctic Council remains the pre-eminent forum for Arctic cooperation. It brings together Arctic states, Indigenous peoples and observers to address the most important issues facing the people who live and work in the Arctic, including education and research collaboration.

Canada's 2019 federal budget included $34 million over five years to support international activities to ensure that Arctic and Northern communities continue to grow and prosper. This included dedicated funding to strengthen Canada's engagement in the Arctic Council, establishing a Canada-based permanent secretariat for the Council's Sustainable Development Working Group, supporting the participation of Indigenous Northerners in the Arctic Council and its work, increasing the University of the Arctic's activities and programming in Canada, and providing opportunities for Northern and Indigenous youth to engage in international Arctic affairs.

This last commitment includes providing increased educational opportunities, both through domestic investments in Canada to enhance Northern capacity, but also through our international Arctic engagement, enabling young Northerners to better engage in the region they call home. Global Affairs Canada actively provides opportunities for youth engagement in the development and implementation of Canada's international Arctic policy and programming. This includes prioritizing youth participation at regional and global conferences and in other relevant international fora.

Developed under the auspices of the Arctic Council, UArctic plays a particularly important role in empowering Northern communities through educational exchanges and knowledge networks. We will enhance Canadian engagement through the UArctic network with increased opportunities for young Canadians to work closely with an array of institutions across Arctic and non-Arctic states.

Canada is also supporting circumpolar exchange of information and best practices on early learning, as well as post-secondary and early career skills development in remote Arctic and Northern communities. In addition, we are pursuing measures that provide Canada's Arctic and Northern youth with international learning opportunities, which will include early-career exchange programs across the circumpolar region.

As such, the Arctic Framework places a particular importance on Arctic and Northern youth. Youth are a significant and growing demographic in the Canadian North, and critical to developing resilient and healthy communities. Canada also acknowledges the important role that Indigenous youth play in the preservation and revitalisation of Indigenous cultures and languages. Their involvement in education, science and research, as well as policy implementation, is crucial to achieving a thriving Arctic.

The importance of community engagement throughout the research process and the value of incorporating Indigenous Knowledge in knowledge creation cannot be overstated. The meaningful inclusion of Indigenous Knowledge not only ensures that Northerners contribute to Arctic science and research, but it also generates better results. We therefore encourage Arctic educational institutions to involve Northerners, as well as Indigenous Knowledge holders, in the conception, design, and delivery of research, including sharing results with Northern and Indigenous communities.

Guided by the Arctic Framework, Canada will work with our partners to strengthen the young and Indigenous voices in rooms where ideas are presented and decisions are made. We firmly believe that knowledge and understanding must guide decision making, and that decisions about the Arctic must be based on the meaningful inclusion of Indigenous Knowledge in all Arctic matters. Through our engagement with UArctic, we hope to build a future where the youngest members of our Arctic and North can thrive.

We know that we can achieve better results together, and Canada is committed to taking a leadership role to address the challenges and opportunities that face the Arctic region in collaboration with domestic and international partners.

IN MEMORIAM:

Oliver William (Bill) Heal

1934-2021

The father of the idea of a "university of the Arctic", and the chair of the task force that undertook the initial planning for a circumpolar university – the task force that helped bring UArctic into existence

"I came to understand a key lesson in scientific research: that 'the whole is greater than the sum of parts'. This extends from the construction of mathematical models to simple discussions between individuals and groups of people. People from different backgrounds, different countries collaborating to focus on common issues. This has repeatedly worked."

(Excerpt from Bill's memoir)

Arctic Philanthropist

Interview with Frederik Paulsen

By HANNELE PALVIAINEN, Communications Specialist, UArctic International Secretariat

"When I was in my late forties, I travelled to the Faroe Islands, a long-time dream of mine. The following year we went to Spitsbergen, then to Greenland, and it was always further north – it became almost a challenge to go further and further every year. The ultimate goal is the North Pole where I stood for the first time around 2000. And, of course, when you've been to the North Pole, you have to go to the South Pole. So... it started accumulating over the years."

This is how Frederik Paulsen became interested in the Arctic and polar regions. He is known as a passionate explorer, a pharmaceutical entrepreneur and billionaire, and a philanthropist who not only shows his support financially but also gives his time and attention to a wide range of causes.

In 2017 Paulsen was invited to join the Board of UArctic, and he is currently its only member from outside academia. Given his engagement in multiple organizations and initiatives, not to mention his position as the chair of Ferring Pharmaceuticals, I was naturally curious why he chose to become involved in UArctic.

"I had actually promised myself not to join any more boards – I'm already rather overloaded – but I think UArctic is unique. What really interests me is the potential, the intellectual firepower, that you have through the membership, if you can find a way to bring together the various resources these institutions have. I cannot see many other ways that could help solve the problems humanity is confronted with. The solutions will, to a large extent, come from the universities and other research institutions."

As a Board member, Paulsen is one of the individuals responsible for UArctic's strategic development and setting main priorities for the years to come. As we just published our new ten-year strategy and are now mapping out the activities around that, it felt timely to ask his opinion on how UArctic should still evolve.

"The challenge is to build a more effective network of interaction between the member institutions – to really harness all the knowledge. UArctic is doing a very good job already, but it must be expanded and deepened. You do need a structure, some administration to hold everything together. But you also need the research projects to be free to develop in the direction they want. The challenge for UArctic is to find the balance between the two: the necessary framework, and the academic freedom. That is what we have to do."

Paulsen describes himself as very pragmatic. In his view, for people to work together, there must be an economic interest as well. This is where he believes UArctic could make a real difference: if we could use the network to not just bring people together but also find ways to finance their work, that would help crystallize and accelerate the research.

"That's why fundraising and philanthropy is important. There are lots of funds and funders looking for the kind of research projects that could be done between the universities in UArctic. They just have to be brought together."

More interaction, more collaboration, and, in order to get there, more resources. To that end, in addition to his contributions as a Board member, Paulsen has also made a donation to help UArctic develop our own fundraising program. By definition, philanthropy aims at creating positive change, so how does Paulsen hope to make a difference in the Arctic?

"A big question! I hope, of course, to have the resources to help people, and to work as a catalyst in bringing people together from various scientific disciplines and also from different countries. For instance, there is big potential in working with Russia which is shut out from many international working groups. If you look at the Arctic, about half of it is Russian territory. We have to find a way – and I would be very glad if I could help – to form closer collaboration between the Russians who have an interest in the Arctic and the rest of the Arctic community.

We need collaboration. That's another thing where there's no discussion."

"We have to bring people together and find ways to finance their work."

Interviews

of UArctic Board members

By ARNE O. HOLM, Editor in Chief, High North News

Education is crucial for a viable North, says Anne Husebekk.

UArctic is a key instrument in the Circumpolar North. "Being able to collaborate in research and education and having a shared goal about strengthening competence in the High North is key for the Arctic to become a sustainable and strong region in the future."

Anne Husebekk has been a Board member of UArctic since 2018. In 2013, she was elected Rector at UiT the Arctic University of Norway. Four years later, she was re-elected. She resigns when her tenure ends later this year.

Engagement Without Tenure

Her engagement for higher education in the Arctic is fortunately not regulated by tenure. It is more of a lifestyle, as is suitable for the leader of an Arctic education institution.

"Higher education contributes to completely changing an area. Understanding and contributing into the management and governance of the Arctic provides confidence and security. Above all, it contributes to those governing on a national level. They are located further south and need to respect that people living in the High North have competences and can provide valuable insight about the region. Education is crucial for a viable North, just like we want it. The fact that the universities can work together for a goal like this is a major strength."

The last statement from Anne Husebekk points directly to UArctic. She does wish cooperation between northern Norway's two universities was even better, though we will leave that for now. Husebekk's ambitions on behalf of UArctic is the focus of the digital conversation between a Rector and professor in medicine and the undersigned, a half-schooled polar hippie who has been in the audience before many of the podiums Anne Husebekk has entered throughout her nearly eight-year rectorship.

UArctic's Ambitions

"The ambitions behind the new strategy of UArctic", Anne Husebekk says, "is to have a stronger UArctic footprint. We will be better known, more accepted and taken seriously, in particular, by the Arctic Council. If we get more funding – and I hope we do when Norway assumes chairmanship of the Arctic Council in 2023, and through the fundraising efforts of UArctic itself – we will be able to launch joint research projects and UArctic chairs and fellows in many institutions. We could, for instance, if not exactly solve the climate issue, at least be able to produce solutions that enable us to live with the changes that will come, whatever we do. I also envision future UArctic seminars as grand and respected; a meeting place in which key societal challenges in the Arctic areas are discussed. UArctic will not take over the role of the universities in the Arctic, but will be such a strong organization, stronger than we would be without the UArctic network."

Husebekk is also focused on the variety in which national authorities have chosen to fund UArctic. With a contribution from all member countries, the economy of UArctic and thereby its activities could be increased.

Must Matter to People

"In Norway, universities are geographically widely distributed and financed by the government. That is not the case in for instance Russia, Canada or Greenland. We can challenge this system; that would require resources that we do not possess today."

You stress the significance of the Arctic universities meaning something to the people who live in these areas. Is there a discussion within UArctic about the distribution between social and natural science research?

"This has not been much of a discussion topic in the Board. These two disciplines go hand in hand in my view. If you look at climate changes, these can be explained through natural sciences, though they affect the people who live in the High North, and then you are in social sciences. A few Arctic universities are really strong in basic research both related to natural science, technology, humanities and social science, many more have their strength in applied or profession-based research and research based on traditions. Together, this is the most powerful research network in the North – there is huge potential."

Education for and with Indigenous People

UArctic has high ambitions when it comes to higher education for Indigenous people, ambitions that are shared by Anne Husebekk.

"Education levels are lowest amongst Indigenous people. There is a lack of universities in sparsely populated areas, a lack of infrastructure to deliver digital education. It is also important to use traditional knowledge in a modern research context. Indigenous people also live with other northerners, and the interaction and collaboration are important. UArctic shall be important and relevant for everyone who lives in the North."

In the new UArctic strategy, there is an emphasis on bringing northern voices out to the rest of the world. Do we have a say on a global scale, or are we considered a peculiar rural bunch conducting research for ourselves?

"I believe you may be right that many look at us who live in the North, in the Arctic, as peculiar people. I sometimes get that feeling. Only one thing can counter such a view, and that is for those who live and stay in the North to have the competence and strength needed to be influential. Traditional knowledge is challenged by climate change, and we must not avoid discussions about this and other matters which may be both hard and sensitive. The culture related to for instance reindeer herding and food traditions are closely related to northerners' identity and should be preserved. But there is no doubt that this is affected by climate change. UArctic should have an attentive eye on traditional knowledge, and I believe we can do that. Traditional knowledge is important, because it is closely related to identity and pride."

Change Requires Knowledge

Does cooperation through UArctic have its primary strength in climate issues?

"We cannot regard these issues independent of each other. Indigenous people will definitively be affected by climate change and will have to change some of their traditions. At the same time, Indigenous people may contribute with good advice and contribute to adaptation and also mitigation of climate change. One example is that many Indigenous communities get their electricity from diesel aggregates simply because that is the only way in which electricity can be produced. We cannot expect Indigenous communities to change this on their own. With joint effort, and with contribution from for instance Norway, we can foresee a future where the North is provided with renewable energy in all settlements. Svalbard can be used as an Arctic laboratory. So, my goal is that UArctic, in addition to spreading competence, shall also contribute to viable, resilient societies in the North with efforts to preserve the climate and the traditional knowledge on which we are based. At the same time, we provide Indigenous people and those who live in the North with an opportunity to apply modern technology when it is appropriate. But to do this requires focus and effort from societies both in the Arctic as well as in the rest of the world", Anne Husebekk says.

"We have to be communicating across the Circumpolar North so that we can better understand the challenges we collectively face, and find solutions and understanding that can help guide us forward in a way that provides for a sustainable future for all of us."

Evon Peter has been a Board member of UArctic since 2018, and in his final period he played an important role in the work with the new strategic plan.

"For UArctic it was really important to simply and clearly define who we are, what we do, and where we see ourselves going. And I think that overall, the strategic plan has provided that foundation, so that people who are not as familiar with UArctic can now look through a set of documents that clearly define those parameter and gain an understanding of what UArctic is", he tells me from his office in Fairbanks, Alaska.

A More Complex Entity

Peter has used his own experience in the work, things he noticed back in 2001 when he first engaged with UArctic.

"UArctic was still in its earlier formative state. But when I became involved again a few years ago, I stepped into a much more complex entity than I had witnessed two decades ago. It took a while to wrap my mind around the pieces of what UArctic is, and how it operates."

Besides being a Board member of UArctic, Evon Peter is also a Board member to the Gwich'in Council International, and he recently stepped down as a Vice Chancellor for Rural, Community and Native Education at the University of Alaska Fairbanks, where he now serves as a senior research scientist at the Center for Alaska Native Health Research.

Like most of us, Evon Peter's life has changed quite a bit this past year. He is a well-known and active national and international speaker, and even a film producer. But he may have a different view of the pandemic that hit the world over a year ago.

"The first thing that came to mind is that we all needed to slow down a little bit. I honestly have felt for a long time that the pace at which the western world moves is at odds with the pace of nature. As some of our elders say, it is not a good idea to go against nature. It usually produces unhealthy results, not only on our bodies, but also in the outcome of what we produce. I think that the pandemic has provided us an opportunity to reflect on what is important and what is valuable. It certainly has slowed down research for scientists and universities. But that slowing down is okay. We have been able to re-evaluate and assess, and now we are able to recalibrate how we want to move forward and approach our next steps, and continue bringing focus on Indigenous peoples' voices and engagement", Peter says.

Our Voices Are Being Heard More

"Some of the interesting dynamics that have played out during the pandemic as well have highlighted an emphasis on the significant disparities in health, wealth and privilege, certainly here in North America but also in the rest of the Circumpolar North. I think it has helped to create space and help elevate Indigenous voices into platforms and spaces where our voices are being heard more and being welcomed like they never have been welcomed before."

After working on the new strategic plan for UArctic, Evon Peter seems to think that the future for the organization is bright, and that UArctic will play an even more important role in the future.

"To provide a sustainable future for all of us is impossible to do alone. It is impossible for us to do that in silos. UArctic plays a very critical role as a neutral education institution or network of institutions in helping to provide facilitation for that communication, collaboration, cooperation and engagement. I think that is why UArctic is important."

Really Pleased

"In UArctic's new strategic plan, I was pleased to see the uplifting of the importance of Indigenous knowledge, Indigenous voices, as core elements to the values and the goals that we have through UArctic. When we think about the way UArctic functions, it serves as a facilitator for the institutions; it serves as a connector for scholars, for established researchers, or their graduate or undergraduate students who are interested in learning about the most up-to-date research and academic outcomes related to the Circumpolar North; and it provides that platform for engagement, cooperation and collaboration. That is very unique, and I think it will be increasingly important as we move forward.

It also emphasizes the importance of having a dynamic impact on the North for northern people. Those are all pieces of the plan that I am really pleased with overall."

As all the people I have talked with about the future of UArctic, Evon Peter also underlines the importance of UArctic's global role and possibilities.

"I think that a part of the implementation plan is for UArctic to start to present itself more on a global scale. It certainly is important for us in the Circumpolar North to connect with each other and share our knowledge, understanding, our methods and approaches to work. For example, among Indigenous communities and in addressing unique challenges to remote, isolated Arctic communities, and advancing the work with Indigenous languages and knowledges. But also, a part of the implementation plan is to uplift and provide platforms for that knowledge and those voices to be shared more broadly on a global scale. The Arctic we know is a critical region to the world, and I believe that more people will begin to look to the North, to have our voices and perspective shared as they relate to what is happening elsewhere on a global scale. So yes, I very much think that in these next ten years we will see that UArctic is playing a role in helping to advance and bring forward northern voices into a global conversation."

The pace at which the western world moves is at odds with the pace of nature, says Evon Peter.

Building competence locally based on the best available knowledge, both Indigenous-based knowledge and science are important. The challenge for Indigenous people is that their traditional knowledge is not included in education and research in the Arctic, says Mikhail Pogodaev.

"The challenge for Indigenous peoples is that their traditional knowledge is not included in education and research. UArctic has taken this seriously." Those are the words of Dr Mikhail Pogodaev, a Board member of UArctic.

Mikhail Pogodaev is Even, of Indigenous reindeer husbandry background. He lives 5,000 kilometers east of Moscow, in the city of Yakutsk in the Russian republic of Sakha, and has a PhD in economy from St Petersburg State University. Outside his office, the temperature has been incredible – minus 50 degrees Celsius for weeks. Inside, we find a burning engagement for higher education for Indigenous people and including Indigenous knowledge in Arctic science activities.

"The challenges of Indigenous peoples in the Arctic have to be taken more seriously by UArctic. Thus I have been honored to represent the Republic of Sakha (Yakutia), Russian Federation on the Board", Pogodaev says.

In working on the new strategic plan of UArctic, Pogodaev has in particular engaged with issues relating to Indigenous peoples' research and education. "Universities have different approaches to these issues, depending on their history and capacity. For the past few decades, we have nevertheless seen a greater respect for the traditional knowledge possessed by Indigenous people."

How would you describe the situation on research and education for indigenous peoples in the part of Russia where you live?

"Russia has over 90 years of tradition in research and education of Indigenous peoples through Institute of Peoples of the North, Herzen University in St Petersburg. Today, university-level education is mostly available in major cities throughout Russia, including universities located in the North, such as in Murmansk, Arkhangelsk, Sakha and Petrozavodsk. The North-Eastern Federal University (NEFU) in Yakutsk is a long-term supporter of UArctic since its first president; it provides multidisciplinary seminars and training courses for Indigenous peoples, and hosts and pays for a UArctic professorship. But there is a need to develop new programs based on Indigenous peoples' knowledge."

Youth Do Not Return

How does the new UArctic strategy respond to the worries you have regarding higher education among Indigenous peoples?

"There has traditionally not been much emphasis on education in small Indigenous communities with poor infrastructure, where choices are extremely limited. For some, traveling to the university in Yakutsk is an option, though young people who go there to study rarely return. If we are to bring Indigenous people on board, we must respect their special life situation, with weak institutions. UArctic needs to provide funding for Indigenous peoples. Thus I believe one of the primary goals of UArctic must be to engage small communities too in larger international cooperation. We also see that external teaching resources represent a form of colonialism created in the bigger cities. There are no opportunities for exploiting local potential, so that we can develop our own knowledge. The university in Yakutsk is an exception, as it both teaches in accordance with western models and contributes to developing Indigenous knowledge."

Education for an Elite

"In working on UArctic's new strategy, I have argued that we should pay particular attention to small Indigenous communities and institutions, so that no one lags behind in their educational processes. If we do not, education will only be for an elite from central areas in the country. They do not fully acknowledge the special needs of Indigenous peoples living in the Arctic."

In your opinion, what will it take to change this?

"First of all, small Indigenous institutions have very limited resources. This means we will have to create mechanisms through which they are prioritized, or at least guaranteed some form of funding. There is strong competition for the economic resources available, and the largest institutions are always prioritized, while the small universities for Indigenous peoples always lose out. If we provide funding, institutions will be able to develop teaching programs by themselves in more traditional knowledge areas. I have seen myself how this can work in my work on the Association of World Reindeer Herders, while finding funding has been next to impossible in Norway and in Russia. We also see how big universities fund education for students outside the Arctic. In my opinion, we should prioritize our own Indigenous youth first and foremost."

Russian Funding

As far as I understand, Russia does not contribute with any kind of funding for UArctic. Will this possibly change when Russia assumes chairmanship of the Arctic Council?

"First, I should mention that Russia actually was in the very beginning of UArctic. I remember that the first President of Sakha Republic Mikhail Nikolaev was one of the strong supporters of Arctic education and the idea of creation of UArctic. Even today there are some bodies in UArctic named in Yakut language. Many Russian universities are members of UArctic, and they pay membership fees and also fund some UArctic activities in their regions. So Russia does contribute to funding UArctic, but in a different way. For instance, NEFU holds a UArctic professorship and provides support for seminars, courses, logistics and congresses. There has been a challenge to raise money for the UArctic Institutes to fill the requirement from the UArctic Board. There are also some summer and winter schools. During the process of working on a new Russian strategy for the Arctic, we suggested specifically to get funding of UArctic into the program. We have to hope that cooperation will be strengthened during the Russian chairmanship of the Arctic Council. There are plans to hold the UArctic Congress in Russia as a part of the Russian chairmanship program, strongly supported by the Russian Government, and hosted by Moscow State University. In general, of course we hope that UArctic activities will be funded and that there will also be greater attention in this regard to small Indigenous peoples' education and research institutions and organizations."

From the perspective of Yakutsk, how has COVID-19 affected cooperation within UArctic?

"It is very challenging for us when we have to use telecommunication to be able to continue this cooperation. In many communities, particular in our republic, telecommunication infrastructure is not very well developed. Internet is mainly satellite based, which is costly and runs slowly. Many communities do not have any internet, and thus there is no communication at all in the current situation, as we are not able to meet in person. On the other hand, the current situation goes to show that there should be more investments in web-based communication and digital teaching. In the future, the demand for this will increase, and we should be prepared."

What role should UArctic play on the global arena?

"We should play an active part in reaching the goal of sustainable societies. Being part of a university structure, and as an existing platform of partnership with the Arctic Council and the Arctic Economic Council, we have everything it takes to become a global player. It is absolutely possible to build new kind of education and research based on our own knowledge."

UArctic, a Modern Tool

If you were to look into your crystal ball, where will UArctic be by the end of the decade covered by the strategic plan?

"First of all, I see UArctic already now as a strong network and a strong actor in the Arctic. We are to be a state-of-the-art tool and a modern platform that can offer higher education to everyone in the Arctic. All citizens in the Arctic, be they Indigenous or others, shall have equal opportunities to higher education and research, and equal opportunities to develop their own communities through their own education systems. UArctic should develop new technology that enables such a development. The vision of the strategic plan is for all northerners to have the opportunity to develop their own communities through applying competence and education as tools. Most important for UArctic over the next years is building competence locally based on the best available knowledge, both Indigenous knowledge and science."

Becoming Circumpolar

Reflections on Origins and Outcomes

By AMANDA GRAHAM,
Instructor, Yukon University

It is sometimes hard to remember that the idea of the University of the Arctic (UArctic) emerged from discussions at the Arctic Council around 1998. In a sense, UArctic is a sibling of the Arctic Council's vital working groups. In contrast to them, however, UArctic's formation in the hands of post-secondary institutions' staff, faculty, and researchers emerged in a regional impulse to learn more about each other.

At the outset, the Arctic Council member states focused on matters of joint interest and common concern, one of which was the sustainable development of their separate parts of the Subarctic and Arctic. The Indigenous Permanent Participants were keen for high-level attention to their issues; they had been overlooked and underserved for generations.

Sustainable and sustained sustainable development, rooted in the calls to action of the Bruntland Commission report of 1987, with and by northern people for northern people and their communities, was the framework of choice for the Arctic Council. It was a good approach for organizing the common future of the circumpolar region after the collapse of the Soviet Union.

UArctic should be understood, then, as part of the program of international cooperation in the post-Cold War Arctic and its environmental protection. Where it diverges from its Arctic Council siblings is that, instead of being launched as the Arctic Council University, it set sail as the University of the Arctic.

The Arctic university concept initially proposed to the Arctic Council was as a sort of graduate school, focused on training a cadre of young scientists able to tackle the problems of the region – an institute more so than a university. The newly coalesced Circumpolar Universities Association (CUA) was tasked with considering the idea.

It is at this point that something magical occurred: the Arctic Council university idea morphed into a University of the Arctic. There was so much possibility, but in the Arctic of the 1990s, national borders, difficult transportation and communications, and fragmentation of peoples, their knowledge and experience made it all but impossible. The CUA task force urged a fuller feasibility study with UArctic imagined as a network rather than an actual institution.

A network of established, knowledge-seeking, knowledge-producing universities, colleges and institutions, they thought, located in or studying northern regions, would be the least difficult and most productive format. Nodes of such a circumpolar network of academic and educational cooperation were already present, many of them anchored in northern communities. Schools and institutions were already focused on local and regional issues, and their findings were benefiting their regions.

Linking that wealth of academic and scientific expertise would expand the capacity of the region to understand and help itself by orders of magnitude. But the job was not that of the researchers and scientists alone.

The right people were charged with working out the details. The lack of a university in the Canadian North was a key condition; it led to an undergraduate program emphasis. Indigenous cultural resurgence was a key condition; it led to the explicit declaration of "shared voices". The persistence of traditional knowledge among the many Indigenous peoples of the region was a key condition; it led to the insistence that the shared voices be heard in studies undertaken and curriculum developed. The lack of high-latitude east-west transportation was a key condition; it led to a willingness to embrace emerging (at the time, remember) distance education technologies and the World Wide Web. The lack of common knowledge among northern residents about the region, too, was a key condition; it led to the idea of Thematic Networks and the multidisciplinary Circumpolar Studies Core of seven courses.

It was and remains crucially important to the project of sustainable development, circumpolar cooperation and regional identity development that UArctic speaks to and engages undergraduates, the thousands of students of UArctic members whose futures lie outside the academy, in business, in professions, in the arts, in service, etc. Circumpolar cooperation and sustainable development hinge not only on the scientists and the diplomats. Ordinary people with an awareness of the international region in which they live and work expand the bounds of the locally possible. The benefits extend beyond the region. CS 100, Introduction to the Circumpolar World, for example, is an online course. Anyone can take it and each year thousands do. The "Arctic" is becoming the Circumpolar North to more and more people. Gradually, we are all becoming just a little bit more circumpolar.

Amanda Graham was a contributor to sidebar discussions about the University of the Arctic and Circumpolar Studies during the CUA pilot study and the subsequent feasibility study that resulted in the founding of UArctic. She also contributed to the development of CS 100, Introduction to the Circumpolar North, and piloted it online in 2001. She is a YukonU point of contact for UArctic, a committed member of the ad hoc Circumpolar Studies team, and a founding contributor of the Laera Institute for Circumpolar Education.

New Directions in Circumpolar Studies:

LAUNCHING THE LÆRA INSTITUTE

By ANTHONY SPECA, Managing Director, UArctic Læra Institute for Circumpolar Education, Adjunct Professor, Trent University and IRINA DRANAEVA, Head of International and Interregional Cooperation, Arctic State Agrotechnological University and HEATHER NICOL, Academic Co-Director, UArctic Læra Institute for Circumpolar Education, Professor, Trent University and GARY WILSON, Academic Co-Director, UArctic Læra Institute for Circumpolar Education, Professor, University of Northern British Columbia

In his 2017 *Shared Voices* article "The Beginnings of Circumpolar Studies", Jón Haukur Ingimundarson of the Stefansson Arctic Institute reminds us that UArctic's flagship educational offering – the Bachelor of Circumpolar Studies (BCS) – was a priority agenda item at the very first meeting of UArctic's Interim Council in 1998. By 2002, the first students from UArctic members were enrolled in BCS courses. Eighteen years later, what is now the UArctic Circumpolar Studies program has served tens of thousands of students from around the Circumpolar North.

Ingimundarson also reminds us of the foundational principles of Circumpolar Studies: academic interdisciplinarity; a holistic perspective on the Circumpolar North; a commitment to connectivity and collaboration between UArctic members; and the integral place of Indigenous scholarship in the curriculum.

The collaborative development of the Circumpolar Studies program resulted in a small curriculum of seven courses, the quality of whose content and delivery exceeded what any single institution could achieve on its own. Interconnectivity between UArctic members offering Circumpolar Studies courses, mediated through a funded and centrally coordinated body administering the program, also reinforced a shared understanding of the foundational theories, concepts, terminology and other knowledge underpinning the curriculum. However, the eventual loss of this central body compromised the interconnectivity between the members. It also diminished the capacity of their faculty and students to draw upon a broader field of teaching and learning experiences and best practices. Without these peer-to-peer relationships, something of the identity of UArctic as a borderless academic and educational community was sacrificed.

The aim of the new UArctic Læra Institute for Circumpolar Education (the Læra Institute) is to restore this borderless community without compromising members' local academic flexibility. The word *læra* means 'learn' or 'study' in Icelandic, and the Læra Institute is dedicated to promoting best-practice teaching and learning about the Circumpolar North. We mean to advance, in the broadest possible way, UArctic's mission of offering "training and education [that] is circumpolar, holistic and diverse in nature, and draws upon our combined members' strengths to address the unique challenges of the region [...] in a context which recognizes that degrees are granted by the members themselves" (excerpt from the UArctic Charter).

Launched in September 2020, the Læra Institute is co-led by Trent University and the University of Northern British Columbia. We are privileged to be joined in this initiative by the Arctic State Agrotechnological University in Russia, Nord University in Norway, the University of Alaska Anchorage in the USA, and Lakehead University and Yukon University in Canada. Over the next two years, we will develop curriculum specifications, exemplar courses, and pedagogical resources to support Circumpolar Studies teaching at UArctic member universities, whether in person or online. We will also hold regular workshops for faculty as well as educational symposia for students. We are enormously grateful to UiT The Arctic University of Norway and the Norwegian Ministry for Education and Research for the initial funding for this work.

As part of our mission, we will pay special attention to the varied perspectives on 'circumpolarity' that exist across the Circumpolar North, particularly Indigenous perspectives. In this way, we will honour the extraordinary diversity of the circumpolar world, whilst at the same time upholding the original principles of the UArctic BCS program.

UArctic was founded to create educational programs relevant and accessible to students of the North. Circumpolar Studies has long fulfilled this important purpose. The Læra Institute will revitalize and refresh this program, transforming it from a small suite of off-the-shelf courses into a broad and flexible curriculum that can be easily adapted to local educational contexts.

We invite all UArctic members to take part in writing this new chapter in the story of UArctic as an educational community – in the North, by the North, for the North.

Announcing UArctic Congress 2022

By VICTOR ANTONOVICH SADOVNICHy, President of the Russian Union of Rectors, Rector, Lomonosov Moscow State University

In 2022, the Russian Federation will assume the chairmanship of the Arctic Council. The Ministry of Science and Higher Education of the Russian Federation, which is responsible for research and educational development programs within the framework of the Arctic Council activities, expresses its full support for the UArctic Congress 2022 to be held at Lomonosov Moscow State University. This event, important for global interstate cooperation, will take place with participation of rectors and presidents of universities – members of UArctic, representatives of the rectors' community in Russia, interested in discussing the Arctic agenda and further plans for the development of the Arctic.

The UArctic Congress 2022 will be organized to ensure the contribution of the Russian Federation to the implementation of the Agreement on Enhancing International Arctic Scientific Cooperation. The Congress will be included in the general program of the Russian chairmanship of the Arctic Council and promises to become a top-of-the-line event in the development of international scientific cooperation in the Arctic.

We are very pleased that the UArctic Congress 2022 will be held at Moscow State University, one of the leading Russian centers of Arctic research. We conduct interdisciplinary research and implement large projects to study the Arctic, both in the field of natural sciences (geology, ecology, biology, geography, etc.) and humanities (world politics, global problems, regional studies, international relations, history, etc.).

I am convinced that the upcoming Congress will become a high-level international and interdisciplinary platform for discussing and solving the most challenging problems related to the development of the Arctic region, and will serve to enhance international cooperation between experts, policy makers and other specialists from the countries where UArctic member institutions are located.

The main thematic areas of Arctic research in the field of natural sciences conducted at Moscow State University are:

• Study of contemporary changes in the natural environment of the Arctic and factors that determine them

• Forecast of adverse environmental consequences of anthropogenic impact and/or climatic changes in the Arctic zone of the Russian Federation, risk analysis of natural and man-made emergencies, adaptation and mitigation measures for population and economy

• Development scenarios for industrial and transport infrastructure of the Arctic zone, including places where indigenous small-numbered peoples reside and conduct their traditional economic activities

• Scientific basis for the development of seaports and shipping routes infrastructure in the Arctic Ocean, risk projection related to resource exploitation of the Russian Arctic seas

• Assessment of river use in the Arctic zone, including the impact of climate change on hydrological conditions and hazardous hydrological phenomena

• Analysis and scientific rationale for the development of a network for hydrometeorological observations and environmental monitoring, including the use of remote sensing data;

• Assessment of the probability of toxic substances and causative agents of dangerous infectious diseases entering the Arctic zone

• Assessment of the state and dynamics of bioproductivity and biodiversity of Arctic ecosystems in the context of climatic changes and growth of production and transportation of raw hydrocarbons

• Development of scientific foundations for protection and restoration of rare and endangered species, and biological remediation of ecosystems in the Arctic

UArctic at a Glance

Circumpolar. Inclusive. Respectful.
Collaborative. Open. Influential.
With Shared Voices.

UArctic Thematic Networks' and Institutes' activities in 2020

	Individuals involved	Institutions involved	Graduate courses (incl. summer and field schools)	Joint graduate programs (under development/with enrollment)	Research projects	Publications, scientific articles (peer reviewed)	Events, science sessions, workshops, art exhibitions	Outreach (incl. scientific talks, webinars, blogs, newsletters)	Mobility activities
Ageing and Gender in the Arctic	30	14			●	●	●	●	
Arctic and Northern Governance	9	5			●	●	●		
Arctic Boreal Hub	2	9			●		●	●	
Arctic Economic Science	19	5					●	●	
Arctic Engineering	7	5							
Arctic Extractive Industries	8	7			●	●			
Arctic Geology	36	24	●		●	●	●		
Arctic in Asia and Asia in the Arctic	20	15			●	●	●	●	
Arctic Indigenous Skills	7	6						●	
Arctic Law	31	23			●	●	●		
Arctic Lingua	9	11			●		●		
Arctic Migration	18	13				●	●		
Arctic Plastic Pollution	12	13			●				
Arctic Safety and Security	40	23			●	●	●	●	
Arctic Sustainable Arts and Design	35	26	●	●	●	●	●	●	●
Arctic Sustainable Resources and Social Responsibility	25	25				●	●	●	
Arctic Telecommunications and networking	4	4			●		●		
Arctic Transport and Logistics	4	4			●		●	●	
Arctic WASH	13	11			●				
Arthropods of the Tundra	8	50			●			●	
BEBO – for the Future of Reindeer Husbandry	12	25			●		●	●	
Circumpolar Archives, Folklore and Ethnography (CAFE)	21	14			●	●	●		
Climate Justice in the Arctic	5	4				●	●		
Collaborative Resource Management	7	5			●	●	●	●	
Commercialization of Science and Technology for the North	5	10							
Communicating Arctic Research	5	11			●			●	
Disasters and Natural Hazards	11	13					●		
Distance Education and Learning	7	3			●				
EALAT Institute	2	13			●			●	
Gender in the Arctic Knowledge Production	5	5			●	●	●	●	

New Thematic Networks in 2021: Arctic Indigenous Film, Arctic Space Hub, Arctic Urban Planning and Design, Bioregional Planning for Resilient Rural Communities, Children of the Arctic, Circular Economy, Critical Arctic Studies

	Individuals involved	Institutions involved	Graduate courses (incl. summer and field schools)	Joint graduate programs (under development/with enrollment)	Research projects	Publications, scientific articles (peer reviewed)	Events, science sessions, workshops, art exhibitions	Outreach (incl. scientific talks, webinars, blogs, newsletters)	Mobility activities
Geopolitics and Security	9	9			●	●	●		
Global Ecological and Economic Connections in Arctic and Sub-Arctic Crab Fisheries	7	8			●	●		●	
Health and Well-being in the Arctic	34	18	●		●	●	●	●	
Herbivory	9	10			●	●	●	●	
Human Adaptation in the Changing Arctic	4	3	●		●		●	●	
Institute for Arctic Policy	2	2					●		
Language Documentation and Language Technologies for Circumpolar Region	6	3							
Local-Scale Planning, Climate Change and Resilience	24	22				●	●	●	
Læra Institute for Circumpolar Education	8	6		●	●				●
Managing Small and Medium Sized Enterprises in the Arctic	7	10				●			
Model Arctic Council	13	9					●		
Northern Food Security	6	11			●	●	●		
Northern Nursing Education	11	15				●	●	●	
Northern Research Forum	1	2						●	
Northern Tourism	53	37	●	●	●	●	●	●	●
Ocean Food Systems	19	12		●	●	●		●	
Permafrost	11	14					●	●	
POPs and Chemicals of Emerging Concern in the Asian Arctic	18	12	●		●	●	●		
Renewable Energy	32	19	●		●		●	●	
Science and Research Analytics Institute	9	6				●	●	●	
Science Diplomacy	15	13			●	●	●		
Smart Societies in the High North	12	9	●		●	●	●	●	
Social Work	1	8	●					●	
Sustainable Production and Foraging of Natural Products in the North	12	13		●	●	●		●	
Teacher Education for Social Justice and Diversity in Education	45	25		●	●	●	●	●	
UArctic World Ensemble	8	5						●	
Verdde Program	9	7							
Working in the Arctic	11	13						●	
World Images of Indigenous Peoples of the North	3	6							
Total			**16**	**5**	**109**	**200**	**84**	**170**	**3**

Membership

226
Total

165
Higher education institutions

61
Other organizations

1.9m
Students

386k
Staff

Online presence

153,787
Website visitors

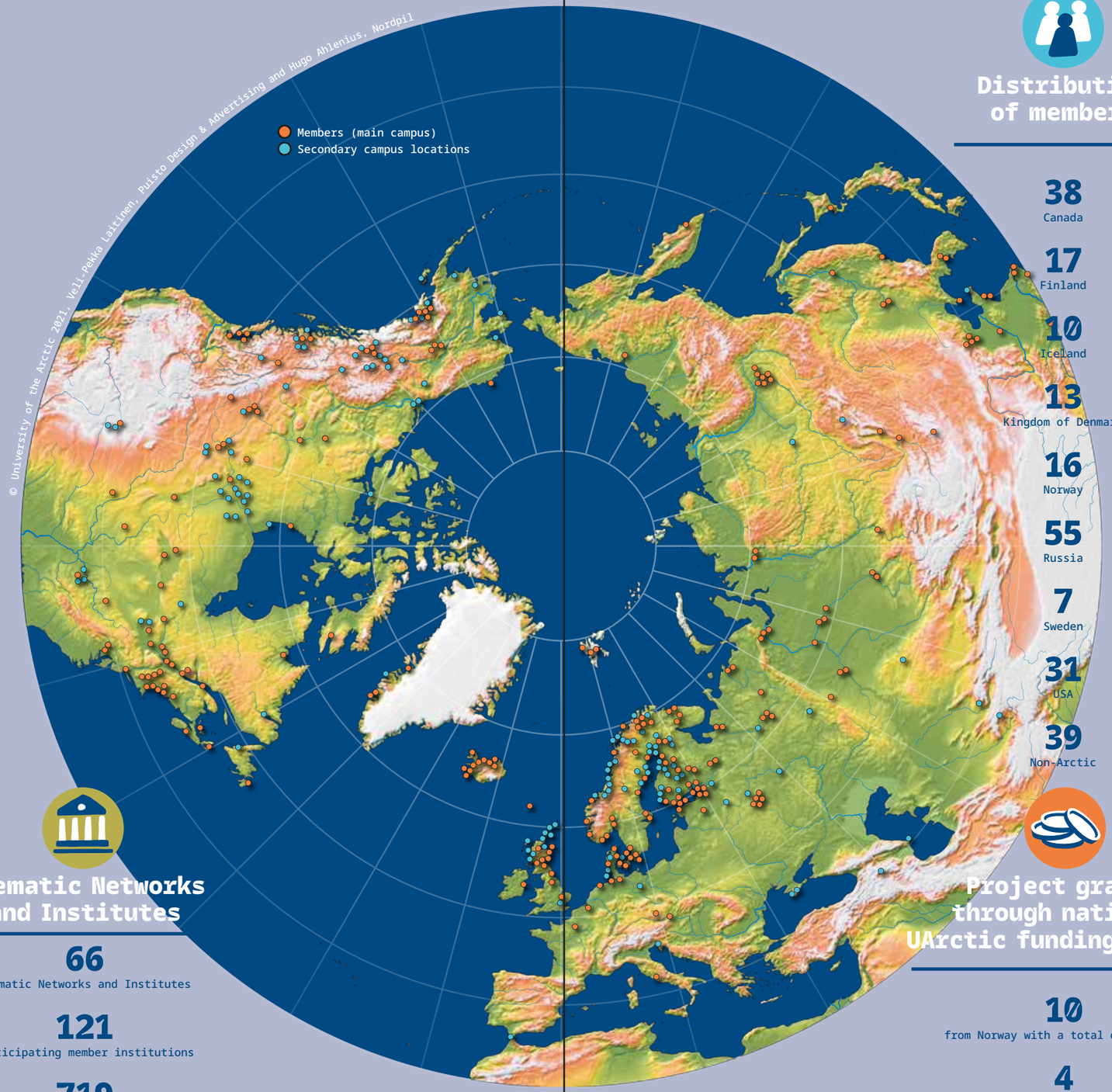
594,746
Page views

315
News stories

7,770
Twitter followers

3,115
Facebook followers

1,842
Newsletter subscribers



Thematic Networks and Institutes

66
Thematic Networks and Institutes

121
Participating member institutions

719
Participating individuals

Distribution of members

38
Canada

17
Finland

10
Iceland

13
Kingdom of Denmark

16
Norway

55
Russia

7
Sweden

31
USA

39
Non-Arctic

Project grants through national UArctic funding in 2020

10
from Norway with a total of NOK 3.9m

4
from Kingdom of Denmark with a total of DKK 1.6m

north2north student mobility in 2020 *

	Out	In
Canada	4	10
Denmark	18	1
Faroe Islands	0	0
Finland	7	5
Greenland	0	10
Iceland	0	3
Norway	11	12
Russia	6	1
Sweden	3	6
USA	1	2
Total	**50**	**50**

*Low activity due to COVID year

UArctic members

*New members in 2021

CANADA

Algoma University
Arctic Athabaskan Council
Arctic Institute of North America
Association of Canadian Universities for Northern Studies
Aurora College
Cape Breton University
Center for Northern Studies / Centre d'Etudes Nordiques
Coast Mountain College
Dechinta Bush University Centre for Research and Learning
Gwich'in Council International
Lakehead University
Makivik Corporation
McGill University
Memorial University of Newfoundland
Nipissing University
Northlands College
Nunavut Arctic College
Nunavut Sivuniksavut
Polar Libraries Colloquy
Qaujigiartiit Health Research Centre
Royal Military College of Canada
Royal Roads University
Saint Mary's University
Saskatchewan Polytechnic*
Simon Fraser University
TELUS World of Science - Edmonton
Trent University
Université du Québec à Montréal
Université du Québec à Rimouski
Université Laval
University College of the North
University of Alberta
University of Northern British Columbia
University of Prince Edward Island*
University of Saskatchewan
Vancouver Island University
Wilp Wilxo'oskwhl Nisga'a Institute
Yukon University

DENMARK/ FAROE ISLANDS/ GREENLAND

Aalborg University
Aarhus University
Department of Management, Society and Communication - Copenhagen Business School
Department of Sociology, Environmental and Business Economics - University of Southern Denmark
Greenland Institute of Natural Resources
Ilisimatusarfik / University of Greenland
Nordisk Fond for Miljø og Udvikling
Perorsaanermik Ilinniarfik / College of Social Education
Roskilde University
Technical University of Denmark
University College Copenhagen
University of Copenhagen
University of the Faroe Islands

FINLAND

Diaconia University of Applied Sciences
Finnish Institute of Occupational Health
Finnish Meteorological Institute
Kajaani University of Applied Sciences
Karelia University of Applied Sciences*
LAB University of Applied Sciences
Lapland University of Applied Sciences
Laurea University of Applied Sciences
Oulu University of Applied Sciences
Sámi Education Institute
Savonia University of Applied Sciences
Tampere University
University of Eastern Finland
University of Helsinki
University of Lapland
University of Oulu
University of Turku

ICELAND

Agricultural University of Iceland
Arctic Portal
Bifröst University
Hólar University
Iceland University of the Arts
Reykjavik University
Stefansson Arctic Institute
University Centre of the Westfjords
University of Akureyri
University of Iceland

NORWAY

Faculty of Science and Technology - University of Stavanger
GRID-Arendal
International Centre for Reindeer Husbandry
International Sámi Film Institute
Kings Bay AS
Molde University College*
Nord University
Norwegian Scientific Academy for Polar Research
Norwegian University of Life Sciences
Sámi High School and Reindeer Husbandry School
Sámi University of Applied Sciences
UiT The Arctic University of Norway
University Centre in Svalbard
University of Agder
University of Bergen
University of Oslo

RUSSIAN FEDERATION

Arctic College of the Peoples of the North
Arctic Research Center of the Yamal-Nenets Autonomous District
Arctic State Agrotechnological University
Arctic State Institute of Culture and Art
Baltic State Technical University
Banzarov Buryat State University
Barguzinsky State Nature Biosphere Reserve and Zabaikalsky National Park
Centre for Support of Indigenous Peoples of the North / Russian Indigenous Training Centre
Churapcha State Institute of Physical Education and Sports
East-Siberian Institute of Economics and Management
European University at St Petersburg
Far Eastern Federal University
Far Eastern State Transportation University
Federal Research Center - Kola Science Center of the Russian Academy of Sciences
Gubkin University - National University of Oil and Gas*
Herzen State Pedagogical University of Russia
Higher School of Innovation Management
HSE University (National Research University Higher School of Economics)*
Industrial University of Tyumen
Institute for Humanities Research and Indigenous Studies of the North - Siberian Branch RAS
Kamchatka State Technical University
Karelian Research Centre of the Russian Academy of Sciences
Komi Republican Academy of State Service and Administration
Lomonosov Moscow State University*
Murmansk Arctic State University
Murmansk State Technical University
Naryan-Mar Social Humanitarian College
National Research Tomsk State University
Nenets Agrarian Economic Technical School
Nizhnevartovsk State University
Norilsk State Industrial Institute
North-Eastern Federal University
Northern (Arctic) Federal University
Northern National College
Northern State Medical University
Petrozavodsk State University
Pskov State University
RAIPON
Russian State Hydrometeorological University
Scientific Research Institute of National Schools of the Republic of Sakha (Yakutia)
Siberian Federal University
St. Petersburg State University of Film and Television
St. Petersburg University
Surgut State Pedagogical University
Surgut State University
Syktyvkar Forest Institute
Syktyvkar State University
Taymyr College
Tomsk Polytechnic University
Tyumen State University
Ukhta State Technical University
Ural Federal University
Yamal Multidisciplinary College
Yamal Polar Agroeconomic Technical School
Yugra State University

SWEDEN

KTH Royal Institute of Technology
Luleå University of Technology
Lund University
Mid Sweden University
Sámi Educational Centre
Stockholm University
Umeå University

UNITED STATES

Alaska Pacific University
Aleut International Association
Anchorage Museum
Antioch University New England
Arctic Research Consortium of the United States
ARCTICenter - University of Northern Iowa
Association for Canadian Studies in the United States
Battelle Memorial Institute
Center for Circumpolar Studies
Climate Change Institute - University of Maine
Cold Climate Housing Research Center
Dartmouth College
Finlandia University*
Fletcher School of Law and Diplomacy - Tufts University
Florida SouthWestern State College
Ilisagvik College
Institute of the North
New Jersey City University
Scandinavian Seminar Group
The Yellow Tulip Project
University of Alaska Anchorage
University of Alaska Fairbanks
University of Colorado
University of Nebraska-Lincoln
University of New England
University of New Hampshire
University of North Dakota
University of Southern Maine
University of Washington
Western Kentucky University
Wilson Center - Polar Institute

NON-ARCTIC

Alfred Wegener Institut (Germany)
Arctic Centre - University of Groningen (Netherlands)
Arctic Studies Center - Liaocheng University (China)
Austrian Polar Research Institute (Austria)
Centre for Polar Ecology - University of South Bohemia (Czech Republic)
Chinese Academy of Meteorological Sciences (China)
Chinese Research Academy of Environmental Sciences (China)
Dalian Maritime University (China)
Durham University (UK)
Environmental Development Centre - Ministry of Environmental Protection (China)
First Institute of Oceanography, Ministry of Natural Resources (China)
Fudan University (China)*
Glasgow Caledonian University (UK)
Harbin Engineering University (China)
Harbin Institute of Technology (China)
Hokkaido University (Japan)
International Polar Foundation (Belgium)
Italian Society for International Organization (Italy)
Korea Maritime Institute (Korea)
Korea Polar Research Institute (Korea)
Leeds Beckett University (UK)
Mongolian National University of Education (Mongolia)
National Centre for Polar and Ocean Research (India)
National Marine Environmental Forecasting Center (China)
Ocean University of China (China)
Polar Research Institute of China (China)
Robert Gordon University (UK)*
Scott Polar Research Institute (UK)
Second Institute of Oceanography, Ministry of Natural Resources (China)
Southern University of Science and Technology - Department of Ocean Science and Engineering (China)
Trinity Centre for the Environment (Ireland)
Universität Hamburg (Germany)
University of Aberdeen (UK)
University of Edinburgh (UK)*
University of St Andrews (UK)*
University of Strathclyde (UK)*
University of the Highlands and Islands (UK)
University of Versailles Saint-Quentin-en-Yvelines (France)
Wuhan University (China)

Arena for the Gap Analysis of the Existing

Arctic Science Co-Operations

By HANNA LAPPALAINEN, Lead of the UArctic Thematic Network on Arctic Boreal Hub, Docent and STEPHANY MAZON, Research Coordinator, Institute for Atmospheric and Earth System Research (INAR), University of Helsinki

The Arctic region is undergoing accelerated rates of warming and, as a consequence, potentially irreversible changes to its environment. It is evident that a sustainable future of the region will be based on scientific knowledge. This knowledge, however, entails an integrated understanding of the Earth system, in particular its feedback system relating the atmosphere, ocean and land components. Yet this endeavor remains fragmented among the respective scientific disciplines. The Arena for the gap analysis of the existing Arctic Science Co-Operations (AASCO) is working to bridge the scientific research communities to chart a path towards a comprehensive practice of science.

AASCO is an initiative headed by the Institute for Atmospheric and Earth System Research (INAR) at the University of Helsinki and sponsored by the Prince Albert II of Monaco Foundation for 2020–2021. It is implemented in collaboration with UArctic, the World Meteorological Organization (WMO), the Sustainable Arctic Observations Networks (SAON), the Svalbard Integrated Arctic Earth Observing System (SIOS), the Institute of Remote Sensing and Digital Earth at Chinese Academy of Sciences (RADI – CAS), Moscow State University (MSU), and the Harvard Law School.

The first AASCO meeting was held online in November 2020. The two-day event comprised of short keynote presentations followed by open discussion on key large-scale research questions in the Arctic context, large-scale Arctic research frameworks, Arctic research infrastructures and future perspectives for integrated observations, and policy frameworks in the Arctic context.

The discussions served as a gateway to address the state of the current scientific knowledge of the region, and to emphasize and evaluate the efforts in conducting interdisciplinary science and strengthening the research infrastructure network in the Arctic. The discussions will be summarized as a white paper on the most urgent multidisciplinary science questions and as a policy-makers summary.

AASCO also provides an open online platform in the form of an e-exhibition that compiles communications material, digital services, and knowledge resources from the contributing partners to share their Arctic outreach materials. The aim is to offer a visual overview and source for the work and products stemming from the AASCO community. The e-exhibition will continue to be a living document, inviting all interested bodies to contribute to building the database of services and information resources of the Arctic region.

The 2nd AASCO meeting is planned for autumn 2021 in a hybrid format, offering online participation as well as in-person presence in Helsinki, Finland, conditions permitting. By streaming the talks and dialogue online, we aim to open the event to a broader audience of science and policy stakeholders.

North-Eastern Federal University:

Sustainable Development and Bridging the Arctic and Asia

By VLADIMIR SUZDALOV,
Press Secretary of Rector, North-Eastern Federal University

North-Eastern Federal University (NEFU) is based in the city of Yakutsk in Sakha Republic (Yakutia), Russia. It is an important provider of higher education in the region, and thanks to its location in the Far East, NEFU is also a link between the Arctic and Asia. To learn more about the university's future direction and collaborations in Arctic issues, the NEFU press service conducted an interview with Rector Anatoly Nikolaev.

What is the strategy of the North-Eastern Federal University for the next decade? In what direction will the university develop, and does this imply any changes?

The strategy of the North-Eastern Federal University will be based on the implementation of the United Nations' Sustainable Development Goals, and it will focus on the welfare and development of the northern territories. Our task is to reduce the goals to a single constant; to find a balance between the economic, environmental and social spheres of human activities for the harmonious and progressive development of geostrategically important territories of Russia. In connection with global climate change and the intensive development of the territory of the Russian Arctic and the North, issues such as green energy, introduction of digital technologies, proper transport logistics, and the preservation of peoples' cultures are becoming topical. Obviously, such problems are food for thought.

Based on the above, the mission of NEFU has defined the training of a new generation of professionals who will implement the values and goals of the sustainable development of the North and the Far East. For many centuries, the North has been and still remains the most attractive part of the world. Our motives as inhabitants living in quite extreme climatic conditions are extremely clear and understandable. We strive to bring up new generations of professionals who care with heart and soul for the preservation of the beauty and wealth of the northern territories and conditions for the well-being of the peoples of the North; people who make their homeland attractive, economically developed, and as comfortable as possible for life.

What examples of cooperation can you give that are important for the development of the North? How useful is the cooperation between leading universities, companies, and organizations?

Our university is located on two strategically important macroregions of the Russian Federation: the northeast of the Far Eastern Federal District, and the Arctic territory. Cooperation with leading universities, research and educational centers, and companies from partner countries is an important component of the large-scale work that is being done for the sake of preserving the Arctic.

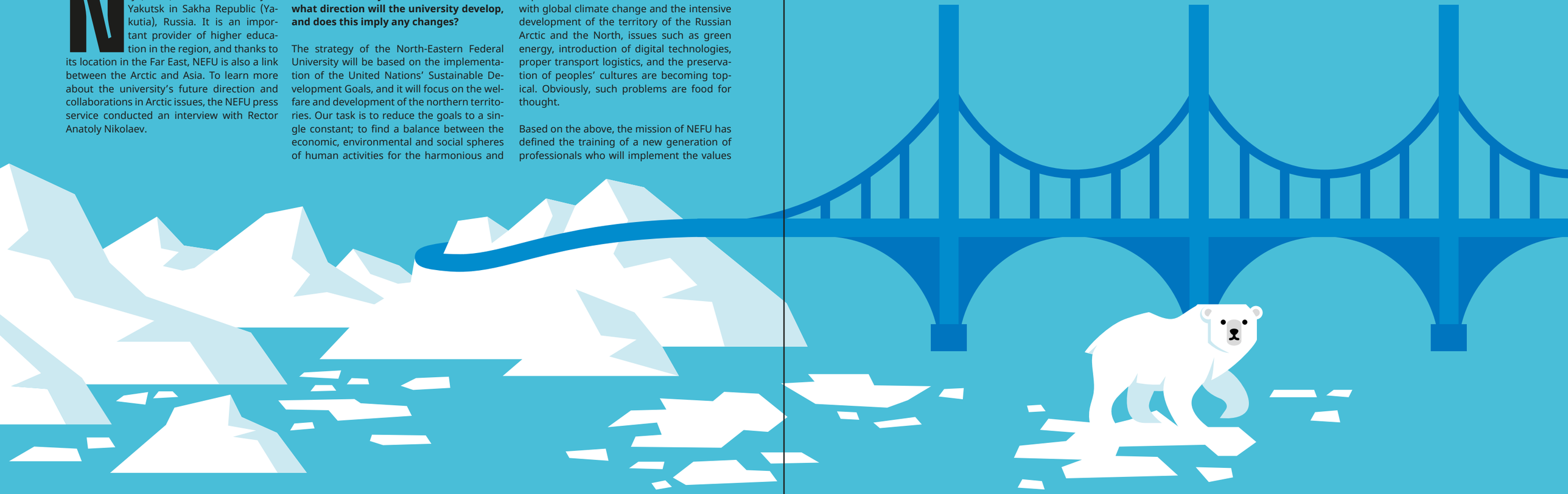
Collaboration always implies an equal contribution to a common cause. From a position of a link between the Arctic and Asia, we have twice held a major international event, the Northern Sustainable Development Forum, where leading experts from various fields discuss and identify the most problematic issues. We have many partners with whom we are closely linked by work and friendly relations: UArctic, Harbin Institute of Technology, Hokkaido University, the Alfred Wegener Institute, and many others. Cooperation in personnel training, sharing knowledge in the scientific and technical sector, in ecology, in medicine – this is the basis. It is necessary to constantly look for ways to cooperate with other organizations, to find new angles for conducting research and opportunities to expand the areas of training.

What prospects does the North-Eastern Federal University have in the Arctic? What role does the institution aim to play?

We have created a new development program for NEFU which is being examined by the Government of the Russian Federation. In the next ten years we will once again strive to implement all our plans and to follow the ideology of sustainable development.

For the next five years, our university will strengthen our position in the country and the macroregion. By 2025, NEFU will become a leading scientific, educational, expert, analytical and cultural center of the Far East and North of Russia, providing high-quality education and competitiveness of research. We intend to position ourselves as one of the distinctive universities of the northern territories and the Asia-Pacific region, contributing to the solutions of global problems. We plan to achieve this recognition by 2030.

Lastly, on behalf of NEFU let me congratulate UArctic on the 20-year anniversary. NEFU has been an active member of UArctic since joining. Over the years, thanks to the membership in UArctic, we have significantly expanded our cooperation with the northern universities and interaction with scientists from foreign countries on the most pressing problems of the North. We wish UArctic success in expanding its network even further and in implementing the important task of developing the interuniversity cooperation among Arctic regions.



UArctic-HIT Training Centre

A Bridge Between Arctic and Chinese Universities

By YI-FAN LI, Lead of the UArctic Thematic Network on POPs and Chemicals of Emerging Concern in the Asian Arctic, Executive Deputy Director, International Joint Research Center for Arctic Environment and Ecosystem, Harbin Institute of Technology

On February 26, 2019, the UArctic-HIT Training Centre (UArctic-HIT-TC) was established in Harbin Institute of Technology (HIT), the Peoples' Republic of China. This is an important event which will surely be recorded in the history of both UArctic and HIT, since UArctic-HIT-TC is the first UArctic Regional Centre outside the eight Arctic countries.

The suggestion to establish the Training Centre was brought up when I, on behalf of HIT, gave a presentation at the UArctic Congress 2018 held in the University of Oulu, Finland, where HIT was also accepted as a member of UArctic. This received a positive response from the leadership of both UArctic and HIT. After a visit by Outi Snellman, Vice-President Organization of UArctic, at HIT and successful strategic dialogue between UArctic and HIT, the establishment of the Regional Centre was approved by the leadership of both organizations.

As stated in the MOU between HIT and UArctic, "[t]he establishment of the UArctic-HIT Training Centre meets both China's Arctic Policy and the mission, goals, and values of UArctic, which is strongly supported by the leaderships of both HIT and UArctic." The mission is to "[s]trengthen understanding, friendship and collaborations between students, faculties and scientists of Chinese and Arctic universities and institutes by providing a unique and advanced platform for cooperative educational and research opportunities." As the Director of UArctic-HIT-TC, I have tried and will continue to try to do my best to achieve the goals of the Centre.

To raise the awareness of Chinese students on Arctic issues and the awareness of students in Arctic countries on China's Arctic policy and research, the Training Centre has established the International Arctic School (IAS-HIT), with full support from HIT. The IAS-HIT Summer/Winter Schools are organized in collaboration with Norwegian University of Life Sciences, the University Centre in Svalbard (Norway), and North- Eastern Federal University (Russia). The Summer School opens every July to undergraduates and the Winter School every January for graduate students from universities in China and countries worldwide.

So far, the IAS-HIT has organized two Summer Schools and two Winter Schools. We have invited top Arctic scientists worldwide, including Canada, Denmark, Finland, Norway, Russia, the United States, and China, to teach courses to the students. Already over 400 students have participated in the Summer/Winter Schools.

With financial support from HIT, we have been able to provide scholarships to students to cover their accommodation and meals in Harbin. A full scholarship that also covered travel expenses was provided to Chiriaeva Avgusta, an indigenous student of North-Eastern Federal University, Russia, for attending the 2019 Summer School. She said: "My understanding is based on my educational background and personal interest in circumpolar regions such as Yakutia and Nordic countries. I am strongly motivated to immerse into and extend my knowledge on Arctic studies and to further apply it in practice. Therefore, I believe that the Summer School is the place to bring out beneficial dialogue through learning."

The current global crisis caused by COVID-19 has changed our activities in the UArctic-HIT-TC. For example, the Arctic Schools cannot be operated in the usual way since we are not able to travel and engage in face-to-face communication. But the pandemic cannot stop learning, so the 2020 Summer School and 2021 Winter School were organized online. In the two weeks of 2021 Winter School, both students and lecturers worked very hard to make it a successful one. As stated by Dr Derek Muir, Senior Research Scientist, Environment and Climate Change Canada and Member of the Academy of Science of the Royal Science Society of Canada, "I was happy to participate as a lecturer in the Winter School. Judging from the program, the students certainly got a tremendous amount of information from some of the leaders in Arctic research and monitoring."

We promise to continue our efforts to achieve the goals of the UArctic-HIT Training Centre and the International Arctic School, to make the UArctic-HIT-TC a strong and effective bridge between the Arctic and Chinese universities.

14 Years of Arctic Indigenous Collaboration with BEBO

How Has It Been?

By MARINA FALEVITCH, Coordinator and MIKA AROMÄKI,
Coordinator, Sámi Education Institute

BEBO (*Boazoealahusa boahtevuoda ovddas,* 'for the future of reindeer husbandry') was founded on the shores of Lake Inari on June 30, 2007 at the Sámi Education Institute in Inari, Finland. It is an international joint organization in the fields of reindeer husbandry and other traditional livelihoods of Arctic Indigenous peoples. BEBO operates as a development forum between educational institutes, enterprises and organizations.

The soon-14-year-old organization was accepted as a UArctic Thematic Network in February 2020. BEBO currently has 28 member organizations. The main function has been organizing grassroot level workshops on such themes as reindeer skin processing, introduction to reindeer husbandry, and sacred sites of Indigenous peoples. In fact, in many cases it is the reindeer, the products deriving from it and the traditional knowledge and skills embracing it, that has been connecting people across the Arctic region. BEBO is, however, not limited to reindeer herding, but focuses also on cooperation with other Arctic Indigenous peoples' livelihoods, their environment, languages, and culture.

In order to get feedback, to prove BEBO's meaningfulness to ourselves, and to present our collaboration to the readers of Shared Voices, the Sámi Education Institute sent five questions to the most active BEBO members. We received plenty of replies and share the highlights here.

You can read the full responses online at www.uarctic.org/sharedvoices.

1 Do you think that Indigenous cooperation in the Arctic has been useful to you and the organization you represent?

"A very useful experience which reassured us that all Indigenous peoples have common problems, and that there are activists in each country to guide their efforts to protect national interests in the Arctic."

"BEBO is a completely unique place within UArctic, representing the direction of Arctic education to modernize the traditional economic activities of Indigenous reindeer herding peoples. It ensures integration into global education that preserves the dignity and ethnocultural identity of the Arctic peoples and their self-expression in culture, education, business, and worldview. And that is why it is precious and dear to us. In our BEBO community, we see our home – our school with a kind of intellectual courage, professional solidarity, and the humanitarian core of UArctic."

"Given that the Arctic region is a region inhabited by a large number of Indigenous peoples and that some of these peoples are segregated by national borders, all opportunities for cooperation are also useful for the conservation and development of Indigenous peoples."

2 What do you think is most important about BEBO cooperation?

"Opportunity to exchange invaluable unique experiences in the transfer of traditional knowledge, the preservation of national culture, and the training of Arctic staff."

"The BEBO partnership is, firstly, a partnership of equals, the same small educational institutions. It is a community in which a sense of solidarity and an understanding of a common mission is well developed. In general, this is a typical feature of the entire UArctic network, and this is a very significant achievement."

"Every nation whose lifestyle has always been reindeer herding has centuries-old traditions and life experience of living in the Arctic and northern regions, rich in Indigenous culture and mother tongue. The main goal of organizing the BEBO partnership, since its foundation, is to combine the experience and traditions of reindeer herding peoples in order to find an effective solution to the problems of these peoples and make them competitive in today's world. The most important thing in this activity is to ensure that the peoples themselves become the main factors."

"The BEBO network has made it possible to revitalize Indigenous languages, for example through language nesting, film cooperation, and the training of language masters in the region. BEBO has made it possible to start reindeer meat processing in Yamal-Nenets. Taimyr College, one of the cornerstones of the BEBO network, has started reindeer training in the area at a new reindeer base. Crafts culture is tied to reindeer husbandry, and the importance of BEBO to the revitalization of crafts culture in all BEBO schools is also noteworthy."

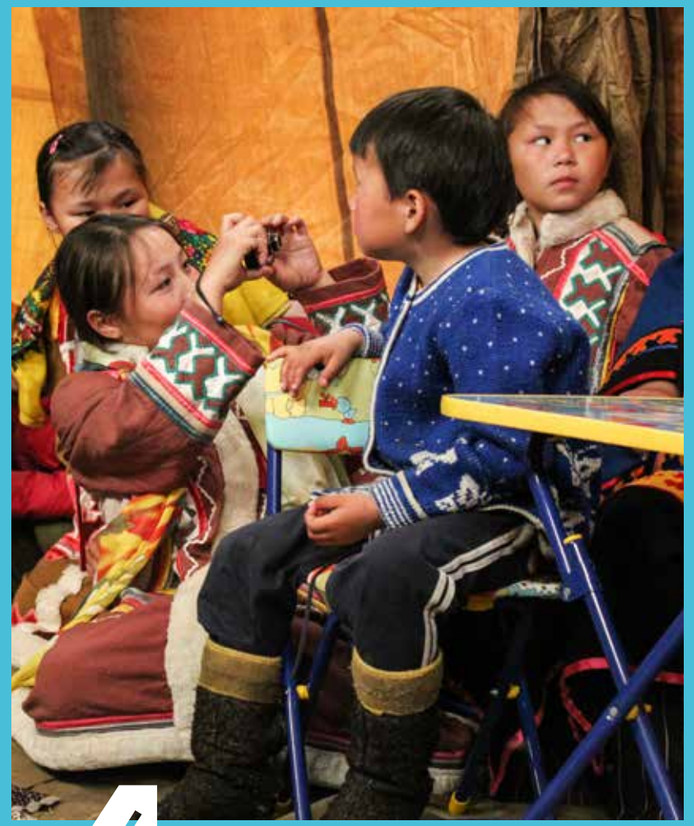
> "The BEBO network has made it possible to revitalize Indigenous languages.

3 How do you see BEBO's role and activities evolving in the future?

"The future is created today. The area of our operations will become a center for ecological processes, humanization, change of human dignity, even the exchange of magnetic poles. The Arctic is becoming the Arctic Mediterranean. Its coastal areas already account for more than a third of the total length of the planet's oceanic coastal areas. And this is happening in the background of the activation of the Northern Sea Route. An active life is in full swing here. And it is important that this is done in accordance with the values of the Indigenous peoples who herd reindeer. We must actively promote BEBO in these processes."

"The importance of the association depends on the activities that meet the current challenges both in reindeer husbandry and in all walks of life of reindeer herding peoples. BEBO's activities should always be aimed at finding methods and opportunities to strengthen cooperation between these peoples."

"It's no secret that the new circumstances we've all been in because of the pandemic have complicated the routine processes in our institutions. However, the operation of the network can benefit from new conditions: we can develop e-learning; the active use of new technologies can facilitate the exchange of experiences; we can work on joint projects. The future of the network lies in new technologies, more specifically in their more active and efficient use."



4 How could BEBO's activities be developed in UArctic?

"The Arctic component in UArctic should be strengthened by disciplines that teach alignment with Indigenous values. One of the important tools is the course we have developed called 'Arctic Circumpolar Civilization'. It has been translated into English and is available to almost all training organizations."

"Work should focus on raising awareness of Indigenous issues among governments, research communities, educational organizations, and large corporations."

> "The future is created today.

5 What are the main challenges for the future of Indigenous peoples in the Arctic?

"As the climate warms, the region will open new opportunities for the mining, oil and gas industries. It means the loss of large areas from traditional livelihoods and, in turn, it means the deterioration of the living conditions of Indigenous peoples, even emigration from the area. With the expansion of industry, new people are coming to the area, with new ways and new languages. It threatens the traditional way of Indigenous peoples to live, to speak their own language."

"This is a complex issue. On one hand, the challenges facing Indigenous peoples in the Arctic are the same as for humanity as a whole – the pandemic, climate change, and other global problems. On the other hand, like the environment, Arctic human communities are most vulnerable to these challenges. We can say that all the challenges facing humanity are becoming increasingly difficult in the living conditions of the Arctic and require a much deeper and more serious understanding."

"The most important thing in this situation is that Indigenous peoples have the opportunity to educate themselves, to be part of research and development, and to influence the future of their own region. We are growing a highly international youth that is ready to take their lives into their own hands and network globally."

Big thanks to the people of BEBO for sharing their extensive, detailed, and well-thought responses! We hope the results will help us all to jointly work towards an even better network.

The following individuals answered our survey: Sergey Gabov, Galina Nazarova, Liisa Holmberg, Ulyana Vinokurova, Rodion Sulyanziga, Darya Burnasheva, Vera Cherkasova

This article is dedicated to Evgeny Yushkov, a Lovozero resident from Kola Peninsula, Russia, whom we lost in November 2020. Evgeny was there with us at the very first and founding BEBO meeting in 2007 and worked in numerous Indigenous connections through the years, including the Saami Council. Evgeny was a Kildin Sámi language genius and a simultaneous interpreter and translator, and an intelligent, warm-hearted person who served as an important link between the Sámi and other Indigenous peoples of different states. His sudden departure is an irreparable loss to all who knew him, but above all to the Sámi community.

In honour of Evgeny, we would like to share a poem by Nils-Aslak Valkeapää (poem 565 in his collection *Beaivi, áhčážan*):

áigi
buohkai´e iežálágán
eallin
álohe earálágán
jápmin
oassi eallimis
čuovgasuoivanis
burrodagasbahodat

aika
kaikille omanlainen
elämä
aina erilainen
kuolema
osa elämää
valo varjossa
hyvyydessä pahuus

time
unique to everyone
life
always different
death
part of life
light in the shade
in goodness evil

Collecting Knowledge

from Finnmark's Plateau to Japan

By AMANDA ÅSBERG, Adviser, Centre for High North Logistics, Nord University

The industrial potential in the Arctic is significant, from minerals and raw materials to energy resources. At the same time, there are transport challenges due to remoteness, harsh Arctic climatic conditions, ice-covered waters, and lack of necessary support infrastructure. This makes year-round operations difficult. Therefore there is a great need to develop good infrastructure and plan efficient transport systems. For this to happen, the development of expertise and exchange of experiences across national borders is crucial.

The UArctic Thematic Network on Arctic Transport and Logistics (ATL) is a cooperation between the Centre for High North Logistics (CHNL), Murmansk State Technical University in Russia, Finnish Meteorological Institute, Hokkaido University in Japan, and International Centre for Reindeer Husbandry in Norway. ATL strives to develop innovative, green and optimized transport and logistics systems in the High North. Its main focus is on Arctic maritime transport, and through a new project, it will also analyze maritime connections to rail, air and river transport.

The ATL network, consisting of members from the entire circumpolar area, will collect research and knowledge on Arctic logistics and transport with the aim to develop the necessary competence. Through three workshops, joint research and increased student mobility, ATL will work to build bridges between local communities, industry and authorities in the Circumpolar North. In addition, the network will engage in international forums such as the Arctic Council's Protection of the Arctic Marine Environment (PAME) working group.

ATL will work to enhance knowledge about Arctic climate and ecosystems, as well as preserving Indigenous peoples' interests. This will be incorporated into new educational programs and also disseminated to Arctic businesses and authorities. The project will establish research teams on specific topics and assess all potential sources for joint research across borders. Through close cooperation, case studies and scenario analysis, ATL highlights logistical challenges and solutions in the Arctic.

Minimizing environmental impacts of shipping and other Arctic commercial operations is of great importance and relies on using up-to-date research results. By establishing research teams on specific topics related to Arctic transport, the network strives to find possible solutions to national and international problems. Engaging new researchers and stakeholders in the Arctic is also an important part of the project activities. One approach is determining the demand for new educational programs with focus on Arctic logistics and transport infrastructure development. Sharing knowledge from Norway to Japan through the development of a joint master's degree program, student exchange, faculty mobility among the network members, and professional courses for practitioners is the foundation for future opportunities in the Arctic.

"Minimizing environmental impacts of shipping is of great importance."

Photo by: SHUTTERSTOCK

Arctic Makes

Observations, Lessons, and Solutions from the Geographic Periphery

By SVETLANA USENYUK-KRAVCHUK, Head of the Arctic Design School and Senior Research Fellow, National Research Tomsk State University and TIMO JOKELA, Lead of the UArctic Thematic Network on Arctic Sustainable Arts and Design, Professor, University of Lapland

Amongst the numerous challenges that emerged with the "pandemic mode on", the challenge of social and cultural life to be dramatically curtailed appeared one of the most sensitive in the long run.

The COVID-19 pandemic has posed development targets also in the collaboration of the UArctic Thematic Network on Arctic Sustainable Arts and Design (ASAD) to improve long-distance sharing of arts and design education, research, and results. At a time when so many once-available tangible objects and socializing practices suddenly became inaccessible, we turned "compulsory digitization" into a versatile tool to efficiently reach out to both theorists and practitioners as well as to the audience during the lockdown.

The team of the Arctic Design School in Yekaterinburg, Russia (ASAD member since 2017) organized an international online exhibition as part of a larger research project on Arctic design, supported by the Russian Science Foundation. The exhibition aimed at continuing the educational and artistic activities of the ASAD network through providing a broad overview of socially engaged art and design across the Arctic. Due to the virtual nature of the event, the variety of accepted media was initially limited to photography, digital graphic, digital visual design, and video.

The very idea of the exhibition *Arctic Makes: Observations, Lessons, and Solutions from the Geographic Periphery* came from The Indigenuity Project by artists Joar Nango and Silje Figenschou Thoresen. In 2010–2012, they conducted a journey through northern parts of Finland, Sweden and Norway to examine the concept of indigenuity – the local and indigenous ingenuity in everyday design in severe Arctic conditions.

In our exhibition, we picked up where they left off and put the investigation of the local and vernacular design tradition on a new level to discuss what artists and designers could learn from encounters with Arctic environments and their inhabitants; how they could creatively and ethically utilize local knowledge; and how to integrate this knowledge into the art and design educational practice.

We encouraged the widest possible understanding of the theme of Arctic creativity and inventiveness that brought together, contrasted and confronted the following viewpoints:

• Art and design in the Arctic: a purely geographic association based on what the land can provide

• Art and design together with the Arctic: mutually beneficial collaboration between the land and the people with emphasis on inclusive participation

• Art and design in the Arctic: ideas, technologies and know-how that the Arctic region can export to the rest of the world, particularly in respect of more sustainable and caring use of resources

As a result, 29 artists, designers and researchers from ten countries presented their answers to the questions of the creative and ethical use of local knowledge, integration of this knowledge into art and design education, and support and popularization of this knowledge and skills on the local level.

In the situation where our settled mode of thinking and acting turned fragile and unstable, these diverse artistic and designerly representations of the Arctic provided an exceptional window into the world where isolation, fragility and uncertainty are parts of everyday being.

View the exhibition online at https://arcticdesignresearch.ru/en/exhibitions/sdelano-v-arktike-nably-udeniya-uroki-i-resheniya-s-geograficheskoy-periferii/

Photos by: FRITZ HORSTMAN; JOAR NANGO; BARBARA SCHENNERLEIN; VERONIKA BURKHANOVA, ANASTASIA DEMYANJUK & KONSTANTIN IVSHIN

Photo by: JEFF KERBY / National Geographic

CHARTER

Towards a Broader Understanding of Arctic Complexity

When you have a research project involving 21 research institutions across nine countries, it is complicated - even without the challenges of a global pandemic, which aside from wreaking havoc on human health and healthcare systems has been a disaster for field work and regular meetings.

FOLLOW THE PROJECT:
www.charter-arctic.org
Twitter @CharterArctic
Instagram @arctic_charter

"The project co-develop tools with Arctic communities to better adapt to changes."

By PHILIP BURGESS, Outreach Coordinator, University of Lapland

But the challenges and choices facing nations, communities, and peoples in the Arctic are enormously complex, so such an approach is increasingly essential. CHARTER (Drivers and Feedbacks of Changes in Arctic Terrestrial Biodiversity) is a research project that hopes over the next four years to better understand the processes that have been driving rapid climate and land use changes in the Arctic. The project is funded by the European Union Horizon 2020 Programme and coordinated by the Arctic Centre, University of Lapland in Finland.

CHARTER works mainly in northern Europe and Northwest Russia. Changes in climate and land use affect Arctic biodiversity, snow cover, sea ice, and permafrost. This has knock-on consequences and feedbacks to Arctic regional climate. These changes are not merely of academic interest; they are especially felt by people working on the land such as reindeer herders.

This is perhaps best demonstrated by the 2013/4 severe icing event on the world's most productive reindeer herding region of Yamal in Northwest Russia, where it is estimated that Nenets reindeer herders lost at least 61,000 reindeer, perhaps as many as one fifth of all reindeer in that region. Some herding families lost all their reindeer and have reverted to fishing in order to remain in the tundra, while they attempt to rebuild their herds before another such catastrophe may strike. Poor winter grazing conditions in winter 2019/20 led to the death of as many as 15,000 reindeer in Finland, which had large financial consequences for herders along with a substantially increased workload.

Reindeer are obviously an important species for herders and cultures that depend on them. Reindeer are also a key species in the Arctic; they have a strong effect on the functioning of the ecosystems. By managing the grazing, reindeer herding as a livelihood has the potential to affect even permafrost region temperatures and, through effects of grazing on vegetation, regional climate.

CHARTER wants to co-develop tools with Arctic communities to better adapt to climatic and biodiversity changes. The project will do this through joint data collection, analysis, and modeling. CHARTER will look backwards to build a short, medium and long-range look at biodiversity, meteorological, and snow and ice data. This will build out a picture of change throughout the Holocene period (the last 11,000 years). CHARTER will also take a more detailed look at these same changes and drivers over the last forty years.

CHARTER will also co-produce knowledge with herders and other practitioners and co-develop optional future pathways for the region. The aim is to develop climate modelling tools so that they better consider also the climate impacts of local livelihoods and related land cover changes. When climate scenarios up to 2050 also take into account relevant Arctic livelihoods, the strategies for adaptation are easier to co-develop. The ambition is that Arctic decision-making would better consider the actions by local communities and livelihoods. This would support gearing Arctic land management towards climate change mitigation and sustainable development.

Eating Plants

to Mitigate the Impacts of Climate Change on Tundra

By ISABEL C. BARRIO, Lead of the UArctic Thematic Network on Herbivory, Associate Professor, Agricultural University of Iceland and DAVID HIK, Professor, Simon Fraser University and BRUCE C. FORBES, Professor, University of Lapland and INGIBJÖRG SVALA JÓNSDÓTTIR, Professor, University of Iceland and ELINA KAARLEJÄRVI, Postdoctoral Researcher, University of Helsinki and MIKHAIL V. KOZLOV, Adjunct Professor, University of Turku and EEVA M. SOININEN, Researcher, UiT The Arctic University of Norway and HENNI YLÄNNE, Postdoctoral Researcher, Lund University and University of Eastern Finland and MARIA VÄISÄNEN, Postdoctoral Researcher, University of Oulu

Hundreds of species of plant-eating mammals, birds and insects – known as herbivores – inhabit the Arctic tundra. Some of these are vital for local communities and northern cultures, including domesticated reindeer and sheep, and hunted caribou, muskox, ptarmigan and geese. Herbivores also contribute to the benefits that tundra ecosystems provide to people, the so-called ecosystem services. By feeding selectively on plants, trampling on plants and soils, and depositing urine and faeces, herbivores affect vegetation, biodiversity, productivity, energy flows, and nutrient cycling. In the case of reindeer and caribou, the impact on vegetation can be so significant that grazing differences along national borders or between different islands or pastures with different animal densities can be captured by satellite images.

The rapid climate warming in Arctic regions is affecting herbivores in many ways. Warming may lead to shortage of food during warmer winters when freezing rains lock vegetation under ice layers, or to increased food availability during longer and warmer summers. At a circumpolar scale, climate warming has triggered the expansion of trees and tall shrubs to and within tundra, but herbivores may also buffer this vegetation expansion in the treeless tundra. However, the impacts of herbivores and their effectiveness to counteract warming-induced changes in vegetation vary regionally and depend on many site-specific factors such as the type and abundance of herbivores.

The UArctic Thematic Network on Herbivory, with partners from nine UArctic member universities, explores the role of herbivory throughout the Arctic. Our initial studies assessed why some areas host a few herbivore species while others are home to diverse species assemblages. We found that herbivore diversity relates to plant productivity and the number of predatory species. If climate warming continues to increase productivity and the northward movement of boreal predators, diverse tundra herbivore assemblages may become more similar.

We have also quantified patterns of a neglected group of tundra herbivores, namely insects. Although insects consume little plant biomass in tundra (typically <1%), they are found nearly everywhere. In addition, insect herbivory increases with summer temperatures, suggesting that plant damage by insects as well as insect outbreaks will likely increase in a warmer Arctic.

Currently, we are synthesizing information about where and how the effects of herbivores on Arctic vegetation have been studied. This project will identify strengths and weaknesses in our current knowledge, which is relevant to local communities and their livelihoods (read more in the article on the CHARTER project on page 42, in which the Thematic Network is a partner). As rapid changes are occurring in the Arctic, we need a better understanding of the role of herbivory and its dependencies on site-specific factors to adjust management strategies and to preserve ecosystem services and biodiversity of diverse terrestrial Arctic environments. Coordinated herbivory research will allow for more robust predictions about the consequences of the rapid and ongoing changes in this region.

Photo by: JEFF KERBY / National Geographic

A Sense of Home Across the Arctic Through

WILD FOODS

By HARMONY JADE WAYNER, Student, University Centre of the Westfjords

Today, on January 25, 2021, the sun returns to Ísafjörður, a town in the Westfjords of Iceland. We celebrate with sunshine crepes and a deep sigh of relief, knowing that the sun's short days of not rising above the mountains and long cold winter nights are over.

I am from Naknek, Alaska, but am currently attending graduate school in Ísafjörður at the University Centre of the Westfjords, in the Coastal and Marine Management Program. My experiences of growing up in Alaska and previously studying in Turku, Finland, I thought, had adequately prepared me for the shock of living abroad in a northern climate. However, with the darker days and COVID lockdowns resulting in online classes, it has been a challenging year resounding across the Arctic and the world.

Throughout my various experiences across the Arctic region, I am amazed at the shared mental attitude derived from coping with nature's extremes and the cycles of light and dark in northerners' collective experience. We know how to hunker down in a crisis like a winter storm or pandemic. We know how to emerge with fresh energy once the sun returns, making full use of every hour, and like the cloudberry, maximizing this period of light to produce a delicious product. I think this attitude towards the light cycles also applies to our shared wild foods.

In this period of lockdown and uncertainty, I have contemplated how best to find belonging while in Iceland. I encountered that feeling first while on a hike as I stumbled into a large patch of *bláber,* Icelandic blueberries, similar to the species that grow in the Aleutian Islands where I lived as a child. At that very first taste, I knew that I felt at home here. Regardless of the uncertainty, I would be okay, as I was gently taken care of by the comforting taste of northern wild foods.

As an indigenous woman from the Arctic, I often feel there are so many boxes that others expect me to fill. Indigenous people in the media are often portrayed as stuck in the past or with anthropologists' photos from pre-1950. The question for me now, focusing on Indigenous food systems for my thesis work, is "How can we communicate our sense of place, our home here, to others in a modern way?" Also, it sparks the concept of "What inspires a sense of belonging to a place?" In Alaska, my sense of place is found in the family, the food, the familiar smells of tundra, picking blueberries and cloudberries, as well as harvesting wild salmon.

This food, culture, and nature are what we are trying to protect. This is what is valuable and worth fighting for. In a rapidly changing Arctic, how do we inspire connection and belonging? How do we communicate that what may be a novel extreme environment for others is our home? Possibly, the answer lies in further exploration and participation in these collaborative networks, north2north exchanges, and sharing of our experiences and unique challenges facing us across the Arctic region.

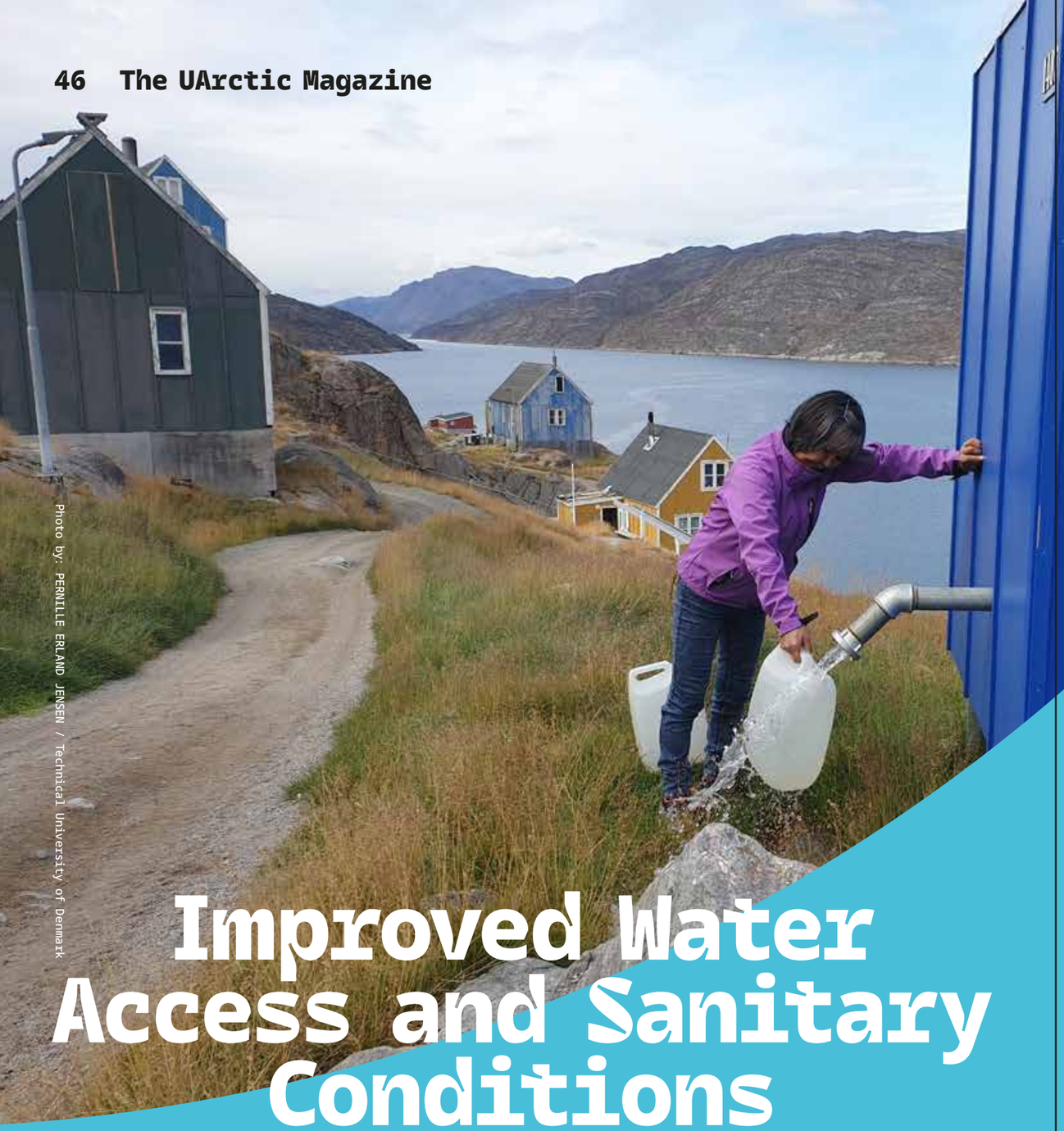


Photo by: PERNILLE ERLAND JENSEN / Technical University of Denmark

Improved Water Access and Sanitary Conditions

in Rural Arctic Settlements

“Everyone has the right to sufficient, continuous, safe, acceptable, physically accessible, and affordable water.”

By PERNILLE ERLAND JENSEN, Lead of the UArctic Thematic Network on Arctic WASH, Associate Professor, Technical University of Denmark and AARON DOTSON, Vice-lead of the UArctic Thematic Network on Arctic WASH, Vice Provost for Research, Professor, University of Alaska Anchorage

According to the United Nations, everyone has the right to sufficient, continuous, safe, acceptable, physically accessible, and affordable water for personal and domestic use, i.e. drinking water from an improved water source that is located on premises, available when needed, and free from contamination.

A recent survey on the status of water and sanitation in the circumpolar Arctic reports a significant prevalence of incomplete services in the region compared to the overall national status of Arctic nations. Health studies conducted in the North American Arctic and Subarctic have shown a direct correlation between clean water in sufficient quantities and reductions in the occurrence of illness and hospitalizations due to infectious diseases. These studies show that skin infections, respiratory tract infections, and severe invasive bacterial infections such as meningitis are more common in communities lacking centralized and well-maintained water and sewer service. The current global pandemic situation has more than anything increased our awareness of the importance of sufficient hygienic standards for all.

Release of untreated sewage into the environment is common practice in many Arctic regions. The lack of in-home sanitation systems such as piped sewers or on-site treatment makes the so-called honey-buckets (i.e. a bucket used as a toilet) commonplace. This lack of modern sanitation infrastructure poses additional health threats due to human exposure to untreated sewage and nearby sewage contaminated water. However, when advanced sanitation systems are installed, they tend to pose operational challenges due to climatic and infrastructural conditions.

Though the associated negative health outcomes impose costs that in turn impede socioeconomic development, local and regional governments may not necessarily have the capability to invest in improved central systems, as the capital and operational costs of centralized water and sanitation systems in the Arctic and Subarctic are extremely high. Where they do, rural households typically spend a much higher percentage of their income on water and sewer user fees than an equivalent-sized urban household.

Development of less expensive technologies or adaptation of existing technologies to fit the Arctic conditions is needed. The Intergovernmental Panel on Climate Change (IPCC) report on climate change highlights the tremendous potential for low-cost decentralized technologies such as ecological toilets and separation of greywater from the more contaminated blackwater to provide viable strategies where community acceptance is garnered.

High costs and lack of appropriate technologies are, however, not the only reasons for the deficiencies. Lack of awareness of the importance of modern water and sanitation services also plays a role. Influencers, donors, and decision-makers, even in the Arctic nations, are not aware of the lack of improved water and sanitation services in the rural Arctic. Even when deficiencies are recognized and improvements are determined, there is a lack of awareness of the context that a designed technical solution needs to embody to address the challenges of past and present systems.

In a combined research, innovation and dissemination effort, the UArctic Thematic Network on Arctic Water, Sanitation, and Hygiene (WASH) wishes to act as a catalyst for increased awareness, development of innovative solutions, and informed decision- making on water and sanitation services in the remote Arctic. We do this by offering courses and through development of research projects to elucidate gaps of knowledge.

Our approach is interdisciplinary involving environmental scientists, public health practitioners, medical doctors, engineers, and social scientists. Our engagement is circumpolar to maximize the opportunity to learn from each other across the Arctic and minimize the urge to import solutions from warmer southern climates which have so often proven insufficient.

Since our establishment in 2018, we have hosted more than 150 students from around the globe including Belarus, Cambodia, Canada, China, Denmark, Greenland, India, Kazakhstan, Moldova, Norway, Ukraine, Tajikistan, Russia, Sweden, Switzerland, and the United States in annual summer school courses. We also developed an online course based on the lectures given at the summer schools, freely available to anyone interested to learn. In June 2021, our summer school will take place online due to on- going travel restrictions.

We welcome you to join us by learning from our online content at your own pace, taking part in our summer schools or research projects, or contributing to the Thematic Network as a member.

Covers by: ROBIN BREEDING; OLLI ÖSTERBERG

www.arcticyearbook.com

The Arctic Yearbook: An Open Access Platform for Arctic Studies and Research

By LASSI HEININEN, Lead of the UArctic Thematic Network on Geopolitics and Security, Professor Emeritus, University of Lapland, Editor, Arctic Yearbook and HEATHER EXNER-PIROT, Managing Editor, Arctic Yearbook, Fellow, Macdonald Laurier Institute

Since the beginning of the 21st century, the way people communicate, learn, and share information has been transformed by the widespread adoption of the internet and emails. This has allowed institutions such as UArctic to flourish, as networks of learners and scholars, living thousands of kilometers away from each other, have formed around shared interests in the peoples, politics, and environment of the Arctic region, as itself and in global context.

Out of one of these networks arose the Arctic Yearbook (established by the UArctic Thematic Network on Geopolitics and Security) which will publish its tenth volume in 2021. The Arctic Yearbook was conceived and established as an open access volume at a time when most academic literature was still hidden behind journal paywalls. It has managed to provide high-quality peer-reviewed scholarly articles at no cost with the assistance of Arctic Portal, an Icelandic non-profit which has hosted the website for free, and through the networks and volunteer efforts of its editors. Ultimately this has allowed the Yearbook to remain independent, quick, and flexible, and focus on publishing new research findings rather than being occupied with seeking funding. The total so far is a digital library of more than 190 scholarly articles, and 130 briefing notes and commentaries.

The need to democratize knowledge by making academic literature available free of charge, especially where the related research is publicly funded, has become apparent. In the Information Age, it is not tenable to gatekeep the highest quality and most rigorous data and insight available, while fake news is allowed to proliferate on social media.

This situation has only been reinforced by the COVID-19 pandemic, during which the pace of the digitalization of learning and research has accelerated. Amidst the havoc wreaked upon institutions of higher learning in the past year, the Arctic Yearbook platform, as an international, interdisciplinary, online journal with open access, has been able to meet the needs of many students now working remotely, and has garnered tens of thousands of reads.

The post-COVID-19 world will see a consolidation rather than a retreat of distance and distributed learning and working. Our collective capacity in the digital world has grown by leaps and bounds. As we settle in to a new normal in higher education, we invite our colleagues, as well as students, at UArctic to leverage the Arctic Yearbook as a publishing outlet, for course reading lists, and as a repository of reliable and innovative thought on Arctic governance, development and politics.

THE BATTLE OF THE ARCTIC

To Drill or Not to Drill?

By ANGELINA GIORDANO, Graduate (BASc in Environment), McGill University, Manager, GEV Corp

On December 22, 2020, during the sleepy holidays when people were beginning to cozy up with a warm beverage, the Supreme Court of Norway delivered a massive bombshell. They dismissed the case *People v. Arctic Oil*, commonly referred to as the Norwegian climate lawsuit, which was an attempt by Greenpeace and other plaintiffs to stop new oil exploration in the Barents Sea.

Eleven justices ruled in favor of the State, represented by the Ministry of Petroleum and Energy, to continue oil exploration in the Barents Sea, and the minority of four justices ruled in favor of the People plaintiffs. The minority decided that there were "procedural errors" made when the southeast part of the Barents Sea was opened in 2013, because "future global climate emissions" were not incorporated into the original environmental review of the project. For these reasons, the minority argued that the People of Norway's appeal should be granted, and the oil exploration permits assigned in the Barents Sea should be re-evaluated based on an environmental impact assessment that includes future emissions associated with these projects.

Whilst this may have been the minority's perspective, an opinion poll shows that most of the public in Norway believe that Arctic oil exploration should be halted due to the environmental and climate consequences of continued drilling, and that most people polled would have supported a judgement that limited future exploration. So why then did the court decide that most of the public was wrong and side with the petroleum industry? It may be due to the lack of proof, since most of these lawsuits are trying to prevent something from happening in the future, or other numerous complicated legal issues.

Although there may have been a "climate loss" in Norway, other countries have taken major steps to limit oil exploration in the Arctic. After former President Trump had approved and begun selling oil drilling licenses in the Arctic refuge, the new administration has completely changed course. On his first day in office, President Joe Biden immediately signed an executive order that put a "temporary moratorium on oil and gas leasing activities in the Arctic National Wildlife Refuge," instructing the Department of the Interior to conduct a new, more detailed environmental review of the projects. Another climate win happened in December 2020, just before the verdict in the *People v. Arctic Oil* case, when the government of Denmark decided to stop all new oil and gas exploration in the Danish North Sea.

There have been some climate wins and some climate losses over the past few months. The world will continue to watch with nervous eyes as governments, NGOs, and major companies struggle to answer the question – to drill or not to drill?

6G as a Universal Connectivity Provider in the 2030s

By HARRI SAARNISAARI, Lead of the UArctic Thematic Network on Arctic Telecommunications and Networking, Adjunct Professor, Researcher and HANNA SAARELA, Development Manager and MARJA-MATINMIKKO-BLUE, Adjunct Professor, University of Oulu, CWC Research Unit

The digital divide is widening around the globe, as millions of people remain unconnected or underserved. This prevents people from benefiting from digitalization and utilizing the opportunities it provides. Indeed, broadband connectivity, and subsequent internet access, has been recognized as a booster for human rights, and it plays a vital role in achieving United Nations' Sustainable Development Goals (UN SDGs). Other rural or remote connectivity needs arise from an observation that opportunities to increasing remote work are restricted by the availability of connectivity solutions.

Low population density, low level of income, and even poverty are key elements in the challenge. Difficult terrain including mountains and steep hills, and the risk of natural disasters such as floods and landslides add their own complications. The challenge is made even greater by recognizing inexistent or unreliable infrastructure such as the power grid and roads between locations. In the Arctic, dark winter months with cold, snowy and icy conditions as well as permafrost melting furthermore magnify the problems. All these aspects result in slow return of investment and low business profits, making these areas less attractive for investors.

Nowadays, urban life means almost perfect mobile connectivity at homes and workplaces and on the move. Yet, the same service should be enjoyed by everyone, and we should develop affordable yet sufficient connectivity solutions to tackle the challenges; 'affordable' meaning the pricing of devices and monthly usage costs, and 'sufficient' referring to data rate. These should be defined in the upcoming years.

Connectivity researchers and industry have shown a growing interest in this problem known also as "connecting the unconnected". It has been recognized that previous generation mobile cellular systems like 5G have not focused thoroughly on this topic. It has also been noted that other disciplines should join the work as well; for instance, the human aspect must be considered more thoroughly than in the past. The needs and the requirements for universal connectivity must be defined, and understanding on the smart use of connectivity, which may still remain somewhat limited, must be transferred efficiently to the people. In parallel, new applications and services must also be developed, taking into account the specific needs of the currently "unconnected", to be ready to use once the connectedness becomes reality.

We need active, increasing efforts from all stakeholders to create technical and human- focused solutions that connect the unconnected. Governments should reconsider their role in financing and other means for easing the process. This is especially important since the connectivity solutions can become an integral part of public safety in hard-to-reach areas outside the usual government network.

6G is the connectivity technology to be used in the 2030s. The 6G community has already started to define how to connect the unconnected, and UN SGDs have been recognized as important goals. The Centre for Wireless Communications (CWC) research unit at the University of Oulu is one of the leading institutes in this effort as well as a key initiator. The effort is now worldwide and has already resulted in white papers on 6G (see 6Gchannel.com) as well as the first European Union flagship research project Hexa-X focusing on defining 6G. We believe that UArctic and its members could give us, connectivity experts, valuable input especially from other fields.

Finally, we provide an example identified as a research topic. Without reliable or non- existing power grid, telecommunication devices must rely on renewable energy supported potentially by a (diesel) generator. Energy is needed in backhaul microwave towers, local base stations (whether 4G or Wi-Fi), and for recharging user devices, in addition to other electronics people may have. Current technology is based on the assumption of unlimited power. This paradigm has to be changed, and new low-energy consuming telecommunication devices and systems must be developed. This would also be good for the global environment, and specifically the vulnerable Arctic areas.

Photo by: MIA STÅLNACKE

226
member institutions

22
countries

66
Thematic Networks and Institutes

719
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