INNOVATIVE IDEAS FOR THE ARCTIC: ARCTIC CIRCLE ASSEMBLY CONFERENCE PAPER

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OCCASIONAL PAPERS

INNOVATIVE IDEAS FOR THE ARCTIC

Arctic Circle Assembly
conference paper

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ABSTRACT

The 4th Arctic Circle Assembly took place in Reykjavík, Iceland, in October 2016. The assembly offered considerable opportunities for international dialogue, and cooperation, among stakeholders around the globe. Participants came from governments, indigenous communities, intergovernmental institutions, for-profit, and non-profit organizations, universities, media, etc. In this democratic platform, ideas were shared about the future of the Arctic, covering both the opportunities and risks of future development, which have not only local but also global consequences. The conference report summarizes the findings from a session titled "Arctic Innovation Lab: 12 Ideas for a Better Arctic". Those 12 ideas were presented by young scientists and researchers expressing their views and ideas on how to secure the future of the Arctic, both in the short and long run. The importance of this session is to deliver the message that the creativity of young scientists can, and should be, used for the benefit of the Arctic region and the globe. However, their voices are not as loud in the Arctic Circle Assembly dialogue as those of politicians, businesses, scientists and other stakeholders, even though it is their future that is being discussed at this important international forum.

Keywords: *Arctic Circle Assembly, innovation, climate change, young scientists, risk, opportunities, future.*

1. INTRODUCTION

The Arctic is warming at a faster rate than most other parts of the world due to climate change with severe impacts (Columbia Climate Center, World Wildlife Fund, Woods Hole Research Center, & Arctic 21, 2016; WWF, n.d.) to freshwater and terrestrial species, ecosystems and communities (Anisimov et al., 2007). Some of these impacts will not only be felt in the region, but in other parts of the world as well. The melting of the Arctic ice sheets adds volume to the world's oceans, thus contributing to sea level rise (Jacob et al., 2012). The release of greenhouse gases such as methane, currently stored in the Arctic land ice and permafrost, is expected to greatly exacerbate climate change impacts around the world (Thornton and Crill, 2015). And yet another issue is the effect, positive and negative, on the Arctic marine ecosystem, which provisions food resources for the global food supply chain (Johnson, Spence, Thomas, & Everett, 2015). It is therefore of great importance to tap into the ideas young people have about the future of the Arctic and how to solve the pressing issues at our hand. To draw on young scientist's ideas, an Arctic Innovation Lab was organized as one of the breakout session at the Arctic Circle Assembly, which took place in Reykjavík, Iceland, on October 7-9 2016. This session was organized by the Harvard Kennedy School of Government in collaboration with the Iceland School of Energy at Reykjavík University, the University of Greenland, the Fletcher School of Law and Diplomacy at Tufts University and the University of Iceland. The moderator for this session was Halla Hrund Logadóttir, a Louis Bacon Environmental Fellow at the Harvard Kennedy School of Government (Arctic Circle Assembly, 2016). The idea was that each scientist would articulate his/her pitch of two-and-a-half minutes, expressing a solution for improving Arctic development. This was followed by a roundtable discussion taking place at 12 different tables. Facilitating the discussion at each table were the speakers earlier presenting their ideas. The outcome of the roundtable discussion was then presented to the wider audience. Finally, the best idea was selected by the audience.

2. SESSION DISCUSSIONS

2.1. Overviews on the twelve talents presenting their ideas on Arctic solutions

Twelve young scientists from five different universities presented their ideas on "how do things better in the Arctic" in the Arctic Innovation Lab breakout session. These scientists are listed in Table 1, along with their position and organization, and the topic of their short pitch.

TABLE 1. NAME OF SPEAKERS, POSITION, ORGANIZATION AND TOPIC OF THE TALK IN THE ARCTIC INNOVATION LAB SESSION.

SPEAKERS	POSITION AND ORGANIZATION	TOPIC
Cole Wheeler	M.P.P. Student, Harvard Kennedy School of Government	Carbon-Negative Manufacturing
Caroline Galvan	M.P.A. Student, Harvard Kennedy School of Government	Global Risks, Building Resilience: A Pathway for the Arctic
Ulunnguaq Markussen	Student, University of Greenland	Who is a Greenlander Without the Traditional Culture?
Jennifer Helfrich	Roy Family Student Fellow, M.P.P. Student, Harvard Kennedy School of Government	Creating a Narrative: Communicating Arctic Issues
Shauna Theel	M.P.P. Student, Harvard Kennedy School of Government	Electric Car Shares in Iceland: An Opportunity for Early Adoption
Rahul Srinivasan	M.P.P. Student, Harvard Kennedy School of Government	Exporting Renewable Energy from the Arctic
Alexander Moses	Graduate Student, Iceland School of Energy, Reykjavík University	Tackling Logistics, Environment and Sustainability in Arctic Community Energy Systems
Earl Potter	M.P.A. Candidate, Harvard Kennedy School of Government	The Coast Guard and the Emerging Arctic
Riley S. Newman	MSc Candidate, Iceland School of Energy, Reykjavík University	Addressing the Importance of Building Human Capacity in Remote Communities to Ensure the Sustainability of Remote Energy Networks
David Cook	PhD Candidate, Lecturer in Environmental Economics, University of Iceland	Managing risk in the High North - the case for an Arctic Treaty
Molly Douglas	M.A.L.D. Student, the Fletcher School of Law and Diplomacy at Tufts University	A Partnership for Advancing Sustainable Infrastructure Development in the Arctic
Dennis Schroeder	MPA Student, Harvard Kennedy School of Government	Creating Common Grounds - Science Diplomacy in the Arctic

2.1. KEY IDEAS FROM THE PITCH TALK OF THE 12 YOUNG SCIENTISTS

Energy, industry and infrastructure development

Cole Wheeler, from Harvard Kennedy School, discussed carbon-negative manufacturing. His idea was to develop much needed high-tech material in a less energy intensive way than aluminium or steel. This would be done by using affordable and reliable renewable energy from Greenland and Iceland to produce carbon fibres. He furthermore suggested a radical development of technology for carbon fibre production whereby carbon would be extracted from the atmosphere.

Shauna Theel, from the Harvard Kennedy School, discussed the possibilities of adopting electric car sharing in Iceland. She mentioned two types of obstacles 1) high upfront cost and 2) limited driving range. These barriers can, according to Shauna, turn into opportunities by creating a sharing economy environment for electric cars. The prerequisites are abundant, cheap renewable energy in Iceland. Additionally, the growing importance of tourism in Iceland would support rapid deployment of charging stations for instance in the capital area of Reykjavík.

Rahul Srinivasan, from the Harvard Kennedy School, discussed exporting renewable energy from the Arctic through undersea cables connecting the United States, Canada, Greenland, Iceland, Norway and the United Kingdom. He claimed that due to the enormous amount of renewable energy capacity, the Arctic would be able to serve increased energy demand, resulting in reduced greenhouse gas emissions. Rahul used the example of energy exports from Norway to the Netherland as an example, also citing the oft-discussed idea of exporting energy from Iceland to United Kingdom. He furthermore stressed the importance of putting forth a grand vision of energy exports between continents and within regions.

Alexander Moses, from the Iceland School of Energy at Reykjavik University, discussed logistics in the context of environment and sustainability in Arctic community energy systems. He addressed the remoteness of communities which are isolated from an energy grid. Therefore, they are dependent on diesel fuel for

electricity generation because of low capital cost, and the ease of installing and transporting the fuel. Using diesel, however, has negative environmental impacts. Alexander suggest using wind power as a means of producing energy for remote Arctic communities. Furthermore, energy storage would benefit further as it would make this type of production more reliable.

Risk and safety

Caroline Galvan, from the Harvard Kennedy School, discussed the idea of how to 'future proof' the Arctic by mitigating risks while making the most of opportunities. She emphasised long term thinking, across a 10-year horizon, and the usage of the framework of the Global Risk report published by the World Economic Forum. She claimed that this would move the discussion away from typical business and government short term planning cycles. Caroline proposed a stakeholder dialogue at her roundtable, where the interplay between economic, environmental, geopolitical, societal and technological risks would be discussed, not in isolation but holistically. She also proposed to discuss the roles of government across geographies, business, and civil society. This discussion would help stakeholders define a common framework of the risks for the Arctic, and a common narrative to help us decide today to 'future proof' the Arctic.

Earl Potter, from the Harvard Kennedy School, talked about the Coast Guard and the emerging Arctic. Earl also serves in the U.S. Coast Guard, and he emphasized that he was describing his personal views, not the Coast Guard's view. Earl talked about the harsh environment and the need for coast guard ships that can operate in an Arctic environment due to increased commercial activities, such as oil exploration and tourism. He also mentioned that during the last 40 years, the coast guard has gone from operating six heavy icebreakers to one. Increased activities have led to a capability gap between increased use and available ships. To solve the issue, Earl talked about options such as leasing of ships, but his view was that this would be costly, unnecessary, and have marginal effects. Instead, the U.S. Coast Guard should collaborate and leverage partnership, e.g. with Canada and build existing frameworks to fill the capability gap. A useful benchmark could be the North Pacific Coast Guard

Forum, which has been a model for success. This would then improve citizens' collective safety and serve common goods.

Science and education

Ulunnguaq Markussen, a local scientist from the University of Greenland, discussed the Greenlanders and the importance of their traditional culture. She highlighted how climate change is having an influence on the lifestyles of Greenlanders, but their culture is based on sea ice melting because of climate change, ecosystems and the environment. Ulunnguaq also brought up issues such as globalization and global markets, which also have an impact on the lifestyles of Greenlanders, and the need for a well-educated workforce in a country seeking greater autonomy from Denmark. As a part of sustainable management and developments in human capacity in Greenland, there is a need for academic and scientific opportunities for local citizens.

Arctic Governance

David Cook, from the University of Iceland, made the case for managing risk in the High North by developing an Arctic Treaty. He claimed that the 'soft laws' of international legislation are insufficient to solve the environmental risks emerging over the coming decades, for instance in the case of commercial fishing in Arctic Ocean. He affirmed that 'soft laws' lack the legally binding power of a treaty. David suggested that the precautionary approach to science and governance used in the Antarctic could be used as a performance benchmark. The Antarctic Treaty of 1959 bans mining, oil exploration and military presence in the region, and requires strict monitoring of environmental threats. Although, the political, economic and sovereignty contexts are different between the two polar regions, adopting a precautionary approach to development in the Arctic region would be effective in reducing threats to vulnerable Arctic ecosystems.

Molly Douglas, from the Fletcher School of Law and Diplomacy at Tufts University, discussed a partnership for advancing sustainable infrastructure development in the Arctic. Molly started by talking about how Arctic residents, and

other stakeholders, would benefit from increased economic activities taking place in the region. In her view, a partnership between the Arctic Council, the Arctic Economic Council and the Arctic Coast Guard Forum should be launched for the purpose of advancing pan-Arctic infrastructure development in a sustainable manner. She opined that a successful partnership could be formed, as these groups hold the right mix of expertise, resources and relationships, and that Finland has a unique opportunity to influence this type of partnership when it assumes the chairmanship of the Arctic Council in 2017.

Communication of Arctic issues

Jennifer Helfrich, from the Harvard Kennedy School, discussed the idea of creating a narrative in order to communicate Arctic issues. The storyline, or meme, would be that what happens in the Arctic region has impacts outside the region as well, influencing both climate policy and international relationship. Arctic issues are not distant issues, they affect us all. Public-private collaboration could be leveraged for communicating the message, such as about the widespread impact of sea ice loss in the region. Furthermore, she emphasised how science diplomacy can foster trust among nations, further strengthening the messages.

Cross-case issues

Riley S. Newman, from Iceland School of Energy at Reykjavik University, discussed the importance of building human capacity in remote communities to ensure the sustainability of remote energy networks. He claimed that despite investments in alternative energy solutions and isolated micro grids used in remote Alaskan communities, the human capacity for operating these solutions is insufficient. Therefore, these communities are dependent upon getting outside technical support, which is very costly in itself, yet it is also expensive to take part in educational programs due to high transportation costs. Therefore, non-profit organizations, as well as federal and state governments, could bridge the knowledge gap by connecting educators and remote communities. Alaska could serve other remote communities by benchmarking the success of this case.

Dennis Schroeder, from Harvard Kennedy School talked about creating common ground through science diplomacy in the Arctic. He claimed that scientists can be diplomats, and that there is a need for them to take on new roles in international scientific cooperation. Dennis argued that on the one hand we need to train scientists so that they can have meaningful dialogue with politicians, and policy makers on the other hand need to understand scientists as communicators and diplomats. Dennis argued that if political tensions occur due to environmental disruption in the Arctic region due to climate change, scientists would be the ones acting as agents of peace and stability by sharing knowledge for the benefit of the region and Arctic nations.

2.1. The round table discussions

The innovative ideas were discussed at 12 round tables. At each table one of the young scientist moderated the discussion of the topic he or she had presented. Close to 200 persons took part in the round table discussion. The idea was to discuss how to move the ideas forward, and one representative from each table then gave a brief overview of the round table discussion.

2.1. Session closing and the 'best idea'

The Arctic Innovation Lab: 12 Ideas for a Better Arctic breakout session closed by announcing a winner from the group of twelve young scientists presenting their ideas to the audience and participants in the round table discussions. All participants in this event had the chance of voting and the best idea selected was Shauna's Theel pitch on the opportunity for early adoption of electric car sharing in Iceland.

3. CONCLUSION

In recent years, dialogue at the Arctic Circle Assembly has been led by politicians, scientists, academics, environmental pressure groups, researchers and a mix of the private and non-for-profit sector. In 2016, for the first time, the voice of younger scholars was elucidated through an exciting and diverse breakout session called "An Arctic Innovation Lab". Covering a wide range of issues in a format focussed on the succinct elicitation of ideas, and their subsequent debate, the session impressed the need to further engage with emerging researchers in order to progress sustainable development solutions across the Arctic. Opportunities should be harnessed by decision- and policy-makers to reflect on the topics covered and ideas espoused, which embraced many of the most topical themes of the Assembly as a whole, including energy security, transitions to a renewable energy future, transportation, manufacturing processes, risk management, human capacity building and education, governance, and fostering diplomatic relations across the region as a whole.

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