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THE CIRCLE

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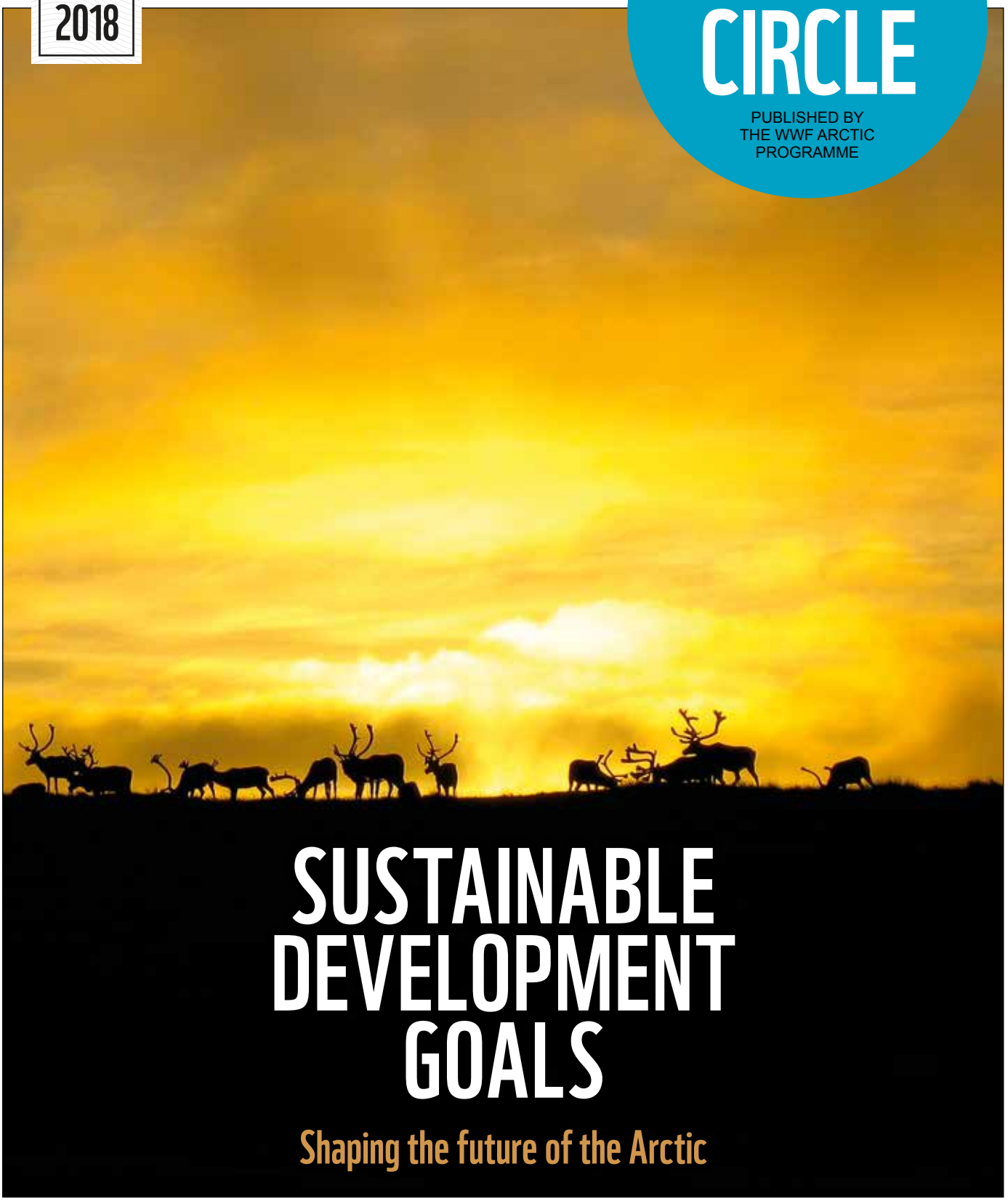

SUSTAINABLE DEVELOPMENT GOALS

Shaping the future of the Arctic

The Circle 2.2018

SUSTAINABLE DEVELOPMENT GOALS

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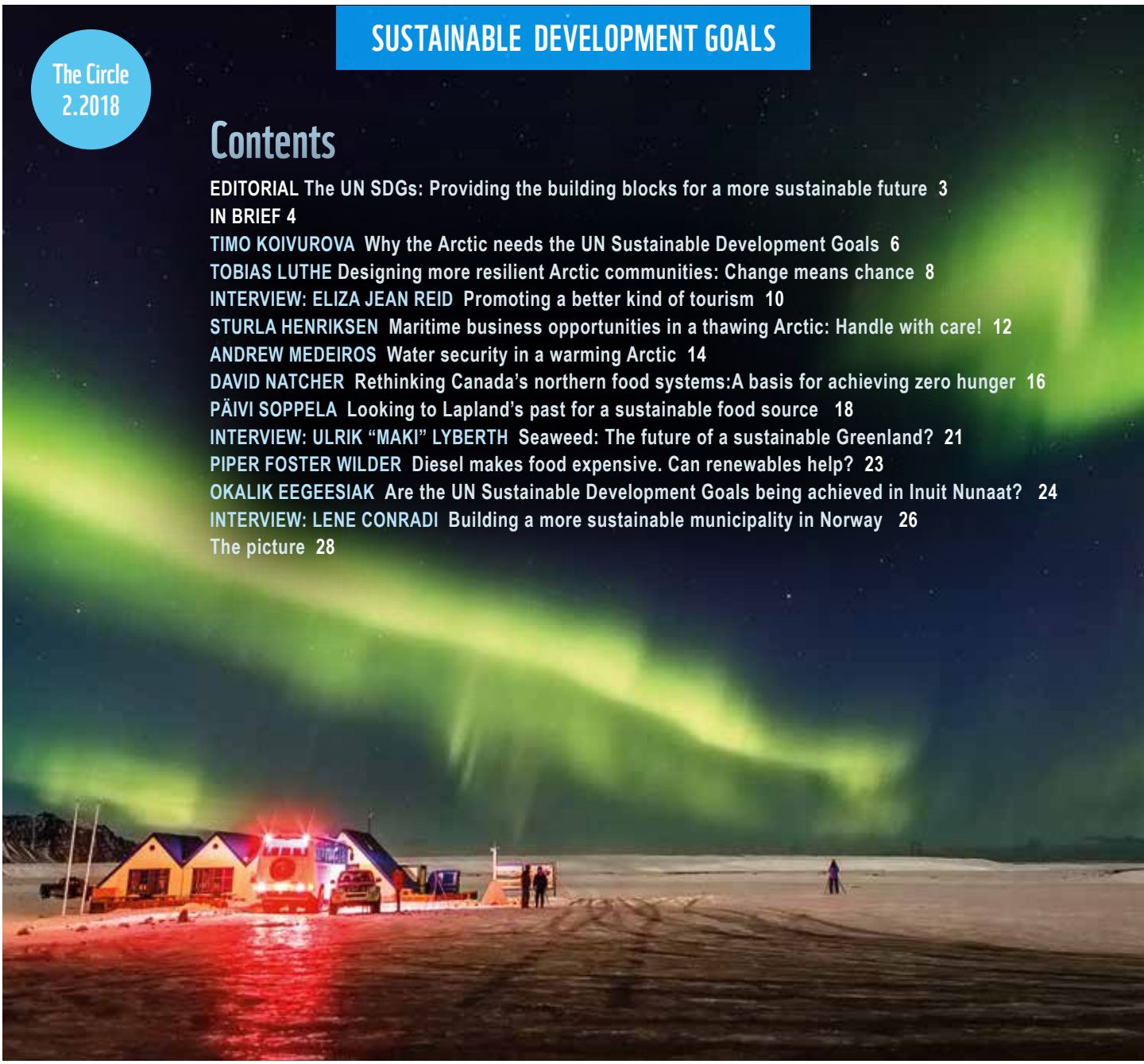

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COVER: Reindeer, Pykeija, Norway.

Photo: Sami Keinänen, CC, Flickr.com

ABOVE: Northern lights at Jökulsárlón Glacier Lagoon, southeast Iceland.

Photo: Reproduced with permission from Promote Iceland

EDITORIAL

The UN SDGs: Providing the building blocks for a more sustainable future

ONE HUNDRED AND NINETY-THREE world leaders made history in 2015 when they unanimously agreed to the 2030 Agenda for Sustainable Development. This agreement, which included 17 Sustainable Development Goals (SDGs), was an ambitious game-changer: never before had governments come together around a single agenda with the potential to benefit people and the environment on a global scale.

Perhaps the most important feature of the SDGs is that they break out of a siloed approach to development. Instead of pursuing social, economic and environmental objectives in isolation, the Goals take an integrated approach. For example, SDG1 (No Poverty) and SDG 5 (Gender Equality) both aim to ensure fair access to natural resources. SDG2 (No Hunger), SDG 3 (Health), SDG 6 (Water) and SDG 9 (Infrastructure) and others contain a mix of economic, social and environmental objectives.

This integrated approach gives WWF an unprecedented opportunity to advance our mission to ensure humans live in harmony with nature, and demonstrates how critical sustainable natural resource management is to the Global Goals' success. At the same time, the Goals underscore the importance of addressing social and economic poverty to support conservation.

Achieving them will also require global governance that thinks and acts in a systems way—a way that considers the linkages and interactions between all participants, both ecologically and institutionally and at the national and global levels. The usual delineations—like north and south, tropics and Arctic—no longer apply. Today, we recognize the critical role the Arctic plays in global climate change. We recognize that our actions in other parts of the world are often felt first, and most acutely, in the Arctic. We recognize that the region is increasingly the target of development that once occurred mainly in the South.

THE SDGS PROVIDE THE BUILDING BLOCKS THAT WWF AND OUR PARTNERS CAN USE TO CREATE AND FUEL A BIGGER SOCIAL MOVEMENT—ONE THAT MAKES SUSTAINABLE DEVELOPMENT A REALITY IN THE ARCTIC AND AROUND THE WORLD.

Aligning the diverse perspectives, capabilities and interests of Arctic peoples to achieve greater collective gains will require good global governance. But the SDGs can provide a framework by supporting coherent, localized, inclusive and sustainable decision-making. For example, in this issue, Lene Conradi, the mayor of Asker, a municipality in Norway, details how the SDGs are contributing to municipal planning. Timo Koivurova, a member of the Arctic Council Sustainable Development Working Group, outlines the need for new regional mechanisms to monitor how the SDGs are contributing to sustainable development. We also hear from Josie Okalik Eegeesiak, chair of the Inuit Circumpolar Council, on the importance of the SDGs for Inuit communities in particular—and the need for governments to live up to their promises to achieve the Global Goals.

DELFIN GANAPIN is practice leader, governance, WWF International.

Given the urgency and scale of the environmental and social shifts we face today, creating a more sustainable path going forward is not only up to governments. Industry and citizens at large bear responsibilities. Sturla Henriksen, former CEO of the Norwegian Ship Owners' Association and special advisor to the UN Global Compact, sees a key role for the shipping industry in promoting sustainable development in the world's oceans. We also learn how the first lady of Iceland, Eliza Reid, sees sustainable tourism contributing to the SDGs.

As the articles in this issue show, the SDGs provide the building blocks that WWF and our partners can use to create and fuel a bigger social movement—one that makes sustainable development a reality in the Arctic and around the world. ○

ARCTIC "CARBON BOMB"

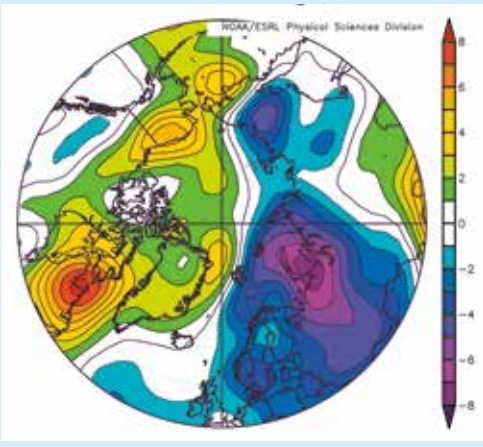
Thawing permafrost may warm the Earth faster than expected

ACCORDING TO a recent study in Nature Climate Change, thawing Arctic permafrost may release far more methane than previously thought.

Scientists have tended to assume that carbon dioxide (CO_2) would be the main gas released as permafrost thawed. While both gases cause global warming, it will be bad news if methane prevails, since it does so much more aggressively.

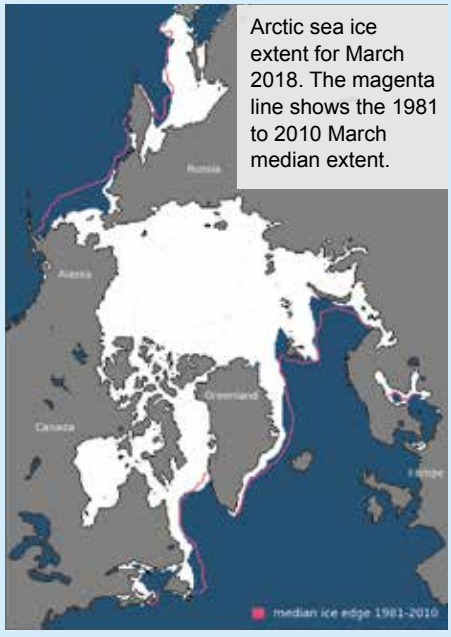
The study, conducted by scientists from Sweden, Russia and Germany, lasted more than seven years. It involved monitoring samples of submerged and artificially warmed earth from Siberia and observing as methane-producing micro-organisms proliferated over time.

Methane doesn't linger in the air for much more than a decade, but its warming potential over a century is many times that of CO_2. If confirmed, these findings could mean scientists will need to reassess the potential for melting permafrost to amplify global warming.



Departure from average air temperature in the Arctic at the 925 hPa level (approximately 750 metres above sea level), in degrees Celsius, for March 2018.

Credit: NSIDC courtesy NOAA Earth System Research Laboratory Physical Sciences Division



Arctic sea ice extent for March 2018. The magenta line shows the 1981 to 2010 March median extent.

Source: National Snow and Ice Data Center

ARCTIC SCIENTISTS STUNNED

Warmest year on record for the Arctic

WINTER OF 2017–18 was the warmest recorded to date for the Arctic, which experienced a heat wave that shocked scientists. Fifteen Arctic weather stations out of 36 reported temperatures at least 5.6 C above normal this winter.

As a result, sea ice levels were also the second-lowest in the 39-year satellite record. On March 17, Arctic sea ice covered 14.5 million square km—more than a million square km below the 1981 to 2010 average of 15.6 million square km.

According to the National Snow & Ice Data Center in Boulder, Colorado, the quantity of sea ice influences the global climate because sea ice reflects sunlight back into space instead of absorbing solar energy. Melting sea ice means more solar energy is absorbed at the surface, causing temperatures to rise further. This contributes to a cycle of warming and melting.

HARNESSING YOUTHFUL ENERGY

WWF and Scouts team up to mainstream biodiversity

IN MARCH 2018, WWF and the World Organization of the Scout Movement announced they are teaming up to drive global awareness and action on the environment. The collaboration recognizes the huge challenges facing the planet and the vital role young people play in meeting them.

The new nature preserve will protect flora and fauna across nearly 6.6 million hectares of the Russian Arctic.

Photos: WWF-Russia

PROTECTING BIODIVERSITY

New Siberian Islands: Vast new protected area in the Russian Arctic

IN MARCH, WWF-Russia announced the creation of a new nature reserve in the Russian Arctic. Known as the New Siberian Islands, the area is in the Sakha (Yakutia) Republic, more than 5,000 km east of Moscow. Encompassing both land and ocean, it covers nearly 6.6 million hectares.

The New Siberian Islands are unique due to their proximity to the Great Siberian Polynya, known for its abundance of sea life. A polynya is an area of open water surrounded by sea ice. The Great Siberian Polynya is one of the most stable and ecologically important polynyas in the Siberian shelf seas.

The new protected area is connected to the coastal rookeries and feeding areas of the Laptev walrus, and is also an important habitat for beluga whales, bearded seals and polar bears. Rare plants are found on the islands, which are also home to mammoth bones and other remains of the Pleistocene era.

The two organizations plan to increase mainstream support for environmental action through Earth Hour, the World Scout Environment Programme and environmental education in general.

The alliance, which aims to help achieve the UN Convention on Biological Diversity's Aichi Target 1 by educating people about the values of biodiversity and nature, will allow WWF to tap into a network of 50 million Scouts worldwide.

Target 1 states: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Why the Arctic needs the UN Sustainable Development Goals

The Arctic's challenges are vast and deep, writes TIMO KOIVUROVA: The region is warming at twice the rate of the global average, ice and snow are melting, ecosystems are transforming—and Indigenous and local cultures are struggling to adapt.

GLOBAL WARMING is caused by activities elsewhere in the world, yet Arctic communities feel the impact most acutely. For example, environmental pollutants are driven north by changing wind patterns. Arctic mines and the jobs that go with them open and close based on swings in global market prices, causing economic insecurity in the region.

TIMO KOIVUROVA is director of the Arctic Centre, University of Lapland, Finland.

Given the influence of global processes on the Arctic's fortunes, it is critical that we make the connection between global work on sustainable development, on the one hand, and Arctic work on the other.

Finland, the current chair of the Arctic Council, made it a priority to look to the United Nations Sustainable Development Goals (SDGs)—adopted by the nation-states of the world—to serve as the council's guiding framework. It is crucial that the council continue this work because it will inform the UN's post-2030 development agenda. Unfortunately, global sustainable development frameworks still do not reflect the Arctic's priorities. That needs to change. The Arctic and its unique features are critically important to the health of our planet.

GLOBAL WARMING IS CAUSED BY ACTIVITIES ELSEWHERE IN THE WORLD, YET ARCTIC COMMUNITIES FEEL THE IMPACT MOST ACUTELY.

While nation-states around the world are responsible for realizing the SDGs, the Arctic Council can play a role in supporting their work. The council has been working on sustainable development questions in their various dimensions (economic, social and environmental) for more than 20 years, so it is well positioned to help Arctic countries meet the 17 SDGs and their 169 targets.

We need to create mechanisms to scrutinize how we can use the SDGs to promote sustainable development in the Arctic. If we want the SDGs to really advance sustainable development, we need to ensure they reflect the Arctic's special conditions. The traditional livelihoods of the Arctic—such as berry picking, hunting and reindeer herding—are good examples of what is unique about the region.

We must capture the reality of traditional livelihoods like these and understand their importance in the

THE UN SUSTAINABLE DEVELOPMENT GOALS:

Greenland is now losing about 200 billion tonnes of ice per year.

Photo: Peter Prokosch/www.grida.no/resources/4188

Arctic. This is not going to be easy. In the Arctic, traditional livelihoods are important not only economically, but culturally and spiritually. How can we develop indicators that speak to their importance? If we cannot properly take account of traditional livelihoods, it is hard to see how we will advance sustainable development in the region.

Since many changes in the Arctic have their origins outside the region, it is important for Arctic countries and peoples to take "Arctic messages" to global forums. Sustainable development in the Arctic is going to be very difficult if the rest of the world does not understand how its actions affect the region, and cannot or will not acknowledge its responsibility. One such opportunity is the UN High-Level Political Forum, which oversees the implementation of the SDGs. This forum should highlight the fact that the actions of faraway nations have dire consequences for sustainable development in the Arctic.

SUSTAINABLE DEVELOPMENT IS NOT JUST WISHFUL THINKING. IT IS NOTHING LESS THAN AN INTERNATIONAL STRATEGY FOR SURVIVAL.

As Timo Soini, Finland's foreign minister and current chair of the Arctic Council, argued at the Rovaniemi Arctic Spirit conference in November 2017, sustainable development is not just wishful thinking. It is nothing less than an international strategy for survival. ○

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Designing more resilient Arctic communities:

Change means chance

Melting glaciers, thinning sea ice, traditional subsistence hunters looking for new ways to survive: changes in nature and ways of life seem to be the dominant drivers in many Arctic communities. While this situation is dismaying to many, another way to look at it is that change means chance. According to TOBIAS LUTHE, flexibility, diverse social collaborations and being open to innovative economic opportunities could lead to greater resilience in Arctic communities.

ARRIVING on Disko Island, off the west coast of Greenland, you are stunned by its wild beauty and diversity: myriad floating icebergs in electric blue and white tones; abundant wildlife, such as whales, geese and polar fox; striking basalt rock cathedrals painted green by lush moss and framed by waterfalls. All of it is breathtaking.

But as you enter the island community of Queqertarsuaq, you get a different perspective. Life here can be tough, and place-based environmental changes are forcing residents to adapt. What makes a community like Queqertarsuaq more resilient and prepared to cope with climate and socio-economic changes? How can the sustainable development goals (SDGs) be met in such an extreme environment?

DIFFERENT PERSPECTIVES ON CHANGE

On a recent research visit to the island, I and my colleague Melanie Rottmann had the opportunity to meet and learn from Queqertarsuaq's people and its natural environment. For example, we met a father and son who manage a tourism agency together, running a small guest house and restaurant and offering dog sled and hiking tours. The two had very different perspectives on the situation in their community—and different ideas about future opportunities. The father understood that climate change poses a threat to his dog sled business, since as the glacier retreats, there will be less snow year-round. But his son saw the warming climate as an opportunity for new tourism activities and other economic opportunities, such as research connected with the existing Arctic Station. He also speculated that with a warmer and more pleasant climate, more innovative, well-educated families might migrate to Queqertarsuaq and become entrepreneurs.

We also met a fisher/hunter who showed us how environmental changes are pushing residents to diversify their perspectives and skillsets, resulting in innovative solutions. For example, thin-

Thinning sea ice means traditional fisher/hunters like this one are turning to tourism for their income.

Photo: Tobias Luthe

Circular economy

A traditional, linear economy relies on a "take, make and dispose" cycle that does not emphasize sustainability. In contrast, a circular economy aims to keep resources in use for as long as possible, then recover and regenerate them. It is restorative and regenerative by design, and relies on system-wide innovation.

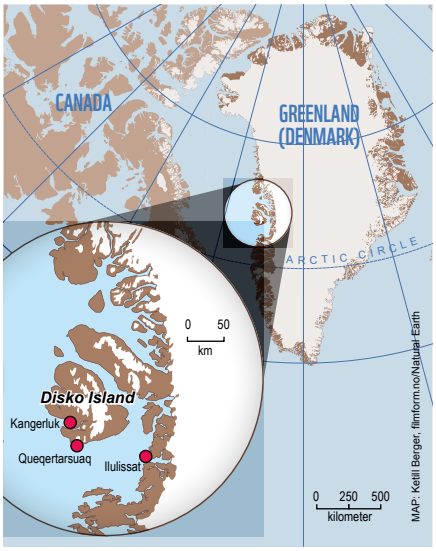


Photo: Tobias Luthe

Qeqertarsuaq on Disko Island, Greenland.

ning and less stable sea ice means he can no longer hunt seals on the frozen water, which was once a major means of feeding himself and his family. Instead, he learned basic English and is now making his living as a tourist guide.

Like many people on the island, this resident faced a personal crisis, but used it as a chance to remake himself. He is just one example of innovation in a community that is being forced to transition from a traditional hunting and fishing economy toward a more connected circular economy. Designing a more adaptive, innovative community requires new ideas, more collaboration and openness to outside influences. For Queqertarsuaq, this move to a more circular economy is helping people cope with a new reality and prepare for a more resilient, sustainable future.

KEEPING THE FOCUS ON SUSTAINABILITY

Despite these examples of successful social innovations, a number of challenges remain in addressing the SDGs in Arctic communities like Queqertarsuaq. Lack of employment opportunities is a key issue. The recently enlarged municipal governance structure on the mainland killed jobs in Queqertarsuaq and forced skilled people to move, leaving behind a less educated workforce. Many residents are hoping oil development on Disko Island will bring jobs—but a more diverse and connected economy doesn't always mean a more sustainable community.

Take the example of a foreign company bottling spring water from Queqertarsuaq, shipping it to Switzerland—a country already blessed with glaciers and waters—and marketing it as the water with the "purest taste and quality." Such an initiative may create jobs, but there are major downsides for the community, which loses control of its own resources, and for the region's environment.

FOR QUEQERTARSUAQ, THE MOVE TO A MORE CIRCULAR ECONOMY IS HELPING PEOPLE COPE WITH A NEW REALITY AND PREPARE FOR A MORE RESILIENT, SUSTAINABLE FUTURE.

Queqertarsuaq is an example of a resilient Arctic community, but even so, it's obvious there are still challenges. To build upon the many positive and encouraging social innovations we have already seen, the community will need to push further to design a circular, resilient and sustainable economy. The blueprint should begin with a vision for the future that meets and aligns with the SDGs. An example of a circular way to diversify the economy is to use the community's existing social and human capital to focus on responsible tourism as a change-making industry. From there, new circular opportunities can grow that may lead to sustainable alternatives.

That would be a much better way to go than falling back on environmentally harmful economic activities involving non-renewables and extraction. ○

TOBIAS LUTHE IS a scientist, systemic designer and mountaineering guide based in Switzerland and Italy. He works with ETH Zurich and the MonViso Institute, where he specializes in sustainability science, resilience in social-ecological systems, circular economy, systemic design, and Arctic regions, among other focuses.

Promoting a better kind of tourism

Iceland's natural beauty has always attracted travellers from around the world. But over the past eight years, the number of people coming to see its breathtaking waterfalls, geysers, volcanoes and glaciers has more than quadrupled. Almost 1.8 million people now visit Iceland each year—a number five times the population of the small Arctic country. This surge has forced Iceland to look for ways to protect the environment and charm that attracts travellers. In doing so, it is becoming a leader in sustainable tourism.

LAST YEAR, Iceland's first lady, Ms. Eliza Jean Reid, was appointed the first UN special ambassador for tourism and the Sustainable Development Goals (SDGs). We spoke to Iceland's Canadian-born first lady about why she thinks promoting a more sustainable form of tourism is critical—not just for Iceland, but for other countries around the world—and how tourism can play a part in achieving the SDGs.

Photo: UNWTO

Iceland's first lady, Ms. Eliza Jean Reid.

Why do you think Arctic countries like Iceland need to make sustainable tourism a priority?
Northern locations' natural ecosystems are particularly fragile—and in smaller communities, both positive and negative changes in tourism may be felt more acutely. The Arctic also has different infrastructure than some travellers might be used to. Like all places with unique natural environments and populations—and isn't that most places?—we should be mindful of our impact and work to increase sustainability.

How are you using your position as Iceland's first lady—and now the UN World Tourism Organization's special ambassador for tourism and the SDGs—to promote sustainable tourism?
I have been an active traveller since long before becoming first lady, and I've always tried to enjoy travel in a sustainable way. It's increasingly easy to travel, which is a good thing, but at the same time we need to be aware of the impact our actions are having on our environment. Now that I'm

Photo reproduced with permission from Promote Iceland.

Tourists visiting Kirkjufellsfoss-Sumarid, Iceland.

first lady, I try to promote sustainable tourism by speaking at relevant events, or when I'm on state visits.

How has Iceland tried to make its tourism industry more sustainable?

I should emphasize that I do not speak on behalf of the Icelandic government. My opinions and impressions are my own. But in my view, the rapid growth in the number of tourists coming to Iceland in the past decade has put increased pressure on both its natural environment and infrastructure. Government ministries and organizations like Promote Iceland have responded by putting great emphasis on increasing tourism in a sustainable way. Governments, private corporations, municipalities and land owners are all involved in discussions about the future of the industry. Tourism is expected to grow at a less rapid pace in coming years, which will allow the country some time to catch up and work even more on sustainability. ➤

What role do you think governments, at all levels, need to play in promoting and fostering sustainable tourism?
Governments do play a crucial role in this area—not only national governments, but municipalities too. They can help create strategies for sustainable tourism, nature conservation, infrastructure investment, policing, promotion and providing information, all in cooperation with industry and local communities.

Why do you personally support sustainable tourism and meeting the SDGs?
I think the SDGs are an excellent set of guidelines to which individuals, communities and nations can aspire. But it will take concerted effort to achieve them. Because tourism helps so much to increase communication between peoples, finding ways to improve and grow this field in a sustainable way will help achieve these goals. I hope that all of us will get to know the SDGs and support them, because we are all residents of this planet and hopefully we want to leave it in good condition for future generations—not just our environment, but our societies and cultures too. ○

Putting the "green" into Icelandic tours

Nordic Green Travel is one of several travel agencies in Iceland trying to minimize the negative effects of the country's tourism boom. Founded by Daði Már Steinsson and Grétar Ingi Erlendsson in March 2017, the company carbon-neutralizes all its tours by planting trees in cooperation with the Kolviður environmental fund. The number of trees planted for each tour depends on the distance travelled by each tour's vehicle.

The two-man agency focuses on guiding people toward less-crowded attractions to lessen the environmental strain. They also work with operators all over Iceland to strengthen local economies by making sure tourism dollars benefit the areas where they are generated.

Grétar Ingi Erlendsson says his agency's goal is to preserve and protect Iceland's stunning nature so future generations can enjoy and experience it. "People don't want to visit overcrowded concrete islands anymore. They want unique experiences and to re-connect with nature," he says. "By choosing travel agencies and tour operators that incorporate sustainability into their business practices, people are taking small steps toward a more sustainable future."

HI Iceland: Offering travellers more than just a good night's rest

For visitors looking for somewhere to rest their heads in Iceland with a clear conscience, HI Iceland is a good choice. Founded in 1939 as part of Hostelling International, its 33 hostels have long put sustainability at the core of their operations. In fact, HI Iceland created its first environmental policy in 1999. Since then, it has been updated to take the broader perspective of sustainability into account.

"Just as our ideas on sustainability have developed from only focusing on environmental matters, the new policy puts into words the importance of the other two subjects as well: the social aspect and the economy," explains HI Iceland's Helena Óladóttir.

All three of the hostels in Reykjavík are Swan-certified—meaning they have received the Nordic Swan Ecolabel by meeting a series of environmental criteria—and were carbon offset in both 2016 and 2017. Reykjavík's Loft HI Hostel also boasts the only Swan-certified bar in Iceland. All HI Hostels also use only environmentally certified products for cleaning, offer their staff transportation grants for walking, biking or taking public transportation to work, and encourage visitors to use bikes by providing discounts and bike facilities.

There are few places on Earth where the impacts of climate change are more profound and dramatic than in the Arctic, notes STURLA HENRIKSEN. At the top of the world, temperatures are rising at almost twice the rate of the rest of the planet.

SINCE MY ELDEST DAUGHTER was born 33 years ago, more than two-thirds of the volume of Arctic summer ice has disappeared. As the ice sheets recede at an alarming rate, vast amounts of natural resources are being uncovered in the ocean and on the shore. This is affecting local communities, Indigenous cultures, livelihoods, industrial structures,

Maritime business opportunities in a thawing Arctic:

Handle with care!

Photo: Fiona Paton, CC, Flickr.com

ecosystems, landscapes and seascapes. Given this reality, business and industry must take steps to mitigate risks and avoid unintended negative impacts across their activities, particularly those in the Arctic.

Shifts in the Earth's climate are already affecting the global economy. In the future, these changes are likely to be a powerful impetus to major changes in global patterns of trade, consumption and production. They may have significant effects on shipping and the wider maritime industries.

THE OCEAN'S CRITICAL ROLE

In this context, responsible and sustainable maritime activities will be essential for achieving several of the UN Sustainable Development Goals, both in the Arctic region and around the world. When examining just a few of these 17 Global Goals—including eradicating poverty, providing decent work, ensuring affordable and clean energy, creating infrastructure and sustainable communities, and tackling climate change—the pivotal role of the ocean, our greatest global common, becomes abundantly clear.

Responsible business engagement in the Polar Sea, for example, has significant potential to advance the Global Goals, a prospect that many of the business leaders I interact with regularly are quite excited about.

RESPONSIBLE AND SUSTAINABLE MARITIME ACTIVITIES WILL BE ESSENTIAL FOR ACHIEVING SEVERAL OF THE UN SUSTAINABLE DEVELOPMENT GOALS, BOTH IN THE ARCTIC REGION AND AROUND THE WORLD.

But I firmly believe that our approach should be sober and our actions cautious. I say this while acknowledging that there are many "Arctics." The region is diverse in terms of climatic, environmental, biological and human perspectives. People have lived and worked in the Arctic for centuries. In some parts of the Barents Sea, operations are no more challenging than in other harsh water areas, such as the Norwegian Sea.

This all said, the general operational conditions facing the industry in this region are arguably more complex and demanding than anywhere else in the world. The ecosystems and environment are extremely fragile, as are the livelihoods and cultures of the Indigenous

The 10 principles of the UN Global Compact

Businesses should:

1. Support and respect the protection of internationally proclaimed human rights.
2. Ensure they are not complicit in human rights abuses.
3. Uphold the freedom of association and the effective recognition of the right to collective bargaining.
4. Eliminate all forms of forced and compulsory labour.
5. Abolish child labour.
6. Eliminate discrimination with respect to employment and occupation.
7. Support a precautionary approach to environmental challenges.
8. Undertake initiatives to promote greater environmental responsibility.
9. Encourage the development and diffusion of environmentally friendly technologies.
10. Work against corruption in all its forms, including extortion and bribery.

Source: Adapted from https://www.unglobalcompact.org/what-is-gc/mission/principles

Peoples living there. The environmental and societal consequences of waste discharges or accidental oil spills may be far more damaging and long-lasting in the Arctic than anywhere else in the world.

STURLA HENRIKSEN currently serves as special advisor on the ocean to the United Nations Global Compact. He was formerly the chief executive of the Norwegian Shipowners' Association. He tweets @SturlaHenriksen. To learn more about his work on the ocean for the UN Global Compact, visit the webpage for the Sustainable Ocean Business Action Platform.

For these reasons, all activities in the Arctic—including and perhaps especially those of businesses—require a precautionary approach based on sound scientific, industrial and hard-won practical knowledge.

THE TEN PRINCIPLES

Many opportunities exist for business to build resiliency through climate change adaptation, and the foundation for these opportunities should employ an approach rooted in universal principles. The Ten Principles of the UN Global Compact bring together the most important and universal standards of conduct across human rights, labour, the environment and anti-corruption.

By adopting this principles-based approach, businesses can ensure their positive contributions toward the Global Goals—in the Arctic and everywhere—do not have unintended negative consequences. At the same time, they can maximize their positive impacts.

Three kinds of actions are urgently needed to ensure safe and sustainable maritime operations in the Arctic:

- Consistent implementation, vigorous enforcement and further development of the Polar Code, the regulatory framework under the auspices of the International Maritime Organization;
- Better cooperation among Arctic nations when it comes to developing relevant infrastructure and capacity in areas such as navigation, communication, weather forecasting, search and rescue, and bases for maintenance and repair, along with monitoring of drifting ice and icing conditions to increase safety for vessels;
- Improved public-private cooperation and coordination to make better use of the infrastructure that businesses themselves bring to the area.

Last but not least, there is a need to promote capacity-building in local communities and with Indigenous Peoples so they can actively participate in shaping the future of the Arctic. For the people living in this region, the dramatic consequences of climate change are not a debate—they are a daily reality. ○

Water

For northern Indigenous Peoples, hunting, fishing, transportation and relational networks across the circumpolar Arctic are built on generations of individual and collective knowledge of water. This knowledge and spiritual connection with water, weather and the environment has sustained a rich and long cultural history. But as ANDREW MEDEIROS notes, recent environmental changes and volatile weather conditions are straining their ability to adapt.

DURING THE MELT-WATER SEASON, you might get the impression that the Arctic is characterized by seemingly limitless expanses of wetlands. What many people don't realize is that a number of Arctic regions are considered polar deserts, and actually receive very low amounts of precipitation—and these must sustain water levels through the dry summer months.

But environmental changes have caused the melt-water season to start earlier, and a key consequence has been the desiccation of northern wetlands. This has affected the area's ecosystems and created extreme vulnerability for northern communities that rely on a sole source of surface water for their municipal supply.

Lakes and streams that have evaporated dry are a stark and shocking—but increasingly common—sight in the Arctic. For residents, climate-driven water shortages are amplified by limited technical and financial capacity, inadequate and aging infrastructure, grow-

security in a warming Arctic

Photo taken by Andrew Medeiros, Rankin Inlet, July 2006.

The Char River 2006

This is where Rankin Inlet decided to withdraw water to supplement its freshwater supply. In 2006 it was already dry. When the consultants went to look at the river in 2014, it was a wet year and their surveys were early in the melt period, giving them an incorrect sense that it was sufficient.

Photo taken by Hillary White, August 2012.

Churchill Wetlands 2012

These are ponds in Wapusk National Park near Churchill, Manitoba. They were completely dessicated in 2010 and again in 2012. Paleolimnological research showed that these systems had not dried up for over 100 years prior to 2010.

ing populations, and a legacy of reliance on short-term engineered solutions that often fail.

The stakes are high when a population depends on a single water source. For example, in 2015, the hamlet of Igloolik in Nunavut, Canada suffered an unusually dry summer followed by an unusually harsh winter. The lack of precipitation and prolonged ice cover caused the community to completely exhaust its freshwater supply. Left without options, it tapped into the nearest alternative water source, which had never been properly tested to see if it was safe to drink. The community has since upgraded its reservoir capacity.

Nunavut is one of the only jurisdictions in Canada that has no freshwater strategy or climate change adaptation plan for its water resources. This lack of planning has left the territory unprepared for a water crisis that is already occurring.

Faced with outdated, inadequate infrastructure, or in some places, a total lack of basic infrastructure, northern peoples have long preferred natural water sources to municipal water supplies—usually local streams or rivers, since running water is less likely to contain pathogens. But warming temperatures tend to increase the presence of microbes in freshwater. Ironically, this preference for running water has lead outside consultants to recommend replenishing the main source of municipal water with water from local streams. Known as alternative replenishment, this process often involves pumping water from the nearest river to the municipal reservoir during the summer.

For Rankin Inlet, Nunavut, this "solution" was a costly disaster. In 2014, a consulting firm recommended the alternative replenishment of the community water source, Lake Nippisar, from the nearby Char River outlet of Landing Lake. This choice of location struck both researchers and local residents as bizarre, since the area had been used to land planes for almost 50 years, and oil drums had once been dumped in the lake's basin. In fact, the dock of Landing Lake is built out of used oil drums. Worse, the flow of the Char River outlet had already experienced complete desiccation in recent years.

FOR RESIDENTS, CLIMATE-DRIVEN WATER SHORTAGES ARE AMPLIFIED BY LIMITED TECHNICAL AND FINANCIAL CAPACITY, INADEQUATE AND AGING INFRASTRUCTURE, GROWING POPULATIONS, AND A LEGACY OF RELIANCE ON SHORT-TERM ENGINEERED SOLUTIONS THAT OFTEN FAIL.

Despite these obvious issues, the pumphouse for the replenishment of Lake Nippisar was built in 2016. Now that it has "realized" Rankin Inlet's water supply is still inadequate, the government of Nunavut is seeking proposals to upgrade it.

ANDREW MEDEIROS is a freshwater ecologist and northern research fellow at York University in Toronto, Canada. His research focuses on quantitative water security.

Ultimately, water availability in the north is likely to become even more variable and uncertain in the future. Paying more attention to water security as a priority for growth and development in the north may help us to better understand how freshwater ecosystems will respond as the Earth warms. It may also improve the lives of northern peoples, who are on the frontlines of environmental change.

The Arctic is often thought of as the "barometer of the nation." We may soon find that water security is an issue for locations much further south. The question is: *Are we ready?* ○

Rethinking Canada's northern food systems:

A basis for achieving zero hunger

The traditional food systems of Canada's Arctic Indigenous Peoples have changed considerably over the years. Once reliant almost exclusively on animal fat and protein harvested from the land and sea, Indigenous Peoples now depend on a mix of traditional foods (e.g., fish, caribou, seal) and imports from southern Canada. While the harvest of traditional foods is still important for nutritional, cultural and economic reasons, Indigenous communities increasingly rely on commercially made products. DAVID NATCHER explains.

DAVID NATCHER is a professor and Centennial Research Chair in Arctic Food Security in the Department of Agricultural and Resource Economics at the University of Saskatchewan.

THIS NEW RELIANCE on imported foods has resulted in a food crisis in northern Canada. This crisis is most prominent among Inuit, who have the highest rate of food insecurity for any Indigenous population in a developed country, with Inuit youth being particularly vulnerable. While the factors behind northern food insecurity are complex, the high price of food is often implicated as a contributing factor.

To help reduce the cost of food in the north, the Canadian government runs the Nutrition North Program (NNP), which was introduced in 2011 to make healthy foods more accessible by providing food transportation subsidies to retailers. In 2016, the NNP provided CAD$65 million ($US5.2 million) in subsidies to ship 25.5 million kg of food to northern Canadian communities. This subsidy included CAD$11.3 million ($US9 million) to transport 4.3 million kg of meat, poultry and fish.

Drying Arctic char (Salvelinus alpinus) at a Gwich'in camp at Shingle Point, northern Yukon, Canada. These dried char will be used by the Gwich'in Indigenous Peoples as winter food supplies.

Photo: © Ken MADSEN / WWF-Canada

While the NNP's intentions are commendable, the program has yet to overcome a number of challenges. For example, food quality is often compromised because of the long times and distances involved in transporting it; the quality of perishable foods, such as fresh produce, is often affected to the point of being unappealing or unacceptable to consumers. As well, many of the transported foods, such as beef, chicken and pork, are not the kinds of foods that

Map: Winston Zeng, University of Saskatchewan, Canada.

The vast majority of foods produced in northern Canada are exported to other North American, Asian and European markets instead of feeding people in the region.

Canada's northern Indigenous Peoples traditionally eat.

At the same time, food producers operating in northern Canada are exporting more than 75 million kg of fish and other marine products every year to international markets (see map). Across Canada's eastern Arctic, there are commercial producers of Arctic char, cold-water shrimp, Greenland halibut and several other marine species. In addition, the Yukon has boosted its agricultural production—including vegetables, poultry and livestock—and developed successful aquaculture facilities. The Northwest Territories has also experienced growth in agriculture and poultry production. These industries are producing large volumes of food that are culturally compatible with Indigenous/local food preferences and have high market value.

But a host of social, economic, logistical and political obstacles make local and regional distribution of these foods challenging. Industries located along the production chain tend to be fragmented and uncoordinated. This has led to an over-reliance on raw exports, bottlenecking of southern distribution points, and limited innovation in primary and secondary product development. The need to adhere to government processing and inspection standards has further limited opportunities for local processing and distribution. As a result, the vast majority of foods produced in northern Canada are exported to other North American, Asian and European markets instead of feeding people in the region.

If Canada is to achieve Zero Hunger (SDG #2) by 2030, it will need to rethink its northern food system. While eliminating imports of commercial foods entirely is neither realistic nor desirable, it is possible to lessen the reliance on them in part by redirecting some portion of current food exports to meet local food needs. Doing so would mean reorienting the food production chain from predominantly north-to-south to north-to-north distribution. This could be done by bringing Arctic food producers together with governments, Indigenous communities, universities, research centres, vocational training providers and industry associations with the shared aim of increasing community access to foods produced in the north.

IF CANADA IS TO ACHIEVE ZERO HUNGER (SDG #2) BY 2030, IT WILL NEED TO RETHINK ITS NORTHERN FOOD SYSTEM.

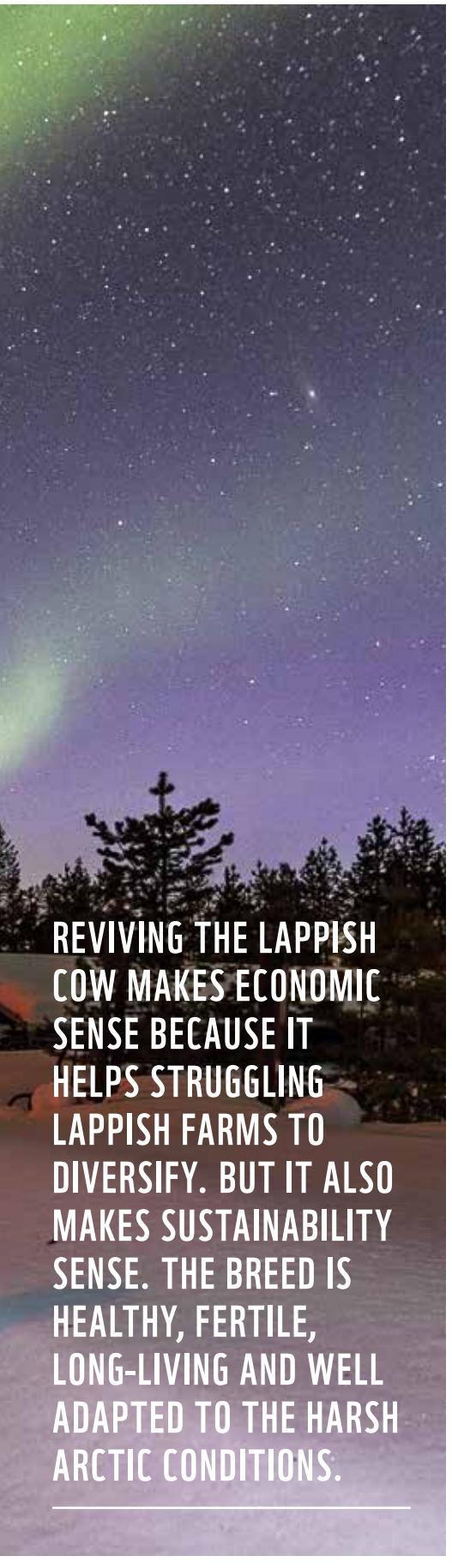
Other strategies could involve business incubation, networking and collaborative research in economics, logistics, biotech development and by-product utilization.

By providing the necessary support to northern food producers, we can recast Canada's north as a food-producing region where opportunities for economic development and food security are achieved simultaneously. ○

Looking to Lapland's past for a sustainable food source

Rami Hiltunen feeds his Lappish cow under the northern lights. Well adapted to Arctic conditions, Lappish cows can cope with cold and snow.

Photo: Marko Junttila ©Lappari



REVIVING THE LAPPISH COW MAKES ECONOMIC SENSE BECAUSE IT HELPS STRUGGLING LAPPISH FARMS TO DIVERSIFY. BUT IT ALSO MAKES SUSTAINABILITY SENSE. THE BREED IS HEALTHY, FERTILE, LONG-LIVING AND WELL ADAPTED TO THE HARSH ARCTIC CONDITIONS.

The Lappish cow—formally known as the northern Finncattle—is an endangered heritage breed in northern Finland. It was once the only cattle breed in Finnish Lapland, and is particularly well adapted to the region's cold climate and harsh conditions. By the 1960s and 1970s, it had almost disappeared entirely. But as PÄIVI SOPPELA explains, thanks to a group of devoted farmers—as well as national gene programs, a living gene bank and increased awareness of the value of these unique cows—the Lappish cow is once again grazing the fields and forests of Lapland.

ACCORDING TO Finnish folklore, when the first people came to Lapland, they were greeted by a Lappish cow. As the story goes, this beautiful, small, white cow appeared from a fountain in the forest, provided the new arrivals with a basket full of warm, nourishing milk and kept them fed thereafter.

But times change, and a day came when people in the region started to give up their Lappish cows. After the Second World War, farmers brought in new breeds that produced greater volumes of milk to meet the demand for more intensive agricultural production. By the 1970s, fewer than 30 reproducing Lappish cows remained.

A revival of the breed began in the 1980s. The Lappish cow is still endangered today, but its numbers have nearly doubled over the past 10 years. There are now some 850 purebred, reproducing female Lappish cows in Finland; 340 of them are farmed in northern Finland. Their milk is once again appreciated for its taste, fat content and healthy omega-3 fatty acids. Its high casein content makes it perfect for products such as cheese, yoghurt and sour milk.

The question is: How can Finland make even better use of this heritage breed? To get to the bottom of this, I teamed up with colleagues to lead a one-year joint project at the Arctic Centre and Natural Resources Institute (NRI) Finland. Anne Tuomivaara (project coordinator), Mervi Honkatukia (senior researcher at NRI) and I mapped the location of the cows and their owners to gauge interest in introducing milk and other products to new markets.

We visited milk producers at their farms, surveyed their views and organized meetings with refiners. The aim was to support local producers and increase recognition of the Lappish cow as a valuable local breed. We found clear interest among farmers in increasing the number of Lappish cows, producing more milk and bringing both traditional and novelty ➤

■ During its heyday, the Lappish cow was an important food source, mostly as milk for families. The breed may not return to its pre-World War Two levels, but if its renaissance succeeds, its new role will be to provide economic opportunities for northern farmers by offering heritage, novelty or specialty milk or meat products, as well as services that may be of interest to both tourists and locals, such as farm visits.

Photo: Marko Junttila ©Lappari

dairy products to the market.

But challenges remain: the total number of the cows is still small. Farms are scattered across the region and separated by large distances, making milk collection difficult. As well, the average Lappish cow produces less milk than more common breeds—for example, about a third less than domestic Ayrshires. Local dairies are a potential solution—farmers near each other could collaborate to provide specialty milk products—but for now, such dairies are rare.

PÄIVI SOPPELA is a senior scientist at the Arctic Centre, University of Lapland. Her current research focuses on the adaptation of reindeer and local breeds of cattle and horse to the Arctic environment.

The farmers also need support to work together to increase the number of cows, such as training to capitalize on business opportunities offered by the breed and its milk.

Our project also tested the Lappish cow's farm-made milk products among consumers, who not only loved the taste, but were interested in learning more about the cows themselves. This tells us that Lapland's "traditional" cow and its products may be an asset to the region's tourism industry. Restaurants also want to offer the products.

Reviving the Lappish cow makes economic sense because it helps struggling Lappish farms to diversify. But it also makes sustainability sense. The breed is healthy, fertile, long-living and well adapted to the harsh Arctic conditions. The farmers who took part in the project praised the cow's modest feed intake and the fact that it can sustain itself by grazing in forests, mountains and even mires during the summer.

Farmers' traditional knowledge has been vital in breeding these cows over time. The breed has developed traits that have made it sustainable, inventive and well suited to Lapland's Arctic environment. This knowledge is important and should be recognized in any management policies developed for this breed. We have also begun a parallel project, known as the Arctic Ark, to study the biological and socio-cultural adaptation of the Lappish cow to the northern environment.

Although the future of the Lappish cow is still uncertain, there are signs the breed can make a comeback if we act quickly and give the young farmers of Lapland the support they need. There may be another chapter to this breed's story after all. ○

Innovation and best practices in Arctic agriculture

10th Circumpolar Agriculture Conference

The Circumpolar Agricultural Association recently announced its 10th Circumpolar Agriculture Conference. Scheduled to take place March 13 to 15, 2019 at the University of Lapland's Arctic Centre in Rovaniemi, Finland, the conference is aimed at those involved in northern agriculture, including researchers, practitioners, administrators, managers, policy-makers and students.

The conference will focus on new thinking in local agriculture, food production and rural development in northern areas, highlighting the UN Sustainable Development Goals. Kicking off with a pre-conference trip to a reindeer farm and concluding with an "Arctic bio-economy" outing in northeast Finland, the conference will examine best practices and solutions in the use of animal and plant resources, local breeds, reindeer herding, small-scale farming and non-timber forest products.

Registration opens online in May 2018. For more information, visit www.uarctic.org/news/2018/2/10th-circumpolar-agriculture-conference/ or contact Päivi Soppela, chair, Circumpolar Agriculture Association: paivi.soppela@ulapland.fi or tel.: +358 400 138 805.

Ulrik "Maki" Lyberth harvesting seaweed near Sisimiut, Greenland.

Photo: Kurt Hørlyk

SEAWEED

The future of a sustainable Greenland?

Greenland is the world's largest island, with a coastline of more than 44,000 kilometres and more than 250 species of seaweed. Could seaweed be a new source of sustainably derived income in the country? ULRIK "MAKI" LYBERTH, a teacher turned entrepreneur, is betting on it—and hoping to find investors who share his vision. ➤

Photo: Kurt Hørlyk

Seaweed hangs to dry. It's a low-tech business that uses little energy, notes Lyberth.

FIVE YEARS AGO, Lyberth—a primary teacher in Sisimiut, Greenland for more than 20 years—reinvented himself as an entrepreneur by launching a seaweed production business called Maki Seaweed Greenland. Believed to be a "superfood" for its nutritional density, seaweed has long been a traditional food in Greenland. It is also considered a sustainable food source that can support food security in the country. Growing it requires little energy, and seaweed farms can employ local people in small settlements.

Lyberth's company began production two years after he first hatched the idea. It began turning a profit after the first year, but folded recently. We spoke to Lyberth to find out what happened—and what he's planning next.

Tell us about your company, Maki Seaweed Greenland. Where did you get the idea to start it?

I was hunting reindeer at the time and not really catching anything. One day I was hunting from my boat, and I saw a seal among the seaweed. I started to notice that there was seaweed all around me, and I thought, why not use it? It was as though the seal had spoken the words. The seal was trying to tell me that seaweed is the future of Greenland.

What were the key challenges of running the business?

When I started the business I knew nothing about seaweed, but I began to study it. I built up a knowledge base, and eventually I began to harvest seaweed for human consumption. That was three years ago. Harvesting was the easy part. You go out in a boat and haul it in, and later you dry it and cut it. The work is physical and demanding—the seaweed is very heavy before it's dried—but it's not complicated. You don't need any special technology. The company folded because of the bureaucracy here in Greenland and the administration required. For every hour that I spent handling seaweed, I was spending 10 on paperwork.

SEAWEED FARMING IS MUCH MORE SUSTAINABLE THAN SOME OF THE ECONOMIC ALTERNATIVES, LIKE MASS TOURISM OR MINING.

Seaweed production would seem to line up with several UN Sustainable Development Goals, such as those related to food security and using the ocean sustainably. Was that something you considered when you started the company?

At first, I was just thinking it made sense to harvest something that was so plentiful here. But it quickly became apparent that seaweed is also a really sustainable food source. I discovered I needed no high-tech equipment to produce it—just a boat, some lines and rope to hang it out to dry. The air here in Greenland is very dry, so nature takes care of the rest. The only energy involved was the gas in my boat. So yes, I do now appreciate that it really fits several of the SDGs. It is the perfect food to produce—much easier than fish or seal meat. And seaweed farming is much more sustainable than some of the economic alternatives, like mass tourism or mining.

What are you going to do next?

I plan to try again further south in Greenland, probably this summer or fall. The bureaucracy will still be there, but I will have more people to help with the paperwork while I focus on production. Also, I plan to look for investors with knowledge of seaweed. They will be hard to find, but the investment will help us start production and grow from there. This time, instead of harvesting wild seaweed, I want to develop seaweed farms. My vision is to build drying areas in every settlement in Greenland.

What is the market like for seaweed?

The demand is definitely there. The market is huge in Europe. I've even had some interest from China. People are aware of seaweed's health benefits and they like the idea that here in Greenland, the seaweed grows in exceptionally clean water north of the Arctic Circle. Seaweed represents a big economic opportunity for Greenland and a chance for it to be known in Europe and beyond. ○

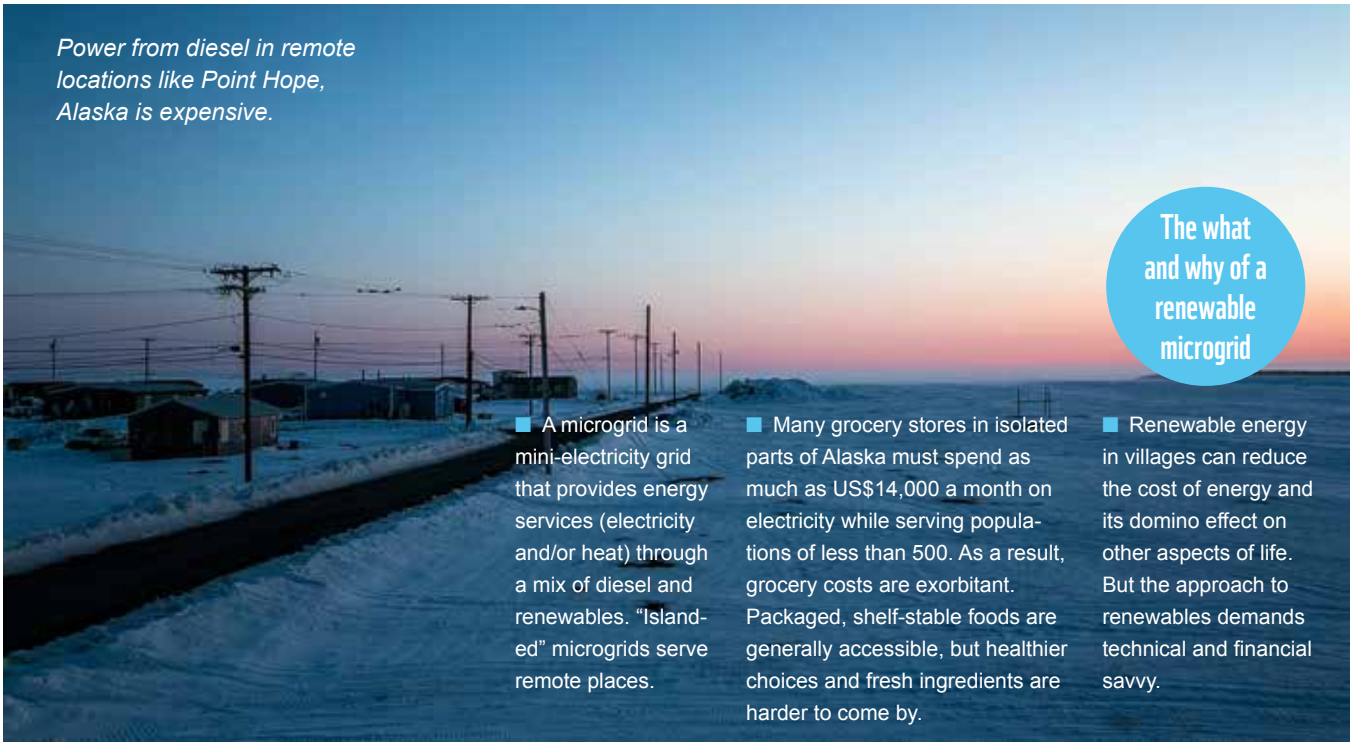
7 AFFORDABLE AND CLEAN ENERGY

Diesel makes food expensive. Can renewables help?

It has long been challenging to install and finance renewable energy in the Arctic. Yet the region's dependence on diesel for the lion's share of its power drives costs up—and leads to milk that sells for US$10 a gallon because the grocery store's power costs US$14,000 a month. 60Hertz Microgrids, an Alaska-based social enterprise, is working to improve this through renewables and innovative financial structuring. 60Hertz founder and CEO PIPER FOSTER WILDER explains how.

IN THE NORTHWEST corner of Alaska, parents sew parkis (parkas) for their children from the skins they gather from their traplines. They live in remote Indigenous villages not far from where the Bering Land Bridge found its frozen path between continents 10,000 years ago. Diesel generators are the backbone of Arctic village power, especially in winter months, when solar is not an option. But diesel is costly. Across remote Alaska, the electricity to run sewing machines and light worktables can cost as much as 95 cents per kilowatt hour—eight times the US national average.

Energy poverty in Alaska's 200 isolated villages limits residents' daily activities. Beyond Alaska, it stymies advancement for millions of the global poor. Between 2000 and 2014, the World Bank Group invested US$63.5 billion in rural electrification—yet more than a billion people still live without electricity, and according to the World Bank, unless something changes, the world is unlikely to meet its goal of universal ➤



Power from diesel in remote locations like Point Hope, Alaska is expensive.

Photo: Nathaniel Wilder

The what and why of a renewable microgrid

- A microgrid is a mini-electricity grid that provides energy services (electricity and/or heat) through a mix of diesel and renewables. "Islanded" microgrids serve remote places.
- Many grocery stores in isolated parts of Alaska must spend as much as US$14,000 a month on electricity while serving populations of less than 500. As a result, grocery costs are exorbitant. Packaged, shelf-stable foods are generally accessible, but healthier choices and fresh ingredients are harder to come by.
- Renewable energy in villages can reduce the cost of energy and its domino effect on other aspects of life. But the approach to renewables demands technical and financial savvy.

electricity access by 2030. This means millions of people will continue to make do with unreliable and/or expensive power.

PIPER FOSTER WILDER is the founder and CEO of 60Hertz Microgrids, an Alaska, US-based social enterprise dedicated to ending energy poverty through renewable microgrids.

HOW CAN RENEWABLE ENERGY HELP?

Integrating wind, solar and energy storage technologies into the large-scale utility infrastructures with which most of us are familiar is perfectly attainable and technically uncomplicated. But village-scale power systems—known as "islanded" microgrids, or good old diesel powerhouses—are far more sensitive. The controls and components needed to seamlessly add renewables to islanded microgrids are expensive and demand complex, customized engineering solutions. As well, the logistics involved in transporting renewable components great distances in the Arctic—usually by plane or barge—mean that installation costs are two to three times higher than elsewhere. The communications technology to monitor system performance is also expensive, and that's if the satellite coverage is even available. Further, the scale of these Arctic microgrids is in the kilowatt, not megawatt range, so economies of scale are virtually impossible.

Despite these challenges, 60Hertz Microgrids sees a path toward reducing diesel consumption via renewables and financial innovation. 60Hertz helps by financing microgrids: we buy batteries as well as solar and wind generation equipment that is custom-engineered

Are the UN Sustainable Development Goals being achieved in Inuit Nunaat?

The world's wealthiest countries still have a long way to go to achieve the SDGs, writes OKALIK EEGEESIAK, and should not lose sight of the fact that their Inuit populations still face significant socio-economic development challenges.

WHEN WE THINK of the UN Sustainable Development Goals (SDGs), we have a tendency to bring a "developing world" perspective. That is, we assume that only the poorest countries of the world have work to do, and that the wealthiest countries are already most of the way there. This is a false assumption, especially for developed countries with significant Inuit (Indigenous) populations.

Of the G8 Arctic countries, four of which Inuit have occupied for millennia, all except Russia rank in the top 20—if not the top 10—in the world, based on statistics from the latest Human Development Index (HDI). Guess what: Inuit have significant socio-economic development challenges. If we were to compare Inuit-specific statistics with those of the general populations of these G8 countries, we would find that Inuit rank very poorly on the HDI. This means when it comes to ending poverty, protecting the planet and ensuring prosperity for all—the central goals of the SDGs—even the world's wealthiest nations have plenty, plenty of work to do.

Poverty (SDG 1), food security (SDG 2), health and wellness (SDG 3), and education (SDG 4) are the four greatest challenges facing Inuit in the circumpolar Arctic today. In fact, in terms of these specific issues, Inuit would rank well below most developing countries. Mary Simon, a prominent Inuk leader, developed a Canadian report in 2017 called *A new shared Arctic leadership model*. In it, she asks: "In spite of substantive progress over the past 40 years, including remarkable achievements such as land claims agreements, Constitutional inclusion and precedent-setting court

for Alaskan villages. We use partnerships and take advantage of tax incentives to attract investors in village-scale renewable projects that use proven technology to provide renewable power to our clients. This power is sold through a contract called a Power Purchase Agreement (PPA).

FOCUSING ON LOCAL EMPLOYMENT

Our goal is to sell the projects to the communities we serve at an affordable rate once the tax benefits and cash flows to investors have been consumed. We offer our investors a fair rate of return that is still low enough to ensure communities can afford their agreements. We bolster these deals with credit enhancement from public and philanthropic partners. 60Hertz, as the owner of these assets, takes responsibility for maintaining the renewable assets over the life of the PPA. We emphasize maintaining—or even creating—local jobs, so the maintenance activity is in partnership with local power plant operator teams.

Microgrids can be used anywhere in the world, but Alaska is home to more than 10 per cent of all the islanded microgrids currently operating. Our goal is improved quality of life for people across the coldest and darkest parts of Alaska, the Arctic and further.

We believe energy poverty cannot be addressed by white papers or conferences. It takes partnerships with non-profits, philanthropists, governments and the private sector. 60Hertz is endeavouring to make this vision a reality by working with communities to support energy wealth and create a culture of energy-keepers in remote places everywhere. ○

POVERTY (SDG 1), FOOD SECURITY (SDG 2), HEALTH AND WELLNESS (SDG 3), AND EDUCATION (SDG 4) ARE THE FOUR GREATEST CHALLENGES FACING INUIT IN THE CIRCUMPOLAR ARCTIC TODAY. IN FACT, IN TERMS OF THESE SPECIFIC ISSUES, INUIT WOULD RANK WELL BELOW MOST DEVELOPING COUNTRIES.

rulings, why does the Arctic continue to exhibit among the worst national social indicators for basic wellness?" Further, she asks: "Why, with all the hard-earned tools of empowerment, do many individuals and families (in the Arctic) not feel empowered and healthy?" These questions and others like them must be addressed if we want to ensure prosperity for everyone, including Inuit living in Arctic communities.

Inuit face challenges that are not apparent in developed G8 nations. Solutions like better infrastructure, ➤

SOCIAL AND ECONOMIC INEQUITY IN INUIT NUNANGAT

Many Inuit face social and economic inequities that impact our health and wellbeing

Inuit Nunangat		All Canadians
52% of Inuit in Inuit Nunangat live in crowded homes*[1]		9% of all Canadians live in crowded homes*[1]
34% of Inuit aged 25 to 64 in Inuit Nunangat have earned a high school diploma[1]		86% of all Canadians aged 25 to 64 have earned a high school diploma[1]
70% of Inuit households in Nunavut are food insecure[2]		8% of all households in Canada are food insecure[3]
$23,485 The median before tax individual income for Inuit in Inuit Nunangat[1]		$92,011 The median before tax individual income for non-Indigenous people in Inuit Nunangat[1]
30 The number of physicians per 100,000 population in Nunavut[4]		119 The number of physicians per 100,000 population in Urban Health Authorities[4]
47.5% of Inuit in Inuit Nunangat are employed[1]		60.2% of all Canadians are employed[1]
72.4 years The projected life expectancy for Inuit in Canada†[5]		82.9 years The projected life expectancy for non-Indigenous people in Canada[5]
12.3 The infant mortality rate per 1,000 for Inuit infants in Canada.[6]	IMR	4.4 The non-indigenous infant mortality rate per 1,000 for Canada.[6]

* Should not be compared with crowding data for previous years. Based on the suitability definition (whether the dwelling has enough bedrooms for the size and composition of the household). The previous figure was based on the number of persons per room definition.
† Should not be compared with previous life expectancy data. The figure is a national 2017 projection of life expectancy for Inuit. Previous figures were for 2004-2008 for all residents of Inuit Nunangat, including non-Inuit.

[1] Statistics Canada, 2016 Census. (crowded homes: 98-400-X2016163; high school diploma 98-400-X2016265; income: unpublished custom table provided to ITK; employment: 98-400-X2016266)
[2] Grace M. Egeland, *Inuit Health Survey 2007-2008: Nunavut* (Ste-Anne-de-Bellevue, QC: Centre for Indigenous Peoples' Nutrition and Environment, May 2010), 12.
[3] Shirin Roshanafshar and Emma Hawkins. *Health at a Glance: Food Insecurity in Canada* (Ottawa, ON: Statistics Canada, March 25, 2015).
[4] Canadian Institute for Health Information, *Supply, Distribution and Migration of Physicians in Canada*, 2014 (Ottawa, ON: Canadian Institute for Health Information, September 2015).
[5] Custom table based on Statistics Canada's *Projections of the Aboriginal Population and Households in Canada, 2011 to 2036.*
[6] Sheppard et al 2017. "Birth outcomes among First Nations, Inuit and Metis populations." Health Reports Vol. 28. No. 11

shipping and economic development may well offer relief from some of them, but I would argue they won't go far enough. For substantive improvement and sustainable prosperity, I believe we must determine the root causes of the social disparities that underlie the Inuit reality. If we cannot make significant progress on the first four SDGs, how can we possibly expect to gain traction on the others?

If we pursue the SDGs without adequate attention to SDGs 1 to 4 specifically—or even 1 to 6—we risk perpetuating development and progress of and in the Arctic, but not by and for the Arctic. This may sound like a subtle difference, but it is important, because it means that while there may be progress on development in the region, there will not be sustainable development. For that, we need answers to some difficult questions: Who is investing in what—and who should be investing? Who is capable of investing? Who is considering investing?

OKALIK EEGEESIAK is the Chair of the Inuit Circumpolar Council.

As I write this in April 2018, I am in New York at the UN Permanent Forum on Indigenous Issues, listening to Canada lead discussions on Indigenous participation. And yet again, we have a Canadian prime minister deciding on a major resource development in western Canada—one that will have a profound effect on Indigenous People. Canada may have removed its objector status to the UN Declaration on the Rights of Indigenous Peoples, but what about free, prior, informed consent—and the SDGs?

Noble intentions require noble actions. ○

Building a more sustainable municipality in Norway

Three towns are in the process of amalgamating to form a new municipality, known for now as new Asker. Part of the merging process involves searching for ways to ensure the community remains sustainable in the future. To do this, the towns are looking to the UN Sustainable Development Goals (SDGs).

THE TOWNS—and their 90,000+ residents—are scheduled to complete the amalgamation by the beginning of 2020. As part of the process, they are pioneering a "municipal approach" to the SDGs, using the goals as the overarching framework for municipal planning. In fact, new Asker is the first municipality in Norway to be included in UN Habitat's program for local implementation of the SDGs.

LENE CONRADI, the mayor of the current town of Asker, is helping to lead the work on integrating the SDGs. She explains how the process will work and why she believes the SDGs are fundamental to the future of her community.

Svein Erik Dahl / Samfoto

Lene Conradi, mayor of Asker.

How did the idea come about to integrate the UN SDGs into the framework of new Asker?

I had the pleasure of being a member of two United Nations advisory groups in 2014 and 2015: the UN Advisory Committee of Local Authorities and the UN Advisory Group for Gender Issues. The process of establishing a framework for the SDGs was on the agenda at those meetings. After bringing up the idea with my mayoral colleagues in Røyken and Hurum, we quickly realized the SDGs provided a very constructive framework for municipal planning.

How exactly will you go about using the SDGs to shape planning in the new municipality?

The global SDGs will provide direction to our municipal master plan and other strategic and thematic plans, as well as specific initiatives. So far, our work has revolved around how to meaningfully translate the SDGs into a municipal context—that is, to localize the goals.

This includes prioritizing the goals as well as developing a method for deciding how the SDGs can best frame the municipal planning process in new Asker.

Which of the SDGs do you see as being especially important in your community?
My personal view is that all the SDGs are interdependent and equally important. It is a holistic framework, where all parts work together. Nevertheless, as a municipality it is constructive to look at the areas where we can make the biggest difference.

SDG #17 (strengthening the means of implementation and revitalizing the global partnership for sustainable development) will be a priority for us and will frame our approach to the other goals. We want new Asker to be characterized by a development approach that focuses on partnerships, co-creation and active citizenship. We believe this will not only increase the quality of our services and local democracy, but also contribute to solving some of the serious problems facing our world today.

How will you measure the progress your community makes in achieving these goals?
Documenting our progress is very important for us. As a result, we are developing an overarching "benefits realization plan" for merging the municipalities; measuring our progress in achieving the SDGs will be part of this plan. We are currently working with Statistics Norway to develop a set of key performance indicators that can form a framework for measuring our progress in meeting the goals in all Norwegian municipalities.

I believe it is also important to keep in mind that some potential effects will be less tangible—because big societal changes are not always easy to measure.


Photo: Kjøland illustrasjon

Semsvannet, Asker, Norway.

Through our approach to the SDGs, we are demonstrating our global values and awareness of our responsibility to think about these goals.

What support have you received from other levels of government?
We have been working with several national ministries, including the Ministry of Local Government and Modernisation and the Ministry of Foreign Affairs. Both ministries participated in an SDG workshop in Asker in October 2017, along with representatives from UN Habitat, the Norwegian Association of Local and Regional Authorities and other civil society organizations. The national government has expressed both interest in and support for what we are doing, and will monitor and assist our process so that other municipalities in Norway and around the world can use the methodology and approach.

NEW ASKER IS THE FIRST MUNICIPALITY IN NORWAY TO BE INCLUDED IN UN HABITAT'S PROGRAM FOR LOCAL IMPLEMENTATION OF THE SDGS.

What affect do you think including these goals in your municipal planning will have on the future of your community?
The SDGs are global, but every single one of them has to be achieved and safeguarded locally. Recognizing this link between local and global development is very important. But we believe that implementing and integrating the SDGs into our municipal planning processes will help us make new Asker a safe, sustainable and supportive municipality.

If we promote the SDGs as an ethical framework for our municipality, we can also influence the choices that individuals and groups in our community make. To me, it is crucial that we make the most of this opportunity to create awareness and knowledge around the importance of these goals among our citizens, politicians, local organizations and businesses. ○

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THE PICTURE

What happens in the South is felt in the North

Photo: Peter Prokosch, www.grida.no/resources/3490

Garbage on the beach in Phippsøya, Seven Islands, Svalbard. Even at this most remote place in the high Arctic, just 1,000 km away from the North Pole, garbage from the South washes up.

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To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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