PART II

IMPLIEDATIONS OF THE PARIS AGREEMENT FOR THE ARCTIC
View from an Arctic State
Julia L. Gourley

INTRODUCTION

I'm going to talk to you today about what the Arctic Council is doing to address the impacts of climate change in the Arctic. In fact, there is a lot going on, but it's not necessarily directly tied to the Paris Agreement.

BLACK CARBON

As you heard from Dan Reifsnyder last evening, the word “Arctic” is not found in the Paris Agreement. Another word (or phrase) you won’t find in the Paris Agreement is “black carbon.”

Black carbon, otherwise known as “soot,” is not part of the UN Framework Convention on Climate Change (UNFCCC). But it is considered by the science community to have particular impact in the Arctic. What is known is that black particles absorb heat and accelerate melting of white surfaces and thawing of frozen ground. And there is a lot of both in the Arctic in the form of snow, ice, and permafrost.

What is less known is how much black carbon contributes to regional atmospheric warming. It does not have an assigned “global warming potential” or GWP number as the gasses within the UNFCCC do. And its occurrence in the environment is rarely in its pure form. Black carbon is often emitted with organic carbon which is typically lighter in color and would not be expected to have significant warming properties; in fact, it is thought to have cooling properties that off-set black carbon’s warming properties.

Yet because there is evidence that black carbon does have warming effects on the Arctic cryosphere, there is significant scientific on-going research.

The United States initiated work in the Arctic Council on black carbon in 2009. After seven years of work, the Council is on the brink of agreeing to an “ambitious, collective, aspirational, quantitative black carbon mitigation goal.”
Now that's a mouthful, but it's an important advancement in addressing climate impacts in the Arctic—that is, if the Arctic States actually reduce their black carbon emissions, and if the near-Arctic States do the same.

The Arctic States have been pressing, in particular, the Asian observer states to join with us in in our mitigation efforts since they are responsible for a significant amount of the overall black carbon load that reaches the Arctic.

As the chair of the Arctic Council's Black Carbon and Methane Expert Group, we are very pleased that most of the observer States submitted national reports on black carbon and methane sources and emissions inventories. These reports are a requirement for participation in the expert group.

**RESILIENCE AND ADAPTATION**

The Council is making an important contribution related to the Paris Agreement is in the areas of adaptation and resilience.

Most people do not know what “resilience” means. Some think of it as synonymous with adaptation, but it is not.

While both terms are used in climate contexts, “adaptation” refers to specific actions taken by a population, while “resilience” is an underlying capacity to enable adaptation. It is a broader concept and something that ideally is measureable and quantifiable.

The Arctic Council is embarking upon three separate, but related initiatives. The *Arctic Resilience Assessment* (ARA) will draw on case studies where major thresholds, or “tipping points,” are already apparent in order to identify properties that make human and non-human systems more resilient to both anticipated and unanticipated changes.

The *Adaptation Actions for a Changing Arctic* (AACA), that you'll hear more about from Lars-Otto Reiersen, examines adaptation opportunities based on projections well into the future. It looks at three specific regions in the Arctic and then ties them together in a synthesis report.

Both of these initiatives focus on the key question: “What can be done to prepare for Arctic changes?” They move beyond assessing the state of the science, and evaluate the societal actions that can and are being taken to adapt to a changing Arctic and to build resilience to cope with both climate change and other processes affecting the Arctic.

The third initiative is an *Arctic Resilience Action Framework* (ARAF)
that will build on the key findings of the ARA and AACA by articulating a set of “guiding principles” for enhancing adaptation and resilience across the entire region. The ARA and AACA are time-limited projects, so their findings will need to be updated and further refined on an on-going basis. Thus, the ARAF is intended to be a long-term process within the Council.

SCIENTIFIC ASSESSMENTS

The Council has a rich history of climate change work and the thing that really put the Council on the map was its 2004 Arctic Climate Impact Assessment (or ACIA) that was chaired by our very own Bob Correll.

The ACIA accelerated the Council’s focus on climate, and since 2004 there have been a number of cutting edge climate assessments. I mentioned the AACA a moment ago, but another very important one is called the Snow, Water, Ice, and Permafrost Assessment (SWIPA).

SWIPA was first released in 2011 with assessments of the Greenland ice sheet, the Arctic Ocean sea ice, and the terrestrial cryosphere components of snow, rivers, and glaciers.

The Council is going to release further SWIPA products including an Arctic Freshwater Synthesis at the next Arctic Council Ministerial in May 2017.

Another SWIPA product to be released in phases is a snapshot of how the Arctic will look in a fully implemented Paris Agreement world; which is to say the Arctic under a 1.5°C and a 2°C increase in global average temperature. Lars-Otto will discuss that further, but I suspect it will attract a lot of attention.

THE WAY AHEAD IN SUPPORTING PARIS AGREEMENT IMPLEMENTATION

So much of the Arctic Council’s work is directly or indirectly related to climate change that the United States, sitting in the chair, believes that it’s time for a strategic plan.

The Council is an intergovernmental forum that has evolved over time to look more like a formal international organization. While some Arctic states do not wish to see the Council transform officially into an international organization, some do believe that the time has come for
the Council to have a more defined path with specific goals and means of achieving them.

The term “strategic plan” mostly makes people groan, but if they are well-done they can really help drive action and render operations to be more efficient. This would get at precisely what Mark Meyers said this morning about the need for answers to the big questions in order to reach the goals of the Paris Agreement, such as how to manage the enormous amount of carbon stored in the Arctic. We need a more strategic direction to the Council’s work to get to outcomes we need for the planet’s health.

A real life example of the thawing permafrost that is not carbon-related is the current outbreak of anthrax in the Yamal Peninsula in Russia. There are thousands of animal graves in the tundra and as the permafrost thaws, these bodies and their anthrax spores are now uncovered and reindeer are eating them and dying. There has also been a human death—a boy who came in contact with anthrax-contaminated land or possibly one of the reindeer carcasses.

This is a clear consequence of climate impacts in the Arctic. The Russian government has warned of many other diseases including smallpox and influenza that may become bioavailable due to thawing permafrost. Thus, there are huge public health ramifications in addition to global warming impacts. Fortunately, the Council also focuses on Arctic health issues.

CONCLUSION

Although climate change is not the only game in town in the Arctic, it is the 800-pound gorilla and deserves a bit more thought and direction from the Arctic States as to how to manage the region in the best possible way, including what the Arctic States can do to support the mitigation and adaptation aspects of the Paris Agreement.

One more thing: the East-West Center wrote a piece on the Arctic for the State Department’s “Our Arctic Nation” blog on Medium.com. We came up with the idea to do one blog post per week from each of the fifty states and Washington, D.C. describing why the Arctic matters to that state. We were so pleased that the East-West Center agreed to write the very first blog post to kick off our project. I think it was very eye-catching that Hawai‘i was the first entry in “Our Arctic Nation” because who thinks of Hawai‘i as having any Arctic ties?
View from a Non-Arctic State

Sung Jin Kim

The Arctic is a region where the climate is warming twice as fast as the global average. Every year, the extent of sea ice during the summer is hitting record lows, and the onset of melting is starting sooner. While many issues related to the Arctic tend to be confined to Arctic States, addressing climate change is one issue that requires the engagement of non-Arctic States as well. No borders constrain climate change, and any effective measures intended to address climate change in the Arctic will need the cooperation and efforts of both Arctic and non-Arctic states. In this regard, the recent adoption of the Paris Agreement is significant in that it now involves 196 nations and includes both developed and developing countries in a common effort to combat global warming.

The Republic of Korea is one of the 175 countries that signed the Paris Agreement at the 22 April 2016 high-level signature ceremony, and ratified it on 3 November 2016. As the world’s 11th largest economy, Korea’s efforts to curb greenhouse gas emissions will no doubt be a significant contribution to the global climate effort, and consequently to mitigating and adapting to climate effects in the Arctic. In this paper, I will first provide a summary of two climate regimes (the Kyoto Protocol and the Paris Agreement), as well as perspectives on future implementation challenges. I will then discuss Korea’s climate change policy, with a particular focus on adaptation policy. Finally, I provide my thoughts on what role the North Pacific Arctic Conference, and in particular NPAC member states, could take in addressing climate change issues.

THE KYOTO PROTOCOL AND ITS LIMITATIONS

The Kyoto Protocol is the predecessor of the Paris Agreement that was adopted at COP21 in Paris and achieved its threshold for ratification on 4 November 2016. In order to understand how and why the 2015 Paris Agreement came about, it is first necessary to understand the Kyoto Protocol agreements of 1997 and to examine its successes as well as its failures.
The United Nations Framework Convention on Climate Change (UNFCCC) was one of the agreements resulting from the groundbreaking Rio de Janeiro “Earth Summit” in 1992. The major objective of the UNFCCC was “to achieve...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” However, the agreement did not codify binding limits on greenhouse gas emissions and had no enforcement mechanisms. In order to move forward, the Kyoto Protocol was negotiated and adopted in 1997 at the “Conference of Parties” (COP) 3 as a tool to put these UNFCCC principles into practice. The Kyoto Protocol sets binding emission reduction targets for 36 industrialized nations and the European Union (Annex I countries). Also, it has complementary market mechanisms to help countries achieve reduction targets including by investing in green projects in developing countries. Then-U.S. President Bill Clinton called the agreement “environmentally strong and economically sound.”

One major element of the Kyoto Protocol was its binding emission reduction commitments for Annex I parties. Based on the principle of “common but differentiated responsibility and respective capabilities” the Paris Agreement recognized that industrialized countries are largely responsible for the high accumulation of greenhouse gases in the atmosphere, and the reduction targets only bound developed countries. This left out a number of emerging countries such as China, India and Brazil, which were also releasing significant greenhouse gas emissions. About 80% of the countries in the world were exempt from the Protocol, and the U.S. did not ratify the treaty. Before the second commitment period, Canada formally withdrew from the treaty, and Japan and Russia declared that they would not join the second commitment period. Ultimately, since the Kyoto Protocol included fewer than 50 countries for emissions controls and did not include many top emitters, it was an ineffective climate treaty.

The treaty’s record of countries complying with their emissions targets is also disappointing. The Kyoto Protocol established flexible market mechanisms to accommodate Annex I countries in meeting their reduction targets. The market mechanisms commoditized greenhouse gases, especially carbon, and it was thought to be a win-win for both developed and developing countries. Developed countries could take credit for GHG reductions, while developing countries received help to “green” their economy through joint projects and technology transfer. However, according to an UNFCCC report on Kyoto Protocol compliance, by 2012
the remaining 36 countries subject to the binding greenhouse gas targets in Kyoto had a poor record for compliance, with 17 failing to meet their targets. Thus, going into negotiations on the Paris Agreement, some of the major contentious issues involved fairness. Developed countries claimed that to have an effective climate treaty, it was important that developing countries also commit to goals for emissions reductions. Developing countries argued that in order for them to come on board, developed countries would need to commit more financing and assistance to the developing world.

**POST-KYOTO: THE PARIS AGREEMENT**

"Historic, durable and ambitious." These are the words used to describe the Paris Agreement, adopted on 12 December 2015 at the Paris Climate Change Conference (COP21). The agreement entered into force on 4 November 2016, prior to the beginning of COP22 in Marrakech, Morocco.

The goal of the Paris Agreement (Agreement) was to respond to climate change by reducing greenhouse gas emissions, and to create adaption strategies that respond to climate changes already being documented around the globe. The Agreement includes details on how to support developing countries by means of financial and technological support, as well as capacity building. In addition, transparency was emphasized for every aspect of the process, including a number of areas that relate to both content and procedure. The six areas covered by the Agreement—mitigation, adaptation, finance, technology, capacity building, and transparency—are considered to be the six pillars of the new climate regime.

Compared to the Kyoto Protocol, the Paris Agreement is a remarkably different international accord. Some of the key aspects of the new Agreement are as follows:

* **The first universal climate agreement:** Unlike the Kyoto Protocol, where only developed countries were mandated to reduce their emissions, the Paris Agreement includes both developed and developing countries; 196 in total. As of February 2017, 129 Parties have ratified of 197 Parties to the Convention and Paris Agreement went into force on 4 November 2016, the required thirty days after
the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55% of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary. At the time this is being written, the 129 signatories account for nearly 80% of global emissions.

- **Long-term temperature goal:** countries are committed to a long-term temperature goal of keeping the rise in average global temperatures well below 2°C compared to pre-industrial times, while aspiring to limit the increase to below 1.5°C.

- **Bottom-up approach:** Whereas the Kyoto Protocol was mainly a top-down regime, the Paris Agreement takes a bottom-up approach. It will be up to each country to determine its own reduction goals based on each state’s current emissions and capabilities. Every five years, each country is obligated to prepare, maintain and communicate a nationally determined contribution (NDC) and to pursue domestic measures to achieve them. Furthermore, countries are expected to respect the principle of progression, whereby the goals of successive NDCs should be higher than the previous ones.

### Table II.1 Comparison of Paris Agreement to Kyoto Protocol

<table>
<thead>
<tr>
<th>Kyoto Protocol</th>
<th>Category</th>
<th>Paris Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHG emissions reduction (Phase 1: 5.2%, Phase 2: 18%)</td>
<td>Target</td>
<td>2°C reduction goal, with an effort to achieve 1.5°C</td>
</tr>
<tr>
<td>Mainly focused on GHG reductions</td>
<td>Scope</td>
<td>Comprehensive, including not only GHG reduction, but also adaptation, finance, technology transfer, capacity building, and transparency.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Mostly Advanced Nations</th>
<th>Obligated States</th>
<th>All Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top-down</td>
<td>Goal-setting approach</td>
<td>Bottom-up</td>
</tr>
<tr>
<td>Penalty (1.3 times the unmet amount added to the next phase)</td>
<td>Penalty for non-compliance</td>
<td>No penalty</td>
</tr>
<tr>
<td>No particular mention</td>
<td>Target Setting Standards</td>
<td>Principle of progression</td>
</tr>
<tr>
<td>Questionable due to an end date during the commitment period</td>
<td>Sustainability</td>
<td>Sustainable action possible because of no specified end date</td>
</tr>
<tr>
<td>State centered</td>
<td>Actor</td>
<td>Participation by non-Party stakeholders encouraged</td>
</tr>
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</table>
Global stock taking: From the year 2023 and every five years thereafter, an assessment of the collective progress toward meeting the goals of the Paris Agreement will be made.

Transparency: The Paris Agreement is based on voluntary participation, much like the Kyoto Protocol. However, the Agreement goes a step further than preceding schemes by focusing on increasing transparency and promoting compliance through incentives. Countries are required to report on mitigation, adaptation and support, and to undergo international review on submitted information.

Climate finance: Developed countries will mobilize $10 billion per year from 2020 to 2025 to support low-carbon growth and climate resilience in developing countries.

Adaptation: Adaptation is included for the first time in the climate treaty with its own article (Article 7), and a balance between adaptation and mitigation is emphasized throughout.

CHALLENGES IN EFFECTIVE IMPLEMENTATION

The historical achievement of the Paris Agreement was met with praise and celebrations. Now the question remains: How can the agreement be effectively implemented? As Miguel Cañeta, the European Union Commissioner for Climate Action and Energy, said fittingly, “Today we celebrate, tomorrow we have to act.” Each of the parties has the obligation to submit Intended Nationally Determined Contributions (INDC), but there is no binding mechanism to enforce implementation. Continued emissions of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond. Effective implementation depends on policies and cooperation at all scales. An effective policy must necessarily be global in scope. Countries have strong incentives to take “free rides” on the efforts of others because emissions reductions are local and costly while the benefits are diffuse and distant over space and time. An effective global arrangement will need an effective mechanism to encourage participation and discourage free riders.
Every signatory has committed to provide long-term national vision and strategies and find additional ways to reduce greenhouse gas emissions, including a system that measures, verifies, and evaluates progress on implementation to achieve targets. In the end, we can only plead to the good will of participating countries and the principle of good faith. In particular, regarding the long-term temperature goal which has been agreed to (below 2°C), many are dubious that it will be achievable since there is no power of enforcement, nor are there specific plans and a timeline built into the agreement. According to Climate Action Tracker’s analysis, based on all the submitted INDCs for 2025 and 2030, even if they were fully implemented it would bring warming down to only 2.7°C, which is substantially above 2°C. The success of the new climate regime is dependent upon new negotiations for ensuring methods for implementation of the Agreement. It is crucial to engage the participation of emerging countries that are experiencing fast economic growth, as well as developing countries. The general meeting of the parties has ended, but a marathon of new negotiations for opening a new era has just begun. In the words of Prime Minister Narendra Modi of India, the “outcome of the Paris Agreement has no winner or losers. Climate justice has won.” Now, we all need to gather our strongest will and efforts to realize climate justice for all.

**ESSENTIAL IMPLEMENTATION TOOLS**

Finance, technology and capacity-building are three interrelated tools that are essential for reducing greenhouse gas emissions and adapting to climate change. To effectively reduce greenhouse gases, first, the development of relevant technologies is needed. The ultimate goal of the UNFCCC is the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. There are three major ways to respond to climate change. First, instead of trying to prevent climate change, accept that it is happening and devise adaptive measures against climate risks. Second, find ways to reduce greenhouse gases. Third, utilize geo-engineering methods to help cool the earth’s temperature.

Technology is important in all approaches, as evidenced by discussions at the most recent Davos Forum. Participants focused on finding ways to solve climate change and related social issues through technological
innovation, and explored how that innovation can dovetail with achieving sustainable growth. The climate conference in Paris last December was ultimately also about developing climate change response technology and international aid strategies.

Technology development requires a lot of investment and human resources. This means technological innovation by one country alone will be difficult. Instead, it is advisable to conduct joint research as a way to create complementary and mutually beneficial technologies among participating countries. This way, both the efficiency of R&D and the quality of results will improve. Furthermore, developed countries should take on more leadership in technology development and transfer, in order to encourage the participation of developing countries. In addition, in order to promote the development and sharing of implementation tools, a global mechanism should be created that enables active communication among countries.

NEW OPPORTUNITIES

Climate change is both a threat and an opportunity. We need to ensure that greenhouse gas mitigation efforts present new opportunities for growth. Manufacturing methods and industrial structures will need to be completely revamped. Mitigation targets could be met by using technology and the market, such as by adopting new manufacturing methods and products and expanding investment in research and development for greenhouse gas mitigation technologies. President Park Geun-hye of the Republic of Korea pointed out at the Paris Climate Conference that, “the new climate regime is a big opportunity rather than a new challenge.” Similarly, then-U. S. President Barack Obama said that climate responses can provide new opportunities for the United States by way of technology development that can be used at home and exported around the world.

The development of new economic growth engines can be achieved by promoting the development of new energy industries and transforming industry into a more environmentally friendly sector while reducing carbon emissions. This can be done through the adoption of smart manufacturing methods that increase energy efficiency, by expanding the production of electric and hybrid cars, by developing carbon capture and storage (CCS) technologies and installing them in power plants, and by promoting renewable energy development.
Many companies are already profiting in the new market environment through the development of new technologies and products. Several hundred global enterprises around the world have formed a climate change response network that emphasizes the role of industry.

The Korean government, for its part, will support the development and procurement of core technologies in order to help ensure that global climate change efforts and the new climate regime provide an opportunity for economic growth. It will support the development of renewable energy and efficiency technologies such as solar cells and secondary batteries, carbon resource recovery, and the export of small- and medium-sized nuclear facilities as ways to create future growth engines.

I hope that technology that helps lead us into this new post-Paris Agreement era is developed through the convergence of IT, which is an area where the Republic of Korea excels. This new era will also include the expansion of smart production methods and improvements in incorporating software technologies into the manufacturing industry. Furthermore, it is hoped that the Republic of Korea, together with NPAC, will lead this new era by having not only the government, but also industries and individuals, actively join in these efforts.

**Table II.2 Milestones in International Climate Response Effort**

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>1988</td>
<td>Establishment of IPCC (Intergovernmental panel established with support from UNEP and WMO. The Assessment Report (AR) published, which evaluates impacts caused by climate change and reviews response measures)</td>
</tr>
<tr>
<td>1990</td>
<td>Establishment of the Intergovernmental Negotiation Committee(IND)</td>
</tr>
<tr>
<td>1992</td>
<td>Adoption of the UNFCCC (entered force in 1994)</td>
</tr>
<tr>
<td>1997 (COP 3)</td>
<td>Adoption of the Kyoto Protocol (entered into force in 2005) (As of May 2016, 191 nations and the European Union are parties to the conference) (The Republic of Korea ratified in 2002)</td>
</tr>
<tr>
<td>2007 (COP 13)</td>
<td>Adoption of the Bali Action Plan</td>
</tr>
<tr>
<td>2009 (COP15)</td>
<td>Negotiation on Post-2012 agreement breaks down at the Climate conference in Copenhagen</td>
</tr>
<tr>
<td>2011 (COP17)</td>
<td>In Durban, the Kyoto Protocol is extended, negotiation on the new climate regime begins</td>
</tr>
<tr>
<td>2015 (COP21)</td>
<td>Paris Agreement which lays the foundation for the post-2020 climate regime is adopted</td>
</tr>
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</table>
KOREA'S CLIMATE CHANGE POLICY

Climate change became one of the main national agenda items in the Republic of Korea in 2008, when newly elected President Lee Myung-bak adopted green growth as a national development strategy. The government adopted the Framework Act on Low Carbon, Green Growth, and established the Presidential Committee on Green Growth as the leading entity for coordinating national green growth policy efforts. In 2009, the National Strategy for Green Growth and the Five-Year Plan (2009-2013) was announced and set forth a national goal of becoming the world’s seventh greenest nation by 2020, and the world’s fifth greenest by 2050.

Despite the fact that as a non-Annex I country, the Republic of Korea was not obligated to state a reduction goal and follow it, in 2009 the president declared an ambitious greenhouse gas reduction goal of 30% below Business As Usual (BAU) by 2020. This was one of the highest reduction goals stated amongst countries that made non-obligatory reduction commitments, which reflected the administration’s strong will to pursue green growth policies domestically and actively join international climate change efforts. To help achieve this ambitious mitigation goal, the Republic of Korea launched the Greenhouse Gas (GHG) and Energy Target Management System (TMS) for the industrial sector. To promote cost-effective measures for mitigation, it adopted the Korea Emissions Trading Scheme (KETS), which came into force in January 2015. This is the second largest market in terms of emissions, after the EU ETS, covering 525 entities and about 66% of the nation’s greenhouse gas emissions. Korea’s successful bid to house the new international organization, the Global Climate Fund (GCF) is reflective of the nation’s rise in international stature as a leading nation on climate change responses.

With the change of government in 2013, the Park Geun-hye administration vowed to continue Korea’s efforts to reduce emissions by “designating climate change response as a key sector of the creative economy.” The president also promised to “expand investment in the development of technologies that address climate change, including energy management systems, new and renewable energy, and carbon capture and storage (CCS)."
REPUBLIC OF KOREA AND COP21

Ahead of the Paris Climate Change Conference in December 2015, countries were expected to submit their INDC by June 30. The government of the Republic of Korea announced four options for its INDC on June 11. These were to achieve reductions of 14.7%, 19.2%, 25.7%, and 31.3%, compared to the BAU level by 2030. But after more in-depth review and discussions by stakeholders through public hearings and forums, the Korean government decided on a higher mitigation target of 37% below BAU emissions by 2030. This is equivalent to limiting GHG emissions in 2030 at 536 MtCO₂e (81% above 1990 emission levels) excluding land-use, land use change and forestry (LULUCF). Out of this 37%, 11.3% is expected to come from utilizing carbon credits from international market mechanisms, and 25.7% domestically.

Overall, Korea’s 2030 Mitigation Target has not been received well. The Korean business community has complained that it is too ambitious, yet some international observers have rated it as “inadequate.”¹² In particular, the mitigation target of 37% has been criticized as violating the principle of progression. The pledge made in 2009 to reduce greenhouse gas emissions by 30% from standard levels by 2020 was based on a projection of 776.1 million tons of CO₂ equivalent. That would require emissions of no more than 543 million tons that year, or 233.1 million tons less than the projected level. In comparison, the 2030 Mitigation Target promises to limit greenhouse gas emissions in 2030 at 536 MtCO₂e, and a significant portion of 11.3% is to come from using international market mechanisms, which according to Climate Action Tracker (CAT) analysis would allow domestic emissions (excluding LULUCF) to double by 2030 compared to 1990.¹³ Exclusion of LULUCF (forest) activities in the INDC was also criticized.

Korea has an energy-intensive economy heavily reliant on heavy industries such as the manufacturing and chemical industries. Thus, steering the national economy towards a greener path will require substantial effort, time and investment, as well as coordination with other sectors across the economy. In that respect, the Second National Energy Master Plan covering up to 2035 is expected to contribute in reducing Korea’s fossil fuel consumption, increasing energy efficiency, and increasing reliance on renewable energy. In particular, the Plan expects to reduce final energy consumption by 13% below BAU by 2035, and to increase the share of renewable energy out of total energy consumption to 11% by 2035.
Also, the government will support the development and deployment of new and renewable energy and nuclear energy, as well as manage energy demand-side. Some of the stated goals include increasing Korea’s market share in the global solar manufacturing market from 5% in 2008 to 20% by 2030, and consequently promoting the Republic of Korea as a major renewable energy products manufacturer. More recently, the Ministry of Science, ICT, and Future Planning has established and adopted the Climate Change Response Technology Development Program Implementation Plan for 2016, which is a program for supporting technological development in six focus areas in order to realize greenhouse gas emissions reductions through technology and to create new industries and markets: solar cells, fuel cells, bioenergy, secondary batteries, electricity IT, and Carbon Capture and Storage (CCS). According to the Plan, the Ministry will spend 56.8 billion won ($48 million) for 26 projects to develop carbon-mitigating next-generation technologies, which is a 10% increase over the previous year. Other efforts to mitigate Korea’s GHG emissions include creating the showcase carbon-free Jeju Island, creating new markets worth 100 trillion won ($85 billion) and 500,000 additional jobs by 2030, and opening a ‘prosumer’ (combination of producer and consumer) market for electricity that would allow people to sell power saved through renewable equipment or energy storage systems as under the “Strategy for Nurturing New Energy Industries 2030.”14 While there will be challenges and resistance during the transition to a green economy, this global trend via the Paris Agreement to move towards a greener and sustainable world will help continue to promote and support every nation to live up to global standards on greenhouse gas emissions. It will help to keep the climate change issue high on every country’s national agenda, which will help climate change policies to be continuous and integrated through changing government administrations.

ADAPTING TO A CHANGING ENVIRONMENT

Even if every country stopped emitting greenhouse gases today, the cumulative effects of previous decades of emissions will continue to take its toll on the environment for some time. In the case of the Republic of Korea, over the past 30 years (1981-2010), temperature has increased on average 1.2°C on the Korean Peninsula. Even if greenhouse gas emissions
are significantly reduced (RCP4.5), the average temperature is expected to increase to 3°C by the end of this century. That is why discussions on climate change adaptation strategies are as important as the ones regarding mitigation. But too often, adaptation gets sidelined in comparison to mitigation, in part because adaptation is difficult to measure, and tends to involve more national and local scales that makes it more complex than addressing mitigation. The first four IPCC assessment reports had much more emphasis on mitigation. However, the Fifth IPCC report includes much more on adaptation, which also reflects a growing literature on adaptation responses. The number of scientific publications on these subjects more than doubled between 2005 and 2010, with especially rapid increases in publications related to adaptation. The importance and attention to adaptation aspects of climate change has also been increasing at high-level meetings since UNFCCC COP 13. The Paris Agreement also requires each nation to formulate a national climate change adaptation plan and submit reports on its implementation. The Green Climate Fund (GCF), established through the UNFCCC as a way to help finance climate change responses in developing countries, will be spending half the fund on adaptation projects. In the final section of this paper, I will discuss Korea’s efforts to address climate change adaptation, which is less known compared to the country’s mitigation efforts.

The government of the Republic of Korea takes an integrated, systematic approach to climate change adaptation. The government formulated the 1st Korean Adaptation Strategy (2011-2015) in 2010 through joint efforts by 13 relevant government ministries under the lead of the Ministry of Environment, and subsequently the 2nd Korea’s Adaptation Strategy (2016-2020) prior to the Paris Climate Change Conference in December 2015. Under the 2nd Adaptation Strategy, the government is developing guidance and tools to support the assessment of vulnerability and risks, and is implementing projects on research and development for comprehensive and quantitative analysis of climate change impacts. In order to establish a “happy and safe society resulting from successful climate change adaptations,” the government aims to strengthen its capacity for climate change adaptation by implementing the following strategic actions:

- Establish a science-based climate change risk management system.
- Build a society safe from climate change impacts by establishing a pre-emptive response system that prioritizes vulnerable social groups
and regions to minimize adverse climate change impacts.

- Enhance industry competitiveness and secure the nation’s new growth engine by strengthening various sectors’ capacity to adapt to climate change.
- Manage natural resources sustainably, especially by formulating resiliency and conservation measures for protecting vulnerable and endangered species against climate change effects.
- Ensure enforceability and practicality of adaptation policies by establishing related laws, securing budgets, and establishing networks for cooperation.

Furthermore, regional and local governments, which play an important role in adaptation, are mandated to develop their own action plans for climate change adaptation by 2015 and tailored to local contexts. The Ministry of Environment reviews performance every year, and together with the Korea Adaptation Center for Climate Change (KACCC), assists local governments in enhancing their respective adaptive capacities.

Among various adaptation projects and policies, one particular project I would like to highlight is the MOTIVE development project. MOTIVE, which stands for Model on InTegrated Impact and Vulnerability Evaluation, seeks to develop a model for an integrated inter-sectoral assessment of climate risks, and to create a risk-based assessment method for Korea that will be used to formulate important policies. The research group for developing MOTIVE was established in 2014. For the next seven years, until 2021, MOTIVE will devise an integrated assessment model that will be used for establishing national and local climate change adaptation policies. Research has shown that climate change causes unusually high temperatures, which among other impacts causes increased ozone pollution that is linked to increased public health concerns. This indicates that rather than individual assessments, an inter-sectoral assessment is needed. Thus, unlike most risk assessment models that are based on individual sectors, the research group will focus on developing MOTIVE as an integrated and interlinked model.

CLIMATE CHANGE AND ITS IMPACT ON THE ARCTIC

It is widely known that climate change affects every corner of the globe. In
particular, global warming in the Arctic region is expected to happen two to three times faster than other regions. Climate change impacts on the Arctic will be more serious than any other region, and global warming is changing the general perception about the Arctic. If the Earth warms by on average 2°C, the Arctic is projected to see an increase in temperature of about 5°C. This Arctic phenomenon referred to as “Arctic Amplification.” This happens because the Arctic is normally covered by ice and snow, which reflects solar radiation. When the sea ice and snow covering the ice in the Arctic melts and turns into darker sea water, only 10% of the solar radiation will be reflected and the rest absorbed. The more melting, the less solar reflectivity. As a result, the temperature in this region increases more rapidly than in temperate zones. In other words, a “positive feedback loop” occurs, which then causes global climate changes to happen much faster. Currently, heat waves in the Northern Hemisphere during the summer and cold spells in East Asia and North America during the winter are both attributable to rapid Arctic warming. If the Arctic sees an increase in temperature by more than 5°C, extreme weather events will become more frequent and intense, and consequently will produce social and economic impacts not only in the Arctic, but also in lower-latitude areas. In addition, the rapid melting of the Greenland ice sheet is contributing to global sea level rise, and changes in the ecosystem in the Arctic and in the permafrost change in the subarctic are becoming increasingly serious and widespread.

According to research done by the Korea Polar Research Institute, the frequency and intensity of cold spells in the winter has increased since the 1990s. This phenomenon can also be linked to the rapid melting of the sea ice in the Arctic. Extreme weather events such as cold waves disrupt daily lives as well as national economies, and more scientific monitoring and efforts are needed to understand climate change impacts as they ripple around the world. Moreover, the frequency of weather-related disasters have increased on the Korean Peninsula, including snowstorms, heat waves, torrential downpours, and drought. These events have already had significant effects on agriculture and fishery production. Thus, there is a need to detect and project changes in the Arctic and also project the impacts that a rapid warming in the Arctic will have on lower-latitude regions and devise adaption policies accordingly. Also, carbon mitigation policies should go hand in hand with adaptation policies in order to minimize damages from climate change.

Establishing the link between sea ice reduction in the Arctic and climate
change in nearby regions will require time, methodological observation, and robust research. The recent increase in the frequency of cold waves in East Asia that are related to this rapid Arctic warming affects countries such as China and Japan. I expect that a joint research effort among China, Korea and Japan scientists will improve attribution studies that detail the links among global warming, Arctic melting, and these cold waves. For this cooperation, the North Pacific Arctic Research Community (NPARC), which is a network that includes scientists from China, Korea, and Japan (organized by the Korea Maritime Institute), could play a role in strengthening mutual cooperation. Furthermore, if NPAC leads in taking the initiative for further joint research and cooperation, I believe meaningful results could be obtained. Additionally, an experts group that involves both Arctic states and Arctic Council Observer states could be organized and implemented, with NPAC leading the process.

Climate change in the Arctic is deeply concerning. At the same time, melting sea ice in the Arctic also presents new development opportunities. For example, less ice in the Arctic will allow easier passage of Arctic sea routes, and also the development of hydrocarbon resources under the seabed. According to an oft-cited estimate, the Arctic is thought to hold an estimated 13% of the world’s undiscovered oil and 30% of the undiscovered natural gas, as well as 20% of the undiscovered natural gas liquids in the world. While warming in the Arctic is attracting development opportunities for Arctic- and non-Arctic nations and businesses, the likely adverse impacts of increased hydrocarbon development in the Arctic on sea ice in the region is troubling. Thus, the development of technologies that minimize carbon emissions should be promoted, such as by investing in R&D related to fuel energy use to reduce emissions from ships that will travel Arctic sea routes. Also, international regulations on emission standards for ships during sea travel, environmental standards for offshore plants, and the promotion of an expansion of LNG-powered ships should be considered. Preliminary studies and discussions could be instigated at NPAC.

**CONCLUSION: IMPLICATIONS FOR THE ARCTIC**

Climate change will affect every corner of the globe, but its impact on the Arctic region will be the most pronounced. However, climate change
responses by Arctic states alone will not make much of a difference to the Arctic’s future climate. Thus, the recent adoption of the Paris Agreement is meaningful in that it involves 197 nations, and the future of the Arctic region hinges upon the success of the post-2020 climate regime. The active participation by every nation in the world is important, in order to reduce global greenhouse gas emissions. The Republic of Korea a non-Arctic state that is part of the new climate regime, has declared a commitment to reduce greenhouse gas emissions by 37% below BAU by 2030. The country is planning to achieve this mitigation goal through various means such as through the Emissions Trading Scheme, transitioning its current carbon-intensive energy paradigm to a more environmental friendly one, and by supporting the development of green technologies. At the same time, adaptation polices are increasingly becoming as important as mitigation efforts, since the Korean Peninsula is expected to experience higher increases in temperature and sea level than the global average.

In comparison to a sectoral approach taken by the first National Adaptation Policy, the Second Adaptation Policy puts its focus on pursuing an integrated and holistic approach. Trends in Korea’s climate change policy show that formulating an integrated adaptation policy in the Arctic will be necessary and as important as concerns about climate change mitigation.

Mitigating various negative consequences from climate change and global warming is the most urgent task facing humanity. The Paris Climate Conference was a venue where the conflicting interests and concerns of various countries were aired, and there were many challenges to be overcome. Fortunately, a higher level of agreement was reached as a result of concessions and compromises made in the name of humanity’s future. The Paris Agreement is considered to be great historical achievement, in that it includes all 197 developed and developing nations.

Core contents of the Agreement include strategies on mitigation, adaptation, long-term goals, market principles, review processes, technology and finance, and capacity building. Signatories agreed to major principles and future directions of the Climate Agreement. Unfortunately, the Paris Agreement is not legally binding, and there are weak provisions for enforcement. Thus, the successful implementation of the Agreement must depend on the good will and efforts of responsible countries. What remains now is to fully understand the basis and principles of the Paris Agreement, and to take specific actions for implementation of various aspects of the
Agreement. All countries, as part of the greater international society, should adopt a mid- to long-term perspective and take resolute actions for the future of each country as well as that of humanity. Furthermore, an institutional mechanism to ensure a transparent and fair review within the new climate regime should be established.

I believe that the new climate regime is a meaningful step in the right direction. I hope that it achieves far more than the Kyoto Protocol, which is considered to be only half a success. Also, to overcome the "tragedy of the commons," active participation by every nation in this endeavor is absolutely required. Moreover, it is important to make sure that words as written in the Paris Agreement actually translate into action. Considering the fact that nation-states lean towards making choices that serve national self-interests rather than global ones, it will be important for the international community to make an effort to adopt measures such as carbon taxes and give themselves enforcement powers to implement then. The Republic of Korea thanks to its geographical location and economic and global status, can act as a bridge between developed and developing countries, and it is prepared to take on that role with various lessons learned from its fast-growth experience. I am certain that the Republic of Korea and NPAC will be capable and active in leading the new climate regime towards success.

Notes

5. Fiona Harvey, Paris climate change agreement: the world's greatest diplomatic


11. Ibid.


13. Ibid.


16. IPCC 5, Summary for Policymakers (SPM).

17. A total amount of 8 trillion won has been secured for 2016.

Arctic Council Working Group
Lars-Otto Reiersen

THE STATE OF CLIMATE CHANGE IN THE ARCTIC: PAST, PRESENT AND FUTURE

The eight Arctic countries (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States) established the Arctic Monitoring and Assessment Programme (AMAP) in 1991 as part of the Arctic Environmental Protection Strategy (AEPS). This entity was subsequently transferred to the Arctic Council in 1996. Over the last 25 years, AMAP has monitored and assessed the status, trends and effects of climate change and pollution on Arctic ecosystems and peoples. The area covered by AMAP studies is shown in Figure II.1. The Intergovernmental Panel on Climate Change (IPCC) and AMAP were initiated more or less at the same time, therefore a decision was made in 1991 that the main focus for the

![Figure II.1 AMAPs Geographical Coverage](image-url)
first period of AMAP would be on monitoring and assessing the major pollutants believed to be affecting the Arctic. However, in the AMAP 1998 assessment, one of its major conclusions was a recognition that the IPCC did not substantively address data or models that included areas north of 60N. This realization led to an increase in AMAPs work related to climate change and ozone/UV in the Arctic. Since then, several scientific assessments have been created, including ACIA 2005, which was produced with IASC, AMAP 2011 (the SWIPA report), produced with IASC and CliC/ WCRP, and AMAP 2013 (the Arctic Ocean Acidification report). There are currently new reports in the pipeline that will be launched in April/ May 2017, including the Snow Water Ice and Permafrost in the Arctic—2 (SWIPA-2) and Arctic Ocean Acidification-2 (AOA-2). This paper presents some of the latest scientific results pertaining to relevant ongoing Arctic council activities implemented by AMAP.

The latest data shows that the temperature over northern and Arctic areas has increased more than twice the global average. The observed atmospheric temperature over the northern hemisphere and the area North of 60N is presented in Figure II.2. Over the last decade, the media has focused on the reduction of the minimum extent of Arctic summer sea ice and the resultant reduction in sea ice volume. As the sea ice melts, the color of the sea surface changes from white (due to ice and snow) to

![Figure II.2 Observed Variation in Temp, Global and North of 60N](image-url)
blue, thereby reducing the albedo effect. This in turn results in reduced reflectivity of solar radiation and increased adsorption of energy from the sun into the sea. Equally important yet relatively uncovered in the media is the significant reduction in snow cover over land—both in terms of days of snow cover and total volume (Figure II.3). This reduction in snow cover generates a positive feedback loop; the change in color (darkening) of the land surface also further reduces albedo and leads to greater increases in the heat absorption. The change in albedo is the single-most direct cause of increasing temperatures in the Arctic. A further and related effect of the melting of sea ice and snow on land is the change in the timing of seasonal processes; spring-related transitions start earlier and the autumn lasts longer. Both of these extensions result in a shorter winter period in the Arctic (ACIA, 2005, AMAP, 2011).

Since 2008, AMAP has analyzed the effects of Short Lived Climate Forcers (SLCF)—including black carbon (BC), methane (CH4), ozone (O3) and organic carbon (OC). The AMAP 2015 report documents that the main driver of climate change in the Arctic is global greenhouse gas emissions —by far the most significant of which is CO2. The total global mitigation of the non-CO2, SLCF’s alone could only reduce the warming of the Arctic by a maximum 0.5°C by 2050 (AMAP, 2015abc).

Figure II.3 Reduction in Snow Cover in June
The report, entitled “The Arctic Freshwater System in a Changing Climate” (CliC/AMAP/IASC, 2016), documents significant changes in the Arctic freshwater system linked to climate change. These and other changes will increase in the future as the climate continues to change in response to human activities such as the burning of fossil fuels. There are observed changes in precipitation and evaporation, in permafrost thawing, and ice conditions on rivers. The report also documents a significant increase of stored “freshwater” in the upper Arctic Ocean that may affect ocean circulation in the Arctic Ocean and adjacent seas. The current global-scale General Circulation Models (GCMs), coupled with new Arctic specific climate models, predict a future with an increased level of precipitation and freshwater runoff from the rivers as global warming continues. Evaporation is also projected to increase, especially in the winter, but the effects of changing cloud formation are currently unclear. Current and past changes in the distribution of continuous and discontinuous permafrost and river ice have already had significant impacts on infrastructure such as buildings, airport runways, and roads/ice-roads critical to transportation in the Arctic, and this is projected to continue.

The increase of CO₂ due to manmade emissions from burning fossil fuels not only increases the global temperature (the greenhouse effect), but also increases the amount of CO₂ in the oceans due to the passive transport of CO₂ from the atmosphere to the ocean over the surface film. This is a natural process: When there are more molecules (higher concentrations) of a substance such as CO₂ on one side of a membrane than the other side, then nature will always try to reduce the difference by passive transport over the membrane. The increased amount of CO₂ in the ocean will then affect the calcium cycle and lead to increased ocean acidification. In 2013, AMAP presented the Arctic Ocean Acidification (AOA) report, documenting that parts of Arctic oceans are becoming more acidic faster than lower-latitude global oceans. This is due to a combination of several factors. One is that cold water can store more gas than warm water. In addition, some of the largest rivers in the world are emptying fresh water into Arctic shelf areas, and consequently are reducing the alkalinity (the buffering capacity of the sea to acidification) of these waters. Many organic compounds released from upriver that affect both primary production and the carbon cycle when the sea ice is melting reduce the alkalinity of the surface water and reduce the concentration of calcium ions. Since the retreating ice creates more open-ocean areas, these new open-water expanses can absorb
more CO₂ from the atmosphere.

This increase in acidification will have both direct and indirect effects on Arctic marine life. Some marine organisms may respond positively to the new conditions associated with ocean acidification (e.g., some sea grasses), while others will be disadvantaged, possibly to the point of local extinction. Examples of direct effects include changes in growth rate (e.g., shell formation) or behavior and shell building (mollusks)—especially during early life stages. Indirect effects include changes in food supply to other animals (e.g., fish, birds, and sea mammals) when seasonal migrations become out of sync with invertebrate reproduction, insect hatches, and other food sources. Studies show that in some parts of Arctic oceans, the level of acidification may go critical within a decade or two (AMAP, 2013), corroding shellfish during key development phases. This may lead to cascading effects on other parts of marine ecosystems, and in turn may affect human harvests of marine species. AMAP plans to release a new assessment on Arctic Ocean acidification, focusing on the possible socio-economic consequences of the increase of acidification in parts of the Arctic Ocean.

Climate change and ocean acidification are not the only ongoing processes that affect Arctic marine ecosystems. Some of the world’s largest fisheries (including shellfisheries) occur in the Arctic, and adjacent seas

**Figure II.4 AACA, the Three Geographical Areas**
are affecting the marine ecosystems. An increase in aquaculture, shipping, and tourist activities may also affect these ecosystems. In addition, there is the ongoing, long-range transport of different types of pollutants (e.g. persistent organic pollutants and mercury) to the Arctic from industrial and agricultural activities further south. Some of these bio-accumulate to levels that create biological effects on Arctic species and humans (AMAP, 1998, 2002, 2015d). Finally, industrial and military activities in the north may have effects on the marine ecosystems, due to their traffic and discharges. All of these “drivers” and stressors occur at the same time, but to a different degree, depending on the exact location and combination of impacts. Therefore, the cumulative impacts of all of these mixed stressors are to some extent unknown. To clarify how best to prepare (adapt) for the future where all of these drivers and stressors act together, the Arctic Council, through AMAP, has initiated an assessment called “Adaptation Actions to a Changing Arctic” (AAC). This assessment focuses on three regions of the Arctic (see Figure II.4), and the results will be presented at the Ministerial meeting in May 2017.

FEEDBACK FROM THE ARCTIC ON THE GLOBE

“What happens in the Arctic does not stay in the Arctic” is a phrase that several politicians have used in recent years. One reason for this statement is a series of observed feedbacks. In AMAP 2011, there is a discussion about both positive and negative feedbacks, both of which can have substantial impacts on the region and globe. Examples of positive feedbacks (such as those that stimulate more warming) include the change in albedo, which progressively makes the Arctic darker and decreases solar reflectivity. An example of a negative feedback is the increase in clouds due to increased evaporation, which will reduce the amount of incoming energy from the sun that hits the ground/sea surface, thereby reducing warming. There has also been reported clear correlation between the Arctic summer sea ice extent and the weather in Southeast Asia, including changing monsoon seasons (Guo et al. 2013). Various extreme weather events, such as the increased frequency and severity of snowstorms in the southern and eastern United States, increased floods and droughts in parts of Europe and the Middle East, and forest fires in North America and Russia all appear to be linked to changes in jet streams and ongoing changes in the Arctic.
THE FUTURE

The modeling results made for SWIPA-2 (to be released in 2017) project a significant warming trend until 2100. The degree of warming is clearly correlated to what future global actions are taken and when they are implemented.

Figure II.5 shows two scenarios for projected increases in winter temperature (November – March) for the globe and the areas north of 60N. The two scenarios used, RCP 4.5 (with significant reductions of global greenhouse gas emissions) and RCP 8.5 (business as usual), have more or less the same development until 2040/2050, but thereafter they separate. This is due to the fact that there is already so much heat stored in the world’s oceans, and so many greenhouse gas emissions already in the atmosphere from fossil fuel burning. These existing emissions will continue to have an impact, although significant global mitigation actions will slow the rate of global temperature rise in the future. As can be seen from the figure, the average temperature in the Arctic will be approx. 4°C higher in 2040/2050 than it is today. In 2100, if actions are taken according to RCP 4.5, projections are that we will have an average temperature increase in the northern areas of 6°C and a global increase of 3°C. If no actions are taken, it is projected that there will be an average increase of 12°C in the north and 6°C globally for the November-March period. Local and

![Graph showing temperature increases based on model runs.](image-url)
Delegates in Paris will discuss a plan for ratcheting up national commitments over time.

**Figure II.6 Paris Agreement—Three Scenarios**

**Figure II.7 Negative Emissions Needed to Achieve Goals from the Paris Agreement**
seasonal variations might show higher and lower temperature increases. The COP-21 Agreement targets the cessation of temperature increases at 1.5°C - 2.0°C above the reference baseline. A key question related to these targets is whether or not mitigation (reduction of GHG emissions) alone can effectively get us to these targets. Recent studies by Smith et al. (2015) and others consistently show that due to the existing thermal inertia in the global climate system, even the complete reduction of all GHG emissions today would still lead to a global warming of 2.0°C or higher by the end of this century (Figure II.6). If so, then it appears that some form of climate intervention involving some form of manipulation of the atmosphere itself (Negative Emissions Technology, or NET) will be necessary in order to achieve even the 2.0°C target (Figure II.7).

WHAT DOES COP-21 MEAN FOR THE ARCTIC?

What is clear from the assessments and modeling work by AMAP and others is that by 2040 and 2100, the Arctic will experience significant changes (as will the rest of the world) compared to what we have been familiar with over the last centuries. These changing climate and environment conditions will affect humans, animals, and plants — and thereby economies, human health, and global societies. The degree of change that will occur in the Arctic will depend on actions taken by the global society, and how fast these actions are initiated. However, as mentioned above, we will not observe any significant desired changes as a result of current actions until after the 2040/2050 timeframe.

The longer we wait to take significant action, the longer it will be before the desired changes occur. Maybe even more significant is the fact that the longer we wait to take action, the more significant and aggressive our reduction policies will need to be. This includes incorporating more aggressive climate intervention strategies, and the use of NET in order to achieve the desired long-term atmospheric temperature outcomes.

The melting of snow and ice on land and sea will continue, especially in the spring-summer-autumn period. This situation has already triggered interest among private companies and countries to plan for the possibility of increased shipping, mining, oil and gas exploration and exploitation, and other commercial activities in Arctic areas. Whether this will happen depends on several other factors besides simply the rates of snow and
ice melt. Some key factors include the demand for Arctic shipping routes and Arctic resources, the cost of extraction and transportation, the global markets for these products, and the stability and security of both the physical and geopolitical environment.

Some of the world’s largest fisheries occur in the adjacent seas of the central Arctic Ocean, including the Bering and Barents seas. With the sea ice melting, the sea ice edge will move north. As new ocean areas open up, it is unclear whether these areas will be able to support commercial fisheries. It is difficult to give a clear answer today because there are several important factors involved that will influence what may happen, such as food availability and optimal water temperature for various fish species. The central Arctic Ocean is a cold, deep-water area—with depths of as much as 2,000-4,000 meters. The main ongoing fisheries of benthic fish in the Barents Sea (100-400 meters deep) focus on the North East Atlantic cod population, and it is highly unlikely that this cod species will become a pelagic or bottom fish, capable of surviving at 2,000-4000 meters under the central Arctic Ocean. However, cod may be able to thrive along the continental edge that goes from the shelf down to the deep bottom. For pelagic fishes it might be a little different situation. Mackerel, for example, had rarely been seen north of 67N along the Norwegian coast until a decade ago. In 2007, however, mackerel schools were observed further north, and a few years later as far north as Svalbard, indicating that the changing conditions have provided sufficient food and an acceptable water temperature. Observations of chlorophyll in the ocean areas that are opening as the sea ice melt shows a clear primary production in these “new” waters, however, it is not clear if it will be enough to feed a large or commercially viable fish population. This will depend on several factors, such as availability of nutrients and stratification of water masses.

The thawing of the permafrost in the Arctic will continue, and with that more water will run to the sea and contribute to sea level rise (SLR). This thawing, along with an increase in precipitation, has been expected to lead to a greener Arctic. However, observations over the last decade show that some existing permafrost areas might be drying up, because water is drained away as a result of the thawing. Therefore, one cannot speak about only “one” new situation for the Arctic. There will be a variety of new situations. Some might be temporary during a transition process from the rather stable seasonal cycles for temperature and precipitation experienced over most of human existence, evolving to new and unknown future
conditions.

Observed changes in Arctic climate and hydrological systems have had significant impacts on several human and ecological activities and rhythms. This includes species appearing in previously undocumented habitat, changes in animal migrations and aggregation, human hunting possibilities, transport on ice-roads, building construction, and new parasites and diseases affecting both animals and humans, among other changes.

Water runoff from Arctic mountain glaciers and the Greenland Ice Sheet is larger today than the snowfall and freezing in these areas, thereby creating a net runoff that has a significant effect on SLR. In 2011, AMAP reported a net runoff from Greenland of approximately 200 Gigatons of water/year—an amount equal to approximately one meter of water spread all over Australia. This amount has increased since then, and is projected to increase as temperatures increase. Natural variations between years will occur, but the trend will be toward increasing amounts of water flowing into the sea, and thereby increased rates of SLR. The SLR will be further increased as a result of thermal expansion, since water expands as it warms, as well as in response to increased runoff from the Antarctic. SLR will inundate coastal areas and cities far away from the Arctic, but for Greenland the opposite effect will happen: As the ice melts, the weight of its pressure on the land will decrease, and Greenland is projected to rise in a phenomenon known as “isostatic rebound.”

REQUIREMENTS FOR SUCCESS (REDUCTIONS AND INTERVENTIONS) TO ACHIEVE THE 1.5 –2.0ºC GOAL

Several institutions have made calculations that document how much carbon is being emitted into the atmosphere every year. Figure II.7 shows the emissions that are projected to happen in the years ahead, according to the RCP 4.5 and RCP 8.5 scenarios, both of which are significant amounts, as well as what would happen if these emissions were reduced to zero by 2100. As seen from the figure, reductions in emissions are not likely to be sufficient to reach the Paris Agreement goal. We will have to harvest carbon out of the system to achieve the goals set in the Agreement. That pledge is also shown in the figure, and illustrates how far there is to go in order to achieve the stated goals.
THE NEED FOR A THREE-FOLD POLICY STRATEGY: MITIGATION, INTERVENTION AND ADAPTATION

Reduction of emissions of CO₂ and other GHGs is important, and this will require the introduction of non-carbon energy resources at a much more rapid pace than has been done to date. This includes finding new ways of building houses, fueling transport, and rethinking many aspects of modern life that will inevitably change the lifestyles of many societies. In considering the choices for such potentially disruptive intervention, it is important that the solutions chosen are based on sound science in order to avoid actions that create new, unintended consequences in the future. Some experts have already proposed that we begin geoengineering, for example by adding sulfur and other chemical components to the upper atmosphere that may reduce the amount of the sun’s energy reaching the earth surface. Lessons learned from human history, however, where people have tried to solve a human-induced problem by introducing a new pollutant or “agent,” do not bode well for this kind of “fast track” solution. We need to somehow “catch” vast amounts of carbon dioxide and remove it from the active climate system as soon as possible. This should be one of the top research priorities for research councils and private companies all over the world. There is, therefore, an imperative for close cooperation among science communities, businesses and governments to secure ample financial support and involvement of the major stakeholders.

In addition to reducing emissions (mitigation) and initiating interventions to harvest carbon dioxide, societies and companies need to develop adaptation strategies that are relevant for the situation—now and into the future. Adaptation strategies will be different for different stakeholders and geographical areas, but must be based on global, regional and local knowledge. In this work as well, a close cooperation among stakeholders and scientific community is important to find the most effective actions.

THE ARCTIC—A KEY ACTOR FOR GLOBAL PROBLEMS AND SOLUTIONS

For Arctic areas, the Arctic Council plays a key role in initiating and implementing large important science-based assessments (e.g. ACIA and
SWIPA) and research programs (IPY). Under the Arctic Council, AMAP has been asked to perform the first in-depth set of analyses on Adaptation Action for a Changing Arctic (AACA). Three regional reports involving two to four Arctic countries in each region are under preparation, and the results will be presented to the Arctic Council Ministerial meeting in May 2017. These reports will be essential for development of locally based adaptation actions and tools that will need to be developed and implemented in the forthcoming years by local, regional and national stakeholders.

In addition to the AACA reports, there are several new science reports related to climate change and its effects on Arctic ecosystems and humans under preparation by AMAP and other Working Groups under the Arctic Council. These science assessments will be significant platforms for further discussion on adaptation efforts in the Arctic—and how best to implement them.

In any forthcoming process to achieve the goals of the Paris Agreement, a close cooperation among Arctic Council countries, the IPCC, and international and private finance institutions is highly recommended. It is interesting to note that the eight Arctic countries and the twelve observing countries to the Arctic Council are currently responsible for more than two thirds of global CO₂ emissions. To solve the global problem, these 20 countries should therefore take the lead on actions for mitigation and intervention.

**IMPLICATIONS OF THE PARIS AGREEMENT FOR THE ARCTIC**

This paper has presented some of the ongoing changes and effects in the Arctic due to climate change and other human activities. Some of the most salient points include:

- Increasing volume of meltwater is coming out of the Arctic today, and this will continue to increase in the decades ahead. Sea-level rise related to this Arctic melting and other factors will also continue to increase.
- Based on current trends and analyses, even if countries achieved the reduction of global CO₂ emissions to set by the COP-21 agreements, it
is not likely that the Paris Agreement goal to limit global temperature increases at 2.0°C will be met. In fact, even a zero emissions target will very likely not achieve the limit. Thus, carbon has to be removed from the atmosphere in order to achieve the overall COP21 target.

- Even if the agreement is achieved, the reductions will unfortunately not be enough to stop much of the snow and ice melt and permafrost thaw in the Arctic.
- A global increase of average temperature of up to 1.5-2.0°C will most probably mean an increase of at least 3.0-4.0°C in the Arctic. Seasonal increases will likely be even higher, and may be the prime driver of multiple related climate change impacts in the Arctic.
- Arctic Council countries have a unique opportunity to be leaders in taking actions that can either exacerbate or prevent increasingly deleterious climate change related impacts and effects in the Arctic and elsewhere.
- Ultimately, it is the voice of the Arctic local and indigenous people that must be heard. The residents of the Arctic should have the first opportunity to take actions that will protect their long-term social, cultural, spiritual and financial welfare.

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Arctic Indigenous Communities
J. Okalik Eegeesiak

INUIT CIRCUMPOLAR COUNCIL AND THE ARCTIC CONTEXT

Inuit are an international people, and the Inuit Circumpolar Council (ICC) gives voice to more than 160,000 Inuit in Chukotka, Alaska, Canada and Greenland. As such, the ICC engages in a variety of national forums within the individual states where Inuit reside, as well as multilateral forums that include the Arctic Council and the United Nations. ICC works towards building a shared understanding of Inuit issues and our role in the management of Arctic resources and our communities’ health. The cultural diversity and knowledge Inuit have to offer the global community, and how the global community can support the unique and vibrant Inuit culture, our way of life and our vision for the future remains a priority.

Inuit people formally organized in 1977, creating the Inuit Circumpolar Conference, which is now the Inuit Circumpolar Council. Brought together almost 40 years ago by Eben Hopson and other Alaskan Inupiaq, the ICC helps address global environmental and economic challenges affecting our communities. Since then, ICC has engaged with many different governments with different priorities and changing policies. However, our issues have remained the same: concern for the environment, wildlife, education, and Inuit health, with the ultimate objective of supporting socially and economically thriving communities.

This paper will discuss the Arctic context and overarching conditions that affect efforts to enhance Inuit capacity, and highlight recent accomplishments of the ICC within the context of international climate change activities. This will be followed by an overview of COP21 and the Paris Agreement (Agreement), specifically the ICC’s involvement in COP 21 and a discussion of relevant articles of the Agreement for Inuit and the Arctic. Follow-up events from the Paris conference and movement towards COP22 will then be addressed along with information about Canadian and U.S. commitments on climate change concerning the Arctic and Inuit. Finally, Inuit engagement in the UNFCCC moving forward and current adaptation actions will be highlighted.
Inuit have occupied the circumpolar Arctic for millennia. We have lived through famines, the Little Ice Age, Vikings, whalers, missionaries, residential schools, international regulations that have affected important cultural practices, (such as the seal hunting ban), and successive governments of different countries. We intend to live with and through climate change. That said, it is crucial to remember that the issue of climate change is not an isolated challenge. The people of the Arctic are experiencing considerable socioeconomic change as well as climatic change. The variety and number of forces bearing down on the Arctic and Inuit create cumulative challenges and opportunities.

This July, NASA's analyses of ground-based observations and satellite data reported that two key climate change indicators—global surface temperatures and Arctic sea ice extent—had broken numerous records through the first half of 2016. Each of the first six months of 2016 set a record as the warmest respective month globally in the modern temperature record, which dates to 1880, according to scientists at NASA's Goddard Institute for Space Studies (GISS) in New York. The six-month period from January to June was also the planet's warmest half-year on record, with an average temperature 1.3°C warmer than the late 19th century.

However, climate change is only one of many compounding pressures affecting Inuit today. Suicide rates are high in the Canadian Arctic, and mental health is a serious and massively underfunded and underserviced concern. Life expectancy statistics for Inuit are well below the levels of any non-Arctic people, food insecurity is increasing, housing is inadequate in both quantity and quality, success rates in schools remain disappointingly low, and international regulations and actions restrict our rights, such as the right to hunt species we use as food and trade for currency.

Recently, the Inuit Tapiriit Kanatami released their National Inuit Suicide Prevention Strategy, which speaks to the cumulative impacts of multiple challenges faced by Inuit communities, and the need to address all the issues simultaneously to achieve social equity and effect meaningful change. The same is true of climate change. We cannot look at one impact, or one source of emissions, or one adaptive strategy. Rather, we must look at the entire Arctic and all its parts, living and non-living. We must consider the past, the present and the future that we as Inuit and the global society envision for the Arctic. We must take into account the history of relocation, residential schooling, sled dog slaughters and other colonialist acts that are the root for much of the intergenerational trauma Inuit communities
are living with today. We must address climate change as a fundamental challenge that exists within the broader context of cumulative societal challenges. This is daunting, but it is also possible. We are in an era of reconciliation and, with that, optimism for our future. We have come a long way, and while we cannot forget our history, we must forge partnerships built on understanding and of shared values as we imagine together the opportunities of the Arctic.

In addressing the consequences of climate change and efforts to enhance the capacity of communities within the Arctic to respond, new socioeconomic futures must be envisioned, since we cannot predict the consequences of the rate of change occurring in the Arctic. Nor can we predict the potential and real impacts of various adaptive strategies conceived often in the south. We must be proactive rather than reactive, and identify key investigations/studies to explore economic opportunities. We must plan for development and growth, and analyze potential risks arising from climate change and other hazards. We must develop strategies to move beyond the challenges of climate impacts in our communities. These strategies must reflect Inuit realities, they must be supported by national legislation, international instruments, and the best available knowledge systems, including indigenous knowledge.

Inuit will meet the challenges of a changing Arctic and rise to the opportunities of the Arctic when:

- We maintain kinship ties to our families in Greenland, Canada, Alaska, and Chukotka and learn from each other.
- We achieve the same level of health care, education and opportunity afforded to other people in our countries so our communities are healthier.
- We are able to live on and maintain our relationship to our land and sea and harvest our wildlife, with the uncertainty of climate change.
- Our indigenous knowledge system is valued and used alongside other knowledge systems for evidence-based decision making in designing strategies to adapt to climate and societal change.
- The national and international community respects and recognizes our cultural practices, while valuing our shared understanding of the Arctic and its global importance.
- We have our rights respected and recognized, including, as Sheila Watt-Cloutier said, “Our Right to be Cold.”
• We have free, prior and informed consent in relation to any action that affects our lives, lands and resources as climate change policies are implemented.

Indeed, these conditions will enhance the capacity of Inuit to respond to environmental, social, economic, and cultural changes that face our communities.

We need not start from scratch. Much has been accomplished in moving forward to ensure our communities have the tools to address the challenges we face and create opportunities for our youth. More recently, these accomplishments include many national and international efforts:

1. We have seen the Arctic Council chairmanship move from Canada to the United States. The U.S. chairmanship is focused on improving the lives of Arctic residents by addressing issues that are important in our communities, including our health, our climate and our economies.

2. The ICC has participated in various gatherings and visioning exercises, such as the Wilton Park Conference and the International Arctic Assembly, at which we have highlighted matters of importance to Inuit. Inuit believe in a vision. It is a vision that is reflective while looking forward, and is guided by our past to inform our future. This visioning must be grounded in an understanding of the challenges that rapid and unpredictable change is bringing to our communities. This grounding will result in evidence-based decision-making in the Arctic with equitable input from all knowledge systems. While scientific research must always be valued, equal importance must be placed on indigenous knowledge, which is all too often ignored to the detriment of all.

3. The European Union launched a new Arctic policy that is more reflective of Arctic realities. This policy is important, as it exemplifies the interest in the Arctic from all corners of the globe. The new EU Arctic policy states that, “The Arctic is an area of growing strategic importance. The European Union has an important role to play in supporting successful Arctic cooperation and helping to meet the challenges now facing the region.”

4. We are forging new partnerships with other Indigenous Peoples, governments, industry, foundations and NGOs that respect Inuit values and visions, as we recognize that we are stronger when we
work together.

5. We contributed to productive conversations at the Arctic Circle Forum, where I urged the delegates to leave the forum with new partners and to shift their views of the Arctic, moving beyond the challenges of the changing Arctic to the imminent opportunities. I asked that we be bound by a foundation that ensures a safer and sustainable Arctic in the decades ahead, as we look towards a developing comprehensive Arctic policy, Inuit economic aspirations and a shared future.

6. Circumpolar Indigenous Peoples from Canada, Greenland, Alaska and Russia participated in the United Nations Permanent Forum, an important venue for the promotion of dialogue among governments, Indigenous Peoples and the UN system. It also provides an opportunity for Inuit in Alaska, Canada, Greenland and Chukotka to cooperate and collaborate with the larger global indigenous community on the many issues and opportunities before us. Inuit added our voices to those of Indigenous Peoples from all regions of the globe and called for appropriate resources to participate in achieving the 2030 sustainable development goals. ICC applauded the advances made by various Arctic States to recognize the rights of Indigenous Peoples and urged countries to actively commit to the implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) in their countries.

7. In December 2016 in Paris at the UN Climate talks, I led a delegation of Inuit leaders and youth to bring our voices to the international table. We worked hard to negotiate for real action—to stabilize warming to 1.5°C rather than 2.0°C—and for the recognition of the rights of Indigenous Peoples in the core of the Agreement, which is legally binding. In the end some of the language was included in both the preamble to the Decision Document and the Agreement and acknowledges the unique and differentiated rights of Indigenous Peoples. The ICC also advocated for financing of climate adaptation and mitigation projects and the recognition of Indigenous Peoples’ knowledge. Although the outcome was better than expected, the final agreement is only a global life raft that gives the world a little more time to address the issue of CO₂ emissions. As the climate talks concluded, every major news article on the Paris Agreement featured a photo of the Arctic. At the same time, Singapore convened an Arctic
shipping conference where they, China, India, Korea and others noted they have an eye on opening routes across the Arctic Ocean as a result of climate change. It was difficult to simultaneously watch this and see how hard it was for Inuit to make the world understand the Arctic sea ice is our Nunaat, which means our source—of both spiritual and corporal sustenance.

8. In September 2016, Inuit attended a meeting at the White House to speak with Arctic Science Ministers, the first meeting of its kind. This was another opportunity to share our knowledge and our vision for the future, including the research we believe is critical to lead, be part of, and support.

COP21 AND THE PARIS AGREEMENT

The Paris Agreement aims to strengthen the global response to the threat of climate change by limiting the increase in global average temperature to below 2°C above pre-industrial levels and to pursue efforts to limit temperature increases to 1.5°C above pre-industrial levels. The Agreement identifies the level of global ambition for tackling climate change, and highlights the fact that the parties have common but differentiated responsibilities and capabilities when it comes to climate action. Furthermore, the Agreement identifies ways in which developing countries and countries that are particularly vulnerable to a changing climate can be supported, including climate financing, capacity-building, and technology development and transfer.

The adoption of the Paris Agreement on December 12, 2015 was an important milestone in the work of the UNFCCC. It is a complex, carefully balanced document. In order to ensure its adoption, “constructive ambiguity” was woven throughout the text, allowing for different interpretations over time. This has shaped the discussions of the subsidiary and constituted bodies under the Convention as parties began to unpack and flesh out the Paris Agreement. In addition to the constructive ambiguity of the text, the negotiations in Paris produced considerable compromise, both with regards to the degree of ambitious action the parties will take to address climate change, and with regards to ensuring international recognition of the fact that climate change has implications for human rights and for the rights of Indigenous Peoples. Is it enough to “save” the
Arctic? The test will really come in the commitments that countries make in implementing the Agreement.

**INUIT CIRCUMPOLAR COUNCIL AND COP21**

ICC attended UNFCCC COP21 as an ICC delegation, in addition to our participation as part of the Arctic Delegation to the International Indigenous Peoples Forum on Climate Change (IIFPCC), and on individual country delegations such as the Canadian delegation. While in Paris, Inuit delegates from Greenland, the United States, and Canada lobbied to advance the interests of Inuit and other Indigenous Peoples around the world as the Paris Agreement text was being finalized.

Inuit collaborated with Indigenous delegates and others to advocate for recognition of the effects of climate change on the rights of Indigenous peoples, as well as the recognition of the important long-standing role of indigenous knowledge in climate adaptation and mitigation. Additionally, Inuit Circumpolar Council and Inuit delegates collaborated with Saami Council and the Saami delegates to raise the profile of the Arctic during the negotiations.

**ARTICLES OF THE PARIS AGREEMENT IMPORTANT TO THE ARCTIC AND TO INUIT**

Within the Paris Agreement, paragraphs in the Preamble, Article 2 and Article 7 are particularly relevant to Inuit and the Arctic. In Paragraph 11 of the Preamble, the rights of Indigenous Peoples are highlighted and parties are directed to “respect, promote and consider their respective obligations” concerning these rights, among others, when taking action on climate change. This is an important consideration for Inuit because recognition that climate change affects the rights of Indigenous Peoples ensures that the world understands what is at stake. Specifically, cultural diversity must be seen to be equally as important as biodiversity.

In Article 2, Paragraph 1(a) discusses sustainable development and efforts to eradicate poverty as part of the context in which global efforts to address climate change and its corresponding threats occur. Part of this global response included specific targets and agreed-upon aims: limiting
global average temperature to “well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels”; supporting and enhancing adaptive capacity along with “climate resilience and low greenhouse gas emissions development”; and promoting finance flows towards this type of development. The ICC pushed for a target of 1.5°C, which would significantly reduce the risks and impacts of climate change and more specifically limit the extent of impacts on Arctic ecosystems. The less ambitious 2.0°C target was agreed to, and this unfortunately will ensure significant climate related impacts to Inuit communities.

Article 7 is especially significant for Inuit and the Arctic, with several paragraphs particularly important due to inclusion or omission of certain information. For example, in Paragraph 5, parties agree to acknowledge the need for adaptation action to be participatory, consider vulnerable groups, communities and ecosystems and, “be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems.” However, reference to local, traditional, indigenous knowledge systems is omitted later in Article 7 where, in Paragraph 7, the text discusses strengthening cooperation to enhance adaptation action by, as one point states, “Strengthening scientific knowledge on climate, including research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making.” Likewise, Paragraph 9 also lacks inclusion of any focus on Indigenous Peoples when it mandates parties to “engage in adaptation planning processes and the implementation of actions” which include the following: (1) vulnerability assessments to inform and contribute to prioritizing responses “taking into account vulnerable peoples, places and ecosystems”; (2) monitoring and evaluation to draw lessons for adaptation; and (3) “Building the resilience of socioeconomic and ecological systems, including through economic diversification and sustainable management of natural resources.” The inclusion of Indigenous Peoples and indigenous knowledge in this text is appropriate, constructive and necessary, for example the inclusion of sustainable management of natural resources.

With its focus on a state-driven approach to addressing climate change, as well as on supporting developing countries and parties that are vulnerable to climate change, the Paris Agreement makes only one reference to Indigenous Peoples and to Indigenous Peoples’ knowledge respectively.
Additionally, in spite of the efforts of Inuit and Saami delegates to raise the profile of the Arctic, the Agreement makes no reference to the Arctic, its role in maintaining global environmental systems, or the dramatic changes already being seen in the region and the impacts on Inuit people and culture from this rapid rate of change.

However, the Agreement recognizes the value of engagement by all levels of governments and a variety of actors in addressing climate change (see Paris Agreement, preamble, paragraph 15). This, in addition to the work of the ICC at the Arctic Council, offers Inuit several entry points for active engagement with various states on climate mitigation and adaptation. Furthermore, throughout COP 21, Inuit delegates participated in side meetings and produced statements that not only raised the profile of Inuit and the Arctic, but also contributed to Inuit relationship-building with Arctic Council states and permanent participants, as well as circumpolar Inuit political leadership. A selection of these events:

- Okalik Eegeesiak and Reggie Joule met with U.S. Secretary of the Interior Sally Jewell to discuss the U.S. chairmanship of the Arctic Council.
- ICC issued a joint press release with the Saami Council, Inuit Tapiriit Kanatami, the National Inuit Youth Council, the Pacific Indigenous Network, and the Ambassador on Climate Change from the Republic of Seychelles, calling for a 1.5°C limit to global warming.
- ICC and the governments of Nunavut and Greenland released a joint statement on climate change.

**BONN, MAY 2016: UNPACKING THE PARIS AGREEMENT AND MOVING TOWARDS COP22**

The finalization of the Paris Agreement is important because it signals the intention of the global community to act in the face of the changing environment.

However, the pace of transition from political negotiations to technical work mode will prove to be an important indicator of international will to address climate change.

From May 16-26, 2016, several months following the Conference of Parties in Paris, Parties met in Bonn for the first climate change conference
since the adoption of the Paris Agreement. This was the first meeting of the Ad Hoc Working Group on the Paris Agreement (APA). The Subsidiary Bodies for Implementation and for Scientific and Technological Advice (SBI and SBSTA, respectively) also met over the course of the ten days and were to address a number of topics that had been set aside in the lead-up to COP21. The priorities of the Ad Hoc Working Group on the Durban Platform negotiations included national adaptation plans, arrangements for intergovernmental meetings, and appeals against decisions of the Clean Development Mechanism and the Executive Board.

The International Institute for Sustainable Development (IISD) Environmental Negotiations Bulletin (ENB) IISD/ENB reports from these meetings (http://www.iisd.ca/climate/sb44/) indicate that momentum was still high. There was pressure to keep the “spirit of Paris” alive with 175 signatories to the Paris Agreement at the high level ceremony in April, 17 ratifications already submitted, the promise of ratification in 2016 by the world’s two highest emitters (China and the United States), and discussions about early entry into force before the 2020 planned date. (Prior to the COP22 meeting in Marrakech in November 2016, the Paris Agreement was ratified, including both the U.S. and China.)

The objective of the Bonn Climate Change Conference was to unpack the Paris Agreement, identifying the gaps, synergies and overlaps in the tasks and mandates it outlines for the subsidiary and constituted bodies under the convention, thus setting the stage for a successful meeting of COP22 in Marrakesh that took place in November 2016. The Bonn meeting marked a transition into the technical mode of work mandated by the Paris Agreement.

In spite of the progress made in Bonn, some participants pointed out that many of the technical discussions contained political undertones. This is due to the careful balance and constructive ambiguity struck in the Agreement, particularly about common but differentiated responsibilities for climate mitigation. Our question is, “What does this mean for Inuit and the Arctic?”

The APA 1 discussions highlighted differing views on guidance for national determined contributions (NDCs), with some parties recommending guidance offered by type (e.g. economy-wide targets or intensity targets), with others recommending guidance by status as developed or developing nation. Similarly, SBI was unable to come to an agreement on modalities and procedures for a single public registry or
two separate registries for NDCs and adaptation communications, due
to a longstanding call from developing countries to give adaptation and
mitigation equal status. Inuit agree with this point, as one must work on
both to achieve results. In the Arctic however, there are few opportunities
to contribute meaningful reductions of CO₂ emissions, aside from heating
and transportation. Inuit communities are experimenting with both of
these sectors through demand-side reduction and renewable energy supply
alternatives, but our overall consumption rates are comparably very low.

According to IISD/ENB, the SBI and SBSTA meetings produced
significant results, closing with calls for submissions, requests for technical
papers from the Secretariat, as well as technical workshops. APA 1 in
contrast, concluded solely with calls for the submission of views on all but
one of the APA’s agenda items. This led to concerns that parties would be
under-equipped leading to COP22, due to the substantial amount of work
that is expected, particularly given that there have been calls for early entry
into force of the Agreement. However, reports indicate that APA 1 was a
relative success, noting that the constructive spirit that infused the week of
agenda consultations reflected trust and confidence among the parties and
the APA co-chairs.

Overall, the Bonn Climate Change Conference is reported to have
made important progress unpacking the Paris Agreement. The meetings
kick-started the technical work required for the implementation of the
Agreement and sent a signal that the UNFCCC has kept its momentum
following COP21 and is on track to deliver its mandates. Meeting
participants noted that COP22 was expected to be an “implementation and
action COP.”

Under “implementation,” negotiations are expected to focus on loss
and damage, as well as a facilitative dialogue on finance. With respect to
“action,” the Bonn meetings reiterated calls to engage with non-state actors
in climate action. Many meeting participants view this as a sign that it is
now a given that the Paris Agreement will not be fully achieved without the
active participation of non-state actors in the UNFCCC process.

Once again, not being able to attend these meetings put Inuit at a
disadvantage in being an active player in decisions that affect our future.
The ICC will review these events and formulate our participation and
positions for COP22.
CLIMATE COMMITMENTS FROM CANADA AND THE UNITED STATES

Canada signed the Paris Agreement at a high-level ceremony on April 22, 2016, then ratified the agreement in October 2016. The Canadian government has identified climate change as a top priority and has announced its intention to work with provinces, territories, cities and Indigenous Peoples. The government plans to take action based on scientific evidence and is particularly focused on investing in clean energy growth and policies that support low-carbon economies, including carbon pricing mechanisms adapted to provincial and territorial realities, as well as existing conditions in Arctic and sub-Arctic regions. This process has begun, yet Inuit and other Indigenous Peoples are not at the working group tables and are, once again, outside looking in, unable to share Inuit priorities and direction.

The United States was also a signatory of the Paris Agreement and ratified the agreement in September 2016. As part of its efforts to address climate change, the U.S. has committed to investing in clean energy and addressing the security implications of climate change.

In March 2016, Canada and the U.S. released a Joint Statement on Climate, Energy and Arctic Leadership. It indicates a commitment to address these three issues through the lens of “integrating indigenous science and traditional knowledge into decision making” and acknowledged that our shared Arctic rests on the lands and territories of indigenous peoples who possess a wealth of knowledge and cultural diversity. Leaders not only identified the value of indigenous knowledge, but also stated that,

“Canada and the U.S. are committed to collaborating with Indigenous and Arctic governments, leaders, and communities to more broadly and respectfully include Indigenous science and traditional knowledge into decision making, including in environmental assessments, resource management, and advancing our understanding of climate change and how best to manage its effects.”

Emission reductions, enhanced transparency, capacity building, and adoption of the Montreal Protocol for reduction of hydrofluorocarbons were among the specific commitments in this statement. Perhaps most importantly for Inuit and the Arctic, both countries committed to continue to respect and promote the rights of Indigenous Peoples in all climate
change decision-making and pursue a shared model of Arctic leadership. This model of Arctic leadership has four objectives:

1. Conserving biodiversity through science-based decision making. This will call for collaboration and partnership between states and indigenous partners, and using indigenous knowledge to develop pan-Arctic marine protection areas.

2. Incorporating indigenous science and traditional knowledge into decision-making. To do this more broadly and respectfully will involve working with indigenous and Arctic governments, leaders, and communities.

3. Building a sustainable Arctic economy by working to build a shared and science-based standard for considering the life-cycle impacts of commercial activities in the Arctic.

4. Supporting strong communities by developing new approaches and exchanging best practices for strengthening resilience of Arctic communities and continuing to support the well being of Arctic residents while respecting rights and territory of Indigenous People.

Furthermore, the U.S. and Canadian governments have announced a commitment to work in partnership to implement land claims agreements to realize the social, cultural, and economic potential of indigenous and northern communities. They have also committed to develop a plan and timeline for the substantial integration of renewable energy in the Arctic. Further, both have committed to addressing the challenges of mental wellness, education, indigenous languages, and skill development, particularly among indigenous youth. This model of Arctic leadership will be advanced through the Arctic Council.

**INUIT ENGAGEMENT IN THE UNFCCC PROCESS: THE WAY FORWARD**

Although discussions are ongoing, ICC remains optimistic that funding will be confirmed so that the Arctic Region (i.e. ICC or Saami Council) will attend COP22. An ICC delegation should be attending COP22 and participate in the inter-governmental dialogues in order to be aware of and continue support what the IIPFCC is working on and move Inuit interests
forward. That being said, the IIPFCC’s global steering committee (GSC) is moving ahead with plans for an inter-governmental dialogue between states and global Indigenous peoples, modeled on the one held in Paris, that would be held a few days before COP22 opens.

While the degree of ICC’s formal participation in COP22 is yet to be determined, there are several possible paths for Inuit engagement in activities and events related to the conference, such as through side events. Within these venues, the key aspects that ICC will strive to highlight include the Inuit-state working relationship, circumpolar collaboration with Indigenous peoples, and Inuit activities in raising awareness of human rights and climate change. ICC has submitted an application for a side event titled “Leadership during transition—effectively using Inuit Knowledge and science to inform adaptation.” Building on Article 7 of the Paris Agreement, this side event will discuss examples of leadership, cooperation and innovation shown by Inuit at local, national and international levels in their efforts to adapt to a rapidly changing Arctic and have their voice shape Canadian and international policy. If approved, this side event would not only highlight the Inuit-State working relationship, but also showcase best practices of combining Inuit Qaujimajatuqangit and science for adaptation policy development. It may also showcase the contributions Inuit Tapiriit Kanatami, Canada’s national Inuit organization, is planning on making to the Federal-Provincial-Territorial working groups to develop Canadian Inuit priorities and recommendations for action on climate change in October 2016.

The side event would also complement the work that Inuit Tapiriit Kanatami is doing to revitalize the National Inuit Climate Change Committee, as well as Article 7 of the Paris Agreement, and the Canadian Prime Minister’s statements at COP21 about the importance of Indigenous knowledge in addressing climate change. It would also connect with Canada’s commitment to UNDRIP and the government’s intentions to ratify the Paris Agreement in fall 2016. Lastly, this side event would also serve to raise the profile of Inuit and the Arctic and provide a venue to voice Inuit-specific concerns and priorities related to climate change.

Another side event opportunity could showcase the best practices of the Arctic Council as a model for collaboration and cooperation between states and Indigenous peoples and highlight the work ICC does as a permanent participant. This would relate to Article 7 of the Paris Agreement and serve as an example of the role of non-state actors in addressing climate change.
It would tie into the Arctic Council SAO decision made in Fairbanks, which states that the Arctic Council should engage more with the work of UNFCCC as well as other Arctic Council work.

Finally, the Human Rights and Climate Change Working Group is considering a Human Rights day in Marrakesh during the COP22 proceedings. ICC could be involved in some of the programming on that day to build directly on ICC's work last year with the IIPFCC, which focused lobbying attentions on recognition of Indigenous peoples’ rights. It would also build on the partnership between ICC and the HRCCWG that has been more dormant in recent years. Again, participating in this event would raise the profile of Inuit and the Arctic and highlight the long history Inuit have of raising awareness about Human Rights and Climate Change, and serve to renew ICC’s relationship with the HRCCWG.

ADAPTATION STRATEGIES: MOVING FROM AWARENESS TO ACTION

Great interest has been expressed by people around the world in the issues facing the Arctic, both for our culture and for our land. The Arctic truly has the global consciousness spellbound, including those who want to use it, ship through it, explore it, mine it, and protect it. For Inuit, the Arctic defines who we are: a pragmatic culture. Inuit base decisions on our indigenous knowledge of our past, our present and our future, which is a knowledge system based on observing, testing and orally passing down knowledge. Acquisition of Inuit knowledge continues today as we adapt to the changing Arctic. The challenge for Inuit mirrors the challenges presented by climate change, since the pace of change may outstrip our ability to adapt. Similarly, the pace of environmental change may outstrip the ability of some plants, animals, and ecosystems to adapt fast enough to avoid extinction and widespread ecological disruption.

Some believe there is a governance vacuum in the Arctic. This is not the case. Inuit must constantly remind the world that we are here with governance systems that work for us, when run by us and directed by us. We sometimes find it daunting that so many people and so many interests from outside the Arctic have such detailed and energetic plans for our future and for our homeland, often implemented without our input, knowledge or consent.
No adaptation action will be fully effective or successful unless Indigenous Peoples are equal partners in discussions and decision-making. We know that one unquestionable way to empower Inuit views is to meaningfully implement the right to free, prior and informed consent as affirmed in the UN Declaration on the Rights of Indigenous Peoples. The UN Declaration and other international human rights instruments elaborate upon the need to ensure that Indigenous Peoples have heard, discussed and prioritized whether or not they will give or withhold their consent and determine for themselves the nature of safe and sustainable use of their resources.

Inuit are already actively leading and participating in adaptation actions at local, regional, national, and international levels. We have been working with the Arctic Council Arctic Monitoring and Assessment Program’s Adaptation Actions for Changing Arctic (AACA) in the production of three regional assessments: 1) Bering, Chukchi, Beaufort; 2) Baffin Bay Davis Straight; and 3) Barents Region. The next step will be to develop a synthesis document that will allow policymakers to assess the integrated knowledge from these three assessments.

These assessments discuss various adaptation actions, with the aim of assisting in policy- and decision-making. For example, the assessments note that economic opportunities within the fisheries, shipping, cruise tourism, and resource exploration sectors are of interest to northern residents, and will be increasingly possible considering climate projections for the Arctic region (such as declines in sea ice opening up shipping routes). However, infrastructure requirements are substantial and currently not available in the Canadian Arctic (such as deep water ports). This presents an ideal opportunity to mainstream adaptation efforts. At the same time, we must enhance education and training opportunities for Inuit to create better access to programs and education that can provide the background and skills needed for employment and business opportunities in expanding sectors. Lastly, the assessments highlight the need for flexible governance, knowledge sharing, communication, and outreach as a basis for any adaptation-related action in the Arctic.

In addition, the ICC joins Indigenous Peoples from around the world in calling for substantial resources to collaborate with the UN and its agencies. Funds and programs are essential to ensure our direct and effective participation in achieving the 2030 sustainable development goals. More specifically, we encourage and support the establishment of a global
fund for financing the participation of Indigenous Peoples to international meetings dealing with indigenous issues, and that any such fund is established and managed by Indigenous Peoples themselves.

Inuit have a will for sustainable and equitable development, but it must be in accordance with our aims, our values, our ethics and on the basis of fair conditions and real partnership. This is not a lot to ask for. After all, the Arctic is our homeland. We live here and we intend to ensure that our future generations live here as well. As the world looks northward for resources, shipping, fisheries and tourism, Inuit voices must be heard. We must be part of any decision making in and for our Nunaat, our “source.” The utilization and value of our knowledge systems must be employed. Inuit aspire for positive change, to seek productive and respective partnerships, and to work together for a sustainable and more secure Arctic. Indeed, being part of the planning, researching, and governance of evidence-based decision-making will ultimately lead to a more sustainable Arctic and thriving Arctic communities.

CONCLUSION

Inuit live in four countries with four very different political realities and relationships with their respective national governments, yet we are one through our language and our culture. It is said that boundaries between disciplines are largely artificial, and addressing the world’s problems requires combining knowledge in new ways. This sentiment resonates with me because Inuit believe that global problems need global solutions. I would suggest that boundaries between countries and among people are also largely artificial. By communicating and listening and learning from each other, and by combining our collective knowledge, we can find solutions to complex challenges such as climate change. We have much to share about global relationships and Arctic issues, and we look forward to contributing to positive progress in implementing agreements that commit to working with Indigenous Peoples.

Our simple message is: Talk with us, not to us. Hear what we have in our minds and in our hearts. Learn what our concerns are. Learn from what we have learned. Include us in decision-making at every level, and at every stage.
Notes

1. As of February 8, 2017, of the 197 Parties to the Convention, 129 have ratified the Agreement, accounting for nearly 80% of global GHG emissions
Arctic Council Permanent Participants and Climate Change
James Gamble

HISTORY OF THE PERMANENT PARTICIPANTS

The six Indigenous Peoples’ organizations that are Permanent Participants (PPs) of the Arctic Council (AC) are as varied as the people, geographic regions, and cultures they represent. What they do have in common, however, is the challenge of representing their constituencies to and contributing to the work of an ever-expanding AC, which in many cases has grown faster than the PPs have been able to adapt.

Indigenous organizations have been involved in international work through entities like the United Nations since long before the AC existed. There is a longstanding and growing realization among industry, policymakers, and scientists that indigenous knowledge could not only be useful, but in many cases was essential to understanding the Arctic. Not only this, but in many cases Indigenous Peoples were and are landowners and rights holders in the Arctic. As a result, consultation, negotiation, and agreement with the people who live on the land is in many cases settled national and international law.

In the earliest seeds of the AC (the Rovaniemi Process), the notion that the Indigenous Peoples of the Arctic should have a seat at the table was already stated. When the Rovaniemi Process was formalized into an agreement among the eight Arctic states to form the Arctic Environmental Protection Strategy (AEPS), three organizations were established as observers when the following was stated, “In order to facilitate the participation of Arctic indigenous peoples the following organizations will be invited as observers: the Inuit Circumpolar Conference, the Nordic Saami Council and the U.S.S.R. Association of Small Peoples of the North.” Two years later, when membership in the AEPS grew and was given additional responsibilities, it became the Arctic Council. At that time the role of Indigenous People’s organizations was also expanded with the creation of the category of Permanent Participant (PP). The PPs were endowed will full consultative powers and a seat in all AC matters. With the exception of possessing voting powers, PPs were given equal footing
with the Arctic states. However, this notion that the PPs have a seat but not a vote is too simplistic. In an organization like the AC that operates on the principle of consensus, only a “no” vote that prevents consensus matters. So that means that while the PPs can’t prevent consensus and keep an initiative from moving forward, in my experience there has never been an occasion when one or more of the PPs had serious reservations that weren’t addressed by an effort to reach consensus that took into account the PPs’ concerns.

It should be noted that the six PP organizations are all very different in size, structure, and how they are funded. The three original PPs—ICC, RAIPON and the Saami Council—existed long before the AC and have a history of involvement with other international organizations such as the United Nations. Because they have been around longer, they tend to be larger, better established, and better-funded entities. The three subsequent PPs—Aleut International Association (recognized as a PP in 1998 in the first Iqaluit Declaration), Arctic Athabaskan Council, and Gwich’in Council International (both recognized in 2000 in the Barrow Declaration)—were created specifically to be Permanent Participants in the Arctic Council. As a result, their activities tend to be more focused on the AC (although all are working to expand to other forums, such as AIA’ involvement in the International Maritime Organization). All three are smaller organizations with somewhat less robust funding. In addition, the PPs have differing relationships with the Arctic states in which their memberships reside. For instance, the relationship that Aleut International Association has with the United States government is different than what the Saami Council experiences with the Norwegian government. This doesn’t change the fact that all of the PPs have many similar goals and challenges in contributing to the work of the AC. They all strive to serve their constituencies through that venue, and so working together to address these common elements can be beneficial to all of the PPs and to the Arctic States.

INDIGENOUS PEOPLES AND CLIMATE CHANGE

Climate change is a phenomenon that affects us all, although some people and landscapes will be affected sooner and more drastically than others. SIDS (Small Island Developing States) and the Arctic are the most vulnerable to climate change because of their proximity to the ocean. Many
islands are threatened by rising sea levels, increasing numbers of extreme weather events, ocean acidification, and other issues.

According to the UN’s Permanent Forum on Indigenous Issues, “Indigenous peoples are among the first to face the direct consequences of climate change, owing to the dependence and close relationship with the environment and its resources. Climate change exacerbates the difficulties already faced by vulnerable indigenous communities, including political and economic marginalization, loss of land and resources, human rights violations, discrimination and unemployment.”

“SIDS are among the Parties least responsible for climate change but the most affected.” (UNFCCC). With an already volatile system, changes to small islands’ climate could make lands uninhabitable, causing Indigenous People to be forced to leave their homes at some point.

While almost all SIDS depend heavily on fossil fuels, there is significant potential to increase the use of existing renewable energy sources. According to the UNFCCC, “Renewable sources of energy, such as fuelwood, sugarcane bagasse, hydropower and solar water heating are also being exploited. SIDS have a long history of renewable energy use in the agricultural sector, where in some countries wind turbines were traditionally used to pump water and drive machinery. In addition, the presence of geothermal springs, vents and other geo- and hydrothermal resources on land as well as in the ocean increases the potential sources of energy production.”

With the trends in climate change continuing, the SIDS and the Arctic will be facing further stressors in addition to current issues. “Higher temperatures are expected to adversely affect the health of some island inhabitants who already suffer through heat waves and associated increased outbreaks of vector-borne diseases” (UNFCCC). With the continued rise of sea levels, saline and brackish water will further penetrate into agricultural lands and lead to reduced food supplies. Currently, most fresh water is gathered through rain collection, increased droughts and other rainfall changes will further stress this limited supply. “Human activities such as sand mining, coastal and beach erosion is already a problem on many islands. Papua New Guinea reports that 25% of its existing shoreline has already been inundated. If sea level rises by one meter, the Maldives will disappear entirely, and in Grenada, up to 60% of the beaches would disappear in some areas following a 50-centimetre sea-level rise” (UNFCCC). “Indigenous peoples in the Arctic region depend on hunting, herding reindeer, fishing and gathering, not only
for food to support the local economy, but also as the basis for their cultural and social identity. Some of the concerns facing indigenous peoples there include the change in species and availability of traditional food sources, perceived reduction in weather predictions and the safety of traveling in changing ice and weather conditions, posing serious challenges to human health and food security (United Nations).

"SIDS have ongoing projects which will implement adaptation measures to help increase resilience to the impacts of climate change. These projects involve strengthening of institutions, policy and regulations, but also ground-level tasks such as water storage and introduction of drought resistant crops" (UNFCCC). We also need to be aware of an increase in monoculture crops and plantations and an associated decline in biodiversity and food security. "In North America, some indigenous groups are striving to cope with climate change by focusing on the economic opportunities that it may create. For example, the increased demand for renewable energy using wind and solar power could make tribal lands an important resource for such energy, replacing fossil fuel-derived energy and limiting greenhouse gas emissions. The Great Plains could provide a tremendous wind resource and its development could help to reduce greenhouse gas emissions as well as alleviate the management problem of the Missouri River hydropower, helping to maintain water levels for power generation, navigation, and recreation. In addition, there may be opportunities for carbon sequestration" (United Nations).

"It is important to note that enhancing and supporting the adaptive capacity of indigenous peoples will only be successful if this is integrated with other strategies such as disaster preparation, land-use planning, environmental conservation and national plans for sustainable development. In many instances, adaptation to new conditions requires additional financial resources and the transfer of technological capacity that most indigenous communities do not possess. While short-term adaptation activities are underway, resource and capacity constraints are limiting the implementation of long-term strategies" (United Nations).

THE ARCTIC COUNCIL PERMANENT PARTICIPANTS AND CLIMATE CHANGE

Since the release of the Arctic Climate Impact Assessment (ACIA) by the
Arctic Monitoring and Assessment Programme of the Arctic Council in 2004, the focus of the Arctic Council has turned increasingly towards climate change. The ACIA was groundbreaking, and its many merits have been documented thoroughly. However, it's important to highlight that the ACIA was tremendously important to the Permanent Participants because the ACIA did not simply focus on climate change science, but also delved into the meaning of climate change for people living in the Arctic. For this reason the development of the report received an unprecedented level of support and input from the Permanent Participants. This is not to say that the PPs always agreed on every aspect of the report as it was being assembled. One could say, however, that the PPs felt they had the ability to object when they thought something wasn’t being done right. If the work of the Arctic Council began to shift towards climate change related activities with the release of the ACIA, there was another event that also shifted the public face of the Arctic Council towards climate change. This event took place on 29 April, 2009 in Tromso, Norway when the ministers of foreign affairs of the Arctic States came together for the 6th ministerial meeting of the Arctic Council that signaled the end of the Norwegian chairmanship. This meeting was significant in many ways, including the level of engagement of Arctic Council Observers, the sheer size of the meeting, and the amount of attention it attracted from both the public and the press. There were two notable presentations at this event: one, by Bob Corell, updated climate change data since the release of the ACIA; and another by Nobel Peace Prize winner and former U.S. Vice President Al Gore, which was a version of his “Inconvenient Truth” presentation. While the Arctic Council had been working seriously on climate change related issues since before the release of the ACIA, the Tromso ministerial meeting signaled this in a strong and very public way.

The 6th ministerial meeting wasn’t just a public signal of the Arctic Council’s increased attention to climate change. It was also a turning point for the Permanent Participants and the way they approached the topic. One important element of this was the recognition of the increasing public focus on climate change as an issue, and the growing interest and power of the media (in all its forms) in documenting activities and bringing attention on regional issues related to climate change. Since then the PPs have worked on this topic in a number of key ways.
Local or Regional Initiatives, through the Arctic Council and Independently

A good example of this type of project was the report on food security recently released by ICC-Alaska, which took a focused approach to food security and its connection to subsistence and culture for Alaskan Inuit.

Another example is a project of the Aleut International Association that looks at how the community of St. George in the Pribilof Islands can protect access to subsistence activities and strengthen their culture by establishing marine protected area measures around their island home. Both of these projects are focused in one country and funded through collaborations, although the PP organization took the lead. The projects are generally not considered a product of the Arctic Council, although the projects may contribute to other work directly related to the Council. Both projects also seek to answer the question of how communities can take responsibility for some of the available strategies to adapt and respond to climate change effects. There have been a few examples recently of PPs leading efforts to bring projects forward through the AC. This can be useful for a PP organization that wants to bring an issue of regional importance to a wider circumpolar audience. In addition, the inclusion of a project on a working group work plan or the AC’s endorsement can both be useful tools to help secure project funding.

 Sometimes the PPs can make powerful statements collectively when they come together to express strong principles related to areas of interest or concern. Every four years the Inuit Circumpolar Council holds a General Assembly that brings together members from all four Arctic States. One of the outcomes of these assemblies is a Declaration that expresses the position of the organization on a number of issues. As a statement from the most recent 2014 Inuvik, Canada declaration reads:

“Mandate the ICC leadership to continue addressing climate change, highlighting the human impact on Inuit, and to urgently press the international community to cooperate both on mitigation of climate change and in the development of adaptation strategies and mechanisms;”

Joint Efforts with Other Permanent Participants

As might be expected, the PPs often work together on initiatives, generally
through the context of the Arctic Council. This can happen in a number of ways, including collaborating on the development of working groups, or creating strategic plans with the intention of steering efforts towards issues of concern for indigenous communities. The PPs also work together on AC projects, which are usually led by one or more of the Arctic States. In the past, it’s been unusual for PP organizations to have sufficient resources to lead a project, so it has been more common to co-lead with an Arctic State. This can still result in a significant amount of influence on project direction and outcomes/deliverables. There have been a number of recent AC projects of this type with a focus on climate change adaptation, including the Arctic Adaptation Exchange Portal, which is led by Canada and the United States and co-led by AIA and GCI. The focus of this project was to develop an interactive online database of adaptation information, best practices, and case studies. From the beginning of project development, a prime focus for the PPs involved was to insures that the final online database was a useful tool for communities. In addition, there has been discussion regarding adding an “innovation space” to the portal that would allow communities to come together around topics of mutual interest and to search for common solutions to community challenges. Projects such as this on that include multiple collaborators are common in the Arctic Council. They are well suited to the PPs, which are often struggling to maximize what they can accomplish with limited resources.

The PP’s also collaborate extensively on AC reports and assessments, a practice that has been common since the beginning of the Arctic Council. PP’s have provided significant contributions to reports such as the Arctic Climate Impact Assessment (ACIA), the Arctic Marine Shipping Assessment (AMSA), and the Arctic Biodiversity Assessment (ABA). PP’s are also co-authoring chapters on upcoming reports including the Arctic Resilience Assessment (ARA) and all of the Adaptation Actions for a Changing Arctic (AACA Part 3) regional reports. The opportunity to contribute to major AC deliverables provides another way to bring a community perspective to these documents, and also to make them useful to community decision makers. Reports such as these are often accompanied by summaries for policy makers intended for ministers or other high level officials in the Arctic States, so PP’s can help focus recommendations or calls for future action at the community level.

As has been discussed above, the six PP organizations are very different in terms of size, structure, funding, and approach to their work in the
international arena. For this and other reasons, such as timing or available resources, it is hard to have all six be in a position to agree on a joint course of action or to move forward together on an initiative. When this does happen it often manifests itself as an effort to work together on a matter related to administration within the Arctic Council. An example of this was the work that all six PPs contributed to the development of the principles for the use of indigenous knowledge in the work of the AC. Another example has been recent work to develop a funding mechanism to support the core functions of all the PP organizations. However, sometimes an initiative begun by one of the PPs will gain a strong external expression of support from all. This was the case when, during the Canadian chairmanship in 2014, the Saami Council sought to have all six PPs take a common position on the commitment of the Arctic States towards the reduction of carbon dioxide emissions. This commitment had been expressed in the Kiruna Declaration, but the mechanisms through which these reductions would be carried out had not been articulated. This effort by the Saami Council led to a letter, which was sent to then SAO Chair Vincent Rigby, which was signed by representatives of all the PP organizations. Among other things the letter stated:

“The Permanent Participants welcome the Arctic Council’s continued efforts in reduction of short-lived climate forcers, an initiative that, Aleut International Association, Arctic Athabaskan Council, Inuit Circumpolar Council and Saami Council now also participate in. On the other hand we see no concrete initiatives by the Arctic Council member states to address the necessary and ambitious cuts in emissions of carbon dioxide, as called for in the Kiruna Declaration. With this letter we as Permanent Participants would like raise our sincere concerns to the Arctic Council in this regard.”

An effort like this that focuses the efforts of all six PP organizations on a particular topic can be particularly effective because it is so difficult to accomplish, unusual, and showcases the importance of the topic to all six.

Through Other International Forums

As was mentioned above, three of the PPs (ICC, Saami Council, and RAIPON) existed as organizations before the creation of the Arctic Council, and as a result their involvement in international activities has
manifested itself in a number of ways. However, an important area for work for all three organizations has been through the United Nations Permanent Forum on Indigenous Issues. This forum, which is an advisory body to the U.N. Economic and Social Council, submits recommendations related to Indigenous Peoples and contains seven socio-cultural regional groupings, one of which is the Arctic. One of the most prominent accomplishments of the forum has been the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Although it is not legally binding under international law, the declaration does represent a strong step toward the creation of international legal norms for the rights of Indigenous Peoples. The forum also brought about the Indigenous Peoples Climate Change Assessment Initiative, which was designed to help Indigenous Peoples use their own organizations, mechanisms, and indigenous knowledge to help build adaptation strategies and mitigate the impacts of climate change. Activities within the Permanent Forum directly led to the formation of the International Indigenous Peoples Forum on Climate Change, which made specific recommendations to the UNFCCC in advance of COP21.

There has also been work completed through associations with other international forums. One example is the recent efforts of the Aleut International Association to be more closely involved with the work of the International Maritime Organization (IMO). However, the nature of organizations such as the IMO, with no clearly identified path for the involvement of Indigenous Peoples except through the delegations of member states, has made it difficult to know how to be effective and if the expenditure of resources on these efforts are justified.

CONCLUSIONS: THE ARCTIC COUNCIL PERMANENT PARTICIPANTS AND COP21

Throughout the history of the PP organizations, the interconnectedness of climate change effects means that much of the work of the Permanent Participants has been related to either mitigation of or adaptation to climate change. While many issues of importance to Indigenous Peoples were not well represented in the Paris Agreement, certain key elements are present and will likely be areas of focus for the Permanent Participants:

- Green energy projects, though necessary to meet emission goals, must
not override the rights of Indigenous Peoples in the name of fighting climate change. Indigenous Peoples must be involved at the earliest stages of projects that are either on or affect their lands.

- Indigenous peoples must have access to climate funding and should not have to depend on their countries of residence for such access. Some Indigenous Peoples reside in countries where difficult relationships with national governments could interfere with their access to climate funding; there should be a path to this funding that they can access directly.

- Respect and recognize the indigenous knowledge of Arctic Peoples, their innovations, culture, and practices. Without this indigenous knowledge, it is impossible to understand the potential effects of actions on Indigenous Peoples, and in fact, indigenous knowledge may itself lead to better solutions.

- A ground-up approach through community-based projects is part of the solution to both mitigating and adapting to climate change.

- It is important to establish a platform for sharing best practices on mitigation and adaptation; this is how successes in one place can lead to successes in other places facing similar challenges.

It has been well established that the close cooperation of the Arctic States and Permanent Participants in the work of the Arctic Council has led to more robust solutions, improved work products and deliverables, and provided better overall outcomes. The successes of this type of collaboration can also help to insure the best solutions to mitigate the effects of climate change, both in the Arctic and globally.