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### **Data and Information: User needs**

Arctic societies and cultures are faced with multiple stressors and challenges related to the ongoing and combined effects of environmental processes, industrial development, cultural development, and economic changes. These and other processes occurring at a rapid pace, combined with limited observational infrastructure, and a lack of timely, appropriate and reliable data and information networks, presents users in government and the research community with new challenges. New demands are placed on access to data for the study and modeling of these processes, and for understanding, measuring and predicting the impacts of change on social systems at various scales, and understanding the links with the rest of the world and their feedback mechanisms. The integration of knowledge across disciplinary boundaries adds to data and information requirements.

User needs include access to relevant, reliable, accurate and timely data and information, and data which is appropriate and relevant to the Arctic context, where much data currently is based on southern or national data protocols, and where models often are designed and legitimated in institutional contexts outside the Arctic. There is a lack of more complete data sets that enable more comprehensive and accurate research and analysis at various scales, across disciplines and across the circumpolar Arctic, and that allows for comparisons and contrasts, modeling, evaluation, assessment and monitoring of changes and their impacts. The Arctic Human Development Report (AHDR), as the first comprehensive overview of human development in the Arctic, encountered several of these complications related to data. As well, there is a need for timely and more conclusive data and information from the natural sciences, e.g. for studies of the socio-economic impacts of climate change. A more complete understanding of the current and future environment requires access to year-round data, and above all improved and disaggregated data series. There is a lack of disaggregated data for the regional and community level to help make accurate estimates of the impacts of change. Rapid changes call for timely data, research and prognosis, in order to allow for credible and policy relevant conclusions, and to meet the needs of government, the Arctic Council and its working groups.

The AHDR identified several gaps in knowledge that has relevance for user needs, such as the need for a regional demographic profile based on common data protocols. It also recommended research to devise a small number of indicators to be used in monitoring and tracking changes in human development in the Arctic over time. The Arctic Social Indicators (ASI) project, a follow-up to the AHDR and initiated by the Stefansson Arctic Institute in Akureyri, is working toward filling this critical gap.

Current data bases, information sources and networks include, to name a few, ArcticStat, SLiCA, ASI, ECONOR, AHDR, ICARP, ACIA, the Political Economy of Northern Development research consortium, Arctic Council reports etc. ASI is one project that seeks to fill a critical gap in user needs in Arctic research and data information. ASI aims 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. The development of indicators fall within six domains, all of which seek to address key aspects of human development that are particularly prominent in the Arctic: Fate control and or the ability to guide one's own destiny; Cultural

integrity or belonging to a viable local culture; Contact with nature or interacting closely with the natural world; Material Well-being; Education; Health/demography. Such a database with unique long-term series of data could be immensely useful to decision-makers, planners, and others concerned with the future of the Arctic. 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 ICARP II process also identified critical research needs and outlined practical steps and organization to be considered. E.g. ICARP II, WG 10, proposed the establishment of coordinated and integrated arctic observation systems that focus on social, biophysical, and ecological dimensions and include local- to global scale monitoring; and the build up of a meta-database of case studies on socio-ecological change and with it, a standardized format and common set of key variables. At the ICARP implementation workshop in Potsdam 2006 these needs were reiterated, and a research network (NARSEC) was proposed.