

## **ASI Executive draft summary prepared for the SDWG meeting, Oct. 24-25, Tromsø**

### **Includes preliminary draft recommendations**

## **ASI WORK IN PROGRESS**

### **Background:**

The AHDR came to life formally as a mandate emanating from the 2002 Arctic Council Ministerial Meeting calling on Iceland (the council chair during the biennium 2002-2004) to launch the AHDR as a “priority project” intended to provide “... a comprehensive knowledge base for the Arctic Council’s Sustainable Development Programme” (Inari Declaration 2002). Officially, the project ended with Iceland’s delivery of the completed AHDR to the 4<sup>th</sup> Arctic Council Ministerial Meeting in 2004 and the decision on the part of the ministers to “... **accept** with appreciation the Arctic Human Development Report and **recommend** that the Sustainable Development Working Group make full use of the report as a comprehensive knowledge base for the development of the Arctic Council’s Sustainable Development Programme and **direct** Member States and the relevant working groups of the Arctic Council to consider appropriate follow up actions” (emphasis in original).

### **ASI purpose:**

The Arctic Social Indicators (ASI) project is a project following up on the activities of the Arctic Human Development Report (AHDR), and was initiated by the Stefansson Arctic Institute, Akureyri, Iceland, which also hosts the secretariat. ASI has been endorsed by the Arctic Council, and has also received the endorsement of the IPY.

The goal is to devise Arctic social indicators which will help facilitate the tracking and monitoring of human development in the Arctic over time. It is apparent that the development of some means of monitoring trends in human development in the Arctic would be extremely helpful from the perspective of those involved in the policy process. Those wishing to track developments relating to the status of Arctic cultures, the evolution of indigenous rights, or the growth of the region’s economy, for example, can take the picture presented in the AHDR as a point of departure and compare on changes over time in human development or social welfare in the Arctic. The AHDR does not, however, provide time series data regarding the various elements of human development in the Arctic, and nor does it present a suite of quantifiable indicators suitable for use on the part of those seeking to monitor or track changes in human development in the Arctic.

The goal of the ASI project is to move toward filling this gap. It is the first step in a long-term effort to monitor and track human development in the Arctic. The development of indicators falls within six domains:

- (1) Fate control and or the ability to guide one’s own destiny;
- (2) Cultural integrity or belonging to a viable local culture;

- (3) Contact with nature or interacting closely with the natural world;
- (4) Material Well-being;
- (5) Education;
- (6) Health/Population.

Criteria for testing include: ease of measurement, affordability, robustness, data availability, interest of stakeholders, measurability at different levels, applicability to both indigenous and non-indigenous inhabitants, and internal validity.

All efforts to develop indicators must strike a balance between the analytic attractions of relying on a single indicator and the desire to introduce a large number of indicators in the interests of developing an accurate picture of complex and multi-dimensional phenomena. Tempting as it is analytically, the use of a single indicator such as GDP per capita as an indicator of economic development is problematic in addressing any complex phenomenon. This would certainly be the case with regard to something as multi-dimensional as human development. But going to the other extreme and ending up with dozens of indicators in the interests of capturing all the dimensions of a complex phenomenon is equally problematic. Not only does this create major measurement problems; it also can lead to disparate measures that are difficult to interpret. Thus, the objective is to devise a limited set of indicators that reflect key aspects of human development in the Arctic, that are tractable in terms of measurement, and that can be monitored over time at a reasonable cost in terms of labour and material resources.

There is no doubt that creating and refining suitable indicators of human development in the Arctic will take time and involve a step-wise process in which initial proposals are vetted empirically and refined or replaced over time as our ability to capture the essential features of human development under the specific conditions arising in the Arctic rises. Viewed in this light, the work of the ASI constitutes a significant step forward in moving us toward an ability to track trends in key elements of human development in the Arctic and, as a result, guiding discussions regarding questions of policy in the SDWG and in the Arctic Council more generally.

The report on Arctic social indicators will be directed at a broad audience, including the science community, inhabitants of the Arctic, policymakers at all levels, and in particular the Arctic Council and its SDWG. The plan is to have a report on Arctic social indicators completed in year 2008.

## **ASI Domains and Recommended Indicators:**

### **(1) Health and Population Domain:**

Health: Classical indicators of public health and health care include infant mortality, child mortality, and access to health care; mental health indicators include suicide rate and self-assessed health; and chronic disease indicators include obesity and smoking rate. Each indicator would be particularly informative if we could break it down further according to age, gender and ethnicity. With survey data such analyses are straightforward, and this is one of the main attractions of survey research methods. With other data sources, ethnic breakdowns in particular are difficult. There also are privacy and publication constraints.

Government vital statistics are collected initially with individual-level detail, but released to the public in aggregated forms that do not always permit sub-regional or subgroup analysis.

**Population:** A general set of population indicators would include: Total population, number of births, number of deaths, and net migration. All of these indicators are best in the form of time series covering many years, and where possible, broken down by age, sex or ethnicity. Secondary indicators derived from population numbers include birth rates, teenage birth rates, mortality rates, infant or child mortality rates, population growth or decline rates and projections, and age/sex/ethnicity composition of the population, including age and sex ratios. Each of these indicators has relevance to sustainability and socioeconomic development.

To advance beyond the AHDR, we seek indicators that can be compared for geographies more specific than the nine general regions. The term “place” is deliberately vague, but for each indicator there are practical constraints on how small our geography can be. One obvious limitation is data availability. Statistical agencies do not provide breakdowns below certain minimum thresholds of population counts. Although specific thresholds vary from country to country, they sometimes preclude the release of accurate data on small Arctic communities, or make the released data a patchwork of true and artificially rounded or suppressed numbers. Communities with populations of a few hundred or a few thousand people can be of great interest to social science and policy makers, but social indicators on this scale must be interpreted with care.

**Recommended Health Indicator:**

Infant mortality

**Rationale:** Quality of life is not a single dimension. Even using the simple summaries of social indicators, we get a much better picture looking at multiple indicators, comparing them across places and times. If we nevertheless select one indicator for health, infant mortality seems the best choice. This measure relates directly to quality of life and people’s sense of well-being. It integrates a wide range of health-relevant conditions including health infrastructure, sanitation, nutrition, behavior, social problems and disease. International comparisons have established its broad validity as a proxy for societal development, and its influence on other dimensions such as fertility and women’s work. Finally, the infant mortality rate makes a good indicator because it is clearly defined, comparable and widely available, including data for time series and sub-regional scales. One drawback is that it is based on small numbers. This drawback is shared by other health indicators, however. It constrains the possibilities for applying health indicators at sub-regional or community levels, or without time series, because statistics become less stable as sample size decreases. Confidence intervals help to describe the range of uncertainty surrounding a given indicator value.

**Recommended Population Indicator:**

Net-migration

**Rationale:** Choosing a single indicator regarding population or demography is also difficult. Population size, rates and components of change, and composition all are important. One demographic indicator of particular importance to Arctic communities has been net migration. Out-migration by young adults can make places economically and culturally less viable. Conversely, proportionately large in-migration could signal economic strength, but also places pressure on traditional ways of life. Both in- and out-migration reflect the current local

sum of various push and pull factors, although we often need local knowledge to understand how. Like infant mortality, net migration thus integrates different forces, and tells something basic about where one place is heading, or how it compares with others.

Migration and other demographic indicators remain usable at smaller population scales than most health indicators do, insofar as they are calculated from a larger fraction of those populations.

## **(2) Material Wellbeing Domain:**

We define material well-being in the Arctic region as some measure of local residents' command over goods and services. Material well-being is not happiness or general well-being, but in its strict sense 'material'. Material well-being is a measure of what is consumed not what is produced. It can be thought of on a continuum from basic necessities to the control of resources and wealth.

The construction and measurement of material well-being in the Arctic must consider the Arctic as a special case. In the Arctic material well-being is derived from market and non-market activity, as well as from transfers from higher levels of government. The importance of the traditional and transfer sector to material well-being is what makes the Arctic economy unique. The Arctic is also not a homogenous region. Regions vary by the type, quality, and quantity of industrial resources produced, by the relative size of the indigenous population, by the size and relative importance of the local economy, and by economic and political system. These differences are a major complicating factor in devising appropriate indicators of material well-being for the Arctic.

There are essentially four important differences that must be captured by any indicator of material well-being. First, residents of the north gain command over goods and services through market work, government transfers, and work in traditional activities. Second, the relative importance of each of these sectors varies throughout the north. Third, because of the capital and skill intensive nature of industrial resource production, much of the value produced in this sector becomes payment to people outside of the region. Finally, climate change and globalization make change a fundamental characteristic of material well-being in the Arctic.

What would make a good indicator of material well-being? The perfect indicator would tell us exactly the level of consumption from all sources that the average citizen of an arctic region consumes. It would also measure both the distribution of this consumption and the potential for it to change over time, and it would allow us to compare across regions and over time. Unfortunately, the perfect indicator may be too costly to construct. In selecting the appropriate indicator we need to balance or trade-off the information it provides with the cost of constructing the indicator.

The discussion of material wellbeing in the North takes as its point of departure the general criticism of GDP. Beyond the general criticism of GDP as a measure of material well-being, the Arctic poses additional questions, since material well-being is derived from more than just formal and recorded economic activity: inclusion of non-market production, flow of resource rents, differences in cost-of-living, annual price and output fluctuations, and the lack of consideration of distribution of income and environmental impacts are all important factors of material well-being in the Arctic.

Five groups of indicators – each group posting several possible indicators - are discussed and evaluated. The five groups are: income indicators, economic participation indicators, indicators of basic necessities and housing, poverty, and indicators of net-migration. While some of the indicators represent an improvement over GDP, they also have weaknesses when applied to the Arctic context. Four indicators of material wellbeing are proposed and evaluated according to selection criteria: per capita household income, net-migration, subsistence harvest, and finally a composite index that includes elements from each of the three sectors of the arctic economy.

**Proposed Indicators:**

(i) Per capita Household Income: This indicator scores high on a range of selection criteria. The major problem with the income indicator is that it ignores both direct services purchased with public transfers and also production in the traditional economy. Ignoring subsistence harvest and the transfer economy would leave us with an indicator of minimum material well-being. One of its particularly important strengths is that it provides a more accurate estimate of income in the North than does the standard measure of GDP.

(ii) Net-migration: Although the net-migration indicator has several weaknesses, it scores high on selection criteria and would be reasonably easy to measure – an important criteria to meet. It is robust and makes for easy comparison across scales, time, and regions. As long as we assume the cost of moving is similar for all people it is applicable to both indigenous and non-indigenous inhabitants. While this is a broad assumption to make this indicator still has considerable attraction.

(iii) Subsistence harvest per person: Subsistence is an indicator that we recognize as critical to the arctic context. At the same time, this indicator cannot stand alone as an indicator of material well-being, and serious data challenges need to be addressed before such an indicator can be relied on for an acceptable proxy.

(iv) Composite Index: Based on the core characteristics of the Arctic economy - the formal economy, the subsistence sector, and transfer sector (government services) - a composite index of material well-being could in principle be constructed, and it would include the following three component indicators: (1) Household income per capita as a measure of the monetary value of material well-being. This would represent the formal and wage earning part of the economy; (2) Harvest per capita in terms of weight, representing the subsistence or informal, also referred to as traditional, economy. Conversion into monetary equivalent can be done by assigning a value (e.g. hamburger meat price) to each kilo of harvest; (3) Housing affordability in terms of rooms per capita or square feet, representing the provision of goods and services from government or the transfer economy. Conversion into monetary equivalent can as one possible option be achieved by assigning a value equivalent to the average rental price per square feet.

**Recommended indicator:**

Per capita Household Income

**(3) Education Domain:**

By focusing on the post-secondary level, we intend to encompass and recognize all forms of educational attainment at an advanced level, including the development of vocational, technical and subsistence skills and expertise as well as the completion of certificate and

degree programs that are of benefit to the individual and the community. Such an indicator also serves as an indirect measure of the overall quality of pre-tertiary educational services, since without strong educational support from early childhood and on through the elementary and secondary schools, post-secondary educational attainment is likely to be weak.

Three indicators of education are considered: The proportion of students pursuing post-secondary education opportunities; the ratio of students successfully completing post-secondary education opportunities; the proportion of graduates who are still in the community 10 years later.

**Recommended indicator:**

The ratio of students successfully completing post-secondary education opportunities.

Rationale: It is one thing to attract people into post-secondary educational opportunities, but that in itself is insufficient to determine the contribution education makes to community well-being. There is also the question of to what extent students who enter a program actually complete it. This is especially important in fields where a credential is required and educational programs lead to a formal certificate or degree. Many factors can come into play in determining whether a student completes a program or not.

- Completion rates provide an indication of the level of pre-qualifications a student has acquired prior to entering a program. Poor preparation, particularly in basic skills areas such as reading, writing and math are likely to have a negative impact on completion rates, unless efforts are made by education providers to help students overcome such deficiencies in the course of completing a program.
- Completion rates also provide a measure of the extent to which there is a connection between the aspirations and expectations of the students and the kind of programs that are readily available to them. Due to economies-of-scale, post-secondary program offerings at the local community level are often limited, so students may end up enrolling in a program just because it is the only option available, and then find that it is not suitable to their needs or interests.
- Completion rates are also a reflection of commitment and adaptability on the part of sponsoring institutions to support students through to graduation. If the institution takes a sink-or-swim approach with little accommodation to assist students in meeting the demands of the program, the completion rate is likely to be quite low. This is especially the case with students who are first-generation in their family or community to pursue post-secondary education. If more institutions take an active interest in helping students succeed through to graduation by offering targeted support services and reaching out to work with students on their own terms, the effort will be reflected in higher completion rates.

Participation in and completion of post-secondary education opportunities is one sign of a healthy community, and as such can serve as a reliable indicator of the role of education generally in contributing to the well-being of Arctic communities. This is especially the case in small, remote, indigenous communities where education can serve as a vehicle not only for achieving individual aspirations, but for community aspirations as well. Historically, schooling has been used as a tool for assimilation under conditions of colonial rule. This role is gradually giving way as indigenous people assert their inherent rights of self-determination and put education to use as a tool for empowerment. It is our intent that the education indicators outlined here capture and reflect the significance of such a transformation.

#### **(4) Cultural Wellbeing Domain:**

The ASI domain of cultural well-being (or cultural integrity/vitality) results from the conclusions of the AHDR. The report had concluded that “maintaining cultural identity” was one of three dimensions of human development recognized by residents in the Arctic to be relevant over and above those dimensions included in the UN HDI.

One way to monitor “cultural well-being” in the many distinct Arctic societies (ethnic minorities, etc.) that do not enjoy a high degree of self-governance, is to construct a composite indicator taking into account diverse dimensions of culture. Whereas expressions of (dis)satisfaction with cultural conditions can only be elicited through expensive and limited surveys, cultural integrity can be evaluated with the help of data that are regularly collected (e.g. language vitality), and by ranking local or regional policies and social realities that influence cultural integrity.

Part of the value of an indicator for cultural well being is its universal applicability. It is recognized that no society is of a uniform culture: in an increasingly technologically accessible, physically mobile, and virtually accessible world, identifying an indicator relevant to all ethnic, age, gender, and occupational groups within societies poses a challenge. Within recognized “cultures” there is also often great diversity, including an understandings of “traditional” versus contemporary cultural practices. Indicators should not emphasize or privilege certain groups or sectors of a society. Indicators must be universally applicable and meaningful. For example, youth participation in cultural activities seems higher for ones associated with cultural change, development, and transition. In contrast adults and Elders tend to gravitate to activities associated with cultural preservation and/or transmission. Cultural activity participation may vary along gender lines.

Several potential indicators are identified and evaluated. Indicators of language, cultural autonomy, and belonging are discussed and evaluated in terms of data limitations.

#### **Recommended indicator (preliminary):**

A composite indicator of Cultural Vitality is proposed which includes the following elements: (i) Cultural Autonomy: “Do laws and policies recognize institutions that exist to advocate for the cultural autonomy of national minority populations”? Do institutions representing national minority/cultures exist? What is the proportion of institutions to minority peoples (e.g. are all peoples represented through such organizations? Are resources available to such institutions? Do funding policies exist and how well-resourced are they as a current year allocation per national minority/cultural group?

(ii) Language Retention (The percentage of the population which speaks its ancestral language as compared to the population as a whole); and

(ii) Belonging – the percentage of people who engage in recreational or subsistence survival land-based activities; or the relative size of the informal sector of the economy (subsistence activities).

Rationale: A composite index presents the advantage of taking into account developments that affect cultural well-being, but that may diverge. E.g. language retention in a group may decrease, while the ‘subsistence way of life’ (including economic, social and cultural aspects) may remain comparatively strong. Likewise, cultural autonomy per se may not provide sufficient a buffer against language erosion, or the reduction of subsistence activities due e.g. to the encroachment of industrial uses of the land. The weighing of the different parameters of

such a composite indicator could only be accomplished meaningfully when attempting to apply it with real data, an exercise which is beyond the scope of the present study.

As a second option 'Language Retention' is recommended as a stand-alone indicator of cultural wellbeing.

**(5) Closeness to Nature Domain:**

*Closeness to Nature* is highlighted in the AHDR as being a prominent feature of human development in the arctic.

Potential indicators include: (1) Participation in Traditional/Outdoor Activities; (2) Time on the land; (3) Consumption of country food; (4) Youth retention in the Arctic.

(1) Participation in Traditional/Outdoor Activities: This indicator requires the accounting of the diversity of activities for different regions and concomitantly, different measures for different regions, allowing also for the indicator to be adaptable to both indigenous and non indigenous populations. Although Participation in Traditional/Outdoor Activities is an excellent indicator of contact with nature, there is poor data availability and the need to adapt the measure to the diversity of populations makes consistent tracking and measurement difficult.

(2) Time on the land: Spending less time on the land has been shown to be a direct correlate of obesity in arctic populations (Young 1996). Contact with nature could potentially be gauged by the amount of 'time on the land,' or time spent in nature and away from a household context, involved in subsistence and/or other outdoor activities. Many rural Arctic populations depend on subsistence resources for some percent of their household food. The activities involved in procuring those subsistence resources requires time spent in nature. For example, active subsistence harvesters, by design, need to spend significant time in nature in their harvesting activities (Berkes & Jolly 2001). It could be argued that the more a household depends on subsistence resources, the more time members need to spend 'on the land,' and the more contact with nature they have. Although the concept, at first glance, seems robust, there are irreconcilable issues that render it not the top choice as an indicator for closeness to nature. First of all, not all subsistence activities require the same time on the land (or sea) input in relation to energy/kCal return. A second problem with time on the land as an indicator is deciding how it should be measured. A third problem is lack of data. Another problem is the tendency for women to be settled in villages and only the men going out on the land, presenting a gender-biased measure. This could be resolved by developing different measures for men and women.

(3) Consumption of country food: Each of our contact with nature measures is subject to interpretation with respect to whether an increase in the measure means an increase in human development. It is possible for an increase in contact with nature to occur as a response to a decrease in material well-being – as in a loss of wage jobs. We can understand what a change in consumption of country food means if we examine the measure in the context of change in material success.

(4) Youth retention in the Arctic: This indicator relates to the standard HDI of Education – existence and extent of place – based education/ transmission of knowledge about traditional pursuits. According to Turi (2002), in general there are no recruitment problems in reindeer herding, except in

certain taiga regions of Russia. There is a general agreement among reindeer herders, scientists and local authorities that reindeer husbandry cannot be learned in institutes or schools. To be a good herder, one must grow up in a reindeer herding family. For the sake of recruitment, it is important that the child spend his/her first years before school in a brigade (Ulvevadet and Klovov 2004:72). In order to get a school education, children from herding families can only stay with their parents for a few months a year, during the summer holidays. The school administration accommodates the wishes of children who want to spend more time in the camp with their parents and learn more about reindeer herding and husbandry. These students are allowed to leave before the official end of the school year, and sometimes arrive after it has begun. In this way the school children can stay in the herding camps up to five months a year (Ulvevadet and Klovov 2004:73).

**Recommended indicator:**

Consumption or harvest of country food

Rationale: One of the most frequently cited means of maintaining contact with nature is the harvesting and eating of traditional foods. The rationale for recommending the consumption and harvest of country food is covered fully above but the primary reasons for our recommendation is the centrality of country food consumption to Arctic cultures and peoples, the availability of data and ability of communities across the Arctic to collect those data, and finally, the generalizability of the concept across Arctic regions, for indigenous and non indigenous people, for rural and urban residents and for women and men. The data also lend themselves well to aggregation and to time series. To use this indicator, one could measure both harvest and consumption or could choose one or the other depending on relevance to the particular region as well as ease and feasibility of data collection. Choices must also be made between household and individuals or aggregates of communities or regions. Proportion of food consumed by the household (none, less than half, half, more than half) harvest by species, kg per household could be used. We do not wish to underestimate the challenges of this task, but we strongly believe that consumption and harvest of country or traditional foods is the best proxy indicator for contact with nature in all Arctic regions.

**(6) Fate Control Domain:**

Fate control is, simply put, the ability to guide one's own destiny. While indicators literature on fate control is scant, the concept is highly linked the more common term of 'empowerment' - the process of achieving the capacity to 'make choices and then to transform those choices into desired actions and outcomes (Alsop et al. 2006:10, quoted in Ibrahim & Alkire 2007:7). Fate control thus is the outcome of empowerment. To control one's fate one must have the *capacity* to make one's own decisions; one must also have the *resources* to implement these decisions (World Bank 2000). Each of these aspects in turn has an internal and external component – a person or community needs both the internal capacity and resources and a lack of external barriers to make and implement decisions. The “concrete material, social, and institutional preconditions to exert agency” are critical to empowerment (Ibrahim & Alkire 2007:11), and it is these to which we paid special attention.

Fate control, or the lack thereof can be experienced at the personal, household, community, and regional levels. Individuals and households in an Arctic community may experience more or less control over their fate than do their neighbors, depending on their capacities and resources. Yet it is the *collective* control of fate which seems of critical concern to Arctic residents. Many communities and regions of the Arctic endure a residual dependence on outsiders, who play a major role in administering political, economic and cultural institutions even at the local level, and notably at higher scales. Boom-bust economic cycles characterize

large parts of the Arctic, with concomitant high unemployment and underemployment in many regions, and dependence on transfer payments. Thus, we have focused first and foremost on fate control as a collective benefit.

Twelve possible indicators of fate control are identified. There are grouped under the following categories, acknowledging that the categories are not discrete; overlaps exists among them: (1) Political Power & Political Activism (political participation, perceived political influence, resistance); (2) Decision-making Power (proportion of local personnel in key decision making positions, local control over place names, rights to land & sea resources); (3) Economic Control (self-generated income, local control of the economy); (4) Knowledge Construction (knowledge/information about politics, access to information, language retention); (5) Human Rights (Recognition of human rights).

### **Recommended indicator:**

Composite Index of fate Control

Rationale: In elaborating these indicators and considering potential measures for them it was determined that a relatively simple and transparent index of fate control could be created to incorporate elements from the above categories above. A possible and rather simple, but powerful, way of looking at fate control is to create an index, where a region (community, district/county, province/territory/republic) would be evaluated under each of the following four measures. In proposing this index we recognize that “composite indexes generate problems of attribute selection and weighting” (Crilly et al. 1999:153; Fahey 1995). Transparency is sacrificed, and aggregation is problematic. On the other hand, their advantage for comparative and analytical purposes is difficult to dispute, and, not surprisingly, many existing human development and well-being indices are composite ones (e.g., UN HDI, Community Well-Being Index [McHardy and O’Sullivan 2004]). We developed the Fate Control Index as a combination of individual indices that characterize the sub-domains of fate control (Table 4.1). The four components of the fate control index are: The Percentage of Indigenous Members in Governing Bodies Relative to the Percentage of the Indigenous People in the Total Population; The percentage of surface lands legally controlled by the inhabitants through regional and local public governments, native organizations and communes; The percentage of public expenses within the region (regional government, municipal taxes, community sales taxes) raised locally; The Percentage of Individuals who Speak the Language of their Ancestors (whether ‘indigenous’ or not) in Relation to the Percentage of Individuals Reporting Corresponding Ethnicity

### **General Observations on Data Challenges**

Several of the indicators we suggest here have weaknesses related to availability of data, affordability, and level and applicability to both indigenous and non-indigenous inhabitants of the Arctic. An indicator should be the most accurate statistic for measuring both the level and extent of change in the social outcome of interest. It should adequately reflect what it is intended to measure, and ideally there should be wide support for the indicators chosen so they will not be changed regularly. It is critical that the chosen indicators are consistent over time and across places, as the usefulness of indicators is related directly to the ability to track trends over time and compare the well bring of regions.

The chosen indicators should do well in terms of selection criteria such as data availability, ease of measurement, internal validity, affordability, robustness, applicability at various levels

(household, local, regional), and applicability to indigenous as well as non-indigenous populations.

To advance beyond the AHDR, we seek indicators that can be compared for geographies more specific than the nine general regions. The term “place” above is deliberately vague, but for each indicator there are practical constraints on how small our geography can be. One obvious limitation is data availability. Statistical agencies do not provide breakdowns below certain minimum thresholds of population counts. Although specific thresholds vary from country to country, they sometimes preclude the release of accurate data on small Arctic communities, or make the released data a patchwork of true and artificially rounded or suppressed numbers. Communities with populations of a few hundred or a few thousand people can be of great interest to social science and policy makers, but social indicators on this scale must be interpreted with care.

### **Recommended Small Set of Indicators for Tracking Human Development (Preliminary. Work in progress):**

The main objective of the ASI project is to arrive at a small set of arctic social indicators that as a collective can be used for tracking and monitoring change in human development in the Arctic. For this purpose, and based on a number of selection criteria, the ASI working group recommends the following list of seven arctic social indicators, with each indicator being proposed by one or more domains:

- (1) Infant Mortality (Domain: Health/Population)
- (2) Net-migration (Domains: Health/Population and Material wellbeing)
- (3) Consumption/harvest of local foods (Domains: Closeness to Nature and Material wellbeing)
- (4) Per capita household income (Domain: Material wellbeing)
- (5) Ratio of students successfully completing post-secondary education (Domain: Education)
- (6) Language retention (Domain: Cultural wellbeing)
- (7) Fate control index (Domain: Fate Control)

### **Chosen indicators and Tiers:**

Consider the following working definition of relevant terms:

- |                           |   |
|---------------------------|---|
| a. National               | data are collected by a national agency   |
| b. Comparable             | data collected by a national agency are comparable to that collected elsewhere                |
| c. Publication            | data are available in hard copy or electronic form from the collecting agency                 |
| d. Spatial                | data are available at the county level (e.g. census area, district)                           |
| e. Period                 | data are available over time on at least a 5 year frequency                                   |
| f. Indigenous populations | populations represented among the permanent participants of the Arctic Council                |
| g. Special tabulation     | data could be made available if the collecting agency made, or permitted, special tabulations |
| h. Compilation            | data could be compiled by researchers from existing information                               |

- i. New data collection data could be collected using no more than 10 minutes of interview time

Ideally, a chosen indicator fits one of the following combinations of criteria:

1. Data are collected by a national agency, are comparable, are published, are available at a county level, are collected at least every five years, and are available for indigenous populations.
2. Data can be made available with special tabulations and otherwise meet all criteria listed in #1.
3. Data can be compiled from existing information and otherwise meet all criteria listed in #1.
4. New data could be collected that otherwise meet all criteria listed in #1.

For each indicator proposed in the six domains limitations are considered with respect to data limitations: National limitations, Publication limitations, Spatial limitations, Period limitations, Indigenous population limitations, Special tabulation limitations, Compilation limitations, New data collection limitations

Based on this, indicators will be divided into tiers:

Tier 1: based on existing published data

Tier 2: data that would be produced by special tabulations from existing unpublished data

Tier 3: would require primary data collection

## **Overall ASI recommendations (draft/preliminary):**

### **Arctic Social Indicator Data Recommendations:**

At the outset of ASI, the stated intent was to identify a small set of indicators of human development relevant to the Arctic that could be monitored at reasonable cost. The ASI team hoped that “reasonable cost” could be operationally defined in terms of indicators that are based on existing information. The team also agreed on that a good indicator should:

- ◆ have a clear meaning relevant to one or more of the six domains of Arctic human development (health and demography, material well-being, education, cultural integrity, contact with nature, and fate control)
- ◆ be sensitive to change over time
- ◆ be available at least down to a regional level
- ◆ be applicable to, and reported separately for, indigenous and non-indigenous populations

Participants at the first ASI workshop were able to achieve consensus on using the six domains of Arctic human development contained in the Arctic Human Development Report recommendations as the basis for organizing the work of ASI. At the two subsequent workshops it became clear that, within each of these domains, meeting the combined challenges posed by the criteria defining a “good indicator” require either sacrifice of one or

more of the criteria, or a relaxation of the assumption that indicators can be based on existing information.

The individual domain chapters detail these challenges. Net migration, for example, while ostensibly based on the most basic data (population, births, and deaths) is not uniformly available for all countries nor for indigenous and non-indigenous populations in some countries. Time series data on harvest and consumption of local resources, another recommended Arctic Social Indicator, are not available on a decadal time scale in North America, Russia, Norway, Sweden, or Finland. It is therefore not enough to recommend a set of Arctic Social Indicators. Recommendations on the steps necessary to monitor them are also required.

### **(i) Arctic Social Indicator Monitoring Objectives**

Recommendation: *Design the Arctic Social Indicator monitoring system to meet the following objectives:*

1. *Data are available at a regional level;*
2. *Data are available separately for indigenous and non-indigenous populations;*
3. *Data are available on at least a five-year reporting period.*

The operational definition of these objectives will, of practical necessity, differ across countries. A practical definition for region in Alaska, for example, is the census area, and in arctic Canada and Iceland it is the region, while in Greenland it is the municipality, in Norway, Sweden, and Finland the county, and in Russia the oblast or republic (see map generated from Hamilton AHDR/Arctic RIMS). Differentiating indigenous and non-indigenous populations is commonplace in North America, uncommon in Scandinavia, varying over time in Russia, and less important in Iceland. Scandinavian countries, Greenland, and Iceland base much of social indicators on administrative data available annually while Canada collects such data every five years and the US has switched from decadal observations to a ongoing sample design that can probably support five year averages.

Depending on the indicator and the nation one of three levels of effort are required to meet these monitoring objectives:

1. Data are collected by a national agency and published in hard copy or electronic form.
2. Data are collected by a national agency and require special tabulations to be made available.
3. Data require primary data collection.

### **(ii) ASI Indicators Based on Existing Published Data**

Recommendation: *Encourage national statistical agencies to participate in development of a meta database identifying ASI indicators that are already monitored by a national agency and published in hard copy or electronic form.*

While it may seem like a trivial exercise to identify existing published sources of ASI indicators, the experience of ASI team members is that the task is in fact quite challenging. Small differences in national statistical programs (e.g. the definition of an infant used in constructing infant mortality estimates) can affect the comparability of data across countries, or over time.

### **(iii) ASI Indicators Requiring Special Tabulations**

Recommendation: *Encourage establishment of an international task force composed of national statistical agency analysts and Arctic researchers to identify the special tabulations required to produce comparable ASI indicators and to recommend approaches to produce these special tabulations.*

Special tabulations can assume three forms: (1) processing of publically available electronic files by arctic researchers; (2) processing of confidential agency data files by arctic researchers who obtain special permission to do so; and, (3) processing of confidential agency files by agency personnel. In some cases it is possible for arctic researchers to use published, publically available, electronic files to construct ASI variables. This process is not necessarily straightforward. Construction of comparable time-series data often requires different rules in each time period. Geographic boundaries change over time, for example, as do variable definitions. Processing of confidential agency files by arctic researchers is currently possible as special projects, usually confined to a single data set. Construction of time series ASI variables will require processing of multiple data sets over a longer time period than normally associated with a special project. Processing of confidential agency data to generate ASI indicators by agency personnel represents a currently unbudgeted agency expense. Task Force recommendations can serve as a basis for agency budget requests.

### **(iv) ASI Indicators Requiring Primary Data Collection**

Recommendation: *Initiate ASI Phase Two with the objective of testing ASI indicators, including those produced in collaboration with funded research primary data collection projects.*

ASI has made significant progress toward the development of an Arctic social indicator system: ASI has identified a small set of indicators to monitor arctic human development. The next logical step in the development of an Arctic social indicator system is to test and validate the ASI indicators. In the case of indicators requiring primary data collection, ASI needs to collaborate with researchers who are funded through national research councils to collect such data. Such collaboration makes sense for both ASI and funded researchers. ASI benefits from having data required to test and validate measures, and funded researchers can build on the conceptual groundwork of ASI and the joint participation of project researchers and ASI in the testing and validation process. Also important to the full implementation of an Arctic social indicators system is the demonstration of an approach to cost-effective primary data collection.

### **Follow-up to ASI (2009):**

The ASI working group plans to seek funding for a follow-up to ASI that will address data issues, testing and implementation.