STUDY ON GENDER AND DISAGGREGATED DATA

IN THE ARCTIC REGION

GENDER EQUALITY IN THE ARCTIC 4 PHASE

ICELANDIC ARCTIC COOPERATION NETWORK

Sustainable Development Working Group

ARCTIC COUNCIL

Compiled by

Mervi Heikkinen, University Lecturer, University of Oulu, Finland; **Anna Reetta Rönkä**, Postdoctoral Researcher, University of Oulu, Finland; **Marjut Pietiläinen**, Senior Researcher, Statistics Finland; **Karen Everett**, Senior Research Associate, Chaire Louis-Edmond-Hamelin de recherche nordique en sciences sociales, Université Laval, Canada; **Sébastien Lévesque**, Research Associate, Chaire Louis-Edmond-Hamelin de recherche nordique en sciences sociales, Université Laval, Canada; **Jade Crépault**, Research Associate, Chaire Louis-Edmond-Hamelin de recherche nordique en sciences sociales, Université Laval, Canada; **Gérard Duhaime**, Professor and Chairholder, Chaire Louis-Edmond-Hamelin de recherche nordique en sciences sociales, Université Laval, Canada.

Contributing authors

Andrey Petrov, Director, ARCTICenter, University of Northern Iowa; **Timothy Heleniak**, Senior Research Fellow, Nordregio; **Rikke Østergaard**, PhD fellow, Ilisimatusarfik – University of Greenland, Fulbright Arctic Initiative IV Scholar; **Marya Rozanova-Smith**, Research Professor, Department of Geography, George Washington University; **Erika Hayfield**, Associate Professor, Faculty of History and Social Sciences, University of the Faroe Islands; and **David Natcher**, Professor, Department of Agricultural & Resource Economics, University of Saskatchewan, Canada.

Project lead

Embla Eir Oddsdóttir, Director, Icelandic Arctic Cooperation Network.

Edited by

Pétur Benedikt Pétursson, PhD Student, Department of Sociology, University of Cambridge and Special Advisor, Icelandic Arctic Cooperation Network.

Design and layout

Friðrik Þórsson, Project Manager and Deputy Director, Icelandic Arctic Cooperation Network; Figures 1, 2 ,3 ,4 , 6, by **Heidi Tauriainen**, University of Oulu.

Photos

Friðrik Þórsson; **iStock by Getty Images**.

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TABLE OF CONTENTS

INTRODUCTION

The SDWG project Gender Equality in the Arctic has been ongoing since 2013 and in May 2021 completed its third phase whose main outcome was a Pan-Arctic Report on Gender Equality in the Arctic (GEA III), published in tandem with the Arctic Council Ministerial Meeting. The report was welcomed at the ministerial meeting and included in the Arctic Council Reykjavík Declaration 2021, which affirmed its intention to "emphasize the importance of gender equality and respect for diversity for sustainable development in the Arctic and welcome the Pan-Arctic Report, Gender Equality in the Arctic, Phase 3, encourage the mainstreaming of gender-based analysis in the work of the Arctic Council and call for further action to advance gender equality in the Arctic". In addition, the Arctic Council Strategic Plan 2021–2030 referred to the topic of gender in stating its aim to "promote gender equality and non-discrimination in the Arctic with the aim of contributing to sustainability and balanced participation in leadership and decision-making both in the public and private sectors".

The *GEA III* report provided three concrete recommendations for the Arctic Council, including:

> The Arctic Council should encourage and facilitate the development of guidelines for consistent and comparable data and definitions throughout the Arctic. This would entail, at a minimum, gendered and ethnically disaggregated data. The Sustainable Development Working Group could within the next iteration of its project work on gender seek collaboration with national agencies across its Member States, Permanent Participant organisations, other Arctic Council Working Groups, and relevant Arctic Council Observers.

During the development of the report on *GEA III*, most contributors identified the paucity of data and the challenges that this poses in terms of analysis and comparisons. In the Migration and Mobility chapter, the lack of data that coupled migration, the Arctic, and gender is particularly problematic. Further, too few studies are grounded in feminist, masculinity, intersectional, LGBTQIA2S+, and Indigenous gender perspectives.

The chapter on Gender and Environment points to multiple issues with gendered data and emphasises how environment-related gender-disaggregated data is crucial for providing decision-makers with the knowledge and capacity to develop well-informed policies. The chapter authors remind us that gender statistics are more than data disaggregated by sex; rather they also reflect differences and inequalities in the situation of women and men. The chapter on Empowerment and Fate Control shows how critical it is to point out that gender equality analysis and indicators suffer from severe data limitations. This is perpetuated by standardised and stereotypical reporting of gender data. They suggest developing gender indicators and indexes to capture gender equality and empowerment processes across all sectors and at all levels of politics and government, economy, and civil society. The chapter on Indigeneity, Gender, Violence, and Reconciliation in the Arctic identifies the challenges involved in gauging social and economic inequalities, levels of gender violence, and impacts from processes of colonisation.

For those engaged in Arctic social governance, the driving issue behind this report should come as no surprise: the general paucity of regionally comparable sex and gender disaggregated data. This is in part because it is not an issue that is unique to sex and gender disaggregated data. Going back to at least the early 1990s there has been a recognition of the lack of regionally comparable data. Such concerns have been echoed in the Sustainable Development Working Group's Arctic Human Development Report I and II, as well as in the Arctic Social Indicators Report, published in 2004, 2015, and 2010, respectively. Lack of access to high-quality data makes us, as researchers and policymakers, blind to the issues facing the region's inhabitants and the potentially unequal impact of these issues across gender identities.

As a precursor to further mainstreaming efforts, it was suggested that the GEA project seek collaborations with relevant national statistical agencies, Indigenous and data experts, and that the *GEA III* report's lead authors participate in a data challenges workshop to identify major obstacles and potential remedies for moving forward.

WORKSHOP ON GENDER AND DISAGGREGATED DATA IN THE ARCTIC REGION

To address the paucity and inconsistencies of gender and disaggregated data in the Arctic region, the GEA Project, with the support of Crown-Indigenous and Northern Affairs Canada held a workshop on gender and data in the Arctic Region. The workshop was held in the Northern Town of Akureyri in Iceland on the 15th and 16th of March 2023. The workshop was invitation only and conducted under Chatham House Rules in a hybrid format.

Approximately 35 participants took part in person with an additional 25 participants online. Every effort was made to ensure inclusion of online participants and prevent

marginalisation. Participants included representatives from academia, governments, statistical agencies, Indigenous experts, and youth, LGBTQIA2S+, and two-spirit experts, as well as lead authors of the GEA report, data study researchers, and a representative from UN Women Data Division.

WORKSHOP THEMES

One of the reasons for doing workshops is their ability to surprise us, and in that regard this workshop was no different. Although we had put together a workshop on the thematic issue of regionally comparable sex and gender disaggregated data, participants frequently spoke about this issue as being a special case of more general problems surrounding data collection and use within Arctic governance and research. For this reason, the following themes that emerged out of the workshop discussions are not framed in terms of sex and gender disaggregated data, but more in relation to the practical, ethical, and empirical issues surrounding research and policymaking in the Arctic.

As is the case with all workshop summaries, much more was said than there is space to summarise, so naturally it has not been possible to include everything. Although the following report certainly speaks to the workshop themes this required careful work. Researchers bring their own individual backgrounds and expertise to projects, and this can introduce different emphases than those that emerged in workshop discussions. To counteract these biases the themes have been developed out of transcripts that were made of all presentations (including their Q&As) and breakout groups. The scribes for the breakout groups wrote summaries from the transcripts they made which were then compiled into a first attempt at a summary. A thematic analysis was then carried out on the transcripts—through traditional qualitative coding methods—where special focus was given to issues and opportunities that were repeatedly brought up. The results of this thematic analysis were then checked against the original summaries that had been written to see if anything had been missed out. Finally, the results were checked by one other member of the team who had read the transcripts. From this process we landed on the following themes: practical challenges and practical opportunities; research as relationship building; cultural diversity and biases in data production; opening research methodologies. It's worth emphasising that these themes are reflective of discussions taking place across various sectors of society—i.e., how best to engage in community-based research. In this light, the contents of this report should be read as a contribution to an ongoing discussion rather than an attempt to conclude said discussion.

Data Availability and Accessibility: Practical Challenges and Practical Opportunities

The ubiquity of remote, hard to access, low population density settlements dramatically increases the travel costs for both the collection of fine-grained data as well as community outreach. Unreliable, and unevenly distributed, digital infrastructure makes digitally based workarounds to these problems (i.e. online surveys), at best, solutions that should be pursued on a case-by-case basis and with caution. Moreover, participants emphasised the conflicting tensions between reducing the paucity of regionally comparable data, particularly on the subnational level, and maintaining the anonymity of participants within low population density geographical areas. It was also noted that privacy was frequently a legal barrier to the collection and publication of data on race or ethnicity. This was an especially pronounced issue amongst the Nordic countries where even statistics on the number of Sámi people must be inferred from other sources—i.e. the number of speakers of Sámi languages, something which stands as being highly problematic since, as a result of colonial policies, not all Sámi speak a Sámi language. Lack of standardisation of data collection methodologies and definitions across national statistical offices came up frequently as an issue that participants had encountered. Moreover, it was noted that gender (as opposed to sex) disaggregated data was particularly hard to come by, and even when it did exist, a lack of standardisation was especially pronounced—so much so that in some cases ministries seemed to be confusing sex and gender, providing the former whilst claiming that it was the latter. A number of participants noted that the Arctic Council could be an ideal forum to reach an agreement, or at the minimum produce guidelines, on standardising statistical definitions and methodologies across circumpolar statistical agencies. However, it was also noted that any such effort would have to be strategically focused—as standardising all statistical definitions and methodologies would be both practically and politically unfeasible.

Data accessibility was also frequently cited as an issue. Even when statistical data was technically available, a lack of centralisation of data publishing whether inter- or intra-nationally, compounded with issues such as poorly designed websites, effectively made the data inaccessible to individuals who did not have a highly sophisticated understanding of where to look for it. It was also noted that making data only available by request similarly put up “soft” barriers to data accessibility, particularly for non-researchers who are unaware of, or intimidated by, the process of requesting data. Similar issues surrounding accessibilities also exist with non-statistical data kept in archives. There are opportunities here both for creating a centralised circumpolar database and developing guidelines to streamline the process of requesting data and creating educational resources for citizens on how this is done. Finally, it is worth stressing the importance of data accessibility in terms of the “research fatigue” felt by Indigenous communities who, because of low population density, are frequently asked

to assist in producing data that already exists or could reasonably be inferred through other means.

Research as Relationship Building

For many of the regions, Indigenous inhabitants' violent colonial "histories" are still within living memory—where data on Indigenous peoples was not only collected without informed consent but also weaponised against them in their oppression. Subsequently, there is a deep-seated mistrust of data collection within many Indigenous communities. This is something that must be proactively repaired across *all phases* of research projects, from the construction of methodologies and research questions, all the way to following up on results long after publication. As one participant noted, this requires conceptualising research as *relationship building*. Strategies can range from ensuring that data collection serves the interests of the community through an active consultation process, diversifying what one considers to be "legitimate data" so as to give epistemic authority to Indigenous ways of knowing, to hiring and training locals—strengthening the communities' own ability to produce research about themselves. Moreover, it is vital to ensure, and discuss, data sovereignty/ownership early in the research process. Indigenous participants stressed that care must be taken regarding the demands that researchers place on communities. People's time and interest (or lack thereof) must be respected; one cannot expect participants to display the same level of excitement that one has for one's own research. At least as a starting point, it is advised that researchers consider whether their projects are equitable, meaningful, (mutually) beneficial, legitimate, and all-inclusive.

Cultural Diversity and Bias in Data Production

Participants advocated for the importance of keeping a critical eye on the values, cultural identities, and ways of living assumed by our research methodologies. Ubiquitous gender-based labour stereotypes frequently lead to a reinforcing cycle of minorities being written out of history or excluded from the data. For example, until recently, engrained assumptions about the maleness of fishing in Iceland has led researchers to neglect the important role played by female fishermen ("fisherwomen") during the early development of the country's fishing industry. Given the sociocultural diversity of the Arctic's inhabitants, whether on rural vs urban lines, Indigenous vs majority populations, or amongst different Indigenous peoples, researchers and policymakers alike must be careful to construct indicators that are regionally *and* culturally relevant. Well-being, safety, resilience, and the like mean different things to different communities. *Composite indicators* must be constructed, bottom-up from the community level to national and circumpolar level comparison. However, communities are not homogeneous entities that speak with a single voice. Researchers and policymakers must be wary of intra-community power differentials. Which voices are

being empowered to speak on behalf of the community, and which ones are being silenced? Answers to both questions typically come with a gendered dimension.

Opening Research Methods

Participants across the board noted that there is an over-valorisation of quantitative data within policymaking. This was seen as exacerbating difficulties with the two previously mentioned problems. First, too often this leads to the depersonalisation of people into numbers, or statistical populations. Given the aforementioned historical context of data usage within the colonisation of Indigenous peoples, this process only deepens the mistrust between Indigenous communities and policymakers or researchers. Moreover, the failure to properly recognise, learn from, and engage with Indigenous knowledge systems and the traditional ways of knowing associated with them severely hampers policymakers' ability to both understand lived realities as well as find effective solutions to social and environmental problems. Second, although qualitative methods are not immune to cultural bias, they are better suited to capturing on-the-ground complexity. Such methods can allow for implicit value assumptions about ways of living to be productively challenged as well as providing a thick, humanising context to statistical data. Ideally, policymaking should draw on all three types of data (traditional ways of knowing, qualitative, and quantitative data) so as to form effective, well-informed policies that benefit the people they affect.

THE REPORT, CONTEXT, AND SUMMARY

The following report develops aspects of the Workshop themes, sacrificing the breadth of the discussion to provide additional depth to some of the points. The first two sections comprise the bulk of the report and have been made possible through the financial support of the Finnish Ministry for Foreign Affairs and Crown Indigenous Relations Northern Affairs Canada, for the first and second sections, respectively. The third and final section of this report consists of five short contributions written by workshop participants and long-time GEA collaborators. These were written in response to a call for contributions and from the goodwill of the individual researchers who took the time to put together their submissions.

Two consequences that derive from how this report was compiled are worth considering. First, as was made clear in the previous section, sacrificing breadth *necessarily* involves giving voice to some ideas whilst silencing others. Although their contributions certainly speak to the workshop themes this required careful work. Researchers bring their own individual backgrounds and expertise to projects, and this can introduce different emphases than those that emerged in workshop discussions. Although perfect reproduction of such discussions is, in all likelihood, practically unfeasible, there are always things that one can improve upon. Second, providing depth should not be equated with providing definitive answers to these themes. Issues

such as how best to engage in community- and relationship-based research reflect ongoing discussions that are taking place across various sectors of society, and they involve normative and political assumptions that make definitive answers an impossibility. In this light, the contents of this report should be read as a contribution to an ongoing discussion rather than an attempt to conclude said discussion.

Understanding Sex and Gender Data Needs and Challenges in the Arctic

In response to the diverse themes that came out of the workshop discussion, this piece engages in a diverse analysis that prioritises capturing and developing features of the discussions over presenting a neat and tidy argument. To this end, the contribution has been separated into three sections, each of which can be read independently. The first addresses the thematic of research as relationship building by presenting one way of answering the question "how can sex and gender data benefit Arctic inhabitants?" Namely, through focusing on the centrality of community, on the one hand, and by adopting collective deliberation processes within communities, on the other. The second section develops an empirical case study of "Practical Challenges and Practical Opportunities" through an examination of gender equality efforts within the context of the University system in the Fennoscandian Arctic. The final section speaks to "Cultural Diversity and Bias in Data Production" by developing two distinct theoretical models: the first is designed to analytically disambiguate a number of meanings associated with ordinary usage of the term "data"; the second offers tools to think about the institutional contexts in which, and according to whose logics, data is produced.

Disaggregated Data and Data Comparability: A Selection of Socioeconomic Indicators

This section of the report speaks to the thematic of "Practical Challenges and Practical Opportunities", particularly on the side of data availability, thereby testing the underlying assumption of this report—that is, the paucity of sex and gender disaggregated data. The authors achieve this by conducting a systematic review of the available data sources at the regional level for select socioeconomic indicators across the Circumpolar Arctic with regard to disaggregation by sex and/or gender as well as for Indigenous Peoples. Their analysis finds that while regional data is available for many of these indicators (particularly those relating to demography, education, and labour) and the data can be disaggregated by sex or gender, the extent of comparability varies by indicator and by region. Disaggregated data for Indigenous Peoples is also available for some, but not all, of the selected indicators and is limited to Alaska, the Canadian territories, and Greenland. The authors also indicate where data is missing for the gender-relevant Sustainable Development Goals. To help address these gaps, the authors recommend that rights holders and relevant stakeholders develop a list of gender-relevant circumpolar indicators through collaboration with statistics agencies, that these agencies have a dedicated Arctic data webpage, and that statistics agencies from across the Arctic collaborate on a centralised Arctic database.

Contributions

The first contribution speaks to the theme of research as relationship building through developing a framework for data—as opposed to knowledge—co-production in the Arctic, titled EMBLA. Andrey Petrov does this by unpacking some of the wider discussions happening around knowledge co-production, which he then develops through establishing linkages to circumpolar specificities and data sovereignty. Timothy Heleniak follows with a contribution grounded in his considerable experience working with circumpolar data that speaks to the thematic issue of data availability and accessibility. Utilising their work carried out at Nordregio as a case study, Heleniak observes how data visualisation methods—such as maps—as well as targeted focus on outreach helps with accessibility. He also draws on his personal experiences to flesh out some of the difficulties surrounding circumpolar comparability. Rikke Østergaard's contribution discusses Greenland and gender-based inequalities within political representation to provide an insightful analysis of how complex interdependencies and colonial histories contribute to contemporary inequalities. Speaking to the themes of relationship building and sociocultural diversity, her contribution stresses the need for policymaking that is grounded in intersectional analysis and a sensitivity towards contextual specificity. Following this is a contribution from Rozanova-Smith et al. that draws on research previously conducted under the GEA-Covid project to concretise the thematic of data availability. Drawing on the dramatic growth in immigration within Iceland over the past two decades as a case study, the authors develop a deeply interesting analysis of how a lack of sex and gender disaggregated data hampers our understanding of the underlying mechanisms that produce inequalities amongst immigrant women. Last, but certainly not least, Erika Anne Hayfield brings the report to a close with her contribution on the importance of gender disaggregated data in the context of research on migration and mobility. Building on her previous work for the *GEA III* report, Hayfield's piece speaks to the importance of intersectionality as well as the combining of qualitative and quantitative methodologies.

Executive Summary — Key Findings and Recommendations

I. **Gender-relevant indicator development:** Rights holders and relevant stakeholders should identify the most pressing gender issues to measure and monitor in the circumpolar Arctic. Once completed, a list of essential indicators that should be available for all regions is created, including precisely determining data universes, units, calculation methodologies, and the like. International standards can be referred to, if necessary, and adapted to Arctic realities. The indicators should be realistic in the data landscape of the national statistical agencies of the Arctic countries, including considerations for data privacy and disaggregation when population sizes are small. This could include the development of an Arctic Gender Equality Index, inspired by the Gender Equality Index that has been developed by the European Institute for Gender Equality.

II. **Collaboration with national statistics agencies:** On the basis of this list of indicators, the various statistical agencies can match their data to the specified indicators, respecting as far as they can the definitions and data universes. If direct alignment is not possible, proxy indicators could be made available. Each statistics agency should have a webpage for Arctic-related data including the list of tables for the respective country as well as links to the other statistics agencies. The Arctic Council in general, and the SDWG in particular, represents a potentially fruitful site for these collaborations to take place.

III. **Centralised database for Arctic data:** The national statistical agencies of the Arctic countries should create a centralised database that includes regularly updated harmonised disaggregated data for these gender-relevant indicators as well as other indicators relevant to life in the Arctic. This is not an impossible task as databanks like ArcticStat as well as databases like Eurostat and Nordic Statistics exist.

IV. **Incorporation of the EMBLA principles in data collection:** Ensure that data production adheres and aspires to the principles that it is: Equitable—based on equitable co-production process; Meaningful—based on shared understandings, needs, and desired outcomes of all partners; Beneficial—equally and mutually beneficial to all partners of the co-production process; Legitimate—involves concepts, methods, and actions accepted by all co-production partners; and All-inclusive—open, transparent, and inclusive of all sources, methods, concepts, and knowledge systems involved in the process.

V. **Grounding policymaking and research in sociocultural specificity:** Invite communities to participate in definitions of relevant data. Consider issues such as timing, language, ethnicity, genders, how we can look at data differently, who defines the questions, who asks the questions, how the data is being used, the power of data, the impact of data and data collection on health and well-being of populations and communities, systemic and institutional racism through research, data colonialism, de-colonisation of or Indigenising data, knowledge and data co-production.

VI. **Proactive use of qualitative and traditional ways of knowing:** Methodology is severely lacking as a means of gathering both qualitative and quantitative data. When we talk about data, we talk about statistical populations, rather than people. Certain population groups have historically been lost in data, such as women, rural populations, Indigenous Peoples, two-spirit people, LGBTSIA2S+ people. Inclusivity and intersectionality are key to better understanding the context and conditions of different population groups. Flaws in the process fail to capture notions such as identity, way of life, etc., which are so integral for the purposes of constructive and supportive policymaking. Methods of data collection should be carefully considered.

VII. **Mandatory integration of gender mainstreaming in all components of the research process:** This includes not only gender-based analysis of research results but also an analysis of *who* is producing the data, *how* they are doing this, and *why* this data is being produced in the first place—for whom is this data? Moreover, education of researchers on gender-based analysis is necessary at the programme level to ensure that such analyses are done properly.

UNDERSTANDING SEX AND GENDER DATA NEEDS AND CHALLENGES IN THE ARCTIC

Mervi Heikkinen and Anna Reetta Rönkä, University of Oulu, Finland

In response to the diverse themes that came out of the workshop discussion, this piece engages in a diverse analysis that prioritises capturing and developing features of the discussions over presenting a neat and tidy argument. To this end, the contribution has been separated into three sections, each of which can be read independently. The first section addresses the thematic of research as relationship building by presenting one potential answer to the question "how can sex and gender data benefit Arctic inhabitants?" Namely, by focusing on the centrality of community, on the one hand, and by adopting collective deliberation processes within communities, on the other. The second section develops an empirical case study of "Practical Challenges and Practical Opportunities" through an examination of gender equality efforts within the context of the University system in the Fennoscandian Arctic. The final section speaks to "Cultural Diversity and Bias in Data Production" by developing two distinct theoretical models: the first is designed to analytically disambiguate a number of meanings associated with ordinary usage of the term "data"; the second provides some tools to help think about the institutional contexts in which, and according to whose logics, data is produced.

HOW CAN SEX AND GENDER DATA BENEFIT ARCTIC INHABITANTS?

Building on our workshop in Akureyri, an answer to this question was co-generated. That is to say, the answer has two sides or involves "two-eyed seeing". For Arctic people, whether Indigenous Peoples or those living in the Arctic, the centrality of belonging to the community and knowledge production within the community are important (Yua et al., 2022; Johansson et al., 2022; Rink et al., 2013). In academic methodological frameworks, these approaches are generally framed as community-based knowledge production, in particular Community-Based Participatory Action Research (CBPAR) (see e.g. Rink et al., 2013), and deliberative democracy (e.g. Johansson et al., 2022). Practical methods such as community meetings are often involved—i.e. Sharing Circles (Healey

Akearok et al., 2019) and workshops etc.—and these are arranged and applied for knowledge co-creation purposes. As to the other side of the answer, this relates to the construction of meaning collaboratively through collective deliberation within the community. From the perspective of community pedagogy, this process establishes a collaborative learning process, possibilities for transformation, and the co-construction of meanings. If topics such as sex, gender, and intersectionality are initiated for community discussions, there is also a possibility both to strengthen scientific literacy skills (Higgins, 2021) and to evoke Critical Gender Equality Literacy (Kantola et al., 2020) within the communities. This is essential in communicating sex and gender-related matters in the communities and envisioning collectively aspired futures, setting common goals, identifying the necessary resources, and defining supportive policies. When new knowledge is produced with local and Indigenous People, for instance, in co-production processes in citizen science where local, traditional ecological knowledges (TEK), and scientific knowledge might be brought together, the produced knowledge stems from local needs and priorities. This produces information on the data relevant to the communities. As a result, it is easier to find, for instance, mitigation strategies or ways for enhancing health and well-being in the localities, and to produce research that is impactful. This also has important ethical implications. The Sámi people from the Arctic have formulated an ethical principle regarding research: "*nothing about us without us*". The co-production of knowledge with citizen science offers a practical way of carrying out research where academics take on a consulting role and where the research is planned, conducted, and disseminated by local and Indigenous Peoples.

Gender-responsible scientific approaches have become imperative in scientific knowledge production and are essential when focusing on topics such as climate change, One Health, environmental decision-making, and empowerment. Gender perspectives in general have only recently been included in the focus of Arctic social sciences (Vladimirova & Habeck, 2018). Research requires sex, gender, and intersectional analyses if it is to bring about accurate knowledge production. According to European Commission (EC) policies this is usually referred to as the gender dimension (EC 2020; EC 2014), and in research literature the terms used include gender analysis, gender-specific approach or gender sensitivity in research, gender responsibility and gender response-ability in knowledge production. We understand gender as socioculturally constructed behavioural patterns and see identity categories (man, woman, and non-binary/other) as intertwined with biological sex characteristics.

Gender relates to environmental issues in the Arctic as well, and the Arctic cannot be fully understood without recognising the relationships between people and the environment. Gender has implications for interactions with, activities in, and observations of the environment. It is also a factor in accessing, participating in, and managing natural resources (Oddsdóttir et al., 2021); thus, gender has an impact on

environmental decision-making processes. Women and men are impacted differently by rapid environmental change in the Arctic, and they have roles in environmental sustainability, which is only achievable through ensuring equal access to the shaping of political agendas (Alston & Whittenbury, 2013). Moreover, gender is closely connected to the One Health approach. One Health is a concept which recognises that humans, animals, and the environment are interrelated and interdependent in complex ways, and that human, animal, and ecosystem health are interconnected (Berner et al., 2024). Environmental factors have an impact on different groups of people. For instance, the effects of exposure to persistent organic pollutants, lead, and mercury are different between men and women; in addition, fertile and pregnant women constitute an especially sensitive group to be monitored. Moreover, societies react differently to the health complaints of men and women. In Indigenous communities, for example, there are gendered differences in the consumption of traditional foods, and men are at a higher risk of exposure to heavy metals (AMAP, 2022). Sociocultural aspects of the Arctic are also important determinants for One Health and gender analysis, including lifestyle, occupations, and daily life activities. In some Arctic communities, traditional roles are maintained, with men taking on the tasks of hunting, herding, fishing or industrial employment and women engaging in childcare, food preparation, healthcare occupations, etc. One Health needs to be approached from a gender perspective—i.e. utilising gender-disaggregated statistics. The trend of women leaving Arctic regions due to education or job opportunities is apparent in mobility studies. Household activities and caring responsibilities for children, elderly, and people in need are deeply divided along gender lines. Despite the Nordic leadership in global and European gender equality indexes, gender segregation in the education and labour market is still prevalent. This is coupled with women's persistent underrepresentation in decision-making positions, getting paid less than their male counterparts for comparable work, and enduring intimate partner violence. In general, men's health index is the only area in which they fare worse than women (EIGE, Gender Equality Index).

Furthermore, considering knowledge production in general, between the years 2015–2018 less than 2% of global research publications contained explicit references to the gender dimension in their key fields (title, abstract, and key words), resulting in a lack of gender-specific knowledge and gendered innovations (EC, "She Figures", 2021). Going beyond the current state of the art will require not only conducting gender-responsible research but also producing intersectional gender analysis, thereby producing such published results that may be considered gender response-able. But even that is not enough. We need to ensure critical gender equality literacy skills too. Gendered approaches offer important insights in the study of political leadership, decision-making, and representation (Vladimirova & Habeck, 2018). The population in the Arctic area consists of people of different genders, ages, and various ethnic and socioeconomic backgrounds. The impacts of rapid climate change and other megatrends on these groups differ (Rautio et al., 2021). Alarmingly, there is an inherent

gender imbalance in policy discussions and decision-making related to the Arctic, and women are still underrepresented in governing bodies, administration, business, and science (Oddsdóttir et al., 2021).

At the same time, we need to acknowledge various knowledge systems in the Arctic region. In addition to everyday knowledge and scientific academic knowledge, there is a multiplicity of TEK, Indigenous knowledges, and local knowledges. Building links with Indigenous Peoples' knowledge systems, marginalised scholars, and local communities is crucial when considering the Arctic. According to the UNESCO:

> *Open dialogue with other knowledge systems refers to the dialogue between different knowledge holders, that recognizes the richness of diverse knowledge systems and epistemologies and diversity of knowledge producers in line with the 2001 UNESCO Universal Declaration on Cultural Diversity. It aims to promote the inclusion of knowledge from traditionally marginalized scholars and enhance inter-relationships and complementarities between diverse epistemologies, adherence to international human rights norms and standards, respect for knowledge sovereignty and governance, and the recognition of rights of knowledge holders to receive a fair and equitable share of benefits that may arise from the utilization of their knowledge. In particular, building the links with Indigenous knowledge systems needs to be done in line with the 2007 United Nations Declaration on the Rights of Indigenous Peoples and principles for Indigenous Data Governance, such as, for example, the CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) data principles. Such efforts acknowledge the rights of Indigenous peoples and local communities to govern and make decisions on the custodianship, ownership and administration of data on traditional knowledge and on their lands and resources. (UNESCO, 2021, Open Science, p. 15).*

Relationships in Arctic research still often operate within a framework that is embedded in colonial structures and methodologies (Herrmann et al., 2023). To advance decolonial principles in Arctic research, the CO-CREATE network has produced the Roadmap to Decolonial Arctic Research by Herrmann et al. (2023). The roadmap includes four chapters:

1. Indigenous Peoples' right to self-determination as steering high-quality Arctic research;
2. Methods and methodology as key for decolonial research;
3. Indigenous Peoples' participation in EU Arctic research funding structures and decision-making for securing decolonial Arctic research in practice;
4. Funding for Co-Creative and Indigenous-Led Arctic Research.

The roadmap has many strengths and marks a significant outcome of collaboration. However, it would have benefitted from explicitly including sex and gender dimensions in its chapters.

The ethical guidelines for research involving the Sámi People in Finland (Heikkilä et al., 2024) have been produced by Sámi people themselves. An expectation is that research shall be responsible: "*Responsible conduct in research involving the Sámi is based on community orientation and the significance of the research for the community*" (Heikkilä et al., 2024, p. 32). The guidelines are produced to facilitate culturally safe conditions for research involving the Sámi. Additionally, responsibility requires researchers to have an adequate cultural and societal understanding of, and familiarity with, what they are researching. Free, Prior, and Informed Consent (FPIC) is a crucial starting point for the co-creation of knowledge.

Collaboration between Indigenous, Sámi, and feminist scholars has emerged, leading to valuable theoretical developments. Context-specific sex and gender knowledge is essential for understanding the gender equality and intersectional challenges faced by Sámi people in higher-education institutions (HEIs) (as discussed in Rönkä et al., 2025). Co-created solutions to address epistemic injustices are needed with a view to producing epistemically just research (McIntosh & Wilder, 2023) with an Indigenous Studies critical perspective on scientific practices at the structural level (Koskinen & Rolin, 2019). Sámi feminist scholars, such as Ina Knobblock (2022), Rauna Kuokkanen (2019), Elisabeth Stubberud (Stubberud & Sharma Vassvik, 2024), and Astri Dankertsen (2021), have sought to challenge Nordic white feminisms, recognising hegemonic gender research and Nordic colonialism, in an attempt to make space for Sámi feminist knowledge formation. This issue requires serious consideration, especially in gender equality research in Arctic HEIs. With trained researchers in sex, gender, and intersectional analysis, along with Indigenous perspectives and adequate targeted resources, there is great potential to dismantle the fixed binary categories of gendered power positions and relations. To enhance epistemic justice (Fricker, 2007, 2015), there is a need for situated knowledge production (Haraway, 1988; Harding, 2004) that is culturally bound but also ethically sound (Drugge, 2022). Therefore, data, information, and knowledge on sex and gender, and gender equality in the HEIs in and around Sápmi should have an intersectional scope.

Critical information literacy and media literacy skills are seen as core skills in today's digital knowledge society. Critical information literacy (CIL) involves questioning and examining ideas and requires one to be able to synthesise, analyse, interpret, evaluate, and respond to texts. CIL can be defined as a theory and practice that considers the sociopolitical dimensions of information and the production of knowledge. It also helps to critique how systems of power shape the creation, distribution, and reception of data, information, knowledge, and wisdom. Furthermore, our particular interest lies in

critical gender equality literacy, which Johanna Kantola et al. (2020) have compared to media literacy. The authors define it as a capability to see, read, and understand gender equality in a manner which goes beyond the meanings produced through mainstream public discourse. Critical gender equality literacy provides the intellectual tools to critically reflect on and handle knowledge that diverse actors—including politicians, media, as well as civil society—produce on gender equality (Kantola et al., 2020).

There are identified gaps, shortcomings, and a clear need to integrate gender into every aspect of both data producers' work and data users' scope, something that is currently lacking. In global statistical cooperation, efforts are being made to mainstream the gender perspective into all statistical production. This is also on the agenda at the European level and in terms of gender equality. It is essential to communicate, interpret, and make visible sex and gender data and information. However, regional data involves privacy challenges including identifiability.

As can be seen in Figure 1 below, the current gender data challenges in Arctic populations from some Nordic countries, regions, and Sápmi relate to a binary understanding of gender as well as census difficulties with regard to cross-border Sápmi.

SVALBARD	GREENLAND	FAROE ISLANDS	ICELAND	SÁPMI (Norway, Sweden, Finland, Russia)
Inhabitants: 2 600 (approx.) 1 400 male 1 200 female **Age** 0–16 years: 450 16–19 years: 75 20–44 years: 1400 45–66 years: 650 67 years or more: 44 Statistics Norway 2023: https://www.ssb.no/en/befolkning/folketall/statistikk/befolkningen-pa-svalbard	**Inhabitants:** 57 000 (approx.) 30 000 male 27 000 female **Age** 0–16 years: 13 000 17–24 years: 5 900 25–64 years: 32 000 65 years or more: 5 400 Statistics Greenland 2023: https://stat.gl/dialog/main.asp?lang=en&sc=BE&colcode=o&version=202401	**Inhabitants:** 54 500 (approx.) 28 000 male 26 000 female **Age** 0–14 years: 11 000 15–24 years: 6700 25–64 years: 26 000 65 years or more: 9 700 Statistics Faroe Islands 2023: https://hagstova.fo/en/population/population/population	**Inhabitants:** 388 000 (approx.) 200 000 male 188 000 female **Age** 0–16 years: 80 000 17–24 years: 41 000 25–44 years: 118 000 45–66 years: 99 000 67 years or more: 50 000 Statistics Iceland 2023: https://www.statice.is/statistics/population/inhabitants/overview/	**Estimated between 50 000–100 000 people** **In Norway:** around 50–65 000 (between 1.06%–1.38% of population) **In Sweden:** around 20 000 (approx. 0.22% of population) **In Finland:** around 8 000 (approx. 0.16% of population) **In Russia:** around 2 000 (a very small proportion of population) Source: https://www.iwgia.org/en/sapmi.html

Figure 1: Arctic populations from some Nordic countries, regions, and cross-border Sápmi

In addition to sex and gender, other intersecting differences of social categories such as age, ethnic background, disability, faith or worldview, languages, and socioeconomic status and class as presented in Figure 2 also affect people's decision-making and power within society and community as illustrated in Figure 3. As such, these should be taken into consideration in data analysis as well, as their importance may be revealed during the research process (Hankivsky, 2014). In the context of environmental decision-making and One Health, being an Indigenous Sámi woman / non-Indigenous woman, man / non-binary person, with a different level of education, socioeconomic status, sexual orientation, (not) having children, (not) having a disability—all these factors can contribute to one's possibilities of participating in decision-making, democratic processes, and being an active member in one's local community.

Figure 2: Simplified representation of UNHCR's approach to intersectionality (Source: https://www.unhcr.org/age-gender-diversity/)

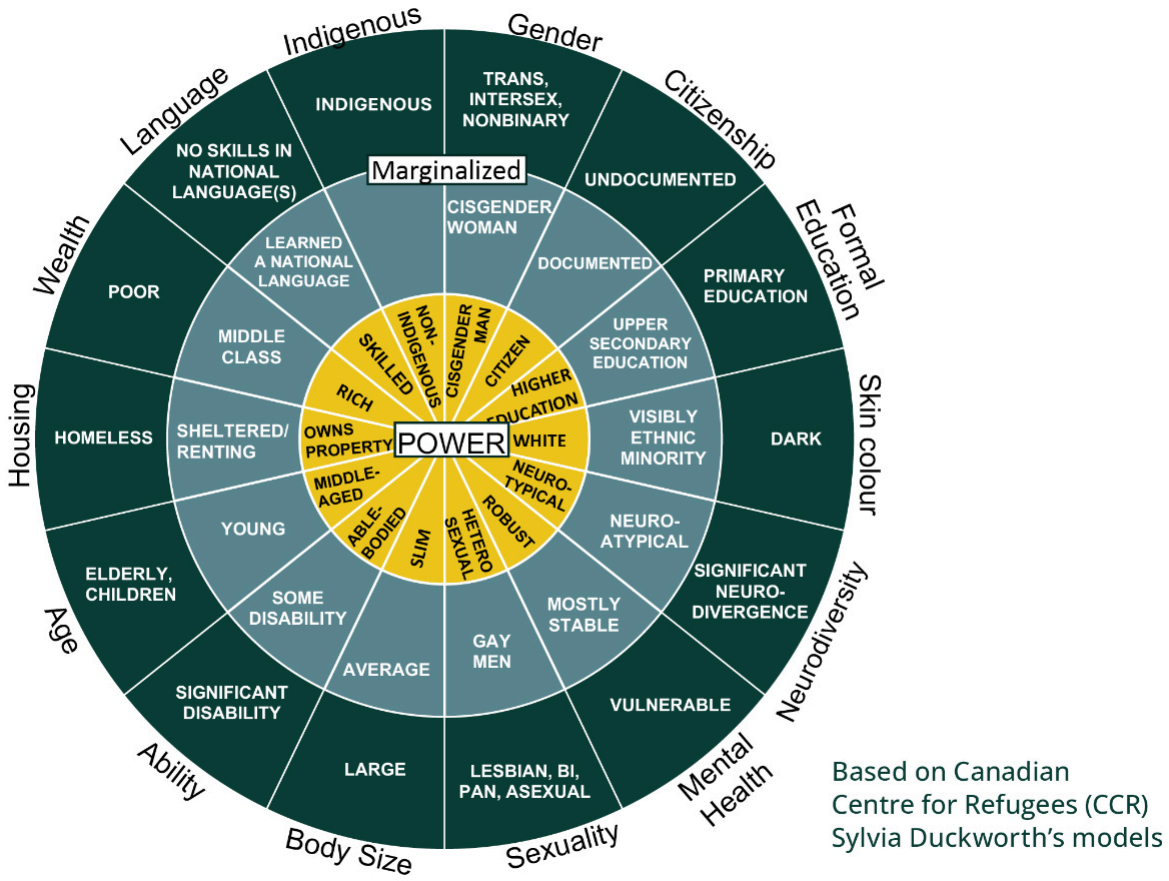

Figure 3: The 'Power Wheel'.
The Closer you are to the centre,the more privilege you have.
(Source: Canadian Centre for Refugees (CCR) https://ccrweb.ca/en/anti-oppression)

Both Figure 2 and Figure 3 illustrate the diversity of people by naming various categories. However, Figure 3 also considers the power dynamics and differences of these categories, which is important to consider in intersectional analyses.

The intersectional approach refers to the idea that people are often disadvantaged by multiple and overlapping sources of discrimination which jointly influence their social positions and, importantly, their possibilities for participation in democratic processes and decision-making. These discriminative sources are based on intersecting sociocultural categories such as gender, ethnicity, class, sexual orientation, religion, age, and physical abilities (Crenshaw, 1991; Hoogensen Gjørv, 2017). These interactions occur within connected systems and structures of power, such as policies, governments, the economy, and media (Hankivsky, 2014). Intersectionality—intersecting differences—may also create possibilities of commonality and offer the opportunity to forge alliances in different forums and contexts, such as in decision-making and education, making them more equal and inclusive spaces for all. The main goal of intersectional analysis is to challenge inequities and promote social justice. Within an intersectional framework, perspectives that are not typically at the centre of knowledge production are foregrounded, such as the views of adolescents and youth, women,

elders, Indigenous Peoples, immigrants, etc. Intersectional gender perspectives and analysis is of utmost importance in the Arctic when analysing diversity with a view to understanding relations to environment and environmental decision-making. Through intersectional gender analysis, we can produce gender-sensitive data-information-knowledge-wisdom (DIKW) in the quest to better understand local realities and living conditions.

GENDER EQUALITY CHALLENGES IN UNIVERSITY KNOWLEDGE PRODUCTION IN FENNOSCANDIAN ARCTIC ACADEMIA

In this section we shift the analysis from gender and sex data availability to broader questions surrounding the prevalence, or lack thereof, of gender-based analysis within the context of academic research in the northern regions of Fennoscandia. In a landmark study, Rönkä et al. (2025) reveal the dearth of research that simply includes—let alone substantively focuses on—the term gender equality within research conducted by the Arctic Five universities. Conducting a systematic review of publications on the Scopus database that included the terms “gender equality”, “gender inequality” or “gender equity” and were published by authors affiliated with one of the Arctic Five, the authors discovered that only 24 publications had met this criterion. The Arctic Five includes the University of Oulu, which is located 170km south of the Arctic circle, whereas the rest— Luleå University of Technology, the Arctic University of Norway, and University of Umeå as well as University of Lapland in Finland—are located within and around the cross-border Sápmi—homeland of Sámi. Nordic countries are global leaders in gender equality, according to the Global Gender Gap Report 2024 (World Economic Forum, 2024), and, more generally, they have a reputation for advocating for gender equality, including within the context of their university system (Lipinsky, 2013). In light of this, one might expect sex and gender data to be widely available and commonly used within gender-responsible decision-making and research. Yet, this is not a current reality but an ideal moving forward. One point of note is worth making with regard to the Finnish academic system where the available data shows that the high levels of enrolment amongst women results in more women than men graduating from tertiary education. In the Nordics more generally, over a third of the population has a higher education degree (e.g. Norden, 2023). Horizontal gender segregation in the labour market and consequently the gender pay gap are present in Nordic societies, including in academia (Nielsen, 2017). Within Nordic academia, vertical gender segregation is a prevalent issue, evidenced by the fact that only 30–32% of professors are women (Pietilä, 2021).

The Arctic is characterised by a lack of linguistic, cultural, economic, and social borders. The identities of the Arctic’s inhabitants are strongly tied to geographical and historical contexts. Moreover, the Arctic has sparsely populated geographical regions,

scattered settlement structures, an aging population, accelerating urbanisation, and significant female outmigration (Faber & Nielsen, 2015; Melhus et al., 2020; Emelyanova, 2015). The flight of women and LGBTQIA2s+ individuals might partly be related to the fact that the region has been represented as a "typically male" region, with culturally specific rural problems. Occupations and employers in the area include technology, oil and gas extraction, mining, forestry, fishing, and reindeer herding. These are male-dominated jobs and have a high status, especially economically, compared to more gender balanced sectors such as tourism or female-dominated sectors such as services, and the public sector. Another reason for women's relocation has been an initial desire to receive further education outside of the Arctic, which eventually leads to them deciding to settle down outside the Arctic causing a "brain drain" (Vladimirova & Habeck, 2018) in the region. It is noteworthy that within the Arctic Five universities, most students come from the northern region and are typically the first generation within their families to study at university level. In contrast, men's educational path leads them to vocational schooling, which is typically located in the Arctic (Pedersen & Moilanen, 2012). Northernmost universities promote regional development; they attract and provide easy access to HEIs for people who live in the north, but they also attract industries by providing a skilled labour force and are interesting to institutions of governance through possible tax income (Moilanen et al., 2022). The sociocultural circumstances within the Arctic Five universities are very different from the southern parts of each country and the areas around capital cities.

All of the Arctic Five universities have gender research departments, or gender studies included in other departments, and scholars working on gender-specific issues. Yet, such units are typically small; while some do have professorships or enjoy the status of a major subject, others are under-resourced. All Nordic universities have a legal obligation to promote gender equality systematically, and for that purpose they shall draft a gender equality and diversity plan and update it regularly. Based on our summary and outline of the Nordic Arctic local context and the situation regarding gender knowledge production in the Arctic Five universities, one could expect that, for instance, the produced gender equality and diversity plans are based on sex and gender data, e.g. statistics and surveys, especially in research institutions in support of informed decision-making. However, while institutional annual reports on human resources are available, systematic target setting based on those statistics and actions for improving gender balance horizontally and vertically is either lax or totally absent. Next, we will look more closely at the different levels of sex and gender data and different data types in knowledge society.

WHAT SHOULD WE CONSIDER AS SEX AND GENDER DATA IN THE ARCTIC?

Data, Information, Knowledge, and Wisdom hierarchy (DIKW hierarchy)

This section takes a more theoretical turn to provide a framework for thinking about, and conceptually distinguishing, what we mean when we talk about "data". This ranges from mere scribblings in a table (i.e. "30–32%"), to the meanings we give to them (i.e. "the percentage of female professors in Finnish academia"), the societal processes of ascribing both truth to them (i.e. peer review process), as well as their normative contents (i.e. "this is *undesirable* for achieving gender equality"). To set out our framework we draw on the work done by Saša Baškarada and Andy Koronios (2013) and Jennifer Rowley (2007). They present an analytical model that distinguishes between Data (scribblings), Information (meaning), Knowledge (truth ascription), and Wisdom (normative ascription), which they place conceptually in a hierarchy (see Figure 1)—hereafter this will be referred to as the DIKW hierarchy.

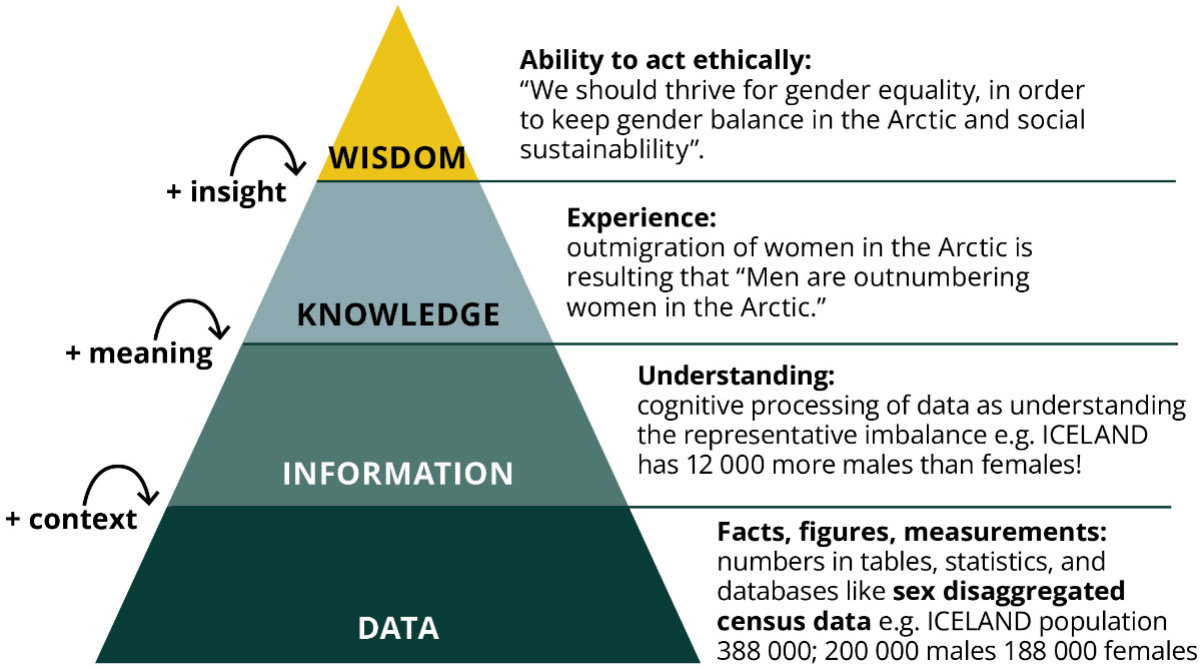

Figure 4: Sex and gender data in DIKW hierarchy (developed from Rowley, 2007, p. 163)

Adapting this theoretical model to our needs, we propose that *sex and gender data* could refer to, for example, sex disaggregated census data or register data depending on the national practice of the Arctic country in question. *Gender information* could relate to, for example, sex disaggregated census statistics in the Arctic context by opening a view to sex and gender imbalance in the Arctic, whereas gender knowledge could be based on individual experience and/or produced collectively through systematic and analytical study. In this way we can provide a broader view on gender

as a socially organising category resulting in horizontal and vertical segregation in various sectors of the Arctic including decision-making, education, knowledge production, etc. Finally, the top level of the DIKW hierarchy, *gender wisdom*, could manifest as gender equality as a societally promoted value mainstreamed in various sectors of society.

In the rest of what follows we apply this theoretical model to an analysis of gender equality initiatives within the European Commission (EC) and the UN Sustainable Development Goals (SDGs). As shown in various studies, and elsewhere in this report, sex and gender data is not a readily available commodity but rather a scarce resource. Special effort is needed to produce it. During the past ten years, the EC has made the sex and gender dimension in knowledge production a mandatory requirement by requesting an elaboration of it in the grant application phase. The gender mainstreaming approach proposed by the European Institute of Gender Equality of the EU has two dimensions: ensuring a gender perspective in the content and work plan of the project; and a balanced gender representation in the research team. Thus, the knowledge production shall promote equality in all aspects and provide equal opportunities regardless of gender, nationality, ethnic background, age, religion or belief, sexual orientation, and disability, in line with the EU Directives 2000/43/EC, 2000/78/EC, and 2006/54/EC.

The gender dimension would require involvement of women and men, but also, importantly, non-binary people at the local level in the approaches and the development and performance of, for example, citizen science projects. Furthermore, it would entail considering potential occupation-related sex differences, for example, in pollutant exposure, and thus selecting data in a sex-balanced manner. The results of all studies shall be reported in a gender-responsible manner indicating study limitations as indicated, for example, in SAGER guidelines (Heidari et al., 2016). In addition, special attention shall be paid to fostering local inclusivity and sustainability throughout the knowledge production process, for example, considering diverse resident groups in knowledge production. Local variation and differences based on nationality, ethnic background, age, religion or belief, sexual orientation or disability shall be acknowledged and respected.

Table 1: Counts and proportion of SDG publications that include sex and gender keywords in 2020 (Herbert et al., 2020)

SDG No.	SUSTAINABLE DEVELOPMENT GOALS	PUBLICATIONS IDENTIFIED BY SDG QUERY	PUBLICATIONS ALSO IDENTIFIED BY SEX AND GENDER KEYWORD SEARCH	PROPORTION OF SDG PUBLICATIONS THAT INCLUDE SEX AND GENDER KEYWORDS	SDG'S UN WOMEN GENDER CLASSIFICATION
5	Gender Equality	25,601	24,319	95%	Gender-sensitive
3	Good Health and Well-being	417,443	256,741	62%	Gender-sensitive
16	Peace, Justice, and Strong Institutions	35,037	13,599	39%	Gender-sensitive
10	Reduced Inequalities	38,250	14,129	37%	Gender-sparse
1	No Poverty	13,424	4,142	31%	Gender-sensitive
	Quality Education	37,206	9,302	25%	Gender-sensitive
2	Zero Hunger	37,067	7,335	20%	Gender-sparse
8	Decent Work and Economic Growth	40,920	5,639	14%	Gender-sensitive
15	Life on Land	35,543	3,114	9%	Gender-blind
11	Sustainable Cities and Communities	57,878	3,992	7%	Gender-sparse
6	Life Below Water	28,146	1,882	7%	Gender-blind
12	Clean Water and Saniation	51,057	2,349	5%	Gender-blind
12	Responsible Consumption and Production	37,391	1,533	4%	Gender-blind
13	Climate Action	42,699	1,336	3%	Gender-sparse
9	Industry, Innovation, and Infrastructure	58,662	1,764	3%	Gender-blind
7	Affordable and Clean Energy	112,053	1,037	1%	Gender-blind
	Deduplicated total	**1,669,868**	**352,228**	**21%**	**n/a**

When it comes to scientific knowledge production, having the gender dimension in academic peer-reviewed publications is still very rare, as shown in the European Commission's 2018 She figures on sex and gender dimensions in European research publications between 2015-2018 (EC, 2019). Just 1.8% of research publications had sex and gender in their key fields (title, abstract, keywords). The situation is not yet solved globally, despite the inclusion of the gender dimension in all SDGs. Scarcity of gender-dimension in research publications is evident according to Herbert et al. (2022), as presented in Table 1, which shows varying percentages from 95% in SDG5 Gender Equality to 1% in SDG7 Affordable and Clean Energy. These examples show how important it is that the EC has made an effort to include sex and gender dimensions as a mandatory part of the research application level. As such, sex and gender aspects are discussed in a variety of research disciplines and scholars doing academic research need to make informed decisions when planning their future research efforts, which need to include sex and gender considerations.

The Quintuple Helix Model as a System of Exchange and Resource of Knowledge

Having presented an analytical model of the different meanings we attach to "data" across social contexts, we can now turn to a second theoretical interlude aimed at clarifying the "social life" of data. By the latter we mean the different societal-institutional structures in, and for, which data is produced. Here we draw on *the quintuple helix model*, see Figure 5, suggested by Carayannis et al. (2012). This analytical model is favoured because of how it encourages researchers to think about institutional structures and the demands on data production that they generate as, at times, overlapping with one another. In their paper, the authors identify five subsystems within society: university; industry; government; civil society; natural environments. Usefully, the quintuple helix model supports linkages between ecology, knowledge, and innovation—allowing for analytical synergies between economy, society, and democracy, thus facilitating sustainable development (ibid.). Next, we break down and analyse each of these subsystems.

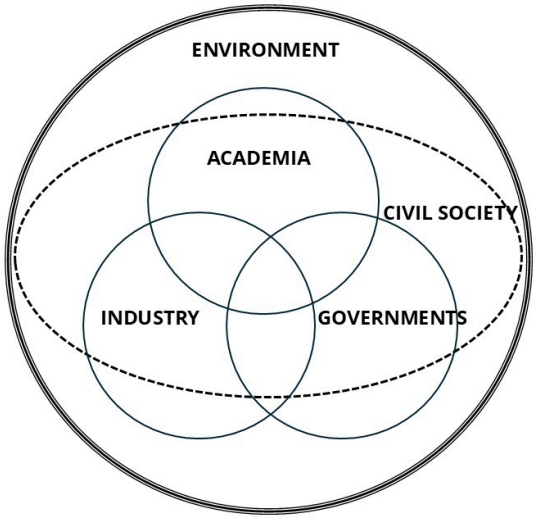

Figure 5: The Quintuple Helix (five-helix model) innovation system (based on Carayannis et al., 2021)

Traditionally *governments* need data on their population for social planning, which includes taxation but also military purposes. Governments and organisations use demographic statistics to make informed decisions about urban planning, public health, and social services related to resource allocation. Census statistics help in understanding population trends, such as birth and death rates, migration patterns, and age distribution, which are crucial for planning and policymaking. Data collection and knowledge production are closely linked with the national governance and political system and the creation of political agendas nationally, internationally, and across the cross-border Arctic area. This data is often still sex disaggregated in the binary categories of male and female.

Academia could be viewed as a data generating, data gathering, data analysing, and data interpreting institution, which is constantly renewing its understanding of data and its significance and relevance for knowledge production. The data serves as the foundation for analysis, interpretation, and conclusions in research studies. Common types of research data consist of quantitative, qualitative, experimental, observational, survey or secondary data. Recently, there has been growing interest in big data as the availability of datasets and computational power has increased. Research data is essential for validating hypotheses, drawing conclusions, and advancing knowledge in increasingly inter- and transdisciplinary fields in Arctic knowledge production. However, sex and gender gaps exist in various kinds of data and academic knowledge production processes in general. Therefore, Gender Impact Assessment (GIA) tools (Heikkinen et al., 2025) and SAGER guidelines (Heidari et al., 2016) have been created to support researchers in bridging these gaps and producing more precise, that is, better, sex and gender-sensitive knowledge (see Schiebinger et al., 2011–2020; EC 2020; EC 2014).

Industries' data needs are varied but crucial for effective economic decision-making, optimising operations, and enhancing customer experiences. Common types of data used in industry relate to business transactions, customers, day-to-day operations management, market data, and employee and product data. These types of data are often integrated and analysed to provide comprehensive insights that drive business growth and innovation. Furthermore, determining Corporate Social Responsibility (CSR) involves collecting and analysing various types of data to assess a company's impact on society, the environment, and the economy—this also includes the promotion of sex and gender equality, which is often mandatory by law. CSR could have a specific extension to the Arctic since a lot of industrial waste, plastics, and pollution end up here via long-range transport (see ArcSolution). The Arctic region is attracting a growing number of data centres due to the region's natural energy efficiency resulting from its cold climate. Northern regions are providing specific "data industry" locations as in the case of Google with its data centre plans for Muhos and Kajaani in northern Finland. Along with their massive data-processing capacity, these centres use massive amounts of electricity, water, and produce heat. There is a contradiction in the need for more data, which results in more energy-consuming data centres in the Arctic, which in turn exacerbates global warming.

Instead of discussing *civil society* in the Arctic, we prefer to use the term *Arctic people*, as it gives greater space and a voice to the diversity of seven million people from eight different countries living in the Arctic. Arctic people's critical data, information, and scientific literacy skills are dependent on the initial education available, their own interest in, and accessibility and connectivity to, the digital knowledge society. More detailed studies are needed on what basis and to what extent Arctic people can be defined by media-based and culture-based publics, including social traditions and values—as the internet, communication, and social networks form the original definition of helix in the model. As an interesting Arctic example, Skábmagovat, the world's northernmost Indigenous film festival, takes place in the village of Inari, the cultural centre in Sajos, the Sámi museum in Siida, and the Snow Theater built from snow.

Natural environment as a data reserve is multilayered. Environmental data often refers to information collected about the natural environment and the impact of human activities on it. This data is crucial for understanding and managing environmental issues, such as climate change, pollution, and resource depletion. Such data could consist of data on air and water quality, soil and climate data, biodiversity, energy consumption, and waste management. Various methods can be used to collect environmental data, including sensors, satellite imagery, laboratory analysis and field observations, including citizen science and innovative artistic approaches such as Arctic permafrost Atlas produced in the Nunataryuk project (https://www.grida.no/publications/998). Environmental data is used by governments, researchers,

organisations, and local people to make informed decisions about environmental protection and sustainability. Gradually, the importance of sex and gender data, sex and gender response-able knowledge production has become more widely acknowledged in studies using the One Health approach (e.g. ArcSolution).

Finally, we propose supplementing the quintuple helix model framework with a complex data and research ethics area as it importantly intersects with all the dimensions presented in the quintuple helix model in which data is being discussed. Data and research ethics are at the centre of these five helixes as an area of common concern (see Figure 6). They are evolving and often articulated through processes of interaction involving local and Indigenous People and data-generating instances and individuals (i.e. researchers, government or industry representatives). Central questions for data ethics include: What is the data that we have? What are the data gaps? What are the data needs? Who owns the data? Where should it be stored? Who has access to it? Data usage and management shall be defined by the Arctic people by ensuring the data sovereignty of local and Indigenous People.

Data is foundational for the knowledge that is needed to co-create solutions to the most troubling and pressing problems of our time, many of which are interrelated due to the fact that we are living on one planet. The UN's Agenda 2030 and its 17 SDGs have defined and described the data and sustainability dimensions needed to secure "peace and prosperity for people and the planet". Ethics is intertwined with sustainable development via the principle that we should not eradicate the planet but rather leave it for the next generation in a shape that is no worse than when we received it. Thus, ethical sustainability consists of economic, social, and ecological sustainability. From a human agency point of view, the human rights of all, the achievement of gender equality, and the empowerment of all women and girls are central to SDGs. Therefore, sex and gender data, as well as the sex and gender dimension in knowledge production for sustainability, are at the core of the principle that "no one will be left behind" (see SDGs).

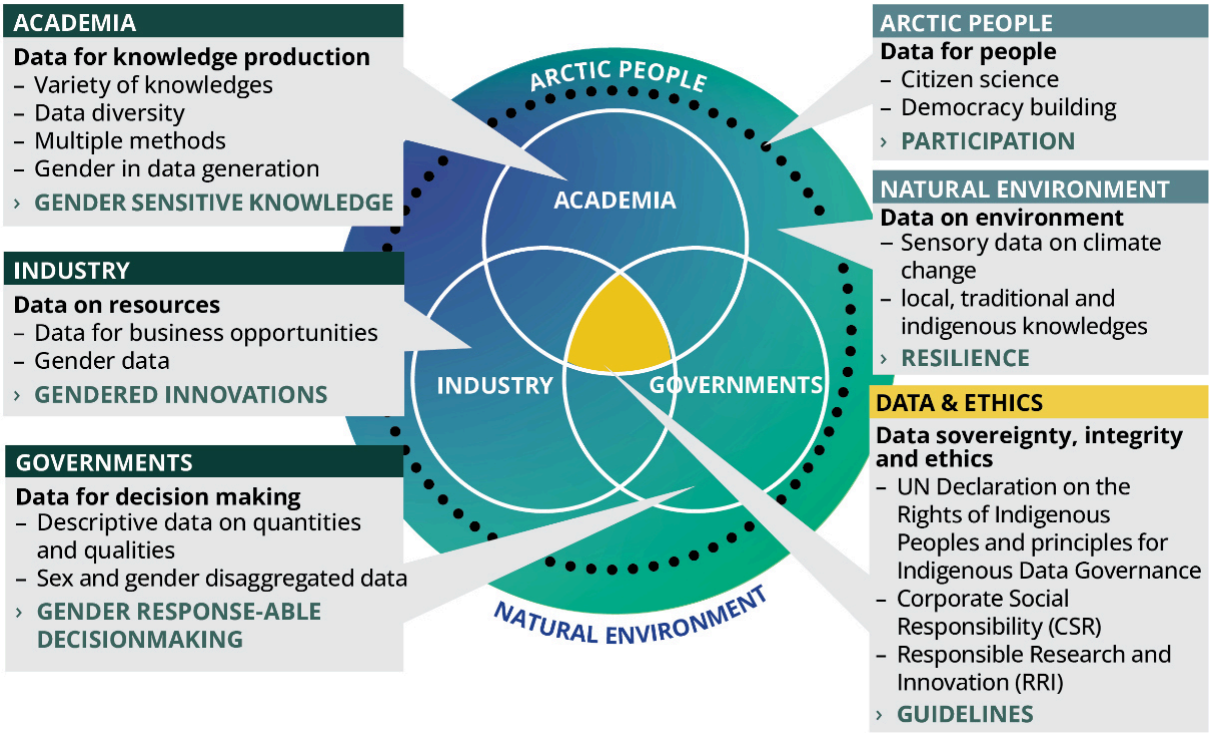

Figure 6: Sex and gender data challenges within the quintuple helix frame (Based on Carayannis et al. 2012)

Figure 6 presents the quintuple helix model in the Arctic context, identifying specific challenges related to sex and gender data. These various data and knowledge domains are not completely gender aware or gender sensitive. Thus, there is a need for an increased gender awareness in knowledge production processes. In seeking to help knowledge producers in this respect, the Gender Impact Assessment (GIA) approach was developed in the EC-funded Redesigning Gender Equality and Scientific Excellence Together (RESET) project. Furthermore, we have identified a need for a proper research project to elaborate in more detail how different types of data, especially sex and gender data, generate knowledge and innovations in Arctic people's lives and in the broader framework of, and in interaction with, academic, government, and industry representatives.

ARCTIC RESEARCH ETHICS — CONCLUDING REMARKS

The Arctic knowledge production challenges are manifold. They include decolonial, Indigenous, intersectional, and sex and gender data needs and challenges—all of which have a profoundly ethical nature. We would like to voice an ethical priority for local knowledge production, "Arctic Community-Based Citizen Science". Our intention is to include the approaches of local and Indigenous knowledges, TEK, scientific knowledge, One Health, and intersectional gender perspectives that currently challenge traditional colonial knowledge production processes, practices, and systems of storing data, information, knowledge, and wisdom. The model includes communication of the participatory dissemination activities—sharing and deliberating on local environmental matters of concern with relevant stakeholders. In order to have knowledge that is locally meaningful and accurate, we need to have methodologies and knowledge production processes that can produce locally relevant understandings of the topical issues and concerns. Citizen science and social citizen science approaches aim to democratise knowledge production processes. There is a recognised need for participatory approaches that enable knowledge production processes for local needs, as described by Jennifer Carrera and Les Levidow (2024) in the introduction to a special issue of *Science as Culture*. This contributes to enhanced local decision-making practices and matters to be brought into decision-making arenas. This is also at the core of European democratic development. At this time, governance systems are varied in the Arctic regions, lands, and nations. Digitalisation has brought new opportunities to facilitate gender equality through data, information, and knowledge co-creation and to facilitate UN SDGs (Matinmikko-Blue et al., 2020, 2024). Critical gender equality information literacy creates capabilities for further gender impact analysis in knowledge production (Heikkinen et al., 2025b). Further, decolonial Arctic knowledge production is a practical and ethical necessity (Herrmann et al., 2023). Democratic knowledge production and decision-making practices with intersectional, gender response-able participatory approaches shall be a fundamental principle for all research in the Arctic.

Finally, we will conclude by presenting key findings that can help to mainstream the sex and gender dimension in all phases of knowledge production in the Arctic. The eight GIA policy recommendations are based on the EC-funded RESET project, implemented during 2021–2024. The GIA approach is recommended to be applied throughout the knowledge production process to ensure that intersectional sex and gender analysis is executed in each and every phase:

1. As keywords in literature searches;
2. In research questions and objectives;
3. In analysis of knowledge gaps;
4. In researcher recruitment processes, with particular emphasis on female participation in the decision-making and community engagement process;
5. In data aggregation;
6. In detecting stereotypes that may introduce bias into the data;
7. In risk assessments and design methods to mitigate them;
8. In reporting sex and gender project results to policymakers and practitioners (e.g. including how the research advances equality within society);
9. In all dissemination and communication activities (e.g. using language free from bias, gender division in panel discussions, interviews, visibility in media, etc.).

Table 2 below presents eight GIA policy recommendations based on the RESET project's GIA pilots (Heikkinen et al., 2025a) implemented in HEIs in the European Research Area. We propose that these GIA policy recommendations are useful for identifying sex and gender data needs and challenges in the Arctic. Their applicability could be elaborated and further developed within sub-systems other than academia, including governments, industry, Arctic people, the natural environment, and data ethics. Additionally, we acknowledge the significant role of national statistical institutions in gathering and annually publishing statistics on various societal dimensions which are useful in understanding and decision-making. However, communication and collaboration with statistical offices could be improved in a digital knowledge era, particularly within academia and potentially more broadly. Critical gender equality literacy should consist of data literacy and should include data/statistical literacy among citizens and especially in consideration of gender equality statistics.

Table 2: GIA policy recommendations applied in the Arctic context with short-term and long-term strategies (based on Heikkinen et al. 2025a)

SHORT-TERM STRATEGIES	GIA POLICY RECOMMENDATION	LONG-TERM STRATEGIES
Incorporate existing gender knowledge in research projects.	**1. Deep Integration of Gender Dimension in Arctic Research and Innovation:** Ensure that the gender dimension is a mandatory component in all research and innovation content.	Transform knowledge production practices as gender responsible.
Engage programme leaders to promote gender dimension in the programme.	**2. Profound Inclusion of Gender Dimension in Arctic Educational Programmes:** Require the inclusion of the gender dimension in the content of educational programmes at the programme level.	Promote independent gender responsible course, programme, and curriculum development by including gender training in initial teacher education at all levels, as well as providing in-service teacher education for higher education teachers.
Involve entire academic community in each faculty in gender equality planning—including critical groups such as newcomers, minorities, etc.	**3. Institutional Gender Equality Plans in Arctic—Research and Education as Mandatory GEP Action:** Implement a policy for the regular (e.g. biannual) update of Institutional Gender Equality Plans to ensure they remain current and effective specifically in relation to research and education.	Ensure sex, gender, and intersectional perspectives are included in the faculty-level biannual gender equality plan, with the actions measured and updated regularly.

SHORT-TERM STRATEGIES	GIA POLICY RECOMMENDATION	LONG-TERM STRATEGIES
Incorporate existing gender knowledge in research projects.	**4. Deep Integration of Gender Dimension in Arctic Research and Innovation:** Ensure that the gender dimension is a mandatory component in all research and innovation content.	Transform knowledge production practices as gender responsible.
Engage programme leaders to promote gender dimension in the programme.	**5. Profound Inclusion of Gender Dimension in Arctic Educational Programmes:** Develop and make available comprehensive institutional gender statistics to inform policy and practice (education).	Annual follow-up of institutional gender statistics on inclusion of gender dimension in research publications, applications, and programmes.
Monitor participation in general training on gender dimension in research and gender impact assessment training for all students and staff.	**6. Requirement of Gender Expertise as Arctic Professional Competence:** Require participation in mandatory training on the gender dimension in knowledge production for all relevant stakeholders with a preset frequency.	Development of professional qualification criteria on gender expertise—requirements to be included in recruitment processes for all institutional positions.

SHORT-TERM STRATEGIES	GIA POLICY RECOMMENDATION	LONG-TERM STRATEGIES
Review existing gender equality and DEI communications with the aim to estimate the state of the art.	**7. Inclusion of (DEI) Contents in Arctic Communication:** Gender equality and DEI matters in the Arctic shall be part of the communication flow with the aim of ensuring increased awareness.	Draft gender equality and DEI matters communications plan (e.g. based on the annual timetable of the institutional gender equality board agenda).
Discussions in ASSW2025-ICARP2025 conference in Boulder, Colorado.	**8. Gender Response-ability at the Core of the International Arctic Research Planning ICARP IV.** Consistent and comparable sex and gender data form the foundation for gender response-able knowledge production, enabling a comprehensive understanding of the dynamics, realities, and inequalities across Arctic regions, countries, sectors, genders, and peoples.	Active implementation, identified goals, set targets, and systematic follow-up.

The theory and practice presented in this chapter seek to understand the link between sex and gender data needs and challenges in the Arctic knowledge production context and to promote sustainable development in the Arctic. Drawing on our reading, it is our view that Arctic knowledge production ought to be understood as an interlinked system of quintuple helix models "university; industry; government; 'Arctic people'; natural environment." Additionally, rigorous data ethics is needed to assess sex and gender dimensions in their operations and availability as well as the sufficiency of sex and gender data in their decision-making processes. The role of governments is to function mainly at the level of allocating finances and preparing and making agreements, which is increasingly important for conflict prevention and mitigation. Corporate Social and Environmental Responsibility should be stressed increasingly as industries benefit greatly from a highly educated labour force. Higher education institutions are revived in their role as key drivers for sustainable development, performing a core function in renewing knowledge within the digital knowledge society and being capable of fostering knowledge democracy towards more inclusive knowledge production. This view becomes clear and is further advised by research guidelines on ethics, decolonial research practices, and gender impact assessments of research proposals. The communities of Arctic Indigenous and local people form the core group for co-creating sustainable sex and gender response-able knowledge production.

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DISAGGREGATED DATA AND DATA COMPARABILITY: A SELECTION OF SOCIOECONOMIC INDICATORS

Karen Everett, Sébastien Lévesque, Jade Crépault, Gérard Duhaime, Université Laval, Canada
Contributing author: David Natcher, University of Saskatchewan

The *Pan-Arctic Report: Gender Equality in the Arctic (GEA III)* addressed issues around gender equality in six key areas: law and governance; security; gender and environment; migration and mobility; Indigeneity, gender, violence, and reconciliation; and empowerment and fate control. A key finding was that data gaps persist in many of these areas and that "Consistent and comparable data is the very foundation for understanding realities and inequalities across regions, countries, sectors, genders, and peoples" (Oddsdóttir & Ágústsson, 2021, p. 17). We also suggest that access to data at the regional level is important for two main reasons. First, most Arctic countries are not entirely in the Arctic, meaning that living conditions could be different in the North compared to in the southern regions. Second, inequalities can be found within Arctic regions of the same country (see e.g. Duhaime et al., 2017, 2021).

Identifying indicators in each of the Arctic countries that align with the themes of *GEA III* is a large undertaking. Thus, we focus on some of the challenges pertaining to disaggregated data and comparability in the Arctic countries. We do this in two parts. First, we perform a socioeconomic data comparison based on a sample of data sources that are publicly available through statistical agencies. Second, we look at data availability for gender-relevant Sustainable Development Goals (SDGs). This is followed by a discussion and conclusion, which includes some recommendations. Overall, we find that the availability and comparability of disaggregated data varies on the basis of indicator, data domain, and location. Similarly, disaggregated data is not available for all gender-relevant SDGs. To help address these gaps, international collaboration among rights holders and stakeholders could improve the identification and harmonisation of key indicators, including through the creation of a centralised Arctic database.

COMPARISON OF SELECT SOCIOECONOMIC INDICATORS

Our Approach

The primary aim of our analysis was to take stock of data availability for select indicators by sex/gender and for Indigenous Peoples by region and that is comparable. We developed an approach aimed at providing an overview of the statistical coverage of the circumpolar Arctic regarding gender issues, as well as reporting on the challenges associated with the availability and comparability of socioeconomic data on a circumpolar scale. Starting from a delimited set of themes and data sources, the approach involved a systematic review of selected data sources, enabling the characterisation of the statistical coverage of the circumpolar Arctic based on a sample of comparable indicators defined for the purposes of this review.

This section describes this approach, presenting the geographical scope, the domains (or themes) selected for analysis, the data sources identified, the metadata collection process by data source, the set of indicators defined for circumpolar comparison, the assessment of the availability and comparability of the selected indicators, and the development of a synthetic score assessing data availability and comparability. With this sample of indicators, our aim was to draw up a summary of the availability of socioeconomic data by gender. This approach was then replicated to assess the availability of these indicators, but this time according to Indigenous identity.

Regional Scope

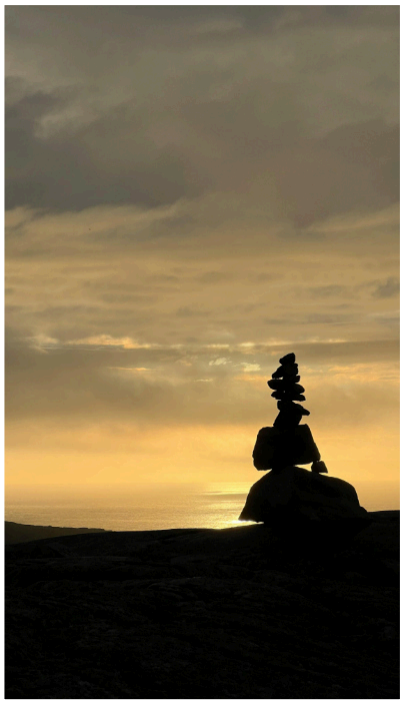
We began by identifying our scale. Statistical agencies can make data available at the national level, but they can also provide data for scales other than at the national level, like territories, states, counties, or constituent entities, as well as municipalities, and other administrative regions, such as census divisions or health regions, and so on. For the purposes of this report, we follow the regions used to perform circumpolar comparisons in chapter 2 of the *Economy of the North (ECONOR)* reports (see e.g. Duhaime et al., 2021, p. 16). These regions are identified in Table 3.

Table 3: Circumpolar regions

COUNTRY	REGIONS
USA	Alaska
Canada	Northwest Territories; Nunavut; Yukon
Faroe Islands	Faroe Islands
Finland	Kainuu; Lapland; North Ostrobothnia
Greenland	Greenland
Iceland	Iceland
Norway	Finnmark; Nordland; Troms
Sweden	Norbotten; Västerbotten
Russia	Arkhangelsk; Chukotka; Karelia; Khanty-Mansii; Komi; Krasnoyarsk; Magadan; Murmansk; Sakha; Yamal-Nenets

Note: Krasnoyarsk is not included in the ECONOR regions given how far south the region extends (see Duhaime et al., 2021, p. 14); however, we have included it in this report to ensure that Taimyr and Evenk are represented, even if as part of a larger geographical area.

Note: Troms and Finnmark in Norway merged in 2020 to form "Troms and Finnmark" but subsequently separated in 2024. Thus, they are presented separately here.



Selected Domains and Data Sources

We began by identifying broad themes that were, in part, based on the knowledge of some of the statistical coverage of Arctic regions in past research projects, as well as on their relevance to certain gender conditions (see Appendix A). Next, we identified relevant data tables from the English-language pages of the statistical agencies' websites* that contained data available at the regional level and, where possible, could be disaggregated by sex or gender, and for Indigenous Peoples. The data tables used for analysis were identified between July 2024 and mid-January 2025 (see Appendix B for the complete list of data tables).

Metadata Collection

The practices of statistical agencies vary from one country to another, in terms of definitions, concepts, methods and nomenclatures used, frequency of collection, dissemination, data universes, and so on. To systematise comparisons of available sources and data, we systematically collected metadata on available data by consulting definitions, data dictionaries, and other sources of information. Each of these data sources relevant to the themes identified were systematically examined for the following metadata in Table 4.

** If data tables were not available on a national statistical agency's website, they may have been obtained from other data-producing agencies.*

** In cases where English webpages were not available (e.g. On the Rosstat website), we used Googled Translate to translate these websites. Online translators were also used to translate Russian data tables that were not available in English*

Table 4: Metadata

ATTRIBUTE	DESCRIPTION
Domain	The broad category or field of statistics
Indicator	A measurable statistic within the domain
Definition	The definition or description provided by the data source. We record everything that's relevant
Sub-indicators	A specific attribute, subcategory or property being measured
Unit	The unit used to quantify the indicator
Availability	Is this indicator available for this region?
Age groups	Available age groups
Sex or gender	Available subpopulations
Indigenous Peoples	Whether the data can be disaggregated by Indigenous identity
Universe	The population or group covered by the indicator
Periodicity	How often the indicator is published or available
Years	Years for which the indicator is available ('-' denotes continuous timeframe)
Source	The organisation or survey that provides the data
Table name	The name of the table
Data link	Hyperlink to the source
Definition link	Hyperlink to indicator or concept definitons
Methodological notes	Methodological notes that do not belong to the other attributes
Other notes	Comments and notes not included elsewhere

Selected Indicators

We have defined a set of indicators that can be obtained or derived from data generally available from statistical agencies in the Arctic countries (Table 5) and that take into account the potential limitations to comparability that arise when making comparisons. The selected indicators are not exhaustive, neither to all the regional data availability nor to all the gender, living, and cultural considerations present in the Arctic. There is also an over-representation of work-related indicators that, in part, reflects data availability of statistical agencies, which tends to be representative of the concerns of the governments, including the "economic, demographic, social and environmental situation" (United Nations, 2014, principle 1) in a country. This, however, may not fully address the depth needed for gender analyses (Oddsdóttir & Ágústsson, 2021). Moreover, given that the aim is circumpolar comparability, we do not document indicators that might relate to local specificities.

Table 5: Selected indicators for analysis

DOMAIN	INDICATOR NAME	SHORTENED INDICATOR NAME
Population and demographics	Population count	Population count
	Life expectancy at birth	Life expectancy at birth
	Under-five mortality rate	Under-five mortality rate
	Percentage of married persons	Married persons
	Percentage of divorced persons	Divorced persons
Educational attainment	Percentage of population with less than upper secondary education	Less than secondary education
	Percentage of population with upper secondary education	Secondary education
	Percentage of population with tertiary education	Tertiary education
Crime and gender-based violence	Sexual violence rate	Sexual violence rate
	Violent assault rate	Violent assault rate
	Homicide rate	Homicide rate
	Intimate partner violence rate	Intimate partner violence rate
Employment, work, and income	Labour force participation	Labour force participation
	Employment rate	Employment rate
	Unemployment rate	Unemployment rate
	Percentage of employees in total employment	Employees
	Percentage of self-employed workers in total employment	Self-employed workers
	Percentage of part-time workers in total employment	Part-time workers
	Percentage of full-time workers in total employment	Full-time workers
	Percentage of managers	Managers
	Percentage of service and sales workers	Service and sales workers
	Percentage of skilled agricultural, forestry, and fishery workers	Primary sector workers
	Average total personal after-tax income	Average personal income
	Median total personal after-tax income	Median personal income

Selected Indicators Availability and Comparability Assessment

With these indicators, we proceeded to examine the availability of the indicators or data sought, as well as their potential comparability.

Some of these indicators are available as is and published by statistical agencies (e.g. the unemployment rate), but others require calculations based on data supplied by data providers (e.g. the percentage of population with tertiary education). For indicators derived from potentially available data, a content analysis of the metadata collected was carried out to validate whether the necessary information was available from the sources surveyed. Such qualitative analysis is labour-intensive, often requiring the examination of numerous sub-categories and metadata. To streamline the process, we used large language model-assisted coding.* This approach made it possible to make an inventory of the sub-categories searched for (e.g. all crime categories related to sex crimes), as well as the semantic search for specific information in the various formulations and regional variations (e.g. the various local labels and denominations associated with upper secondary education). The indicators and data available as is (e.g. unemployment rate) were also subjected to a comparative analysis in terms of the metadata available, including definitions of concepts and data universes. This high-level comparability assessment was also partly assisted by LLM. Every codification, information identification, and synthesis generated by LLM has undergone multiple revisions.

The comparability assessment was primarily a qualitative examination to identify data for which the characteristics are so disparate that inter-regional comparison would be severely impaired. In the end, national methodological variations can be observed for almost all indicators.

We have therefore categorised the indicators into two groups:

1. Indicators with significant limitations for comparison;
2. Indicators for which the concepts are generally comparable and fairly close to international standards.

**A few models were tested. LLM-assisted qualitative analyses mainly used gpt-4 and gpt-4o via the OpenAI API.*

While some table components could enable harmonisation with one another, it would still be necessary to decide on a common standard, which is beyond the scope of this review. To be sure, when methodologies are not perfectly aligned, the degree of comparability is open to interpretation and the comparability of a given measure from one region to another is therefore often imperfect. Thus, a conservative approach was used to assess inter-regional comparability. If, for a given indicator, there were no groups of regions labelled as methodologically or conceptually comparable, this does not mean that comparative analyses are not possible and that it is not possible to harmonise data from publicly available sources. Several of these indicators could be harmonised on request by statistical agencies.

On the basis of all the metadata collected and their codification, the following scores were defined:

Score 0:	No data is available for the region.
Score 1:	Data exists, but key disaggregation by sex/gender or data for Indigenous Peoples are missing.
Score 2:	Disaggregated data is available, but its comparability is limited or inconsistent.
Score 3:	Disaggregated data is available and exhibits fair comparability across sources or regions.

Figures 7 and 8 have been developed based on this four-level system.

Limitations

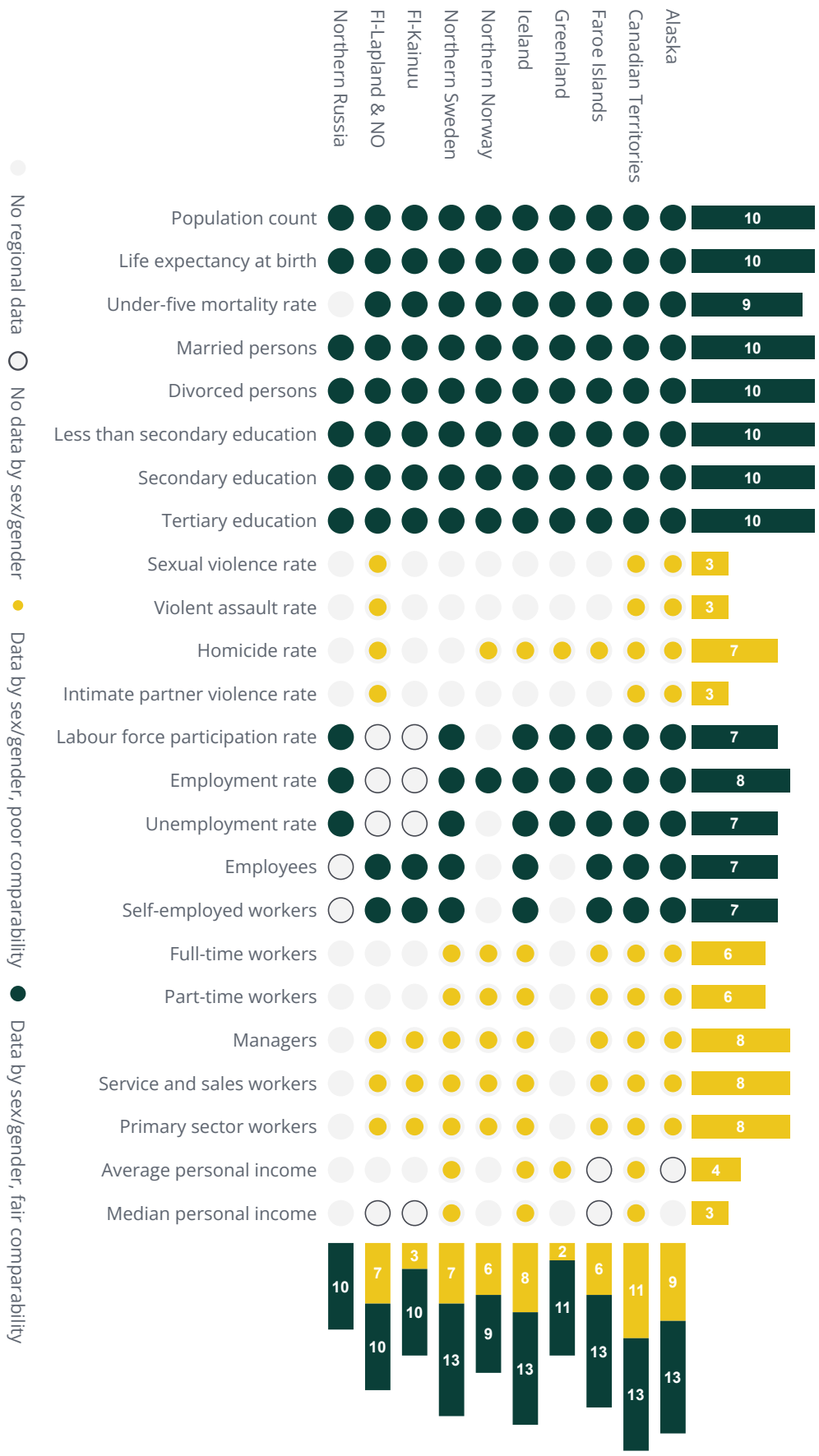
This process is not without some other limitations not mentioned as yet. First, we recognise the possibility that we may have missed a data table or not made the best choice when selecting from multiple tables for analysis. If something was unclear or we could not find a table with data at the regional level, we contacted the relevant statistical agencies for assistance. This is one of the challenges faced by researchers making such comparisons in their own work.

Second, due to the current geopolitical situation and institutional regulations for some of the researchers in this project, data from Russia was limited to what was publicly available on the Rosstat website. To add to the thoroughness of our search, colleagues from outside our organisation who are familiar with the website and Russian data assisted in identifying relevant tables. The Rosstat website, however, became unavailable, preventing further efforts to finalise our work with the Russian data tables.

Analysis

As we started our analysis, it became clear that more data tables were disaggregated by sex than by gender. Thus, while imperfect, given the focus of this report is on gender, Figure 7 shows the availability and comparability of each indicator by sex or gender. Rather than listing each region individually, we grouped multiple regions by country to make the figure more readable. Kainuu is separate from the other Finnish regions as the data for crime and gender-based violence indicators were available via the Well-being Services Counties with no clearly marked county for Kainuu; this was not a result of other differences in regional data provided by Statistics Finland. The figure can be read both vertically and horizontally. For the vertical reading, bar charts represent the number of regions for which data can be disaggregated by sex or gender, which allows us to summarise data availability by indicator or domain. Horizontal bar charts allow us to compare the number of indicators available by sex or gender for each geographical group.

Figure 7: Data availability and comparability by sex or gender

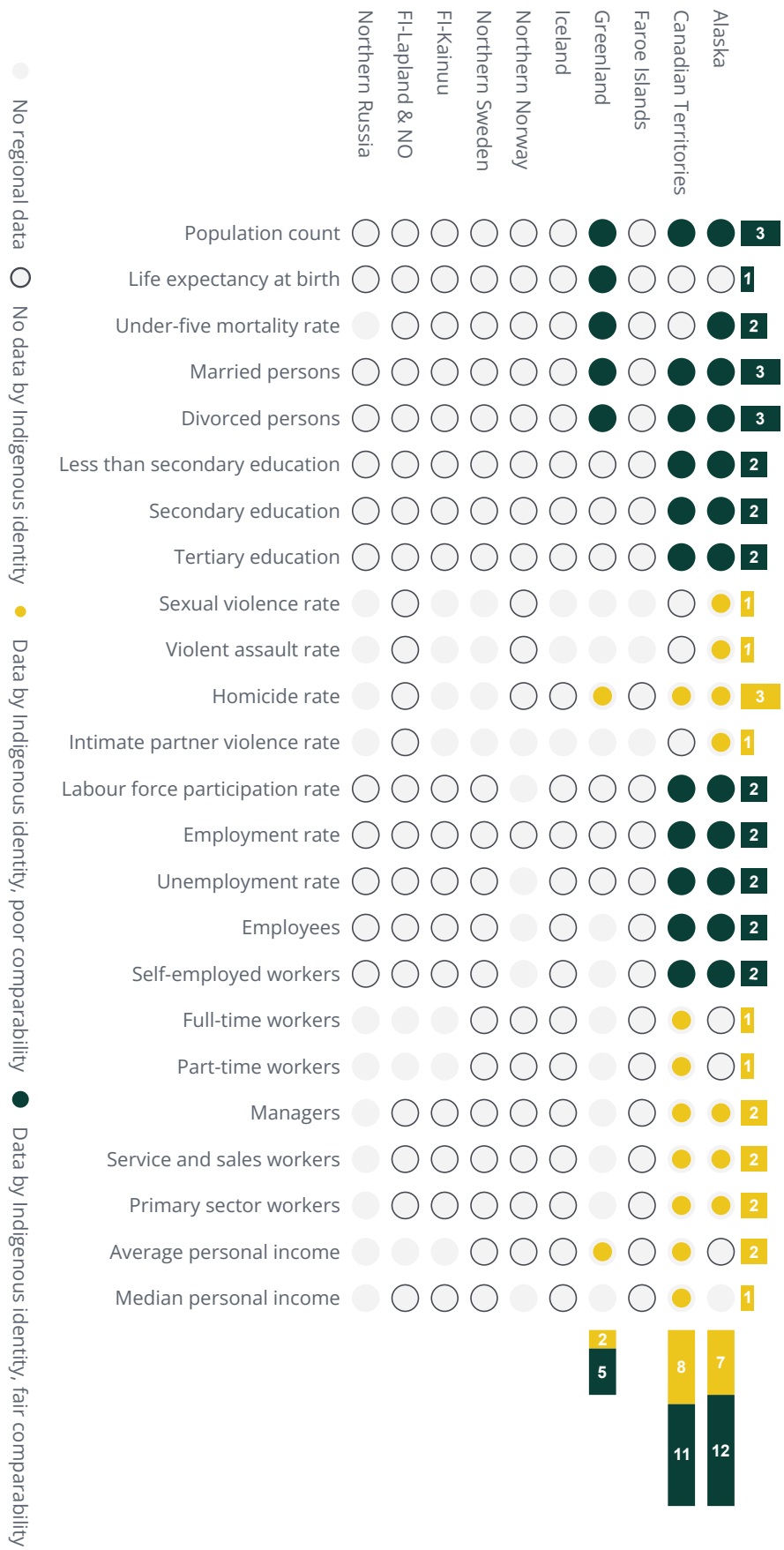


This figure illustrates that there is data that can be disaggregated by sex or gender across the Arctic, but that there are some gaps that are sometimes specific to certain areas and other gaps specific to groups of regions. Basic demographic indicators as well as educational attainment measures are available and adequately comparable for almost all the regions analysed. Although not available for all geographical areas, some of the most standardised labour market indicators, such as those relating to labour force status, also present an acceptable level of inter-regional comparability. Other labour indicators are not only less available by sex or gender, but also their comparability tends to be poorer due to strong variations in the concepts and nomenclatures employed. This is the case, for example, for indicators relating to occupational category, where despite the existence of standardised international classifications, like the International Standard Classification of Occupations (ILO, 2012), the national variations sometimes hinder comparisons. Similarly, not only were there few measures of personal income that could be disaggregated by sex or gender, but the income concepts employed generally had limited comparison. The crime and gender-based violence domain has the least data availability and comparability is poor. Moreover, the variables to select from for each country were not always the same, while the intimate partner violence tables identified who was the victim (e.g. spouse) but not the type of violence experienced.

Figure 8 shows the availability and comparability of each indicator for Indigenous Peoples using the same data tables used in Figure 7 and is read the same way both vertically and horizontally. We should note that for Greenland we used the variable "born in Greenland" as a proxy for disaggregated data for Indigenous Peoples.*

** The use of the variable for "born in Greenland" as a proxy is noted in two major Arctic studies: The Arctic Human Development Report and the Arctic Social Indicators report (se Bogoyavlenskiy & Siggner, 2004, p.29; Hamilton et al., 2010, p.37).*

Figure 8: Data availability and comparability for Indigenous Peoples



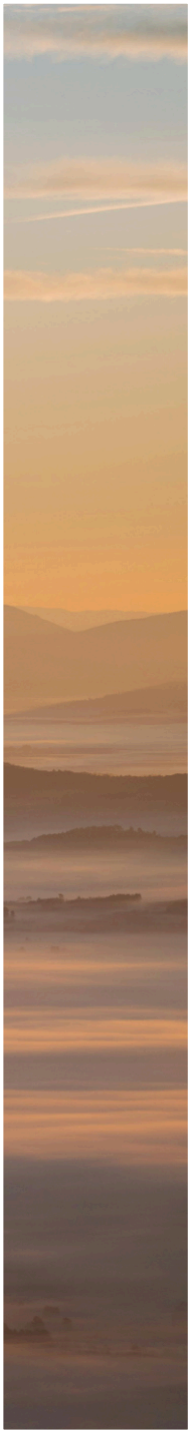
Disaggregated data for Indigenous Peoples for these selected indicators were only available for Alaska, the Canadian territories, and Greenland, although this is, in part, because the "Nordic countries' national statistics offices do not classify people by race or ethnicity" (Heleniak, 2024, p. 70). Russian population data for Indigenous Peoples was not available on the same data table used for the gender analysis, although some of this data is available through the Russian census (Young & Bjerregaard, 2019).

Disaggregation for Indigenous Peoples and for sex or gender together is possible for these indicators, with the following exceptions: Alaska—marital status, labour force participation rate, employment rate, and unemployment rate. We also observed that the *Indigenous Population Profile* in the Canadian Census does not necessarily cover the same number of topics as compared to the full census, and in some cases fewer variables are available for some topics.

Data for Sex vs Gender

The above analysed whether data was available and comparable at the regional level for sex and gender together. The reason for this is that few statistical agencies provide data by gender. Table 6 shows which of our selected indicators were disaggregated by gender. In sum, there were 22 indicators for the Canadian territories, 12 for Greenland, 1 for Alaska, and 1 for Iceland, although data for some indicators are found on the same table/data source.

Table 6: Indicators where gender is a variable at the regional level



ATTRIBUTE	DESCRIPTION
Population count	Canadian territories, Greenland, Iceland
Life expectancy at birth	Greenland
Under-five mortality rate	Alaska, Greenland
Marries persons	Canadian territories, Greenland
Divorced persons	Canadian territories, Greenland
Less than secondary education	Canadian territories, Greenland
Secondary education	Canadian territories, Greenland
Tertiary education	Canadian territories, Greenland
Sexual violence rate	Canadian territories
Violent assault rate	Canadian territories
Homicide rate	Canadian territories
Intimate partner violence rate	Canadian territories
Labour force participation	Canadian territories, Greenland
Employment rate	Canadian territories, Greenland
Unemployment rate	Canadian territories, Greenland
Employees	Canadian territories
Self-employed workers	Canadian territories
Full-time workers	Canadian territories
Part-time workers	Canadian territories
Managers	Canadian territories
Service and sales workers	Canadian territories
Primary sector workers	Canadian territories
Average personal income	Canadian territories, Greenland
Average personal income	Canadian territories, Greenland
Median personal income	Canadian territories

The use of gender in these data sources, however, is not straightforward. For example, in Iceland, population data is disaggregated by males, females, and non-binary/other, yet the variable is listed as sex rather than gender (Statistics Iceland, 2024), which is seemingly an oversight. In Canada, gender data started being available in 2021 and the various Statistics Canada surveys, censuses, etc. that collect data for gender recognise that sex and gender are not the same, nor is gender fixed (see. e.g. Statistics Canada, 2021, 2022a, 2024a, 2024b, 2024c). Yet the data tables present

disaggregated data in a binary manner. For instance, tables where men+/women+ are used explain that "individuals in the category 'non-binary persons' are distributed into the other two gender categories and are denoted by the '+' symbol" (Statistics Canada, 2022b, footnote 4; see also 2024d, footnote 7).

Gender disaggregated data with Statistics Greenland is also shown as for men and women. Population data "is retrieved from the Danish civil registration system (CPR)" (Statistics Greenland, n.d.) which allows individuals to officially change their gender (CPR - The Central Personal Register, n.d.), meaning that these changes will be reflected in Greenland's official statistics. The gender disaggregated data from the Centers for Disease Control and Prevention in the USA is also provided for males and females. The definition also does not explain if or how non-binary people are reflected in the data or if people are able to change their gender (Centers for Disease Control and Prevention, 2024).

SUSTAINABLE DEVELOPMENT GOALS

The United Nations Sustainable Development Goals (SDGs) were adopted in 2015 as a way to improve living and environmental conditions around the world as part of the *2030 Agenda for Sustainable Development* (United Nations, n.d.). In 2017, a complete list of indicators was adopted for each goal (United Nations General Assembly, 2017). The UN (n.d.) also explains that overall indicators and data for each goal "should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics" (p. 4). SDG 5 is specifically focused on gender equality while 71 indicators across 12 other SDGs have been identified as gender-relevant (United Nations, 2021). In this section, we assess the extent to which data is available.

The statistical agencies for each country have information and data available for the SDGs on their respective websites (Appendix C) and generally provide information at the national level. Thus, the analysis that follows focuses on data availability for SDG 5 and the other gender-relevant indicators at the national level. We also only analyse data provided for the UN indicators or data that has been identified as a proxy for a UN indicator. Indicators and data that have been identified as local (Greenland) or national (Sweden, Russia) are not analysed here. English versions of the relevant websites were consulted, where possible. The Statistics Sweden SDG website was in Swedish; thus, Google Translate was used. The SDG websites were consulted at various points between September and December 2024.

We also do not assess: 1) whether the data provided by each statistical agency aligns completely with the SDG definition. In many cases the data table provided is an existing table that is likely the closest a statistical agency has to the UN indicator; 2) if the data is available regionally; and 3) if the data is internationally comparable. An analysis incorporating all these dimensions is beyond the size and scope of the present study. What we aim to do here is provide an overview of which gender-relevant SDGs have *some* sex or gender disaggregated data and where more work needs to be done.

SDG 5—Gender Equality

In total, SDG 5 has 14 indicators broadly addressing discrimination, violence, health, unpaid work, leadership, access to technology, legal protection, and empowerment. Table 7 identifies the SDG 5 indicators and whether data is available for the different Arctic countries at the national level. Where “text” is used, this signifies that a statement was given for the indicator rather than a data table. Greenland makes available proxy indicators, although there were none for SDG 5.

Table 7: SDG 5 data availability at the national level

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
5.1.1. Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex		●		●	●	●			
5.2.1. Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age	■	■			■			■	
5.2.2. Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence	■	■			■			■	
5.3.1. Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18		■		■	■	■		■	■
5.3.2. Proportion of girls and women aged 15–49 years who have undergone female genital mutilation/cutting, by age				●	●			■	
5.4.1. Proportion of time spent on unpaid domestic and care work, by sex, age and location	■	■	■		●	■		■	■
5.5.1. Proportion of seats held by women in (a) national parliaments and (b) local governments	■	■	■	■	■	■	■	■	■
5.5.2. Proportion of women in managerial positions	■	■		■	■	■	■	■	■
5.6.1. Proportion of women aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care								■	■
5.6.2. Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education				●	●	●	●	■	
5.A.1. (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure								■	
5.A.2. Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control		●		●	●	●		■	
5.B.1. Proportion of individuals who own a mobile telephone, by sex	■				■	■		■	■
5.C.1. Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment		●		●	●			■	

No Yes Yes (text response)

Table notes: The SDG targets are available at: https://www.un.org/sustainabledevelopment/gender-equality/.

Indicators identified from the various statistical agencies' websites. Wording may vary slightly by country. Based on the UN targets: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review_Eng.pdf.

Finland's data is available in a searchable table by SDG number and target. All targets for SDG 5 were selected for 2008–2023 to see if data was available. If data was available in this timeframe, it is indicated as a yes in the table. The footnotes on their website also provide detailed information on the indicators.

The table shows that information and/or data is not available for every indicator for every country, other than Finland. Iceland provides the next highest data availability rate at 85.7% followed by Canada, Faroe Islands and Norway (64.3%), USA and Russia (42.9%), Sweden (28.6%), and Greenland (14.3%). As for the indicators themselves, the only indicator where some data is offered by every country is 5.5.1 on election results. There are some instances where data is offered by the statistical agencies but not available by sex/gender and is thus identified in grey. Indicators where the majority of countries do not provide data varies by topic and include indicators 5.2.1, 5.2.2, 5.6.1, and 5.A.1, thus leaving some knowledge gaps.

Other Gender-Relevant Targets

We examined the other 71 gender-relevant indicators, outside of SDG 5, and these are identified in Table 8. Of these 71 indicators, 29 (40.8%) indicators explicitly state that the indicator should be disaggregated by sex or have data available by sex (highlighted in blue). Five (7.0%) of the 71 indicators are also specifically about women (highlighted in yellow) and focus on different aspects of pregnancy and births in goals 2 and 3.

Table 8: Gender-relevant SDGs and indicators apart from SDG 5

GOAL	INDICATOR		
1. No Poverty	1.1.1	1.3.1	1.b.1
	1.2.1	1.4.2	
	1.2.2	1.5.1	
2. Zero Hunger	2.1.2	2.2.2	2.3.2
	2.2.1	2.2.3	
3. Good Health and Well-being	3.1.1	3.5.1	3.9.2
	3.1.2	3.5.2	3.9.3
	3.2.1	3.6.1	3.a.1
	3.2.2	3.7.1	3.b.1
	3.3.1	3.7.2	3.c.1
	3.4.1	3.8.1	
	3.4.2	3.9.1	
4. Quality Education	4.1.1	4.3.1	4.7.1
	4.1.2	4.4.1	4.a.1
	4.2.1	4.5.1	
	4.2.2	4.6.1	
6. Clean Water and Sanitation	6.1.1	6.2.1	
7. Affordable and Clean Energy	7.1.2		
8. Decent Work and Economic Growth	8.3.1	8.6.1	8.8.2
	8.5.1	8.7.1	8.10.2
	8.5.2	8.8.1	
9. Industry, Innovation and Infrastructure	9.5.2		
10. Required Inequalities	10.2.1	10.3.1	
11. Sustainable Cities and Communities	11.2.1	11.7.1	11.7.2
16. Peace, Justice and Strong Institutions	16.1.1	16.2.2	16.7.1
	16.1.2	16.2.3	16.7.2
	16.1.3	16.3.1	16.9.1
	16.1.4	16.5.1	
17. Partnerships for the Goals	17.8.1	17.18.1	

Blue - Indicator should be available by sex
Yellow - Indicator about women

Table note: The official list can be found here: https://unstats.un.org/unsd/demographic-social/gender/documents/gender-relevant-SDG-indicator-November-2021.pdf

As with SDG 5, data is not available for every indicator. Thus, our analysis of the gender-relevant SDG indicators began by identifying the number of indicators per country that have data tables or text information on their respective SDG websites. Next, we looked at sex disaggregation, and our starting point was to see if disaggregated data were shown directly on the official SDG webpage from the respective statistical agencies. If disaggregated data were not shown, we examined the linked source material to see if it could be disaggregated. In some cases we identified the data in the following ways: 1) data was clearly available with disaggregation by sex; 2) some, but not all, data was disaggregated by sex if more than one source table was used; or 3) we could not determine whether data was disaggregated because the source material was available in a non-English language report, weblinks were broken, or original source data were not provided. Thus, the analysis that follows is based on tables/data where there was a clear "yes" to disaggregation either based on what was presented on the respective SDG website or when looking at the linked source data. Appendix D provides a detailed breakdown of which indicators had some data or where we were unsure.

Table 9 shows how many of the 71 gender-relevant indicators outside of SDG 5 had available data tables or a text response and then how many of these tables had fully disaggregated data available. Finland, Iceland, and Russia have data for the greatest number of indicators, yet Sweden has the greatest number of indicators that are disaggregated, followed by Iceland and Canada.

Table 9: Number of indicators with data and with disaggregated data

	USA	CANADA	GREENLAND	FAROE ISLANDS	ICELAND	NORWAY	SWEDEN	FINLAND	RUSSIA
Number of indicators with data	42	44	16	39	53	28	40	56	46
Number of which are disaggregated	21	22	9	13	30	17	31	19	21

Of these 71 indicators, 29 are explicit that the data should be disaggregated by sex. Table 10 shows how many of these indicators have data or a text response available and then how many of the indicators with data have disaggregated data available. Finland, Iceland, and Canada have data for the greatest number of these indicators, although it is Sweden, Iceland, and the USA who have disaggregated data for the greatest number of these indicators.

Table 10: Number of indicators that should be disaggregated

	USA	CANADA	GREENLAND	FAROE ISLANDS	ICELAND	NORWAY	SWEDEN	FINLAND	RUSSIA
Number of indicators that should be disaggregated	14	17	7	12	19	10	15	21	14
Number of indicators that are disaggregated	12	10	4	6	13	5	14	10	8

Finally, there are five indicators that were expressly about women. Table 11 shows the number of indicators where data or a text response was provided for each country and the number of indicators where data is available. The table shows that while only Russia has data for each of these indicators, every country except for the Faroe Islands has data available. The reason for this is that the Faroe Islands provided a text response to two of these indicators without any figures, thus data is not available.*

Table 11: Number of indicators that are about women with data availability

	USA	CANADA	GREENLAND	FAROE ISLANDS	ICELAND	NORWAY	SWEDEN	FINLAND	RUSSIA
Number of indicators about women with data	3	4	1	4	4	2	3	4	5
Number of indicators with available data	3	4	1	2	4	2	3	4	5

By contrast, Iceland also had a text response to one of these indicators; however, they included a value in their response.

SDGs and gender

This preliminary analysis on the SDGs is pertinent as there are 14 indicators in SDG 5 and 71 other gender-relevant indicators that are spread across 12 goals. Yet many of these indicators do not have data, let alone disaggregated data.

While there was some optimism that SDG 5 could help inspire a more nuanced understanding of gender that is more akin to Indigenous conceptions (van Norren, 2020), SDG 5's conflation of sex and gender has proven problematic for some Indigenous Peoples and others who do not adhere to binary identities (Odulaja & Halseth, 2018). While target 5.C calls for policies and legislation that advance gender equality and empowerment, corresponding indicators fail to reflect non-binary measures (IPMG, 2015). By affording no room for Indigenous or identity-based genders, the relevance of SDG 5 has been greatly diminished.

Likewise, the word "gender" is not mentioned in any of the 34 highlighted gender-relevant indicators in Table 8. In the few instances when women are mentioned, this is likely referring to biological women. This binary focus in the framing of the indicators can erase the experiences of non-binary, intersex, and trans people, leaving it up to individual countries to be more inclusive in their data collection and data representation processes.

DISCUSSION AND CONCLUSION

The preceding analysis shows that disaggregated data for gender, rather than sex, is not available for many of our selected socioeconomic indicators. Moreover, when doing our initial search to find the relevant data tables, there were some instances where sex disaggregated data was available nationally but not regionally, making Arctic-specific analyses more complicated. Where gender data is available, it is often still presented as binary, meaning that other gender identities are not reflected in the data. Similarly, disaggregated data for Indigenous Peoples for our selected indicators and data sources are limited to Alaska, the Canadian territories, and Greenland. Gender data, where available, is also presented as a binary (notably as the same data tables are used), and thus it fails to reflect the ways in which gender may be understood by Indigenous Peoples (Williamson et al., 2021) across the circumpolar regions.

Our analysis also showed that data availability at the regional level is concentrated in the population and demographic, educational attainment, and employment, work, and income domains with indicators on full- or part-time work and occupational categories have poorer comparability than the other indicators in these domains. Data availability for the crime and gender-based violence indicators was limited, and where available comparability was poor. An online variable that is incompatible (or poorly compatible) with other regions does not mean that the statistical agencies cannot

harmonise the data. For instance, there are generally correspondence tables for national occupation classifications to make them compatible with international standards.* When data is available, statistical agencies can also modify the data universe to better harmonise data, for example by selecting another age group. Indeed, international efforts are being made towards achieving data comparability (see e.g. Statistics Canada, 2022c; Statistics Finland, n.d.; Statistics Norway, n.d.).

Another consideration with regards to data on, and for, Indigenous Peoples is the relevancy of the indicator. In 2004, the United Nations Permanent Forum on Indigenous Issues (2004) released a report on their *Workshop on Data Collection and Disaggregation for Indigenous Peoples*, which stated:

> *"Participants stressed the need for developing a conceptual framework for rights-based indicators to ensure that the data to be collected would be relevant to Indigenous peoples, while allowing for the measurement of issues crucial for Indigenous peoples' development and rights, such as control over land and resources, equal participation in decision-making and control over their own development processes" (point 23, p. 7).*

Moreover, when data is presented comparing Indigenous and non-Indigenous Peoples, caution should be taken to not interpret such data from the "5D" perspective, which includes "disparity, deprivation, disadvantage, dysfunction and difference" (Walter, 2016, p. 80). Statistics Canada, Statistics Norway, and Rosstat have data for Indigenous Peoples outside of our selected indicators on their respective websites (see Appendix E) that may be of greater relevance.

Disaggregated data for the SDGs is also for sex, rather than for gender, and not all data sources that provide statistics for the gender-relevant SDGs are available or even disaggregated. This makes tracking changes in gender equality difficult. Moreover, while the SDGs address many relevant Arctic issues, it has been suggested that more work needs to be done to ensure that the SDGs are relevant for the Arctic regions (see e.g. Degai & Petrov, 2021; Nilsson & Larsen, 2020). In this regard, we see some countries providing data for national or local indicators in addition to the international indicators.

**Another example relates to educational attainment. Comparing educational systems is not straightforward despite ISCED (International Standard Classification of Education) guidance system, which is used to identify internationally comparable education levels (UNESCO Institute for Statistics, 2012). However, education data made available through some national statistical agencies does not always use this system and presents data according to domestic classifications.*

Our findings echo long-standing issues pertaining to data for the Arctic. Concerns about adequate indicators, data availability, and data tracking for a range of topics in the Arctic, let alone for gender, are ongoing and have been discussed in previous large-scale studies, including the *Arctic Human Development Report* volumes I and II and the *Arctic Social Indicators* volumes I and II , and of course *GEA III* (Larsen et al., 2010, 2014; Larsen & Fondahl, 2014; Oddsdóttir & Ágústsson, 2021; Williamson et al., 2004).

In analysing this report, we offer the following recommendations:

I. Gender-relevant indicator development: Rights holders and relevant stakeholders should identify the most pressing gender issues to measure and monitor in the circumpolar Arctic. Once completed, a list of essential indicators that should be available for all regions can be created, including precisely determining data universes, units, calculation methodologies, and the like. International standards can be referred to, if necessary, and adapted to Arctic realities. The indicators should be realistic in the data landscape of the national statistical agencies of the Arctic countries, including considerations for data privacy and disaggregation when population sizes are small.

II. Collaboration with national statistics agencies: On the basis of this list of indicators, the various statistical agencies can match their data to the specified indicators, respecting as far as possible the definitions and data universes. If direct alignment is not possible, proxy indicators could be made available. Each statistics agency should have a webpage for Arctic-related data including the list of tables for the respective country as well as links to the other statistics agencies.

III. Centralised database for Arctic data: The national statistical agencies of the Arctic countries should create a centralised database that includes regularly updated harmonised disaggregated data for these gender-relevant indicators, as well as other indicators relevant to life in the Arctic. This is not an impossible task as databanks like ArcticStat as well as databases like Eurostat and Nordic Statistics already exist.

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APPENDICES

Appendix A: Select Socioeconomic Considerations

Population and Demographics

Demographic data is important to help understand the population in a certain geographic area. For example, data with the population by sex, age, and Indigenous identity can be used to understand who is currently living in a region and identify changes over time (see e.g. Duhaime et al., 2021; Everett & Duhaime, 2024). Certainly, identifying changes can be used to inform regional services and decision-making (Thomas, 2018), especially if there are gender imbalances, for example.

Mortality is another concept used in demography, and infant mortality has been addressed in some major Arctic studies (e.g. Bogoyavlenskiy & Siggner, 2004; Hamilton et al., 2010; Heleniak & Bogoyavlensky, 2014). Yet, when taking a gender perspective, the under-five mortality rate is more relevant. As the World Bank explains, "Where female under-five mortality is higher, girls are likely to have less access to resources than boys" (World Bank, n.d.). Certainly, different populations within a geographic area do not always have the same experiences. Another example is life expectancy where "Gender differences and differences between Indigenous and non-Indigenous peoples are emphasized" (Heleniak & Bogoyavlensky, 2014, p. 63), indicating there may be some underlying socioeconomic inequalities.

Marital status is another factor that can have implications for gender equality. Divorce laws (e.g. fault vs no-fault) and the ease with which women can divorce, for example, may be reflective of systemic gender equality and gender roles (Sandström & Garðarsdóttir, 2018; Yefet, 2020). Statistics, of course, will need to be interpreted in light of domestic and local contexts as an increase or decrease in marriage or divorce alone is not indicative of gender (in)equality.

Education

Education in the Arctic is an important socioeconomic consideration, especially as it has been linked to human development and human capital (Hirshberg et al., 2014; Johansson et al., 2004; Rasmussen et al., 2010). These studies have also looked at the nature of education and explained that Indigenous education and curriculum is important in the North. Additionally, educational outcomes can vary for different populations (Hirshberg et al., 2014), possibly indicating some socioeconomic inequalities.

Crime and Gender-based Violence

Gender-based violence (GBV) can target people "because of their gender, gender expression, gender identity or perceived gender" (Government of Canada, 2024) and includes different forms of violence towards women in general and in intimate partnerships (European Commission, n.d.). The *GEA III* explained that GBV is linked to both socioeconomic inequalities and colonisation, and illustrated many of the actions being taken across the Arctic to address this issue (Williamson et al., 2021).

Employment, Work, and Income

The economy is not neutral and there are gendered processes and outcomes. For instance, the term "glass ceiling" emerged in 1978 and continues to be used today to describe the gender biases that prevent women from advancing into senior positions (Loden, 2017). When gender imbalances exist in senior positions, men have "more influence over how workplaces and the entire labour market are organised, which has implications for women's and men's opportunities for advancement, salaries, health and life at large" (Nordic Council of Ministers, 2019, p. 47). The *GEA III* points out that

there "is also horizontal segregation that follows a general trend of having female business leaders concentrated in services, education, childcare, health sector and retail" (Rozanova-Smith et al., 2021, p. 250). Arctic economies are also heavily focused on natural resources, including fish (Glomsrød et al., 2021), and women may not always be present in senior roles (see e.g. Baruah & Biskupski-Mujanovic, 2023; Karlsdóttir & Guðmundsdóttir, 2024).

Matters of employment and the number of hours worked are also key considerations. For example, research has shown that in the Nordic countries, "More women work part-time, since there is a tradition for part-time hours and shift-work in female-dominated industries" (Nordic Council of Ministers, 2021, p. 28). In part, this may be due to expectations around who is responsible for domestic labour and differential access to support systems. Indeed, "even in countries where part-time work is readily available, many women prefer to work full-time if they have the support in place to do so" (Lyonette, 2015, p. 323). Indigenous Peoples may "participate in a subsistence economy that may bring limited monetary income, although it greatly contributes to overall wealth and well-being" (Williamson et al., 2021, p. 263), yet they can also experience barriers to accessing paid employment.

Appendix B: List of Data Tables

The references are grouped according to indicator domain and include only those tables that were used in the indicator analysis. We provide the name of the statistical agency and table name.

Population and Demographics

Population Count

US Census Bureau: SC-EST2023-ALLDATA6: Annual State Resident Population Estimates for 6 Race Groups (5 Race Alone Groups and Two or More Races) by Age, Sex, and Hispanic Origin: April 1, 2020 to July 1, 2023

Statistics Canada: Table 98-10-0266-01 Indigenous identity by Registered or Treaty Indian status: Canada, provinces and territories, census divisions and census subdivisions

Statistics Faroe Islands: IB01030 Population by sex, age, village/city and month (1985–2024)

Statistics Greenland: Population January 1st 1977–2024 [BEESTA]

Statistics Iceland: Population by sex and age 1841–2024

Statistics Norway: 07459: Population, by sex and one-year age groups (M) 1986–2024

Statistics Sweden: Population by region, marital status, age and sex. Year 1968–2023

Statistics Finland: 11re -- Population according to age (1-year) and sex by area, 1972–2023

Rosstat: Демография (Demography), Численность населения по полу и возрасту по субъектам Российской Федерации на 1 января 2022 года (Population by sex and age by constituent entities of the Russian Federation as of January 1, 2022)

Life Expectancy at Birth

US Centers for Disease Control and Prevention: National Vital Statistics Report, US State Life Tables, 2021 (Table A)

Statistics Canada: Table 13-10-0140-01 Life expectancy and other elements of the abridged life table, three-year estimates, Prince Edward Island and the territories

Statistics Faroe Islands: IB02050 Life expectancy by age and sex (1966/70–2022/23)

Statistics Greenland: Life expectancy, 1999–2022 [BEEBBDTB]

Statistics Iceland: Life expectancy and number of survivors 1971–2023

Statistics Norway: 05797: Expectation of lifetime, by sex and selected age (C) 1971–1975 - 2019–2023

Statistics Sweden: Life expectancy at birth by region and sex 1998–2002 - 2019–2023

Statistics Finland: 12an -- Life expectancy at birth by sex and region, 1990–1992 – 2021–2023

Rosstat: *Приложение к сборнику «Регионы России. Социально-экономические показатели» (Supplement to the collection "Regions of Russia. Socioeconomic indicators"),* Социально-экономические показатели по субъектам Российской Федерации (Socioeconomic indicators by constituent entities of the Russian Federation)

Under-five Mortality Rate

US Centers for Disease Control and Prevention: About Underlying Cause of Death, 2018–2023, Single Race

Statistics Canada: Table: 13-10-0710-01 Mortality rates, by age group

Statistics Faroe Islands: IB02070 Mortality rate (per 1,000) by age and sex (1985–2023)

Statistics Greenland: Deaths (monthly) 1973–2023 [BEEBBDMD1]

Statistics Iceland: Deaths and crude death rate by sex and age 1841–2023

Statistics Norway: 12982: Deaths, by sex, 5-year age groups and month. Preliminary figures (C) 2000–2024

Statistics Sweden: Deaths by region, age (during the year) and sex. Year 1968–2023

The National Institute for Health and Welfare (Sotkanet, Finland): Mortality among population aged 1–4 per 100,000 persons of same age

Married Persons; Divorced Persons

US Census Bureau: S1201Marital Status

Statistics Canada: Indigenous Population Profile, 2021 Census of Population (Marital status)

Statistics Faroe Islands: IB01060 Population by marital status, sex and age, 1st January (1985–2024)

Statistics Greenland: Marital Status by January 1st 1977–2024 [BEESTE]

Statistics Iceland: Census: De facto marital status by age group and sex 2011 and 2021

Statistics Norway: 03031: Population, by sex, age and marital status (C) 1986–2024

Statistics Sweden: Newly married, divorced and widowed by region, marital status, type of couple, age and sex. Year 2000–2023

Statistics Finland: 11rz -- Marital status by age (1-year), language and sex by area, 1990–2023

Rosstat: *Всероссийская перепись населения 2020 года (All-Russian Population Census 2020),* Итоги ВПН-2020. Том 2 Возрастно-половой состав и состояние в браке (Results of the 2020 VPN. Volume 2 Age and sex composition and marital status), 5. Население По Возрасту, Полу И Состоянию В Браке По Субъектам Российской Федерации (5. Population by Age, Gender, and Marital Status by Subjects of the Russian Federation)

Education

Less than secondary education; Secondary education; Tertiary education

US Census Bureau: S1501 Educational Attainment

Statistics Canada: Table 98-10-0413-01 Highest level of education by census year, Indigenous identity and Registered Indian status: Canada, provinces and territories

Statistics Faroe Islands: MT5.1.2 Population by country/place of education/training, educational attainment level, age and sex

Statistics Greenland: Educational attainment (16–74 years) in pct., 2002–2023 [UDEISCPROH]

Statistics Iceland: Educational attainment of the population according to ISCED 2011 2003–2023, percentage distribution

Statistics Norway: 09429: Educational attainment, by municipality and sex (M) 1970–2023

Statistics Sweden: Population 16–74 years of age by region, highest level of education, age and sex. Year 1985–2023

Statistics Finland: 12bs -- Population aged 15 or over by level of education, municipality, region, gender and age, 2007–2023

Rosstat: *Всероссийская перепись населения 2020 года (All-Russian Population Census 2020),* Итоги ВПН-2020. Том 3 Образование (Results of VPN-2020. Volume 3 Education), 1. Население По Возрасту, Полу И Уровню Образования По Субъектам Российской Федерации (1. Population by Age, Gender, and Education Level by Subjects of the Russian Federation)

Crime and Gender-based Violence

Sexual violence rate; Violent assault rate

FBI Crime Data Explorer: Crime Incident-Based Data by State (see files for Alaska: NIBRS_VICTIM_OFFENSE; NIBRS_OFFENSE; NIBRS_OFFENSE_TYPE; NIBRS_VICTIM; NIBRS_AGE; REF_RACE; NIBRS_ETHNICITY)

Statistics Canada: Table 35-10-0051-01 Victims of police-reported violent crime and traffic violations causing bodily harm or death, by age and gender of victim, and type of violation

Statistics Norway: 08633: Victims (persons) of offences reported, by place of residence and sex (C). Absolute figures and per 1,000 population 2004–2023

Statistics Finland: 13fr -- Victims of certain offences by age, sex, wellbeing services county according to the calculation method and year of reporting, 2009–2023

Homicide rate

FBI Crime Data Explorer: Crime Incident-Based Data by State (see files for Alaska: NIBRS_VICTIM_OFFENSE; NIBRS_OFFENSE; NIBRS_OFFENSE_TYPE; NIBRS_VICTIM; NIBRS_AGE; REF_RACE; NIBRS_ETHNICITY)

Statistics Canada: Table 35-10-0156-01 Number, percentage and rate of homicide victims, by gender and Indigenous identity

Statistics Faroe Islands: IB02090 Causes of death (25 groups) by sex and age (2007–2023)

Statistics Greenland: Manner of death 1990–2022 [SUELDM1]

Statistics Iceland: Deaths by sex, age and main causes of death 1981–2020

Statistics Norway: 09035: Deaths, by sex and detailed cause of death (C) (closed series) 1986–2012

Statistics Finland: 13fr -- Victims of certain offences by age, sex, wellbeing services county according to the calculation method and year of reporting, 2009–2023

Intimate partner violence rate

FBI Crime Data Explorer: Crime Incident-Based Data by State (see files for Alaska: NIBRS_VICTIM_OFFENSE; NIBRS_OFFENSE; NIBRS_OFFENSE_TYPE; NIBRS_VICTIM_OFFENDER_REL; NIBRS_RELATIONSHIP; NIBRS_VICTIM; NIBRS_AGE; REF_RACE; NIBRS_ETHNICITY)

Statistics Canada: Table 35-10-0202-01 Intimate partner and non-intimate partner victims of police-reported violent crime and traffic offences causing bodily harm or death, by age and gender of victim

Statistics Finland: 13rd -- Victims of domestic violence and intimate partner violence known to the authorities by sex, age, wellbeing services county and year of reporting, 2009–2023

Employment, Work, and Income

Labour force participation rate

US Census Bureau: S2301 Employment Status

Statistics Canada: Table 98-10-0451-01 Labour force status by highest level of education, Indigenous identity, age and gender: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Islands: AM01010 Main figures from the labour force survey (2005–2023)

Statistics Greenland: The labour force among permanent residents aged 18 to retirement ages by time, district, place of residence, age and gender [ARESTK1]

Statistics Iceland: Activity rate, employment rate, underemployment rate and unemployment rate by year 2003–2023

Statistics Sweden: Labour market status by region, sex, age and region of birth. Final statistics. Year 2020–2023

Statistics Finland: 13al -- Population aged 15–74 by labour force status and region, 2009–2023

Rosstat: *Регионы России Социально-Экономические Показатели 2023 (Regions of Russia Socioeconomic Indicators 2023),* 3.2. Уровень Участия В Составе Рабочей Силы Населения По Полу И Типу Поселения В 2022 (3.2. Labour Force Participation Rate by Gender and Settlement Type in 2022)

Employment rate

US Census Bureau: S2301 Employment Status

Statistics Canada: Table 98-10-0451-01 Labour force status by highest level of education, Indigenous identity, age and gender: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Islands: AM01010 Main figures from the labour force survey (2005–2023)

Statistics Greenland: Main employment and employment rate for permanent residents by time, municipality, place of residence, gender and age [AREBFB05]

Statistics Iceland: Activity rate, employment rate, underemployment rate and unemployment rate by year 2003–2023

Statistics Norway: 06445: Employed persons, by place of residence, sex and age (per cent). 4th quarter (M) 2005–2023

Statistics Sweden: Labour market status by region, sex, age and region of birth. Final statistics. Year 2020–2023

Statistics Finland: 13al -- Population aged 15–74 by labour force status and region, 2009–2023

Rosstat: *Регионы России Социально-Экономические Показатели 2023 (Regions of Russia Socioeconomic Indicators 2023),* 3.12. УРОВЕНЬ ЗАНЯТОСТИ НАСЕЛЕНИЯ ПО ПОЛУ И ТИПУ ПОСЕЛЕНИЯ в 2022 (3.12. Employment Rate by Gender and Type of Settlement in 2022)

Unemployment rate

US Census Bureau: S2301 Employment Status

Statistics Canada: Table 98-10-0451-01 Labour force status by highest level of education, Indigenous identity, age and gender: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Islands: AM01010 Main figures from the labour force survey (2005–2023)

Statistics Greenland: Unemployment and unemployment rate among permanent residents by time, district, place of residence, age and gender [ARELED3]

Statistics Iceland: Activity rate, employment rate, underemployment rate and unemployment rate by year 2003–2023

Statistics Sweden: Labour market status by region, sex, age and region of birth. Final statistics. Year 2020–2023

Statistics Finland: 13al -- Population aged 15–74 by labour force status and region, 2009–2023

Rosstat: *Регионы России Социально-Экономические Показатели 2023 (Regions of Russia Socioeconomic Indicators 2023),* 3.22. УРОВЕНЬ БЕЗРАБОТИЦЫ НАСЕЛЕНИЯ ПО ПОЛУ И ТИПУ ПОСЕЛЕНИЯ В 2022 Г. (3.22. Unemployment Rate of the Population by Gender and Type of Settlement in 2022)

Employees; Self-employed workers

US Census Bureau: B24080SEX By Class of Worker for the Civilian Employed Population 16 Years and Over

Statistics Canada: Indigenous Population Profile, 2021 Census of Population (Class of worker)

Statistics Faroe Islands: MT6.5.1 Population by status in employment, size of locality, sex, age and place of usual residence

Statistics Iceland: Employed – number and percent by year 2003–2023

Statistics Sweden: Employed 15–74 years by region, status in employment, sex, age and region of birth. Final statistics. Year 2020–2023

Statistics Finland: 115m -- Employed labour force by area, industry (TOL 2008), occupational status, age, sex and year, 2007–2022

Rosstat: *Всероссийская перепись населения 2020 года (All-Russian Population Census 2020),* Итоги Впн-2020. Том 10 Рабочая Сила (Results of the 2020 Vpn. Volume 10 Labour Force), 8. Занятое Население Частных Домохозяйств По Возрастным

Группам И Статусу Занятости По Субъектам Российской Федерации (8. Employed Population of Private Households by Age Groups and Employment Status by Subjects of the Russian Federation)

Full-time workers; Part-time workers

US Census Bureau: S2303 Work Status in the Past 12 Months

Statistics Canada: Table 98-10-0427-01 Employment income statistics by Indigenous identity and highest level of education: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Island: MT6.4.2 Population by weekly working hours, household status, educational attainment, occupation, age and sex

Statistics Iceland: Employed – number and percent by year 2003–2023

Statistics Norway: 12540: Employed persons, by place of residence, place of work, sex, age and working hours (6 groups). 4th quarter (M) 2015–2023

Statistics Sweden: Employed persons aged 15–74 (LFS) by region, working hours (by agreement) per week, sex and age. Year 2021–2024

Managers; Service and sales workers; Primary sector workers

US Census Bureau: B24010 Sex by Occupation for the Civilian Employed Population 16 Years and Over

US Census Bureau: B24010C Sex by Occupation for the Civilian Employed Population 16 Years and Over (American Indian and Alaska Native Alone)

Statistics Canada: Indigenous Population Profile, 2021 Census of Population (Occupation)

Statistics Faroe Islands: MT6.3.1 Population by occupation, industry, sex, age and place of usual residence

Statistics Iceland: Employed persons by occupational groups, sex and education 1991–2023

Statistics Norway: 13886: Employed persons, by working time arrangement, occupation, age and sex. 4th quarter (C) 2015–2023

Statistics Sweden: Employees by region of work, occupation (4-digit SSYK 2012) and sex. BAS. Year 2020–2023

Statistics Finland: 115s -- Employed persons by occupational group (Classification of Occupations 2010, levels 1 to 3), area, sex and year, 2010–2022

Average personal income

US Bureau of Economic Analysis: SAINC51 State annual disposable personal income summary: disposable personal income, population, and per capita disposable personal income

Statistics Canada: Table: 98-10-0282-01 Income statistics by Indigenous identity: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Islands: IP01035 Income and taxes by municipality, deciles and average (2009–2022)

Statistics Greenland: Disposable income for persons (14 years +) by municipality (2002–2023) [INEPI201]

Statistics Iceland: Income by sex and age 1990–2023

Statistics Norway: 03068: Main entries from the tax assessment for residents 17 years and older, by sex (NOK) (M) 1993–2023

Statistics Sweden: Net income for persons registered in the national population register during the whole year by region, sex and age. Year 2000–2023

Median personal income

Statistics Canada: Table: 98-10-0282-01 Income statistics by Indigenous identity: Canada, provinces and territories, census metropolitan areas and census agglomerations with parts

Statistics Faroe Islands: IP01035 Income and taxes by municipality, deciles and average (2009–2022)

Statistics Iceland: Income by sex and age 1990–2023

Statistics Sweden: Net income for persons registered in the national population register during the whole year by region, sex and age. Year 2000–2023

Statistics Finland: 14ww -- Income level, income inequality, population at risk of poverty or dependent on basic social security by region in the dwelling-population, 1995–2023

Appendix C: Sustainable Development Goals (SDGs)

Data for the SDGs can be found on the following national statistical agency websites:

United States of America: https://sdg.data.gov/

Canada: https://www144.statcan.gc.ca/sdg-odd/index-eng.htm

Greenland: https://stat.gl/dialog/mainTheme.asp?lang=en&sc=VM&tname=t1

Faroe Islands: https://sdg.hagstova.fo/sdg-site/en/goals/

Iceland: https://heimsmarkmidin.hagstofa.is/en/

Norway: https://www.ssb.no/en/sdg

Sweden: https://www.scb.se/hitta-statistik/temaomraden/agenda-2030/

Finland: https://pxdata.stat.fi/PxWeb/pxweb/en/SDG/SDG__SDG/sdg.px/

Russia: https://eng.rosstat.gov.ru/sdg

Appendix D: Details of Gender-relevant SDG Indicators

Table D1: SDG 1 No poverty

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
1.1.1. Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)									
1.2.1. Proportion of population living below the national poverty line, by sex and age									
1.2.2. Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions									
1.3.1. Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable		S			U	S			
1.4.2. Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure					U				
1.5.1. Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	U						U		
1.b.1. Pro-poor public social spending									

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated | U Data, unsure if disaggregated

Table D2: SDG 2 Zero hunger

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
2.1.2. Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	U		U		U				
2.2.1. Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age	U								
2.2.2. Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)	U								
2.2.3. Prevalence of anaemia in women aged 15 to 49 years, by pregnancy status (percentage)									
2.3.2. Average income of small-scale food producers, by sex and indigenous status									

No data | Data, disaggregated | Data, not disaggregated | U Data, unsure if disaggregated

Table D3: SDG 3 Good health and well-being

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
3.1.1. Maternal mortality ratio									
3.1.2. Proportion of births attended by skilled health personnel									
3.2.1. Under-5 mortality rate	U			U					
3.2.2. Neonatal mortality rate	U			U					
3.3.1. Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations		U							U
3.4.1. Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	U	U							U
3.4.2. Suicide mortality rate				U					
3.5.1. Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders									
3.5.2. Alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol	U			U			U		
3.6.1. Death rate due to road traffic injuries	U			U	U				
3.7.1. Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods									
3.7.2. Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group									
3.8.1. Coverage of essential health services									
3.9.1. Mortality rate attributed to household and ambient air pollution							U		
3.9.2. Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)		U							
3.9.3. Mortality rate attributed to unintentional poisoning	U	U		U					
3.a.1. Age-standardized prevalence of current tobacco use among persons aged 15 years and older	U						S		
3.b.1. Proportion of the target population covered by all vaccines included in their national programme		S			U	U	S		
3.c.1. Health worker density and distribution		S		U		S			

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated | U Data, unsure if disaggregated

Table D4: SDG 4 Quality education

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
4.1.1. Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex		S	S						
4.1.2. Completion rate (primary education, lower secondary education, upper secondary education)									
4.2.1. Proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being, by sex									
4.2.2. Participation rate in organized learning (one year before the official primary entry age), by sex									
4.3.1. Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex									
4.4.1. Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill		U			U				S
4.5.1. Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflictaffected, as data become available) for all education indicators on this list that can be disaggregated	S				U				
4.6.1. Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex									
4.7.1. Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment									
4.a.1. Proportion of schools offering basic services, by type of service									

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated | U Data, unsure if disaggregated

Table D5: SDG 6 Clean water and sanitation

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
6.1.1. Proportion of population using safely managed drinking water services	U						U		
6.2.1. Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water							U		

No data | Data, disaggregated | Data, not disaggregated | U Data, unsure if disaggregated

Table D6: SDG 7 Affordable and clean energy

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
7.1.2. Proportion of population with primary reliance on clean fuels and technology				U					U

No data | Data, disaggregated | Data, not disaggregated | U Data, unsure if disaggregated

Table D7: SDG 8 Decent work and economic growth

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
8.3.1. Proportion of informal employment in total employment, by sector and sex									
8.5.1. Average hourly earnings of employees, by sex, age, occupation and persons with disabilities									
8.5.2. Unemployment rate, by sex, age and persons with disabilities									
8.6.1. Proportion of youth (aged 15–24 years) not in education, employment or training	U								
8.7.1. Proportion and number of children aged 5–17 years engaged in child labour, by sex and age				U					S
8.8.1. Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status						S			
8.8.2. Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status									
8.10.2. Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider		U							U

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated | U Data, unsure if disaggregated

Table D8: SDG 9 Industry, innovation and infrastructure

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
9.5.2. Researchers (in full-time equivalent) per million inhabitants	U	U							

No data | Data, disaggregated | Data, not disaggregated | U Data, unsure if disaggregated

Table D9: SDG 10 Reduced inequalities

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
10.2.1. Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities		S							
10.3.1. Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law									

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated

Table D10: SDG 11 Sustainable cities and communities

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities					U	U			
11.7.1. Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities							U		
11.7.2. Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months									

No data | Data, disaggregated | Data, not disaggregated | U Data, unsure if disaggregated

Table D11: SDG 16 Peace, justice and strong institutions

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
16.1.1. Number of victims of intentional homicide per 100,000 population, by sex and age	■	□	□	U	■	■	■	■	□
16.1.2. Conflict-related deaths per 100,000 population, by sex, age and cause				U	■				
16.1.3. Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months	□	□			U		■	■	
16.1.4. Proportion of population that feel safe walking alone around the area they live	■	■		■	■	■	■	□	■
16.2.2. Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation	U	U						□	
16.2.3. Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18		■	U		■				
16.3.1. Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms	■	□		U	U				
16.5.1. Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months				□				□	
16.7.1. Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups								■	
16.7.2. Proportion of population who believe decisionmaking is inclusive and responsive, by sex, age, disability and population group									
16.9.1. Proportion of children under 5 years of age whose births have been registered with a civil authority, by age	U	U		U	□		U	□	□

No data ■ Data, disaggregated □ Data, not disaggregated U Data, unsure if disaggregated

Table D12: SDG 17 Partnerships for the goals

INDICATORS	USA	Canada	Greenland	Faroe Islands	Iceland	Norway	Sweden	Finland	Russia
17.8.1. Proportion of individuals using the Internet					U				S
17.18.1. Statistical capacity indicator for Sustainable Development Goal monitoring									

No data | Data, disaggregated | Data, not disaggregated | S Data, some disaggregated | U Data, unsure if disaggregated

Appendix E: Additional Data Sources for Disaggregated Data

If disaggregated data is not available on the public facing data tables, it is always possible to make a special request to the relevant statistical agency to see if they are able to find the required data, by linking data. There may be a fee associated with this.

In the process of completing the above analysis, we have also come across other data sources that provide some data on gender and on Indigenous Peoples, although this list is not exhaustive.

Canada

Statistics Canada:

> Gender, diversity and inclusion, and related standards by variable https://www.statcan.gc.ca/en/concepts/gdi-var
>
> Statistics on Indigenous Peoples
> https://www.statcan.gc.ca/en/subjects-start/Indigenous_peoples
>
> Indigenous peoples economic account, 2012 to 2021
> https://www150.statcan.gc.ca/n1/daily-quotidien/240402/dq240402a-eng.htm

Government of Yukon:

> Indicators of gender equity in the Yukon
> https://yukon.ca/en/statistics-and-data

Northwest Territories Bureau of Statistics:

> Women in the NWT
> https://www.statsnwt.ca/Profiles/Women/index.html

Norway

Statistics Norway:

> Sami Statistics
> https://www.ssb.no/en/statbank/list/samisk

Russia

Federal State Statistics Service (Rosstat):

> Территории традиционного проживания и традиционной хозяйственной деятельности коренных малочисленных народов Севера, Сибири и Дальнего Востока Российской Федерации | Territories of traditional residence and traditional economic activity of Indigenous peoples of the North, Siberia and the Far East of the Russian Federation
> https://rosstat.gov.ru/storage/mediabank/Terr_mal.html

CONTRIBUTIONS

EMBLA: DEVELOPING PRINCIPLES FOR DATA CO-PRODUCTION IN THE ARCTIC

Andrey N. Petrov, ARCTICenter, University of Northern Iowa

Knowledge co-production is a foundational concept that has gained significant ground as an effective mechanism through which to learn, understand, and address most complex challenges (Chambers et al., 2021). In the Arctic specifically, knowledge co-production has been rapidly advancing and encompasses a holistic and inclusive effort to bring together diverse knowledge systems, most prominently Indigenous knowledge systems, in order to build a shared understanding of changing Arctic social-ecological systems and to support community resilience (Petrov et al., 2020; Wheeler et al., 2020). Methodologically, knowledge co-production entails "co-identification of research needs, co-creation of research ideas, co-design of research questions, co-definition of research objectives, co-development of research programs, co-authorship of research results, co-implementation of research projects and co-evaluation of research outcomes" (Degai et al., 2022, p. 1). It also relies on an equitable, respectful, and reciprocal approach to research that supports Indigenous knowledge's standing as a self-sustaining, time-tested, and internally validated knowledge system (Latulippe & Klenk, 2020). Knowledge co-production is a complex and lengthy process that is attained through a collective effort based on shared goals, vision, terminologies, and ethical principles (Yua et al., 2022; Degai et al., 2024).

Data sovereignty is another important emerging concept that is particularly relevant to research involving Indigenous communities (Carroll et al. 2023; Hudson et al., 2023). It implies ownership and control over data, responsibility and accountability for data possession and sharing, and ultimately places decisions about data collection, preservation, management, analysis, and dissemination in the hands of Indigenous Peoples (Williamson et al., 2023). Indigenous Peoples are the Arctic's original researchers and they have collected, stewarded, utilised, and shared data throughout

millennia by means of storytelling, songs, art, and other Indigenous knowledge-sharing methods (Kowach, 2021). Indigenous data takes various forms that are often distinct from Western datasets and, like Indigenous knowledge itself, Indigenous data is inseparable from the People who, thus, must exercise governance rights over its collection, application, and ownership (Cannon et al., 2024; Carroll et al., 2023; Brewer et al., 2023). The CARE (Collective Benefit, Authority to Control, Responsibility, and Ethics) principles of Indigenous data governance were created with the exact purpose of enshrining Indigenous data rights into data-management processes (Carroll et al., 2023).

Data co-production is a process of dataset development and management (collection, storage, manipulation, analysis, modelling, sharing, etc.) resulting from a knowledge co-production process. In other words, data are co-created by equal partners with mutual and shared rights and responsibilities attached to these data. Since such data are linked to knowledge co-production, all requirements and expectations pertaining to this process, such as co-design, co-definition, and co-authorship (Degai et al., 2022), would apply to data co-management as well. A resulting framework would be built upon the principles of knowledge co-production but with the emphasis on data from their conception to perpetual preservation or destruction. Since data co-production and co-management involve multiple partners, prior to any such activity, and in accordance with knowledge co-creation fundamentals, there must be a collective understanding of principles, rights, and responsibilities within the data co-creation process. Although these may vary on the basis of specific agreements and relationships, to facilitate this process we propose following five guiding EMBLA principles, which stipulate that data co-production shall be:

Equitable
Based on equitable co-production process;

Meaningful
Generate data that is based on shared understandings, needs, and desired outcomes of all partners;

Beneficial
Equally and mutually beneficial to all partners of the co-production process;

Legitimate
Involve concepts, methods, and actions accepted by all co-production partners;

All-inclusive
Open, transparent, and inclusive of all sources, methods, concepts, and knowledge systems involved in the process.

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MAPPING THE ARCTIC AT NORDREGIO

Timothy Heleniak

Nordregio (the Nordic Centre for Spatial Development) is an applied research institute under the Nordic Council of Ministers. Nordregio's mission is to provide Nordic policymakers and practitioners with new knowledge and tools to support the formulation and implementation of effective socioeconomic and environmentally sustainable regional development policies. Nordregio has three geographic foci: the Nordic Region, Europe, and the Arctic. The latter is natural as six of the nine Arctic regions are within the Nordic countries.

While maintaining high scientific standards, Nordregio strives to make its research accessible to policymakers at local, national, and international levels including at the Arctic level. Nordregio has a dedicated communications team which produces policy briefs, hosts webinars, and organises events for policymakers in the Nordic region and elsewhere.

One means Nordregio uses to communicate to policymakers, academics, and others is through its high-quality maps and other geo-visualisation tools. It produces comparative demographic, economic, social, and environmental statistics at national, regional, and local levels, many of which are featured in its biannual flagship publication, the State of the Nordic Region.

From its lovely offices on the island of Skeppsholmen in the middle of Stockholm, Nordregio's GIS team and researchers spend considerable time and effort harmonising data across the Nordic countries which are used in the maps and analysis. Users can be confident that demographic and economic indicators shown in maps are comparable across countries and regions. While the Nordic countries, including Greenland and the Faroe Islands, have high-quality and broadly similar statistical systems, the indicators collected and produced are not always the same. As an example, there are differences in how the countries classify immigrant populations which require careful examination and adjustment to present comparable indicators.

Another complicating factor when mapping social, demographic, and economic indicators for the Nordic countries is that of boundary changes and the reshuffling of internal administrative borders. In the Nordic Region, boundary changes are usually done when there are changes in service delivery at different geographic levels or when the population of regions shrinks or grows considerably.

For Nordregio, the challenges of mapping social and economic trends expand considerably when encompassing the Arctic since the United States, Canada, and Russia have statistical systems quite different from the Nordic countries. For population data, the Nordic countries rely on population registers where data are collected and

monitored for each person in the country. The other Arctic states use a combination of traditional population censuses, survey data, and administrative sources.

Another major challenge is in defining which regions to include in any definition of the Arctic. Different definitions of the Arctic are used in the natural and social sciences. When analysing social and economic trends, there is a need to define the Arctic because data are used for specific geo-administrative units. Demarcating the Arctic in Russia is more complicated due to the changing status of some ethnic homelands of Arctic Indigenous Peoples. They have been subsumed, administratively and statistically into their parent unit. In Russia, as well as other Arctic states, regions included as part of the Arctic are often small and there is a lack of data available for these units.

Mapping social phenomena in the Arctic is also affected by data availability for Indigenous Peoples. The Arctic states differ in how they classify people and whether they have a concept of Indigenous Peoples. The United States classifies people based on race. In Alaska, about 22 percent of the population identify as Alaskan Native or American Indian. Canada classifies people based on ethnic origin, which includes three aboriginal peoples—Inuit, Métis, and First Nations. In the Yukon territory, 24 percent of the population belong to one of these groups as does about half the population in the Northwest Territories. Nunavut, which separated from the Northwest Territories in 1999, is a predominantly Inuit region where 86 percent identify as Inuit. Greenland categorises people based on place of birth. This distinction roughly corresponds to native Greenlanders and non-Greenlanders, or Inuit and non-Inuit. Most recently, 88 percent of the population are Inuit. The Faroe Islands and Iceland were uninhabited until the 800s and have no Indigenous populations. Norway, Sweden, and Finland are considered together because the Indigenous Peoples in the northern regions are the same, the Sami. All ceased recording ethnicity in the censuses after World War II. The current total number of Sami is estimated at between 80,000 and 110,000, including 60,000 in Norway, 36,000 in Sweden, and 10,000 in Finland. The Soviet Union created the concept of *natsionalnost'* (ethnicity) to divide people into different groups, which is still used in post-Soviet Russia. Of these, 26 groups with populations fewer than 50,000 were designated as *malo-chislenny narod severa* (Small Numbered Peoples of the North), a number which has since grown to 37. Thus, in the Arctic and Siberia, there are both Small Numbered Peoples of the North and larger groups such as Yakuts, Komi, and Karelians.

In addition to making maps, researchers at Nordregio have extensive experience doing fieldwork in the Arctic, which is invaluable in ensuring that what is shown in our maps is a truthful representation. This includes investigations of urban sustainability in Arctic cities, the impact of permafrost thaw, and population change in both large and small Arctic settlements. Several of us speak Russian, which allows us to research the Russian Arctic, an area that encompasses half the territory.

With its maps and analysis, Nordregio has contributed to the Arctic Human Development Report, Nunataryuk, an investigation into the impact of permafrost thaw, MUST (Measuring Urban Sustainability in Transition in the Arctic), InfraNorth (Building Arctic Futures: Transport Infrastructures and Sustainable Northern Communities), and other research projects.

BREAKING GENDER BARRIERS IN THE ARCTIC: NEW MEASURES FOR THE INCLUSION OF WOMEN IN DECISION-MAKING IN GREENLAND

Rikke Østergaard

Women in the Arctic are often underrepresented in political leadership positions, including in national and regional governments, as well as in governing bodies. Although Greenland has made great progress in the last decade and is following the "Nordic trend" on equality, there are deeper gender inequalities that are hidden by gender-equality policies (i.e. the tendency to simply "add women and stir" without this leading to any great change towards equality), as well as regional gender inequalities created by intersectional issues which are related to place of origin, language, ethnicity, class, etc., within the country.

This policy brief suggests an intersectional implementation of gender quotas within political parties, looking at voluntary and subsequently legally mandated quotas, in a bid to bridge the significant gender disparities in political representation. Additionally, the brief emphasises the importance of formal institutions promoting campaigns that challenge stereotypes and encourage women's involvement in politics. To ensure effective policy design, the policy brief highlights the need to avoid a blind imitation of external models, instead advocating for context-specific approaches that address the unique challenges faced by Greenland in achieving gender equality.

Rationale for Action on the Problem

The *Pan-Arctic Report on Gender Equality in the Arctic* published in 2021 points out that although the situation of women is changing towards more gender equality, some important issues are still going unaddressed. In 2009, Greenland gained self-government status, which could be seen as a step forward towards self-determination. Yet, according to some scholars, this political self-determination seems to be male-dominated (see e.g. Koukkanen, 2019, p. 69).

Since 1979, there has been an increase in the inclusion of women on electoral lists. However, the goal of achieving equal representation with half women and half men in politics has not yet been realised. Greenland is sparsely populated across small towns, and two thirds of the population live outside the capital Nuuk. Inequalities faced by women living in small towns are exacerbated by their underrepresentation in governing bodies, which could imply that their political views and participation are ignored. This contrasts with women who live in the capital who have relatively better

educational opportunities. This phenomenon of gender differences in opportunities between small towns versus the capital may have its origins in the Danish colonial heritage. Some studies have revealed that coastal towns still coexist under traditional social Danish colonial values, that is, a style of governance in the local communities that resembles the social hierarchical principles of the colonial era (e.g. Rud, 2014; 2017).

In general, Greenlandic women living in the far north or in small communities have less access to education and fewer job opportunities than Greenlandic women living in the capital (Rasmussen, 2007). Greenlandic women living in remote areas have different dialects, traditions, and views as to the future of their country. For example, this is the case with regard to the preservation of local culture and ecosystems where women from small communities rely on subsistence markets, compared to women from urban areas who are reliant on wage labour (Poppel, 2015) and have more conventional views of economic progress (e.g. business expansion and cultural diversity), which ultimately creates different views of collective self-determination (Cambou, 2020). Thus, because of these differences based on dialects, traditions, locations, and views of future governance, an intersectional approach is necessary to address gender inequality and increase the number of women in decision-making positions.

Additionally, increasing the number of women in decision-making is not just a matter of representation but a strategic move towards addressing the gender disparity within natural resource-based sectors that characterise Arctic communities. Most Greenlandic regions are endowed with abundant natural resources serving as economic pillars for governments and companies alike, generating vital employment opportunities for locals. However, a critical limitation arises when local administrations become overly reliant on major companies involved in fishing, often at the expense of diversity and equality considerations. This imbalance disproportionately impacts women, given that occupations tied to these resources have historically been male-dominated.

This gender skew in employment leads to a cascade of repercussions: male workers, drawn to these industries, frequently leave their homes, leaving female partners to shoulder the bulk of household responsibilities, potentially disrupting familial harmony and economic stability (Hansen, 2018). This historical imbalance can be attributed to various factors, and aside from the aforementioned legacy of colonialism, the physically demanding nature of the work plays a role in this imbalance.

In the 21st century, however, the tide is turning. Technological advancements are revolutionising resource-intensive sectors, reducing the demand for strenuous physical labour in fishing and consequently levelling the playing field for women (Siles et al., 2019). This transformation holds the promise for gender equality. It is imperative to

take advantage of this opportunity to break down traditional barriers and pave the way for a more inclusive, equitable, and prosperous Arctic.

Greenland, despite efforts to diversify its economy, remains heavily reliant on fishing—a sector deeply intertwined with its cultural identity. Introducing women into this domain is not only a gesture of inclusivity but a recognition that technological progress can bridge gender gaps. By harnessing the force of technology and innovation, it could be possible to ensure that these tools are utilised to empower women, enabling their meaningful participation in sectors that have long been the dominion of men.

In general, encouraging female political participation is not only a matter of equality but a strategic imperative in rectifying the gender imbalance that is pervasive in natural resource-based sectors like those in Greenland.

Proposed Policy Options

The absence of female representation can lead to policies being formed that do not adequately address the needs and concerns of women and girls in the Arctic region (Kuokkanen, 2021, p. 12; Sinevaara-Niskanen, 2019, p. 131). Women participating in politics in Greenland often lack support; this includes having limited access to resources and networks that can help them succeed and overcome barriers to political leadership (Oddsdóttir et al., 2021, p. 12).

As such, tackling gender inequality in Arctic politics requires a joint effort to promote gender equality and increase women's representation in political decision-making. This includes efforts to address gender-based discrimination, to provide support for women in politics, and to enhance women's opportunities to participate in decision-making at all levels of government structures and in government itself (Arctic Human Development Report, 2004, p. 198).

> Maintaining the "status quo" of having limited female political participation across Greenlandic regions and hoping that a generational change over the years drives more female representation.

> A voluntary quota system to recommend that political parties establish gender parity in the electoral list of candidates.

> A permanent legally mandatory gender quota system that ensures equal gender representation in the electoral list in each political party.

> A temporary (also known as a "sunset" clause) legally mandatory gender quota system that ensures equal gender representation in the electoral list in each political party. This quota would cease to have effect after a specific date and can be maintained if needed.

Policy Recommendations

Create an initiative that establishes a voluntary gender quota across political parties in relation to their electoral lists. This voluntary quota would serve as a phase to disseminate information on the importance of gender equality across members of political parties promoting a smooth transition by inviting political representatives to implement quotas.

Following implementation of the voluntary gender quota, new legislation should be established with a "sunset" clause for a mandatory gender quota in the electoral list of political parties. The sunset clause means that after two general elections, the quota could be removed or maintained in order to "test" if it has had a lasting impact on the status of women in national and regional political representation.

Formal institutions (local governments, NGOs, educational institutions, etc.) should promote campaigns and clear messaging that encourage young and mature Greenlandic women to participate in politics. A cultural change in attitude that stops women's stereotyping of traditional professions and work roles should be on the agenda.

Break the political inertia of imitating norms and rules from the Danish system to promote equality. Cross-cutting issues in Greenland and Denmark can be quite different (after all, there are no large populations of Indigenous women in Denmark), and as such, "copy-cat" policies can lead to ignoring or accentuating problems when local perspectives are not taken into account when designing gender-equality policies.

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ADVANCING AN INCLUSIVE APPROACH: GENDER-DISAGGREGATED DATA FOR IMMIGRANT WOMEN IN THE ARCTIC

Marya Rozanova-Smith, Embla Eir Oddsdóttir, Andrey Petrov

Background

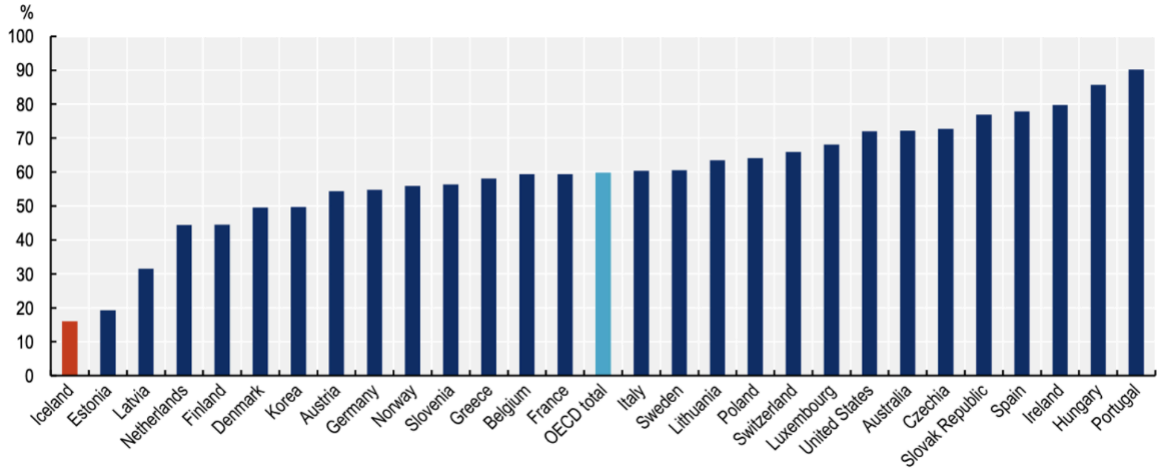
In light of the rapidly growing immigrant female population across the Arctic (OECD, 2024a), the collection of gender-disaggregated data specific to immigrant women is needed to advance an inclusive methodology. This contribution is a part of the COVID-GEA Project (COVID-GEA, 2025) and uses Iceland as an illustrative case study for the Arctic region. Iceland has been chosen as a country with the highest rates of immigration among OECD nations and one that is undergoing unprecedented demographic transformation (OECD, 2024b). Notably, the proportion of first- and second-generation immigrants in Iceland surged from 2.1% in 1996 to 20.1% in 2024—the highest level recorded to date (Statistics Iceland, 2024). The project team's fieldwork and interviews conducted with immigrant women in Iceland in 2022–2023 revealed significant gender-disaggregated data gaps in existing statistics that hinder a comprehensive understanding of mechanisms of immigrant women's integration and their alignment with national standards of gender equality. These data deficiencies become particularly pronounced in times of crisis, like during the COVID-19 pandemic, which rearticulated acute challenges faced by immigrant women both in Iceland and in other Arctic jurisdictions (COVID-GEA, 2025). In this context, a more comprehensive and inclusive approach to gender-disaggregated data pertaining to immigrant women requires the incorporation of a broad range of indicators that encompass the economic, personal, social, and political domains of gender equality (Rozanova-Smith, Petrov, and Korkina Williams, 2021).

We recommend using the following key indicators specifically focused on the Arctic's immigrant women:

1. Economic Indicators

Advanced professional language proficiency: The level of language proficiency required for successful participation in the labour market is often overlooked in the current system of integration measures. The situation with language barriers is particularly acute in Iceland. The Icelandic labour market research institute Varða's survey data demonstrates that language proficiency among foreign-born workers in Iceland remains low (Figure 9).

Figure 9. Advanced language proficiency among foreign-born individuals in selected OECD countries, ages 15–64, 2021.



Source: OECD, 2024b, p. 48. Based on a survey by Varða, an Icelandic labour market research institute (Workers in Iceland, 2024).

This survey finding (Figure 1) is strongly supported by interviews conducted as part of the COVID-GEA project, highlighting that existing language courses for immigrants often follow a "one-size-fits-all" approach, which fails to address the diversity of professional needs. Tailored language programmes are particularly crucial for highly skilled professionals, as they require specialised vocabulary and advanced proficiency to fully utilise women's qualifications and to prevent long-term underemployment.

Underemployment: Despite obtaining higher education levels (OECD, 2024b, p. 34), immigrant women often face underemployment, with their skills and potential being underutilised, further limiting their economic empowerment and opportunities for professional growth. Significant obstacles exist within the current system for recognising foreign qualifications in both Iceland and several Arctic countries, where the transferability of skills into the local job market is often ineffective.

Home ownership and housing conditions: Evaluation of possession as well as access to affordable housing is an important indicator given a tight tourism-oriented rental market in Iceland that "disproportionately affects immigrants, who account for 35% of renters and just over 10% of homeowners on the market" (OECD 2024b, pp. 36–37).

Autonomy in financial decision-making: Assessing female immigrants' control over personal income and financial independence within the household is particularly important in families originating from regions where cultural norms may undermine women's economic autonomy.

Income disparities: Measuring the disparities in income between immigrant women and the local female population is an important indicator that helps to identify the scale of economic (in)equalities.

2. Social Indicators

Digital Literacy: In the ongoing transition towards e-government services (UN E-Government Survey, 2024), accessibility and navigability of government resources as well as programmes designed for immigrants to successfully integrate requires both digital proficiency and access to digital tools. Given the highly diverse demographic composition of immigrant populations—varying in age, educational background, and literacy levels—a nuanced understanding and tailored approach is necessary to bridge the digital divide.

Language proficiency for social integration: Understanding the levels of language proficiency necessary for meaningful social interaction and community engagement is a key social indicator.

Social network support: This indicator is a critical factor in immigrant women's access to local knowledge, social integration, and overall well-being. It facilitates social navigability, enhances community engagement, and provides an additional layer of protection against potential domestic abuse.

3. Personal Domain Indicators

Access to healthcare services: The availability and affordability of physical health services, including reproductive healthcare, is a critical indicator to consider, as immigrant women in Iceland face heightened health risks (e.g. urgent caesarean sections) compared to native-born women (Department of Anaesthesia and Intensive Care, 2024).

Mental health and well-being: These indicators are tailored to the specific challenges of immigrant women, often associated with the psychological impact of immigration and social isolation, socioeconomic integration hardships, and underemployment as contributing factors to distress, anxiety, and depression, affecting overall well-being.

4. Political Domain Indicators

Participation in elections: This indicator focuses on immigrant women's active and passive political engagement, including voting behaviour and candidacy in local, regional, and national elections.

Political leadership: Data on immigrant women's representation in political leadership positions, including elected offices and pointed decision-making roles.

Conclusion

Advancing social sustainability in Arctic jurisdictions entails a comprehensive approach to gender-disaggregated data collection, particularly in the context of a growing immigrant female population and the significant gaps in existing statistical frameworks that hinder a nuanced understanding of their integration. Including immigration-focused economic, personal, social, and political indicators into evidence-based policy development in Arctic regions is important for ensuring that immigrant women have opportunities for greater participation in all aspects of society.

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GENDER EQUALITY: RESEARCH AND DATA ON MIGRATION AND MOBILITY

Erika Anne Hayfield, University of the Faroe Islands, Faculty of History and Social Sciences

Migration and mobility are highly gendered processes (Cresswell & Uteng, 2016), which means that movement cannot be understood without adequate quantitative and qualitative data disaggregated at the level of gender. Migration (both out-migration and immigration) in the Arctic profoundly affects communities in terms of demography, the labour market, representation, and inclusion, not to mention well-being. As such, the planning of sustainable societies in the Arctic is necessarily rooted in knowledge of gender and migration/mobility.

People in the Arctic are mobile people, often travelling vast distances for education, work, or subsistence activities. Yet not everyone has equal access to mobility, which is extensively framed around family commitments and parenting (Viry et al., 2015). Therefore, gender becomes a central category in studies of (in)equalities and mobility practices.

The literature concerning migration/mobility in the Arctic has produced valuable findings. These include studies concerning youth, gender, place attachment, identity, immigration, long-distance working, and LGBTQIA2S+ experiences. Other studies shed light on the complex relations of land, nature, and culture for Indigenous men and women. There are, furthermore, important contributions concerning Indigenous perspectives on gender. Some of these further our understanding of alternative worldviews, which might not necessarily fit neatly into the traditional Western compartmentalisation of binary genders. Notwithstanding important contributions already available about gender and migration/mobility in the Arctic, our work with the Pan-Arctic report revealed that there remain large knowledge gaps on these issues.

During the writing of the migration and mobility chapter for the Pan-Arctic report, we faced two overarching challenges. The first involved the inaccessibility of statistics in which gender intersects with various migration and mobility-related issues. The second involved obtaining studies/data which enabled an intersectional approach and/or specifically pertained to Indigenous Peoples. I address these challenges in turn.

Statistics and Qualitative Data on Migration and Mobility

Arctic regions located in larger nations, which are only partially Arctic (Norway, Sweden, Finland, and Russia), may not provide adequate access to Arctic statistics. In some cases, significant statistics were unavailable at the Arctic (regional) level and/or were potentially not disaggregated in relation to gender. For instance, in Arctic Canada not all territories provided statistics on migration and gender. Alternatively, the statistics were simplistic (e.g. no age data, sometimes not in databases but only in reports), which provided limited analytical value. It was thus challenging to shed light on gender equality and/or conduct comparative analyses.

In general, limited access to statistics created obstacles to providing an in-depth overview of gender and migration/mobility practices in the Arctic. Most databases provided statistics for migration but lacked other variables. Although gender was available in various databases, this was usually at a simplistic level. Therefore, it was difficult to combine variables of significance such as age, immigration, and gender. This lack of variables provided an incomplete picture of the factors shaping migration/mobility practices.

Research in the Arctic and elsewhere has continuously pointed out how women and men may move for different reasons, at different times and stages of their lives, and to different destinations. We were unable to fully uncover this aspect in our study for the Pan-Arctic report.

One important feature of Arctic labour markets is the prevalence of long-distance working, sometimes referred to as fly-in-fly-out working arrangements. Furthermore, given the extent of extraction industries and primary industries (fishing, for instance) in the Arctic, it is worth examining gender and mobility practices, especially in the context of inequalities of mobility capital. In other words, not everyone can be mobile to the same extent, a phenomenon that is especially evident from a gender perspective.

Intersectionality

To adequately promote knowledge of gender equality in the Arctic, researchers and policymakers alike must tune in to how gender intersects with various other social categories. This means that merely examining gender as a variable fails to provide in-depth knowledge. I have suggested above that migration and mobility are shaped by gender, and vice versa. However, intersectionality goes beyond combining statistical

variables. Categories such as class, ethnicity, religion, sexuality, and place-based contexts significantly impact power relations, identity, and migration/mobility practices. Whilst this is an important consideration for gender equality in the Arctic, it is also of particular relevance to Indigenous People.

There are interesting and important qualitative studies examining migration and/or mobility of Indigenous People. Some of these studies occasionally include gender as a factor, but in most cases gender is merely mentioned in passing (if at all). Some studies focus on gender as a different concept among Indigenous People. These studies are relevant and interesting and can open our eyes to the fact that gender is understood in diverse ways, which may explain in part why gender is not always highlighted as a social category.

In this light, such studies provide insight into specific issues of significance for Indigenous People, which may be unlike those of the population of the Arctic otherwise. However, intersectional studies are characterised by being ad hoc, at least if one has the perspective of the whole Arctic in mind. I, therefore, suggest that greater effort be invested in examining gender, migration, and mobility in intersection with other social categories such as those highlighted above, in addition making a more concerted effort to focus on Indigeneity as category.

Arctic Studies—Comparative Studies

As a group of regions, the Arctic frequently fails to invoke imaginings of gender equality in the Arctic context. Instead, scholars, institutions, and industries may perceive their contexts as being grounded in traditional collaborations, such as the Nordic countries. Indeed, there are relatively few studies and few datasets/databases that enable comparative analysis of regions across the Arctic. When authoring the report, I found myself sometimes comparing that which is not comparable (apples and oranges, so to speak). Certain official statistics in the Nordic countries proved comparable due to long-established cross-country collaborations of statistical offices. In general, more comparable data and comparative studies (quantitative and qualitative) would assist in providing a much-improved understanding of gender and migration/mobility in the Arctic.

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