The Arctic as a Food Producing Region

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### Project Title: The Arctic as a Food Producing Region

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<th>Lead Country/Project leader(s):</th>
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<td>Norway</td>
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**Project leader(s)**

- Nofima – the Norwegian Institute of Food, Fisheries and Aquaculture Research, Ingrid Kvalvik
- Nibio – Sigridur Dalmannsdottir
- Co.leads: Canada, Gwich’in Council International, Inuit Circumpolar Council

**Project leader(s)**

- University of Saskatchewan, College of Agriculture and Bioresources, Department of Agriculture and Resource Economics, David Natcher

**Collaborators:**

- **Iceland:**
  - Matis Ltd., Sigrún Elsa Smáradóttir

- **USA:**
  - University of Alaska Anchorage, ISER - Institute of Social and Economic Research, Gunnar Knapp.

- **Denmark:**
  - University of Copenhagen, Greenland Perspective, Natural History Museum of Denmark, Rebekka Knudsen

- **Others**
  - Arctic Council participants will include other Arctic Council member States and Permanent Participants with interest in this topic.

**Total Cost of Project:**

Cost and sources of funding to be determined.

**Relationship to other AC Working Groups:**

Several cross-cutting issues could provide a rationale for cooperating with CAFF on this project.
**Objective:**
The objective of this project is to assess the potential for increased production and added value of food from the Arctic, with the overarching aim of improving food security, and enhancing the social and economic conditions of Arctic communities.

The Arctic is already an important food-producing region, but its potential is much greater. By focusing on biological (climate change), commercial (commercial resources, infrastructure and resource and industry policy), cultural (food traditions and organization of food chains) and market conditions (local, national and international), this project will identify potential pathways for Arctic food production and distribution. The aim is to identify conditions for increased production, both to improve food security in northern regions, and to increase the added value of food originating in the Arctic both for local and southern markets. The aim is therefore twofold: 1) to enhance commercial food production ‘in the North and for the North’ and 2) to develop North to South food production linkages. Together these aims will lead to more sustainable food systems in the Arctic. The proposed project addresses the SDWG’s thematic areas of socioeconomic issues, adaptation to climate change, and the management of renewable natural resources.

**Background:**
This project has been in development since 2014, and, if endorsed, will be launched in March 2016 and will conclude at the end of the Finnish Chairmanship in May 2019. Planning for the first project meeting will commence immediately, with the aim of holding the first project meeting in May 2016. The second project meeting will be scheduled for October 2016 in Reykjavik, Iceland, and will coincide with the 9th Circumpolar Agriculture Association Conference (October 6-8, 2016). During the project period there will be several milestones and deliverables in the form of publications (scientific and popular science, including a photo exhibition/poster), strategic business assessments, interactive website development, stakeholder meetings, public presentations, and a final ‘wrap-up’ conference (see timetable below for details). A preliminary synopsis with policy directives will be presented at the Arctic Council’s Ministerial meeting in Fairbanks, Alaska during May of 2017, and the project summary and all final deliverables will be presented at the March 2019 Ministerial at the conclusion of the Finnish Chairmanship.

Norway out of Nofima (Lead) and Canada, out of the University of Saskatchewan (Co-Lead) and are working together with the research institutes listed below.

- **NIBIO** (merger between the Norwegian Agricultural Economics Research Institute and Bioforsk – Norwegian Agricultural Economics Research Institute)
- **Matis Ltd., Iceland**
If the project is approved we will continue to actively seek participation from research institutions and Indigenous partners in the other Arctic states.

The members of the research team are internationally recognized for their multidisciplinary expertise in biology, plant and animal science, political science, anthropology, marketing, and economics. The research team is well established in all food sectors/industries, including agricultural (crop and forage) marine (fisheries and aquaculture), and terrestrial (gathering/herding/hunting). In addition, the members of the research team have proven track records for building long-term and trusted research collaborations with Indigenous Governments and communities.

In each country a reference group of stakeholders will be established. These stakeholders include industry actors (defined as all actors involved in commercial food value chains), NGOs and grassroots organizations (i.e., Feeding My Family in Nunavut), Indigenous communities, and regional/state/territorial authorities where appropriate. In addition, an Advisory Committee representing Indigenous groups will be established in countries where this is relevant. The involvement of the Advisory Committees will be critical for ensuring our forms of engagement, methodologies, and anticipated outcomes are reflective of the cultural, economic and political complexity of Arctic regions. The knowledge produced in this project will contribute to building the capacity of Arctic communities to better manage the current and future challenges and opportunities associated with food security, economic development, and renewable resource management in the circumpolar region.

Rationale and Objectives:
Food producers in the Arctic regions are often faced with challenging environmental conditions, poor and/or costly infrastructure, limited entrepreneurial capacity, and long distances to export markets. Climate change is also creating additional uncertainties and opportunities for commercial and subsistence food production systems. Due to these and other factors, all seem to agree that the current commercial food systems in many Arctic regions are failing to meet the economic and nutritional needs of northern residents, while also missing the opportunities to capitalize on the development of southern food markets. In many Arctic regions there is a great potential for increased food production and value creation. These challenges offer unique opportunities if addressed through an informed and strategic approach that involves all levels of engagement. Satisfying the demand, both in the north and south, for unique, affordable, healthy, and culturally appropriate foods through the commercial production of country foods and northern agricultural and marine products could over the long-term help alleviate conditions of northern food insecurity while enhancing local economic development opportunities.

It is in this context that we propose to address the following research questions:

(1) What is the status and potential for various food production systems in the Arctic?
(2) What is the added value of these products when marketed for their special qualities and unique origin?
(3) What factors are important to the further development of the Arctic as a food-producing region? and
(4) What new food production opportunities exist that could lead to sustained economic development for Arctic communities?

In this study we will focus on food production in the North that is destined for southern markets and also food production in the North and for the North. The emphasis of the participating national research teams will vary according to their unique situations and priorities within and between different regions of the Arctic, but will be unified through a common objective of increasing food production and availability in the Arctic. Our specific research objectives include:

- To conduct an assessment of existing and potential Northern food production capacity, by country, region, product, and market potential.
- To gain an understanding of how the value chain of northern food production can benefit economic development and help alleviate conditions of northern food insecurity in the North.
- To examine northern entrepreneurial capacity to support increased production, processing, marketing, and food distribution.
- To examine the regional production, use, and safety of domestic and wild animal food production and define an approach to monitoring the benefits and impacts using an integrated approach using Western science with local and traditional knowledge, in regions and cases where this is relevant.
- To engage northern Indigenous peoples in the design and development of commercially produced country foods systems that are informed by Traditional and Local Knowledge (TLK), in regions and cases where this is relevant.

We will focus on the primary industries of fisheries, herding, agriculture, aquaculture, hunting and gathering. The focus will vary depending on regional situation and priorities. We will outline different but still realistic scenarios of future development, both for ‘North to North’ and ‘North to South’ food production, based on knowledge of the nature and scope of existing food value chains and commercial interest/constraints of commercial food industries. Focus will be on local and regional industrial development in Arctic communities. On a macro-level we will study the driving forces affecting the food production. At a micro-level we will study selected cases to highlight possibilities and challenges associated with their development. The insight from these case studies will be combined to discuss how the different food producing actors are affected by various driving forces and how they can be aided to through informed policy directives.

Within the Arctic region, there is considerable variation in availability and affordability of healthy and culturally appropriate food. Both production and distribution capabilities vary. As to the different food sectors, fisheries are often large-scale and export-oriented, while agriculture tends to be more marginal compared to locations in the south. In addition, some regions have potential for better utilization, and value adding, from hunting, herding and gathering. Nevertheless all industries are producing food commodities that have high value in both local and external markets. Some driving forces we assume to be common for all industries, while others will be industry-, regionally- and
country-specific. Drivers will be identified through literature reviews and interviews with communities, firms and other representative organizations.

A comparative project involving the Arctic states will provide useful insight into common challenges as well as examples of successful product developments of foodstuff/species. We will study successful products and business developments and analyze how they make room for their products in the market, solve logistic challenges, how their value chains are configured and how they make strategies for the future. Here the dialogue and participation of industry actors are essential, both directly and through established food networks. Based on knowledge of the present production and established Arctic products, the project will explore and describe possible paths for the development for Arctic food production. The aim is to identify conditions for increased food security and value adding of food from the Arctic for both Northern and Southern markets.

Common case studies in all the Arctic states will strengthen the collaboration between areas and industries, create extensive networks and increase knowledge transfer. Comparisons/learning arenas will therefore be made within sectors across countries, across sectors nationally and between sectors and countries. The focus on both ‘North-to-South’ and ‘North-to-North’ food production will provide added value for the project, and will stimulate new models and ways of thinking about the requirement for a more sustainable Arctic food system for the future. The final stage of the project will involve the integration of all project components. Findings will be compiled into an overall summary and evaluation of existing programs to identify opportunities, obstacles, and key knowledge gaps to developing a sustainable commercial food system in the North.

**Activities**

*Activity 1. Mapping of Food Production Systems*

Regional inventories of commercial food producers will be conducted and mapped accordingly. Mapping food production in this way will allow us to:

- Visualize existing production in order to get a better understanding of the current state of the Arctic food system and identify were potential areas of production may exist.
- Identify interdependency between countries, regions, producers and processes in the Arctic food value chain.
- Create awareness among producers to look beyond their own regional involvement in the value chain.

This mapping exercise will serve as the first step in identifying existing and potential food producers by region and product (see for example the enclosed map produced by Agriculture Canada). While this type of map will capture the location and regional differences in food production, we will also record the volumes, margins, and number of
actors involved. This will involve an assessment of the characteristics of producers, their business conditions, employment and labour characteristics, and the destination and volumes of domestic and foreign sales. When completed this mapping exercise will include all processors, programs and initiatives in an interactive mapping format.

**Activity 2. Value Chain Analysis**

This component of the project will examine the nature and scope of existing food value chains in the North, the opportunities for further value chain development, and the current challenges in establishing pan-Northern food distribution and value chain systems. Value chains encompass a series of inter-related actors in a food system, from food producers (or wild harvesters), to food processors, distributors and retailers. Using a case study approach, the value chain analysis will examine a series of existing food value chains in the north with the objective of understanding: (i) how they are currently structured and the nature of the value chain relationships; (ii) what is working well – key success factors; (iii), what is not working well – key challenges; (iv) lessons for further development of new value chain systems. External dimensions are defined as those factors that are exogenous to the business decisions of value chain partners but play a key role in defining how food production occurs and the scope, scale and success of food distribution systems. In the context of the north as a food producing region, three key dimensions include (i) the regulatory environment (including constraints associated with land claims settlement), (ii) the business institutional environment, and (iii) transportation. The extent to which existing regulatory, institutional and transportation factors facilitate or impede value chain development in the north will be assessed. Information for the value chain case study analyses will be gathered through a series of semi-structured interviews with key informants across the identified value chains and within the relevant communities, supplemented by documentary analysis (e.g. policy/regulatory documents, and, where available, existing literature).

**Activity 3. Domestic Animal Food Production, Wildlife Food Safety, and Integrated Health Monitoring**

In the regions where this is relevant, this component will examine the regional production, use, and safety of domestic animal food production and define an approach to monitoring the benefits and impacts using an integrated approach using Western science with Traditional and Local Knowledge. Key questions that will be addressed include: 1) What are the key issues related to food safety (domestic production and wildlife harvesting) as perceived by government agencies and local people? 2) What is the current capacity for and efficacy of formalized federal food inspection? 3) How can a monitoring program for domestic and wildlife based food production be developed that incorporates Traditional and Local Knowledge with existing Western science-based tools and approaches? And 4) What barriers exist to commercial sale of wildlife as food and how can they be addressed? Our overall approach to examining these questions will involve detailed case studies of programs that have proven to be successful and sustainable (e.g. commercial muskox harvest in Nunavut and the Northwest Territories) and comparison with programs that have not been effective, in order to identify barriers and opportunities to food production and safe use. In-person and telephone interviews will take place with key informants in each region to obtain local perspectives on domestic and wild food safety and monitoring.

**Activity 4. Entrepreneurship in Food Production**
This component of the project will examine the capability of a northern entrepreneurial capacity to support increased production, processing, marketing, and distribution of food in the North and what measures might be taken to establish such a system or further develop one that might currently exist. In concert with the other components of this project, including the value chain analysis, this work will consider the opportunities and challenges associated with starting, maintaining, and growing financially self-sustaining Northern enterprises needed to enhance food production and distribution. Following a comprehensive and systematic analysis of existing data describing entrepreneurship in the Arctic, we will conduct semi-structured interviews with key stakeholders to determine the current status of entrepreneurship in the North and the factors that either facilitate or impede its development. The data we collect will support an analysis of how entrepreneurial capacity can be established or how existing capacity can be fostered to promote economic develop and alleviate food insecurity.

**Respect for and Inclusion of Traditional and Local Knowledge**

While the three dimensions - biology, business and markets - are critical for understanding the potential for the Arctic to become a food producing region, equally so are the cultural factors that might facilitate or impede the development of new food producing markets in the north. If these new food-producing markets are at odds with the cultural values of northern indigenous peoples, they stand little chance of success, regardless of market demand. The inclusion of traditional and local knowledge is therefore vital. Traditional and local knowledge will be included in the project both by focusing on food production by and for indigenous communities, and by the involvement of the Advisory Committee with representatives from indigenous groups in the countries where this is established and also through the inclusion of indigenous groups into the stakeholder groups. This will secure relevance for end users and give important input to the research group.

**Anticipated Outcomes:**

- Publications in academic, public and policy outlets.
- Case-study monograph on Arctic commercial food producers.
- Economic analyses of regional, country and Arctic food value chain.
- Enhanced international cooperation and focus on increased production, improved food safety, and added value of food from the Arctic
- Interactive website on Arctic food production stemming from inventory results.
- Publicity about the challenges and possibilities will help to inform the communities, industry, policy makers and non-government organizations, which in turn, could improve food security and generate new ideas, productions and cooperation on marketing.
- Exhibitions and public showcases of innovations and ideas.
- Exchange of ideas regarding production and products, marketing and public facilitation of food production and marketing.
- Discussion of the potential effects of climate change on food production in the Arctic region.
- Wrap-up Conference (Arctic Food Production: Opportunities for the 21st Century).
Together, these outputs will yield benefits for the food industries and communities across the Arctic. Knowledge from the study about how climate change, market conditions, industry structure, public policy, and social conditions affect the prospect for developing the Arctic as a food producing region will be useful for policy making, research and business development alike. Increased harvesting and production of marine, agricultural and wildlife resources that are produced and sold locally can also contribute to food security and social and economic development in local communities. A comparative project involving all the Arctic states can provide useful insight into common challenges as well as provide good example of success stories that can lead to ‘scaling up’ opportunities.

Communication and Dissemination:
Communication and dissemination will take place through both local/national and international channels. International dissemination is important for building an awareness of the conditions for producing food in the Arctic. At the same time, an important mission for each institution will be to translate and disseminate lessons learned from this project to national food producers, northern communities, food industries and markets, as well as policy makers. To make sure that results from the project reach end-users, the research team will present results from the project at industrial seminars, community meetings and conferences where feasible. The aim of the project is to identify ways of increasing production, food security in the North and the value creation of food from the Arctic, therefore this will be a prioritized task. This will also be ensured through regular contact with stakeholders, including the PP Advisory Committee where this is established. Near the end of the project period we will arrange a seminar to present the results of the project. The seminar is aimed at food producers, relevant organizations, governance bodies, as well as the media. In addition, an international conference will be organized where our findings, as well as the work of others, will be disseminated to an international audience.

In addition to the publication of academic papers, we will also target more popularized media outlets, including northern and national newspapers, journals and magazines. A photo exhibition and posters will be developed that communicates the added value of Arctic food products with special qualities (e.g. related to marketing of origin). Photo documentation and photo exhibition will be used as a tool to reach a wider audience of relevant stakeholders and policy makers at local, regional, national, and trans-national level. This approach may also add to social change at local and regional levels by strengthening pride and identity through an acknowledgment and understanding of the potentials for value-creation in the Arctic food chain.

Timetable and Project Completion:
The project will run through three stages organized by engagement, research and dissemination. Target completion date: March 2019.