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Background Paper

Indigenous Peoples in the Arctic

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EXECUTIVE SUMMARY

The aim of this paper is to present the situation of the Arctic indigenous peoples in relation to the changing marine environment. However, the role of the marine environment can only be understood in a wider context of the overall situation of Arctic Indigenous peoples due to the complexity of their respective indigenous ways of life. Therefore, it's necessary to describe not only the direct impacts of climate change on the Arctic marine environment but also on the terrestrial areas of indigenous peoples. To complete the picture, a focus is also placed on economical, legal and political aspects.

The Arctic region is home to several groups of indigenous peoples (including Inupiat, Yup'ik and Aleut in Alaska, Inuit in Greenland and Canada, Saami in Fennoscandia and Russia and, Yup'k, Chukchi, Even, Evenk and Nenets in Russia). Out of the total population of 4 million people in the Arctic, 10 % are indigenous. There is a great variation of cultural, historical and economical backgrounds among the groups. However, a common feature for most of the indigenous communities in the Arctic is that they have already undergone substantial changes due to the globalization of the western way of life, state policies, modern transport and the introduction of mixed economy. Climate change poses a new threat for all of the indigenous peoples.

Climate change significantly impacts the traditional harvesting activities of indigenous peoples. Rapid weather changes and occurrence of thin ice and severe weather conditions (e.g. strong winds and storms) makes hunting more dangerous. Furthermore, disappearing sea ice affects many species that are subject to harvest, for instance polar bears, seals, whales and some fish stocks depend on ice cover. Additionally, the ice plays an important role in sea temperature regulation and primary productivity. As a result, the livelihoods connected with hunting, fishing and herding are under threat. Indigenous peoples have an especially strong bond with nature and the changes in harvesting activities may have implications on the economy, society, culture and health. Eventually, the survival of many groups as distinctive peoples is endangered. Additionally, housing, infrastructure and transport connections of coastal indigenous communities are seriously affected by climate changes, with rising maintenance costs and sometimes even the necessity of relocation.

The political and legal systems vary significantly among the Arctic countries. A common trend in the region is the empowerment of indigenous peoples through new structures of governance as well as through devolution of legislative powers. Indigenous peoples are increasingly involved in political and decision-making processes, although, from an indigenous perspective, much work still needs to be done to strengthen these processes. Human rights, such as the language and cultural rights of indigenous peoples are increasingly recognized while a question of land rights remains the subject of a debate in many Arctic countries. From an indigenous point of view, the Arctic Council which was formed in 1996 is important because indigenous peoples are defined as permanent participants in this inter-governmental forum and must be fully consulted before decision-making in the Council.

Indigenous peoples have traditionally been adaptive and resilient to change. However, the current and projected climate change presents a whole new threat as it is occurring faster than indigenous knowledge can adapt. Furthermore, the adaptive capacity of the indigenous peoples has altered as they are often more dependent on the outside world than previously.

The great variety of the legal, political, cultural and economical diversity among the Arctic countries naturally has an influence on the ability of the communities to cope with the changing environment. It must also be noted that climate change is not the only reason for the ongoing changes in the livelihood of indigenous peoples. At the same time, indigenous peoples could be supported to face the changes in several ways. Further empowerment, revised legislations and regulations and financial support by the respective states as well as modern technology and sufficient information on issues such as health risks may play important roles in assisting indigenous peoples adapt to the changing environment. Although certain aspects of traditional knowledge and cultural systems may have less usefulness in an era of rapid changes due to climate, many aspects are integral to understanding changes in the Arctic and to the resilience and adaptability of indigenous peoples and thus should be supported.

1. DEFINITIONS

1.1. Arctic region and the Arctic marine

The Arctic marine area is defined according to the boundary drawn by the Arctic Monitoring and Assessment Programme (AMAP).[1] It is worth noting that in addition to the Arctic Ocean, also Arctic rivers and lakes play an important role (e.g. in terms of travelling, fishing and hunting) for many of Arctic indigenous peoples, whose subsistence is connected with the sea.[2] Furthermore, the main rivers – e.g. the Severnaya Dvina, Pechora, Ob, Yenisey, Lena, Kolyma, Yukon and Mackenzie[3] - affect the entire Arctic, including the Arctic Ocean (e.g. to the freshwater budget).[4]

1.2. General definition of indigenous peoples

A definition of indigenous peoples is stated in Article 1 (1b) of the International Labour Organisation's Convention concerning Indigenous and Tribal Peoples (ILO No. 169)[5]:

> This Convention applies to […] people in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonisation or the establishment of present State boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.

Furthermore, Article 1 (2) leaves significant discretionary power to the peoples themselves to evaluate whether they regard themselves as indigenous:

> Self-identification as indigenous or tribal shall be regarded as a fundamental criterion for determining the groups to which the provisions of this Convention apply.

It is noteworthy that the term used is "indigenous" despite the fact that it is not a common term for all Arctic countries. In Alaska, the most common reference is "Alaska Native" while the Constitution of Canada uses the term "aboriginal". "First nations" is also a widely used term in Canada as it is preferred by Indian people themselves. The Russian legislation defines indigenous peoples based on their population size. Groups with less than 50,000 people are defined as "indigenous numerically-small peoples" whereas non-Russian peoples with a population size of over 50,000 are denied indigenous status.[6] In this chapter, the terms

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1 AMAP: Arctic Pollution Issues: A State of the Arctic Environment Report 1997, pp. 6 – 7.

2 ACIA: Impacts of a Warming Arctic, p. 94.

3 ACIA: Impacts of a Warming Arctic, p. 37.

4 ACIA, 2005, p. 358.

5 Available at <http://www.ilo.org/ilolex/english/subjlst.htm> visited on 20.2.2008.

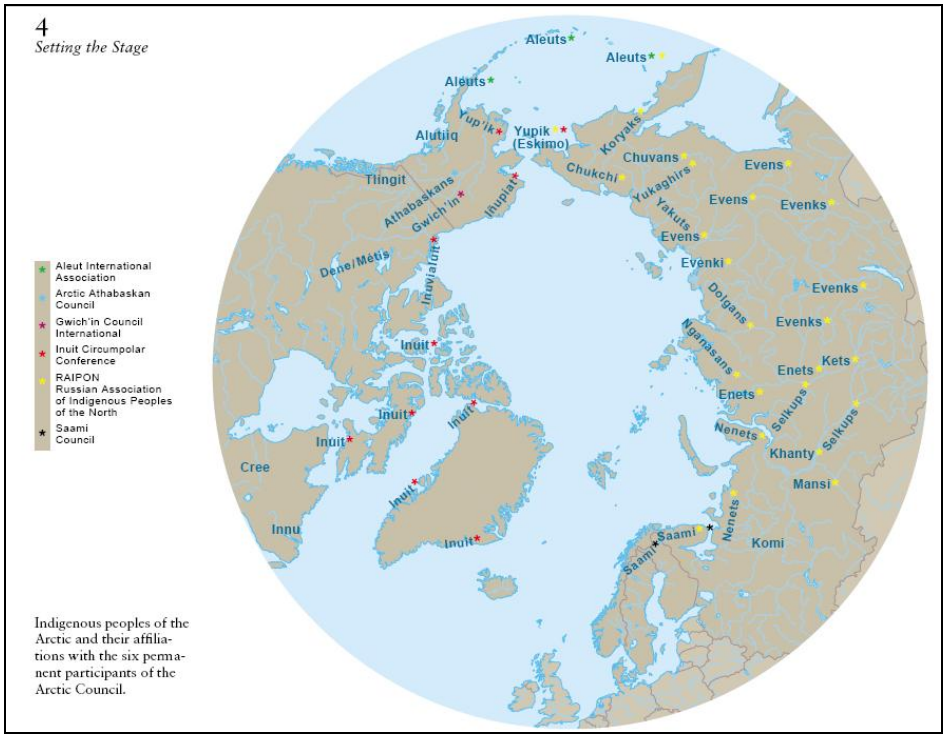
6 AHDR, 2004, p. 21.

"indigenous peoples", "indigenous people" and "indigenous populations" are used interchangeably and without taking any stance on their legal status.

1.3. Indigenous peoples in the Arctic

The Arctic region is a vast area with approximately 13.4 million square kilometres of land within the AMAP boundary.[7] This extensive area is home to various groups of indigenous peoples that have a diverse set of cultural and historical background and basis of economy. The indigenous peoples of Alaska include the Inupiat, Yup'ik and the Aleut. The Inuit are considered as indigenous peoples in the Canadian Arctic and Greenland.[8] In Northern Russia there are dozens of indigenous peoples, including the Chukchi, Nivkhi, Saami, Even, Evenk and Nenets. The indigenous peoples in Fennoscandia are the Saami.[9]

Figure 1: The following map illustrates the home regions of indigenous peoples in the Arctic according to the Arctic Monitoring and Assessment Programme (AMAP):[10]



Out of the total population of 4 million people in the Arctic, only 10 % are indigenous.[11] The percentage of the population that are indigenous people in each respective Arctic country or

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7 AMAP: Arctic Pollution Issues: A State of the Arctic Environment Report 1997, p. 7.

8 Nuttal, 2000, p. 377.

9 Nuttal, 2002, p. 2.

10 AMAP: Arctic Pollution 2002: Persistent Organic Pollutants, Heavy Metals, Radioactivity, Human Health, Changing Pathways, p. 4.

11 IPCC, 2007, p. 657.

region is presented in Figure 2. The majority of the Arctic peoples live in communities with more than 5,000 residents. Despite the fact that in most of the Arctic region indigenous peoples have been encouraged to live in fixed settlements, there are still some groups that lead a nomadic way of life (e.g. Nenets in Northern Russia).[12]

Figure 2: Population of Indigenous Peoples of the Arctic region[13]:

Indigenous Population of the Arctic Region

Arctic Region or Country	Date	Population (1,000) Total	Indigenous	Share of indigenous (%)
USA (Alaska)	Census 2000	627	98 (119)*	15.6 (19.0)
Canada: Arctic region	Census 2001	130	66	50.8
Denmark: Greenland	2003	57	50	88.1
Iceland	2003	288	NA	
Denmark: Faroe Islands	2003	48	NA	
Norway: Arctic region	2003	463		
Sweden: Arctic region	2003	254	50**	~5
Finland: Arctic region	2003	188		
Russia: Arctic region	Census 2002	1982	~90***	>4

Notes:
* Just American Indians & Alaska Natives (American Indians & Alaska Natives and some other race)
** Estimate for Nordic Saami (AMAP, 1998)
*** Estimate author (D. Bogoyaviensky, Census 1989 = 77)

2. INDIGENOUS COMMUNITIES ON THE VERGE OF CLIMATE CHANGE

Indigenous people face climate changes in a social and cultural environment that has been changed drastically by developments that have significantly changed their lifestyles. Therefore, climate change should be put into context of other developments occurring simultaneously in the Arctic. From the moment of the first contact with Europeans indigenous societies have undergone significant changes. Many policies were implemented with good will but they have placed a great deal of pressure on communities, since these were imposed without consideration for their social structures. In many cases that caused social crisis, acculturation or disintegration. Climate change is an additional factor affecting already restructured livelihoods, making it more difficult for indigenous people to adjust to the modern world and retain their specific economies and identity. Therefore, addressing climate change impacts should be connected with policies designed to solve other issues, which are often considered more important for indigenous people.[14]

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12 Ibid; AHDR, 2004, pp. 30 - 31.

13 AHDR, 2004, p. 29. Available online at http://hdr.undp.org/en/reports/regionalreports/other/arctic_2004_en.pdf. Note, however that the official statistics from several countries are inadequate.

14 Ford et al., 2006, online; ACIA, 2005, pp. 650-651; AHDR, 2004, pp. 49-52.

2.1. Traditional harvesting and mixed economies

During the 20th century, interaction between Arctic indigenous peoples and formal, national and global economies resulted in the creation of mixed economic systems. Understanding of these mixed economic systems is one important basis for the assessment of adaptive opportunities and capacity of Northern indigenous peoples. Mixed economies are a combination of formal economy based on cash flows and one based on traditional knowledge ways of acquiring food, clothing and other commodities. Financial resources are presently indispensable for successful harvesting in the Arctic (e.g. costly modern technology, such as snowmobiles, rifles, GPS etc.).[15] It is important to note that a return to fully traditional means of harvesting is unlikely due to changes in indigenous people's lifestyles, new standards of living, decline in natural resources and climate change.[16]

Indigenous people acquire financial resources either through employment (i.e. full, part-time or seasonal; often comprised of government jobs or resource extraction, which provides employment only for a limited period of time), selling of goods acquired through harvesting, handicraft, tourist leisure hunting[17] and public transfers. However, the shortage of job opportunities in the Arctic, poor quality of offered employment and comparatively high prices – especially for food imported from outside the region - result in difficulties for many indigenous people to sustain themselves exclusively on financial resources.[18] In addition to food, traditional harvesting provides: clothing, social ties, self-esteem, cultural features and values, health and specific knowledge. Therefore, abandoning traditional subsistence might result in significant social, economic and cultural changes.[19]

Due to the integration of formal economy into indigenous subsistence patterns, the well-being of indigenous communities is closely connected to general economic trends and cannot be analyzed without consideration of national and world economies. Indigenous economies are strongly influenced by commercial fishing, raw materials extraction and the presence of military facilities which on the one hand encroach on traditional harvesting grounds and waters and cause pollution, but at the same time bring new jobs into the region. National and international regulations, such as resource management regimes and land ownership issues, in some cases limit indigenous peoples' access to their traditional harvesting areas, and establish rules different from traditional subsistence patterns and artificial borders of hunting territories.[20] Also, the increasing importance of inter-community

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15 ACIA, 2005, pp. 664, 672, 673; Petition to the IACHR, 2005, p. 16; AHDR, 2004, pp. 74, 143-144; Indigenous Communities…, Science and Technology; Nuttall, 2000, pp.390-392;Nuttall, 2002, pp. 42-43.

16 ACIA, 2005, pp. 652-653, 656; IPCC, 2007, p. 673.

17 Nuttall, 2002, pp. 128-129.

18 ACIA, 2005, pp. 656-657, 667; Ford et al., 2006, online; Nuttall, 2002, p. 43.

19 ACIA, 2005, pp. 650, 654-656, AHDR, 2004, p. 74.

20 ACIA, 2005, 664-665; Nuttall, 2000, pp. 394-395, 402-403.

trade in the Arctic is worth noting, since it may decrease the communities' vulnerability to market fluctuations, for example owing to diversification of trade partners.[21]

In addition, unemployment and poverty have emerged in indigenous communities as new problems. In the traditional societies problem of unemployment in its modern understanding didn't exist. Furthermore, introduction of new standards of living and consumption needs has highlighted poverty as a social issue.[22]

2.2. Indigenous society and culture

Indigenous communities throughout the Arctic face various social problems, a fact which needs to be taken into consideration when studying the impacts of climate change.

Generally speaking, newcomers to the Arctic, usually Europeans, have introduced new lifestyles, culture, educational systems, technology, food and diseases for centuries. Cultural changes, modern transport, western way of living and implementation of state policies have increasingly affected all features of indigenous peoples' lifestyles at least from the beginning of the 20th century.[23]

Among the greatest challenges for many peoples' societies and cultures are: permanent settlement, relocation, urbanisation, concentration (in the former Soviet Union processes of relocation of various human groups often influenced indigenous peoples as well) as well as the northward advancement of agriculture, introduction of elaborate infrastructure and migration from the South (e.g. fossil fuels extraction, new jobs in public services and tourism).[24] Permanent settlement, with introduction of modern housing, in comparison to nomadic or semi-nomadic livelihood, allows for much less flexibility and undermines indigenous ways of life, because indigenous cultures have a strong relationship with the land.[25] The family structure is altering with the nuclear family replacing the multigenerational family, a process often caused by permanent settlement, government single family housing projects and population concentration.[26] Additionally, the family restructuring, changes in hunting practises and technology, as well as the shift from communal to private ownership of hunting rights lead to the decline of sharing and reciprocity systems that constitute an important part of community identity and integrity.[27] Modernisation of hunting technology privileges community members who have access to equipment and cash resources, which

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21 IPCC, 2007, p. 661*;* ACIA, 2005, pp. 664-665, 669; Nuttall, 2002, pp. 42-43, 59, 112-113.

22 ACIA, 2005, pp. 657-658, 664*;* AHDR, 2004, pp. 20, 48-49.

23 AHDR, 2004, p. 49; Nuttall, 2000, pp. 377-378, 405-406; Nuttall, 2002, pp. 53-54.

24 AHDR, 2004, pp. 62-63; Nuttall, 2000, pp. 397-398; Nuttall, 2002, pp. 4-5, 11-13.

25 ACIA, 2005, pp. 650-652.

26 AHDR, 2004, pp. 48, 60-62*, 140-141*; Ford et al., 2006, online.

27 ACIA, 2005, p. 664.

introduces inequality within communities. Declining importance of traditional knowledge has caused elders in the communities to lose their previously high social position.[28]

Cultural influence of southern nations with e.g. the boarding school systems have resulted in language loss in many areas and barriers in indigenous knowledge transmission to younger generations. Language loss can also be attributed to the general attitude of both parents and children that young people will have more opportunities if they primarily speak non-indigenous language and acquire school education, a development which has strong effects on indigenous identities, self-confidence and self-esteem.[29] However, at the same time indigenous people have been provided with educational, training and employment opportunities, which allow them to take positions and jobs which were previously inaccessible. These new opportunities increase the average household income and the possibility of taking administrative posts in regional public and business administration. Also, education provided indigenous people with a better understanding of their position and has created indigenous elites, who have effectively introduced indigenous issues to national and international agendas.[30]

It is important to note that there has been a gradual altering of states' policies on indigenous people to the positive direction. This includes efforts in international organisations and programmes, such as the Arctic Council Working Group AMAP, which provides information about situation of indigenous peoples.[31] Greater involvement of communities and respect for traditional ways of life in policy making processes may in time avert aforesaid negative trends.[32]

Some health issues not connected with climate change are also visible. Identity and self-esteem crises and rapid changes in lifestyle result in: stress, high suicide rates, depression, alcoholism and drug addiction.[33] Simultaneously, increased contact with southerners has exposed indigenous communities to various diseases. Loss of traditional knowledge has increased the possibility of accidents while conducting traditional harvesting activities, since young hunters may not acquire appropriate skills to safely move on the land and on the ice.[34]

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[28] Ford et al., 2006, online; *Indigenous Communities and Climate Change, Science and technology*, Science & technologies, Human Dimension, May 2007, *online* at www.sciencepoles.org.

[29] AHDR, 2004, pp. 48-49, 183*;* ACIA, 2005, pp. 91-92; Nuttall, 2002, p. 73.

[30] AHDR, 2004, pp. 175-179, 181.

[31] Nuttall, 2002, pp. 37-41.

[32] For examples of indigenous involvement in decision making and self-government solutions see part V of this paper, including Nunavut, Greenland, land claim agreements in Canada, and Saami governance.

[33] AHDR, 2004, pp. 50-51.

[34] Furgal and Seguin, 2006, online.

3. IMPACTS OF CLIMATE CHANGE ON TRADITIONAL LIVELIHOODS, ECONOMY, SOCIETY, CULTURE AND HEALTH OF INDIGENOUS PEOPLES

Climate change primarily affects indigenous people's harvesting activities.[35] As regards to marine resources, it impacts especially communities acquiring their subsistence by fishing, whale, migratory duck, polar bear and/or seal hunting and generally living in the coastal areas. [36] Sea ice, weather conditions and water temperature are crucial factors for successful harvesting, even with the usage of modern technologies. Moreover, many changes are occurring at the same time (e.g. unpredictable weather and altering ice conditions) and simultaneously affecting different elements of life in the Arctic (e.g. hunting and housing). Some areas of the Arctic may experience improvement of living conditions, for example those regions, where warming is less pronounced or where the shift of resources will have a positive effect.[37]

Decrease in harvesting activities of indigenous people has various implications for their economy, society, culture and health. Changes in landscape and ice conditions may also directly influence their social structures. Therefore, indigenous people's subsistence is not only an economic question but affects the whole way of living of indigenous societies and consequently endangers survival of many as distinctive peoples. Arguably, social and economic impacts caused by national societies may pose a greater threat to indigenous societies than climate change.[38] However, climate change is expected to accelerate the speed of these changes and in some areas remove the subsistence basis for indigenous identity.[39] See figure 3.

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[35] ACIA, 2005, pp. 650-651.

[36] According to SLiCA data, for example 31% of surveyed by SLiCAindigenous people (Inuit, Saami, people of Chukotka) hunt sea mammals, 21% hunt Walrus, 42% hunt seal or ugruk and 74% perform fishing (although this includes also river fishing). See Ties to Nature Table 1, SLiCA, index of tables, March 2007, p. 48, available at http://www.arcticlivingconditions.org/

[37] ACIA, 2005, p. 658.

[38] ACIA, 2005, p. 670.

[39] More research is needed to understand the interrelation between climate change and other factors (ACIA, 2005, p. 657); ACIA, 2005, p. 670, Petition to the IACHR, 2005, pp. 35-36.

Figure 3. Chosen impacts of climate change on coastal indigenous communities.[40]

Please note that only the most vital of many concurrent factors have been mentioned.

elements of climate change	harvesting / availability of resources	infrastructure and transport	economy	society and culture	health
changing ice and snow conditions	- changing accessibility to some species: - species living on the edge of ice, e.g. polar bears fewer in autumn - more polynyas make fishing and duck hunting easier - decreasing populations - changes in harvesting cycles - harder to build igloos	- travel on ice possible for shorter time and more dangerous (thin ice) - some communities dependant on ice to maintain connection with population centres - better sea access to coastal settlements	- travelling and harvesting become more expensive - replacing country food with imported food is very expensive	- ice as an integral part of indigenous territory - for some Inuit groups danger of the destruction of the whole hunting culture (basis of distinctive social and cultural features) - in some cases sharing systems in decline	- possible rise in accidents during harvesting and traveling on ice - country food more healthy and adjusted to Arctic conditions than imported products, possibility of such health problems as diabetes , obesity, cardiovascular diseases
warming waters,	- sea mammals and fish species shift to other locations or change in numbers	- in some cases necessity to travel longer distances to reach the resources, increasing costs and hazards	- loss of important food sources (as above)	decrease in hunting and fishing success and/or frequency of harvesting activities and consequent transfer of traditional knowledge	- less country food (as above)
thawing permafrost, coastal erosion, rising sea-level, decreasing sea and river water levels	decreasing fish and migratory duck populations	- damage to: houses, roads, power lines, water supply, airstrips and sewage systems - some communities likely to be relocated - permafrost or ice-based food storages may be damaged - danger for water supply (lake drainage, greater water run-off in spring and lower in summer)	-rising costs of infrastructure maintenance - high costs of settlements relocation - higher costs of food preservation	-damage to sacral sites and cemeteries, - changing landscape causes estrangement to the environment - place names referring to landscape features no longer accurate - traditional knowledge no longer useful	
general warming, intensified storms, other	- mitigation options limited due to impacts on terrestrial species (reindeer herding affected by snow and river conditions) - health of harvested animals worsened due to appearance new insects and species - shorter and/or less frequent trips affecting harvesting success	- uncertainty of the weather, more storms - houses not prepared for warmer temperatures - damage to infrastructure and houses	- rising costs of infrastructure maintenance - savings on heating - more jobs expected in the Arctic due to development of agriculture, tourism and resource extraction - increased need for expensive technologies to ensure travel safety	- traditional knowledge no longer useful - migration of settlers from the south may cause acceleration of acculturation process - re-timing of some traditional festivals - possible affects on transfer of traditional knowledge to younger generations	- insects and animal species from the south bring new diseases - inadequate housing causing more illnesses - UV radiation causing skin burns - possible rise in accidents and less wholesome wild foods (as above)

3.1. Livelihood, harvesting

For indigenous people one of the most visible factors is rapid weather changes and the occurrence of severe weather conditions, like stronger winds, storms etc. Hunters with traditional knowledge cannot make forecasts as precisely as in the past.[41] This, together with

[40] Table based partly on tables available in ACIA, 2005, pp. 667, 1000, 1004.

[41] ACIA, 2005, p. 670.

severe weather conditions, causes hunting to be more dangerous activity with possible increase in number of accidents (also owing to faster and sudden melting in spring and increasing number of avalanches).[42] Hunters need to be prepared for many new situations, including longer or shorter than planned ventures or more frequent storms, and therefore taking more equipment, clothes etc, which makes hunting more worrisome, more expensive and worsens the harvesting outcome. In spring, some communities might be completely cut off from resources since ice is both too thin to travel on and it is too thick for a boat to be used (with early spring melting and late autumn freeze-up).[43] In case of Inuit hunters, igloo construction is often no longer possible owing to changed snow structure (due to increased precipitation, warmer temperatures), therefore hunters must carry additional tents (which do not provide them with appropriate insulation).[44]

Disappearing sea ice affects many species harvested by indigenous peoples. Polar bears, seals, whales, and some fish stocks depend on ice cover.[45] Therefore decreases in harvests of these species may occur. Various animal populations might not only decline in numbers but also move to other locations[46] because of warming Arctic waters (with species moving northward) as well as changing ocean productivity and water salinity (owing to ice melting and greater river run-offs in spring). Shifts in stocks may also be caused by an earlier spring retreat of winter ice cover and later autumn freeze-up.[47] However, some communities' situation may improve, due to newly gained access to large fish stocks.[48] The same reasons, along with the appearance of southern diseases and insects in the Arctic, may negatively impact the health of some animal species, resulting in the worsening of the meat and hides quality and a decrease in the amount of acquired food.[49] Some indigenous communities might be then cut off from their basic food resources, especially in cases where traditional subsistence is primarily based on one species.[50] Reaching harvesting areas located offshore may be impossible due to lack of ice on which hunters can move and hunt.[51]

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42 Nuttall, 2002, p. 8.

43 ACIA, 2005, pp. 74, 660, 668; *Ford et al., 2006, online;* Petition to the IACHR, 2005, pp. 39-40, 43, 55-56; Abate, 2007, pp. 33-34.

44 ACIA, 2005, p. 1012; Petition to the IACHR, 2005, pp. 42-43.

45 Especially ringed seal, arctic fox, polar bear (ACIA, 2005, pp. 75, 660; Petition to the IACHR, 2005, pp. 45-46) also plants and lichens in coastal areas are endangered (Petition to the IACHR, 2005, p. 47)

46 E.g. ringed seal, whales, salmon, trout, broad whitefish, Arctic grayling, Arctic char and herring stocks, walrus, ptarmigan. Generally plankton production may increase throughout the Arctic. This may occur especially in Barents sea and Northern Atlantic (ACIA, 2005, pp. 75, 660, 1005; IPCC, 2007, p. 665; Petition to the IACHR, 2005, pp. 46-47)

47 The same is true for river fishing, for example in Saami areas and northern Canada due to changing water levels, run-off and timing of ice and snow cover melting and autumn freeze-up (ACIA, 2005, p. 87; Petition to the IACHR, 2005, p. 66; Abate, 2007, pp. 33-34.).

48 ACIA, 2005, pp. 659, 669, 1012; IPCC, 2007, pp. 657, 665; Petition to the IACHR, 2005, pp. 24, 40-46, 60-63; Nuttall, 2002, p. 11.

49 ACIA, 2005, p. 999; IPCC, 2007, p. 671; Petition to the IACHR, 2005, p. 27.

50 E.g. ringed seal for some Inuit communities (Petition to IACHR, 2005, p. 46)

51 ACIA, 2005, p. 662.

Ice does not only disappear, it is also undergoing various transformations. The remaining ice-cap is less stable than in the past, with more polynyas and areas of unusually thin ice. Although polynyas can provide hunters with more access to fish (as well as other, e.g. sea duck) resources, travelling becomes more dangerous, less frequent, on either shorter or much longer distances. The use of snowmobiles instead of dog sledges - which in some cases is unavoidable because of increasing distance to resources - increases the possibility of an accident. This is due to the fact that dogs, in contrast to the machines, are able to instinctively sense ice thickness.[52]

It is also important to note that by affecting marine areas climate change will influence other indigenous livelihoods, such as reindeer herding, and lake and river fishing.[53]

Reindeer herding itself is practised by many coastal communities and in some places herd migrations take place on sea ice as well as on land.[54] Therefore, the changing ice conditions near the coast, especially in Arctic Russia, affect reindeer herding and endanger important food and hides source.[55]

3.2. Community infrastructure

As has already been mentioned, climate change may adversely impact transportation in the Arctic, affecting connections of communities with each other and major regional population centres. Many roads and transport routes in the spring and autumn are based on ice and snow cover on lakes, rivers and/or sea. Decrease in river run-off in the summer may cause many rivers to be unnavigable.[56] Recently constructed roads are threatened by thawing permafrost and coastal erosion together with rising sea level. In many cases, expensive air transport may remain the only available option. On the other hand, it is important to note that due to the retreating ice-cap, especially in summer, sea access to many previously isolated coastal communities may improve.[57] Also construction of buildings and such infrastructural elements as sewage systems, airstrips, power lines or roads built on permafrost are already being endangered.[58] Maintenance and necessary repairs require financial resources usually not available for indigenous communities.[59] In some areas the same effects can be caused by increased river run-offs in spring, as floodings are probable to occur more frequently. Settlements located close to eroding coastlines face ruination due to the disappearance of the buffering effect of ice, rising sea-level and increasing storm strength. Some communities

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52 Ibid., pp. 662, 668-669.

53 Petition to the IACHR, 2005, pp. 47-48.

54 The more frequent snow freeze-thaw cycles cover tundra with ice, making it increasingly difficult for reindeer to forage. See ACIA, 2005, p. 660.

55 ACIA, 2005, p. 71; Abate, 2007 pp. 33 – 34.

56 ACIA, 2005, p. 1004; Petition to the IACHR, 2005, pp. 56, 57-59, 64-65.

57 IPCC,2007, p.676; E.g. Saami in Kola Peninsula see ACIA, 2005, p.87.

58 Due to thawing permafrost and costal erosion (connected with rising sea level, severe weather, increased precipitation, more frequent storms and lack of protective ice cover close to the shore).

59 ACIA, 2005, pp. 660, 670, 1004; IPCC, 2007, pp. 672; Ford et al., 2006, online*;* Petition to the IACHR, 2005, pp. 24, 36, 37.

may be even confronted with the possibility of relocation.[60] Yet, some savings may be gained owing to lower costs of heating and insulation due to higher temperatures throughout the Arctic.[61]

Permafrost thawing, coastal erosion, lower lake water levels and changing river run-offs - especially potential decreases in summer months - may jeopardise fresh water supply, due to damage of water containers and lake drainage in coastal areas; these may cause problems to hydropower generation as well.[62] In addition, traditional ways of food preservation[63] will likely become ineffective.[64] The probability of contamination and pollution is rising as well, due to possible damages in oil pipelines and permafrost based waste containers.[65]

3.3. Economy

A cash economy is an obvious alternative to traditional harvesting. However, as it has been already mentioned, many regions in the Arctic face high unemployment and poverty. For this reason, with limited resources available to the indigenous populations, it is difficult to completely replace traditional foodstuffs.[66]

Climate change may seriously affect living costs within indigenous communities. Although some savings in heating and insulation are expected,[67] thawing permafrost is likely to result in higher maintenance costs for all kinds of infrastructure. Furthermore, communities usually do not have adequate financial resources to prevent ruination.[68]

Devastation of roads causes many remote coastal communities to be cut off from the main population centres.[69] This may influence intercommunity trade, connections with world markets, development of tourism, and therefore endangers indigenous formal economy. With lack of appropriate transport connections it is also less likely for businesses to create jobs in the Arctic. Due to rising costs of transport, imported goods (especially food) will likely be

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60 IPCC, 2007, pp. 661, 664, 672; Petition to the IACHR, 2005, pp. 49-54.

61 ACIA, 2005, p. 1004; IPCC, 2007, p. 675.

62 ACIA, 2005, pp. 1001, 1008.

63 In many, especially Inuit, communities meat is preserved throughout the year in the deep digs in ice or permafrost.

64 IPCC, 2007, pp. 665, 672; Petition to the IACHR, 2005, pp. 60-62.

65 ACIA, 2005, pp. 1011, 1013; IPCC, 2007, pp. 672; *Aitalina Ivanova, The Price of Progress in Eastern Siberia* (in:) Knowledge and Power in the Arctic. Conference Proceedings, University of Lapland, Rovaniemi 2007, pp. 64-67.

66 Estimates show, that traditional harvesting amounts to worth of 35 mln CAD in Canada and 200 mln USD in Alaska. (ACIA, 2005, pp. 657, 658; Petition to the IACHR, 2005, pp. 17; IPCC, 2007, p. 668); ACIA, 2005, pp. 674-675; [66] Ford et al., 2006, online.

67 ACIA, 2005, p. 1004; IPCC, 2007, p. 675.

68 ACIA, 2005, pp. 660, 670, 1008-1009; IPCC, 2007, pp. 672, 675; Petition to the IACHR, 2005, p. 50.

69 IPCC, 2007, pp. 672, 675, Petition to the IACHR, 2005, pp. 39-40.

even more expensive than today. In contrast, for some coastal communities sea transport may become more accessible with longer ice-free season expected.[70]

Costs of harvesting may rise considerably, with longer distances to resources, more equipment needed, better clothing (e.g. due to severe weather) or more frequent but shorter hunting trips.[71] The gap between rising costs of living and decreasing possibilities to acquire financial resources may mean for many people impoverishment and may threaten their food security.[72]

Northern economies are also expected to change due to northward advancement of agriculture.[73] Increased agriculture and fisheries productivity may however provide alternative subsistence opportunities for some communities. Agriculture and increase in fisheries and resource extraction (off-shore and inland) will probably create more jobs and promote greater investments in infrastructure. This area demands however further research.[74]

3.4. Society and culture

Traditional social structures are already under constant pressure and climate change will put an additional strain on communities by undermining elementary indigenous social structures. Traditional sharing systems are often disappearing, due to for example shifting resources and rising costs for harvesting.[75] This weakens interpersonal ties and enhances a shift to a nuclear family.[76] In addition, the authority of the elders is being questioned as their knowledge and predictions no longer match with changed Arctic climate.[77]

Various impacts are likely to cause further migration to the south or to regional population centres, which results in even greater weakening of social and family ties and depopulating of indigenous communities.[78]

Due to limitations to traditional harvesting caused by climate change, many indigenous people experience lowering of self-esteem, feelings of loss and lack of opportunities. When

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70 ACIA, 2005, pp. 668-670; AHDR, 2004, p. 152; Petition to the IACHR, 2005, pp. 42-44, 64-66; IPCC, 2007, pp. 655, 676.

71 ACIA, 2005, pp. 74, 668*;* Petition to the IACHR, 2005, pp. 39-40, 43, 55-56.

72 ACIA, 2005, p. 657.

73 It is important to note, that the expansion of area suitable for agricultural use is predicted to be rather moderate (depending on applied model and scenario). This is due to comparatively slow northward movement of vegetation zones' borders and arid soils. On the other hand, increased precipitation and CO2 concentrations act in favour of agricultural development. See ACIA, 2005, 807-813.

74 ACIA, 2005, p. 663; IPCC, 2007, p. 668.

75 For example, Canadian Inuit in Nunavut and effect of climate change on their sharing systems, as described in ACIA, 2005, pp. 671-675.

76 ACIA, 2005, pp. 654-655, 665, 669; Ford et al., 2006, online; Petition to the IACHR, 2005, pp. 18-19.

77 Ford et al., 2006, online*; Indigenous Communities and Climate Change, Science and technology*, Science & technologies, Human Dimension, May 2007, *online* at www.sciencepoles.org

78 Nuttall, 2002, pp. 6-7; AHDR, 2004, pp. 62-63.

combined with other non-climate based impacts, it is often followed by emergence of various social problems: impoverishment, depression, alcoholism, drug addiction, permanent unemployment syndromes, rising suicide rates[79] amounting to social crisis.[80]

The possible development of resource extraction, fisheries, shipping and agriculture is likely to bring employees from the South into the Arctic region, which might result in further acculturation. However, job opportunities may have a positive influence on the indigenous mixed economies.[81]

Many cultural features are strongly connected with traditional subsistence, therefore also various elements of indigenous cultures are threatened by the climate change. For example, festivals devoted to hunting or ice melting need to be re-timed or ceased to be celebrated.[82] The changing landscape due to retreating coastline and thawing permafrost threatens some historical, sacral and cultural sites, such as Inuit cemeteries.[83] Ice itself is understood by Inuit as extension of their cultural, social and economic space, and indivisible part of their traditional territory; this part of their world is about to disappear.[84] Also, handicraft, traditional clothing and some traditions are likely to be affected by the change of conditions, such as availability of some species or the quality of hides.[85]

One of the most prominent components of indigenous culture is traditional knowledge, which gives members of communities the understanding of their environment and binds them strongly with nature. With climate change this knowledge may be less applicable and trustworthy. Therefore, the connection between culture and environment is being severed.[86]

Loss of knowledge is connected with estrangement of indigenous peoples from their homelands. The change is often so significant that many people feel alien to the land of their ancestors.[87] Traditional geographical names, describing the surroundings in some places also lose their meaning, as they often simply describe geographical features.[88]

Decrease in hunting and fishing excursions erodes the connection and relationship between the experienced harvester and younger generations, with negative consequences to transfer

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79 For detailed data for some Arctic areas see e.g.: Health Table 249, 305, 325, 370, Material Success Table 521, SLiCA, Index of tables at http://www.arcticlivingconditions.org (viewed 27 April 2008).

80 ACIA, 2005, pp. 651, 670; Furgal and Seguin, 2006, online.

81 AHDR, 2004, p. 48; ACIA, 2005, p. 664.

82 ACIA, 2005, p. 655; Petition to the IACHR, 2005, p. 49.

83 Ford et al., 2006, online, para. 2; Petition to the IACHR, 2005, pp. 49, 56.

84 Petition to the IACHR, 2005, p. 36.

85 IPCC, 2007, pp. 672; Petition to the IACHR, 2005, pp. 48, 60.

86 ACIA, 2005, pp. 655, 669-670; IPCC, 2007, pp. 668, 674, AHDR, 2004, p. 58; Abate, 2007, pp. 33-34.

87 ACIA, 2005, p. 670; IPCC, 2007, p. 668.

88 A good example is the notion of being ”lonely for the ice” (ACIA, 2005, p.670); ACIA, 2005, pp. 655,670; IPCC, 2007, p. 668; Abate, 2007, pp. 34-35.

of indigenous knowledge and wisdom, and grounding the youth in the values, ethics, and relationships in the community.[89]

Social crisis together with cultural loss may pose a threat to the very core of indigenous identity, which then may cause further deepening of this social crisis. Cumulative effects of economic, social, political and climatic impacts may endanger the existence of some indigenous groups as distinctive peoples.[90] While many peoples face presently acculturation problems, indigenous groups are exceptionally vulnerable to climatic changes.[91]

3.5. Health

Impacts of climate change on indigenous people's health are multiple and complex. There are firstly various contaminations and pollution (e.g. damaged oil pipes) and a lack of appropriate fresh water sources; housing is often not adequate for warmer temperatures.[92] Second, new diseases and allergies appear or reappear in the warming region with arrival of southern plant and animal species together with various insects.[93] Third, since traditional food sources are jeopardised, diet is increasingly being based on imported products, which are not as healthy and not as suitable to northern conditions as country food (meaning food acquired through traditional subsistence). Many people suffer from obesity, diabetes, cardiovascular disease, etc. because there are fewer harvesting activities and therefore less physical exercise and consumption of country food.[94] In addition, an increase in sunburns has been noted due to UV radiation.[95]

The overall mental health of indigenous populations is also under pressure, with weakening self-esteem, abandonment of traditional livelihood, unsuccessful harvesting, unemployment, poverty, social crisis and alcoholism.[96] In contrast, benefits may occur, such as reduction of winter mortality and cold related injuries.[97]

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89 AHDR, 2004, pp. 60-61. See also, e.g., ACIA, 2005, p. 90.

90 However, it is important to note that indigenous cultures, ways of life and knowing will remain significant elements in the resilience and adaptability of indigenous peoples. Furthermore, indigenous peoples still retain their intimate relationship with their immediate environments and thus their observations and holistic understanding of climate induced changes can provide greater insight and understanding of these changes. See, e.g., ACIA, 2005, p. 62 et seq.

91 ACIA, 2005, pp. 651, 685, 1014; IPCC, 2007, p. 672.

92 Due to earlier severe climatic conditions houses were built in the North with focus on low temperatures and without appropriate ventilation, with small number of windows, etc. During warmer summer months comfort of living has significantly decreased. See Furgal and Seguin, 2006, Discussion section, online. IPCC, 2007, p. 665; Petition to the IACHR, 2005, pp. 61-62.

93 ACIA, 2005, pp. 1004; Furgal and Seguin, 2006, online; Petition to the IACHR, 2005, p. 63.

94 ACIA, 2005, pp. 657; IPCC, 2007, pp. 671; Furgal and Seguin, 2006, online; Petition to the IACHR, 2005, p. 55.

95 Furgal and Seguin, 2006, online.

96 Ibid.

97 IPCC, 2007, p. 671.

4. CURRENT GOVERNANCE AND EMPOWERMENT

4.1. Political systems

The political systems in the Arctic vary between the countries. Historically, colonial policies sought to assimilate indigenous peoples into mainstream society. The development was not simultaneous in the region however: one region may have been colonized several hundred years ago while another in the beginning of the 20th century. Later, the colonial policies were replaced by decolonization and growth of regional autonomy and at present, indigenous peoples are increasingly involved in political processes.[98]

Recognition of the unique position of indigenous peoples has significantly increased throughout the Arctic and has led to several new structures of governance. The main models of these structures are public government and different forms of ethnic self-government.[99] The model of public government is used in areas in which indigenous peoples are in the majority, e.g. in Greenland and Nunavut. In areas where indigenous peoples are a minority, dual systems of governance prevail: indigenous arrangements coexist with public governments. The arrangements can be juridical as well as political by nature and they aim to provide greater degree of autonomy for indigenous peoples. The powers redistributed by the arrangements varies (e.g. the self-government agreement of the Yukon First Nation delegates law-making and decision-making powers while the Saami regulations in Finland, Sweden and Norway have established ethnic governments in the respective states). Formally, the Saami parliaments have advisory status but in practice they hold a significant political power in issues related to the Saami and in addition, some administrative authority has been transferred to them.[100]

In addition to the mentioned new models of governance, land claim agreements form a significant way of distributing power from a state government to indigenous peoples. Through land claim agreements indigenous peoples have gained title to specified tracts of lands and monetary compensation. To date significant agreements have been established mostly in the Arctic region of North America,[101] although indigenous peoples continue to advocate for more self-determination and changes in laws, regulations, and policies.

4.2. Legal framework

Despite the fact that the Arctic states have diverse legal systems ranging from common law to civil law systems, several strong global trends are visible in the region including a shift towards globalization and a closer integration of legal systems as well as a transformation towards democracy and human rights.[102] Another important trend that strengthens the

98 AHDR, 2004, pp. 85 - 87.

99 Ibid., p. 93.

100 Ibid., pp. 94 – 95.

101 Ibid., p. 97.

102 Ibid., pp. 101 - 103.

position of indigenous peoples is devolution of legislative power and control of resources from the metropolitan centres to Arctic regions and Arctic residents.[103] See Figure 4.

Figure 4. The following table presents the major devolution events in the Arctic[104]:

Significant devolution events in the Arctic

Alaska	1958	Alaska Statehood Act: Alaska ceased to be a federal territory and became a state
	1971	The Alaska Native Claims Settlement Act (ANSCA): settlement of indigenous title claims and federal\state ownership issues
	1980	The Alaska National Interest Lands Conservation Act (ANILCA): settlement of subsistence harvesting entitlements
Canada	1984	Settlement of the Inuvialuit claim
	1993	Umbrella Final Agreement with Yukon First Nations
	1993	Settlement of the Gwich'in, Sahtu and Nunavut Inuit claims
	1998	Transfer of ownership and legislative responsibility for oil and gas to Yukon
	1999	Creation of Nunavut
	2003	Transfer of mineral, forest and land ownership and legislative responsibility to Yukon
Nordic countries	1905	Norway's independence from successively Denmark and Sweden
	1917	Finland's independence from successively Sweden and Russia
	1944	Iceland's independence from Denmark
Greenland	1979	Home Rule Act
	1985	De-accession from the European Community
	1991	Joint authority provisions of the Mineral Resources Act
	On-going	Partnership Treaty Discussions
Faroe Islands	1948	Home Rule Act
	1992	Assumption of control over onshore and offshore natural resources
	On-going	Discussions over the future international status of the Islands

However, there are some regions in which the development has been the opposite (e.g. Nenets AO ceased to be an independent region as the Arkhangelsk regional administration took over powers from the neighbouring Nenets Autonomous Okrug regardless of the resistance of the region's population).[105] Irrespective of the trend towards a closer integration of legal systems the national legislations are not homogenous in the Arctic states.[106]

Increased recognition of human rights is clearly visible in regional and international agreements. The scope of international law has broadened since World War II and at present it is not only the human rights of individuals that are protected by international law, but increasingly also collective rights, such as self-determination of peoples and language and cultural rights of minorities are recognized. The general principles of equality and non-discrimination in international law have proven to be insufficient to protect indigenous peoples and therefore specific instruments like International Labour Organization Convention

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103 Ibid., pp. 114 - 115.

104 AHDR, 2004, p. 114. Available online at <http://hdr.undp.org/en/reports/regionalreports/other/name,3262,en.html>

105 Nenets AO included in Arkhangelsk Oblast (13.12.2007) available at <http://www.barentsobserver.com/nenets-ao-included-in-arkhangelsk-oblast.4443442-16288.html> (viewed 2 May 2008), Nenets AO population demands referendum (15.01.2008) available at <http://www.barentsobserver.com/nenets-ao-population-demands-referendum.4450525-16288.html> (viewed 2 May 2008), "Nenets-Arkhangelsk merger will bring no good" (25.01.2008) available at <http://www.barentsobserver.com/nenets-arkhangelsk-merger-will-bring-no-good.4452868-16288.html> (viewed 2 May 2008).

106 AHDR, 2004, pp. 106 – 109, 112 - 114.

169 on Indigenous and Tribal Peoples in Independent Countries[107] have been created.[108] Perhaps the most interesting human rights development from the perspective of the Arctic indigenous peoples is the practice within the Human Rights Committee (HRC), a monitoring body established by the International Covenant on Civil and Political Rights.[109] The International Covenant on Civil and Political Rights requires all eight Arctic states to protect individuals belonging to minorities pursuant to Article 27 of the Covenant. Although this is an individual right, positive measures by States may also be necessary to protect the identity of a minority and its traditional way of life – including traditional livelihoods - of indigenous peoples.[110] From 1999 onwards, the HRC has started to perceive well-established indigenous peoples as peoples in the meaning of Article 1 to the Covenant, and thus, for example, they have the right to dispose of their natural resources. More importantly, peoples within the meaning of Article 1 of the Covenant have the right to self-determination. Yet, this is still a recent development, of which legal implications are still unclear.[111]

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107 International Labour Organisation's Convention concerning Indigenous and Tribal Peoples in Independent Countries. Convention C 169. Date of adoption 27.06.1989. Date of coming into force 05.09.1991. Available at <http://www.ilo.org/ilolex/english/subjlst.htm> Visited on 04.03.2008.

108 AHDR, 2004, pp. 103 - 104. There are also other treaties and instruments that are pertinent from the perspective of indigenous peoples: At present the main treaties are the following: European Convention on Human Rights, European Charter for Regional Minority Languages, International Covenant on Civil and Political Rights (ICCPR), Optional Protocol to the ICCPR, convention on Elimination of all forms of Racial Discrimination (CEDR), ILO Convention 107, ILO Convention 169, Int'l Covenant on Economic and Social Rights, Inter-American Convention on Human Rights and American Declaration of the Rights & Duties of Man. However, it is noteworthy that there is a vast difference in acceptance of these treaties between the Arctic states. AHDR, 2004, p. 103.

109 The International Covenant on Civil and Political Rights , adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966, entered into force on 23 March 1976, 999 UNTS. The Human Rights Committee is not to be mixed up with the UN Human Rights Council, which was established in 2006 and is also referred to by the acronym "HRC".

110 In the General Comment No. 23 to this Article the HRC provides that: 'With regard to the exercise of the cultural rights protected under article 27, the Committee observes that culture manifests itself in many forms, including a particular way of life associated with the use of land resources, especially in the case of indigenous peoples. That right may include such traditional activities as fishing or hunting and the right to live in reserves protected by law. The enjoyment of those rights may require positive legal measures of protection and measures to ensure the effective participation of members of minority communities in decisions which affect them'. General Comment No. 23 (50th Session, 1994) by the HRC, UN Doc. HRI/GEN/1/Rev.3, paragraph 7. See also paragraph 3.2. "The enjoyment of the rights to which article 27 relates does not prejudice the sovereignty and territorial integrity of a State party. At the same time, one or other aspect of the rights of individuals protected under that article - for example, to enjoy a particular culture - may consist in a way of life which is closely associated with territory and use of its resources. This may particularly be true of members of indigenous communities constituting a minority."

111 See, for instance, the following concluding observations by the HRC, in which explicit references to either the concept of self-determination of peoples or Article 1 can be found: Canada (UN doc. CCPR/C/79/Add.105 (1999)); Mexico (UN Doc. CCPR/C/79/Add.109 (1999)); Norway (UN Doc. CCPR/c/79/Add.112 (1999)); Australia (UN Doc. CCPR/CO/69/AUS (2000)); Denmark (UN Doc. CCPR/CO/70/DNK (2000)); Sweden (UN Doc. CCPR/CO/74/SWE (2002)). The most recent concluding observations on Finland (UN Doc. CCPR/CO/82/FIN (2004)) leave no room for doubt: 'The Committee regrets that it has not received a clear answer concerning the rights of the Saami as an indigenous people (Constitution, sect. 17, subsect. 3), in the light of article 1 of the Covenant (paragraph 17, first sentence). USA, CCPR/C/USA/Q/3/CRPP.4 (2006)).

A question of land and resource rights is especially noteworthy for the indigenous peoples in the face of climate change. Indigenous people are highly dependent on nature as it is a key element of their cultures and livelihoods but on the other hand the state governments place a great economical interest in the rich natural resources of the region.[112] Attempts to solve conflicts of opposing interests have taken place through the previously mentioned land claim agreements and other political tools. Furthermore, there are attempts to seek solutions through international agreements. The International Labour Organization Convention 169 is a leading example of the efforts taken towards further recognition of the land rights of indigenous peoples. Article 14 (1) of the convention provides that the ownership and possession rights of indigenous peoples over the lands which they traditionally occupy are recognized. It is clearly stated throughout the Article 14 that the respective governments have a duty to take necessary action and make sure that these rights are efficiently put into practice. The provision is a forerunner in the field of land rights of indigenous peoples but on the other hand it demands a great deal from the governments. Today, out of the Arctic countries only Denmark and Norway have ratified the convention[113].

Norway has lived up to its obligation under Article 14 of the ILO Convention, and adopted a very complex institutional machinery to identify and recognise Saami rights to land and water areas with the Norwegian parliament enacting the Finnmark Act in 2005.[114] However, fishing rights in saltwater in Finnmark County will be a subject to further development, an outcome of which was the recent Committee report on the issue (NOU 2008:5).[115] The Committee report laid out the basics for possible future Governmental bill and legislation on the Finnmark fishing rights, in particular the rights of sea Saami. This legal development is in line with the Draft for a Nordic Saami Convention, a treaty proposal, which aims to guarantee the rights of sea Saami in its Article 38.[116] The Nordic states and their Saami parliaments were supposed to decide on commencing the treaty negotiations on the basis of the Draft in November last year, but the decision was postponed to November 2008. Article 38 reads:

> The provisions of Articles 34–37 concerning rights to water areas and use of water areas shall apply correspondingly to Saami fishing and other use of fjords and coastal seas.
>
> In connection with the allocation of catch quotas for fish and other marine resources, as well as when otherwise regulation such

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112 Ibid., p. 107.

113 See the ratifications at: <http://www.ilo.org/ilolex/english/subjlst.htm> Visited on 27.03.2008. Finland, Sweden and Russia are studying the possibility of ratifying the convention. AHDR, 2004, p. 104.

114 Information about the Finnmark Act in English can be found at <http://finnmarksloven.web4.acos.no/artikkel.aspx?AId=146&back=1&MId1=123> Visited on 05.05.2008.

115 Available in Norwegian, at <http://www.regjeringen.no/nb/dep/fkd/dok/NOUer/2008/NOU-2008-5.html?id=499796> Visited on 05.05.2008.

116 The English version of the Draft for a Nordic Saami Convention is available at <http://www.saamicouncil.net/includes/file_download.asp?deptid=2195&fileid=2097&file=Nordic%20Saami%20Convention%20(Unofficial%20English%20Translation).doc> Visited on 05.05.2008. For an overview, see Timo Koivurova, "Draft Nordic Saami Convention" in European Yearbook of Minority Issues (Martinus Nijhoff Publishers), Volume 6. Forthcoming 2008 (40 pages).

> resources, due regard shall be paid to Saami use of these resources and its importance to local Saami communities. This shall apply even though this use has been reduced or has ceased due to the fact that catch quotas have not been granted or owing to other regulations of the fisheries or other exploitation of resources in these areas. The same shall apply if the use is reduced or has ceased owing to a reduction of marine resources in these areas

In general, the land and resources are largely publicly owned in the Arctic although the circumstances vary across the region (e.g. the concept of private ownership is unknown in Greenland while 14% of the land in Alaska is owned by Alaska Native corporations and other private land owners).[117] In Russia, the question of land ownership is under debate, as the transformation from state ownership of collective enterprises to private control in the post-Soviet era has left the situation unclear.[118]

There are also soft-law instruments aiming to protect the rights of indigenous peoples. The most recent is the Declaration on the Rights of Indigenous Peoples[119] that was adopted in September 2007 by the United Nations General Assembly. The declaration is not legally binding by nature and its significance in practice remains to be seen. It is not promising however, that out of the four countries that voted against the adoption two were Arctic: Canada and the United States[120] (and the Russian Federation abstained from voting).

In many cases, laws, policies, and regulations continue to directly influence cultural and harvesting practices, and the degree of changes that positively affect indigenous self-determination is in turn influenced by the financial capacities, human resources, and degree of involvement of communities and their representative organizations in key decision-making.

4.3. Arctic co-operation

Co-operation between the Arctic countries has increased since the 1980s. Especially important is the Arctic wide co-operation between the eight Arctic states that commenced in 1991 with the signing of the Arctic Environmental Protection Strategy and was slightly revised with the founding of the Arctic Council in 1996. The Arctic Council is a unique form of inter-governmental forum in that it has established a special category of membership for the region's indigenous peoples, who are defined as permanent participants. The Arctic states are required to fully consult the permanent participants before proceeding to decision-making

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117 AHDR, 2004, pp. 121 - 123.

118 Ibid., p. 125.

119 The Declaration on the Rights of Indigenous Peoples was adopted by the UN General Assembly on 13th September, by a vote of 143 in favour, 4 against (Australia, Canada, New Zealand, United States) and 11 abstentions. A/RES/61/295. Available at: <http://daccessdds.un.org/doc/UNDOC/GEN/N06/512/07/PDF/N0651207.pdf?OpenElement> Visited on 27.03.2008.

120 UN Press Releases & Meeting Coverage: General Assembly adopts Declaration on Rights of Indigenous Peoples; 'Major step forward' towards human rights for all, says president (13 September 2007). GA/10612. Available at: <http://www.un.org/News/Press/docs/2007/ga10612.doc.htm> Visited on 27.03.2008.

in the Council, a position that contrasts sharply with the regular status of indigenous peoples as NGOs in inter-governmental co-operation.[121]

It is important to note that by participating in all the activities of the Council, including its working-groups, the six indigenous peoples' organisations have been able to raise their own concerns and the importance of their traditional knowledge to the fore in various issue areas. A good example is the inclusion of traditional knowledge experts in the major scientific assessment the Arctic Climate Impact Assessment (ACIA). It was also due to indigenous peoples being members in the Steering Committee of the ACIA that a separate chapter was devoted to impacts to the region's indigenous peoples. It should be noted, however, that the indigenous organizations continue to advocate for participation beyond consultation at all levels of government decision-making, as well as meaningful partnerships.

5. ADAPTIVE CAPACITY OF INDIGENOUS PEOPLES IN THE ARCTIC

Adaptive capacity can be defined as "the degree to which adjustments in practices, processes, or structures can moderate or offset the potential for damage or take advantage of opportunities created by a given change in climate".[122]

Arctic societies have generally been adaptive and resilient to change[123]. The indigenous peoples are accustomed to the natural variability of the Arctic environment: the nature is often unpredictable, e.g. the resources of the fish and wildlife or extent of the sea-ice can change significantly from year to year.[124] However, the current and projected rate and scope of climate change in the Arctic presents a great new and significant challenge for indigenous peoples as it is occurring faster than any other phenomenon that they have observed.[125] Furthermore, there are diverse political, economic, legal, and conservation interests that set the limits for adaptation options[126]. Indigenous people have also become more dependent on the outside world which on one hand increases their adaptive capacity but on the other hand amplifies their vulnerability to the impacts of climate change. For instance, a settled way of life instead of a nomadic lifestyle may improve educational opportunities and increase the material standards of living but at the same time make people dependent on mechanized transportation and fossil fuels.[127] Historically, indigenous groups were able to move when adverse environmental conditions occurred or when populations and migratory patterns of fish and wildlife changed. This option is no longer available or is limited.

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121 See Timo Koivurova and Leena Heinämäki, "The Participation of Indigenous Peoples in International Norm-Making in the Arctic" in 221 Polar Record (2006), pp. 101-109.

122 IPCC, 2001, p. 89.

123 AHDR, 2004, p. 64.

124 ACIA, 2005, p. 90.

125 ACIA: Impacts of a Warming Arctic, 2004, p. 96.

126 ACIA, 2005, p. 665.

127 ACIA, 2005, p. 91.

5.1. Opportunities for adaptation

There is great legal, political, cultural and economic diversity among the Arctic countries. Naturally, these factors have an influence on the ability of the Arctic communities to cope with the changing environment and as a result the successfulness of the adaptation options may differ significantly across the Arctic.[128] Also, it is essential to recall that climate change is not the only factor for the ongoing changes in the Arctic region and at present it is unclear which of the factors discussed in part 2 have the greatest impact on indigenous peoples.[129]

Further research and assessment is needed not only on present indigenous adaptive capacity, vulnerability and influence of various factors on adjustment mechanisms, but also on presently available means of modern adaptations to the changing climate.[130] Assessment should be conducted as locally as possible and adaptive measures taken adjusted to particular conditions and situation.[131] A newly commenced example of such assessment is the Arctic Council's Vulnerability and Adaptation to Climate Change in the Arctic (VACCA) research project, which aims to support indigenous and other Arctic residents to adapt to the consequences of climate change. The project is conducted by collecting and sharing adaptation expertise as well as studying existing research and adaptation strategies. The project was established by The Sustainable Development Working Group (SDWG) of the Arctic Council.[132] Whatever is done to assess adaptive strategies, it should be done in concert with meaningful participation of indigenous communities and their leadership at every level.

5.2. Governance and empowerment

Empowerment of indigenous peoples is already a clearly visible trend in the Arctic region as previously discussed. Further empowerment could have a vital positive effect on the adaptive capacity of indigenous peoples in the face of climate change. Regional and national governments play a crucial role: through policies, regulations, laws, and programs they can substantially improve and equip the indigenous peoples and other residents of the Arctic to adapt to predicted changes. Important empowerment measures are self-government and self-determination arrangements which include ownership and management of land and natural resources, co-management regimes, and active and meaningful involvement in program development, research, and policy-making.[133]

Management of marine natural resources is a particularly tender issue. For many indigenous peoples living on the Arctic coasts, ice together with resources in the waters underneath is an extension of their traditional land. This indigenous territorial perception and use should be taken into consideration in the constructing or restructuring of governance systems. For

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128 IPCC, 2007, p. 673.

129 ACIA, 2005, p. 90.

130 IPCC, 2007, pp. 673, 676 – 677. ACIA, 2005, pp. 665 – 666.

131 IPCC, 2007, Climate Change 2007, p. 673; ACIA, 2005, p. 92.

132 Further information and survey tool for VACCA is available at <http://portal.sdwg.org/content.php?doc=58&xwm=true> Visited on 07.05.2008.

133 ACIA, 2005, Box 3.4. Political relations, self-determination, and adaptability on p. 91.

example, in Nunavut Land Claims Agreement waters and wildlife are considered a part of "land", as understood in the document.[134] Therefore, Nunavut land-use planning may be applied for marine resources[135], although powers of Nunavut (therefore indigenous) territorial bodies are in this case limited by federal authorities.[136] Nevertheless, this gives the local communities a possibility to influence the offshore developments and constitutes an example that could be developed and utilized in other parts of the Arctic.[137] Notwithstanding, empowerment of indigenous communities doesn't lift the Canadian government's positive obligation to protect indigenous land and resources.[138]

When implementing measures, it is important to take into account the perspective of indigenous peoples. Regulation has little prospect of succeeding without the support and meaningful involvement of the community and its institutions. Indigenous perspectives are valuable in order to recognize the special characteristics of local needs and concerns. Furthermore, the knowledge of climate change and its impacts is constantly complemented and thus the measures and policies should be repeatedly revised.[139] Furthermore, indigenous knowledge and experience will likely prove invaluable in understanding the types and complexity of climate change events into the future.

Yet, it must be borne in mind that no matter the measures taken, changes may prove to be too large and beyond control of local communities and governments.[140] Given this, it may be necessary for regional and national governments to methodically examine its existing financial and institutional resources, policies, laws, and regulations and re-align them to better meet emergent and anticipated needs.

5.3. Legal tools

National legislation and international agreements can be used in order to assist indigenous peoples to adapt to impacts of climate change.

National legislation can first of all play a part in contributing to empowering processes. Empowerment can be done through legal instruments and it can occur via political developments. As discussed in part 5, devolution is a common and visible trend in the Arctic: the central governments transfer law-making power to the local and regional level.[141] Secondly, national laws can be revised so that they are better adjusted to the changing social and climatic conditions and to ensure protection of the rights of indigenous peoples.

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134 Nunavut Land Claims Agreement, para. 11.1.2.

135 Also inland waters in Nunavut are partly under local authority through Nunavut Water Board, which is composed of representatives of territorial government, federal governments and Inuit organizations. See *Restructuring the relationship*, 1996, pp. 663-664.

136 In Canada generally institutions established by land claim agreements have a decision-making authority on most matters related to the use and management of lands and resources. See Indigenous peoples, 2000, pp. 9-10.

137 Nunavut Land Claims Agreement, art. 11.

138 *Restructuring the relationship*, 1996, p.565, 566.

139 ACIA, 2005, p. 92.

140 ACIA, 2005, Box 3.4. Political relations, self-determination, and adaptability on p. 91.

141 AHDR, 2004, pp. 114 - 115.

Several international agreements aiming to protect the rights of indigenous peoples have already been adopted as already described in part 5. Regardless of the fact that agreements contain some significant provisions (e.g. regarding land rights) the influence of the existing instruments is limited as agreements vary by the scope of application and by the involvement of respective Arctic states. Furthermore, the agreements are not always adequately implemented.

Recently there has also been an attempt to use international legal avenues as a tool for indigenous peoples to seek justice in issues raised by climate change and to bring the worst emitters of greenhouse gases to justice. The Inuit filed a petition against the United States on the basis of the latter's irresponsible climate policy, which was argued to have violated various human rights of the Inuit. The petition was developed under the auspices of the Inuit Circumpolar Council (ICC) and was submitted to the Inter-American Commission of Human Rights (IACHR) of the Organization of American States (OAS).[142] The petition by the Inuit has proceeded to the submission stage[143] and at present time it is unclear whether it will be successful. In general, the odds are against the victims of climate change to find justice through international legal proceedings although there may be other positive effects of choosing a legal strategy. For instance, by submitting notification very early on that they will take the worst greenhouse gas emitters "to the Court", the ICC was able to gain a more prestigious position in climate change negotiations and increase general awareness of the challenges faced by Arctic peoples because of climate change.[144]

Another indication of the increasing awareness of the link between human rights and climate change is a draft resolution of the UN Human Rights Council that recognizes climate change as a concern for human rights.[145]

5.4. Livelihood, social and economic adaptation

Adaptation to new climate conditions is an ongoing process in the Arctic and many indigenous communities are already adjusting to altering conditions.[146] Traditional adaptation mechanisms include: changing timing and frequency of hunting activities, harvesting new species or lengthening the travelled distances to follow moving animals. However, there is some time needed to learn how to harvest in altered environment. Arctic indigenous peoples

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142 Koivurova 2007, p. 269. Petition available at http://inuitcircumpolar.com/files/uploads/icc-files/FINALPetitionICC.pdf Visited on 05.03.2008; Abate, 2007, pp. 29-30.

143 Koivurova 2007, p. 270.

144 Ibid., pp. 297 - 298.

145 The Human Rights Council is concerned that the climate change poses "an immediate and far-reaching treat to people and communities around the world and has implications for the full enjoyment of human rights". The resolution requests the Office of the UN High Commissioner for Human Rights to conduct a detailed study of the relationship between climate change and human rights. At present, the resolution is at a draft stage and not yet adopted. Available at <http://daccessdds.un.org/doc/UNDOC/LTD/G08/121/52/PDF/G0812152.pdf?OpenElement> Visited on 05.05.2008.

146 Social structure, social networks, customs and traditions play a significant role in adaptation process. Due to these factors adaptation proves easier for some groups than for other, especially when it comes to risk related to climate change, such as severe weather and damaged infrastructure. See Ford et al., 2006, online, paras. 4.1, 6.3.2-6.3.4.; IPCC, 2007, p. 728.

have developed flexible social structures (i.e. group size, multiple activities), which allow them to adapt - to a certain degree - without significant cultural loss.[147] It is important also to remember that indigenous people may not be prepared to adjust fast enough both to cumulative impacts (as described in part 2) together with climate changes occurring faster than in the past.[148] Some elements of traditional adaptive capacity are however no longer available. Semi-nomadic way of life and easiness of resettlement allowed populations to follow relocating resources (especially marine animals) in the past. Today, due to permanent settlement this option is significantly limited or non-existent.[149]

Present permanent settlements have elaborate infrastructure and costs of resettlement are high.[150] Moreover, that relocation results in social problems and deepening of cultural loss. Traditional knowledge, anchored in geographical areas, may not be applied any longer and therefore may be lost.[151]

Presently, modern technology may play a significant role in adaptation strategies. Snowmobiles are already widely used and GPS, satellite phones, all-terrain vehicles, which are more suitable for changing ice conditions, are increasingly popular among sea hunters. However, acquiring the necessary equipment requires additional financial resources.[152]

In some Arctic countries support for hunters has become a vital part of social policy. Governmental programmes may prove an important factor in the process of adaptive capacity building and the preservation of hunting cultures (as basis for indigenous culture and identity). Such programmes may include for example: providing hunters with modern technology, a community freezer programme[153] and support for infrastructure maintenance.[154] Deliberative forums between government decision-makers and indigenous leaders are needed to further explore strategies that are culturally appropriate and acceptable to indigenous peoples.[155] Also, integration of climate change adaptation into other governmental policies (e.g. land-use planning, fish and wildlife management, water

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147 Barriers in the transmission of traditional knowledge limit significantly traditional adaptation patterns. See IPCC, 2007, pp. 730-731. For more about basic behavioral adaptation, see ACIA, 2005, pp. 93, 663, 668-669; IPCC, 2007, p. 673.

148 ACIA, 2005, p. 670; AHDR, 2004, pp. 50-51.

149 ACIA, 2005, pp. 91, 664-665.

150 Estimates show that relocation of one village (here example of Kivalina, Alaska) may cost up to 54 mln USD (IPCC, 2007, p. 675). Furthermore, virtual costs also include loss of invested resources in the area from which community is resettled.

151 ACIA, 2005, pp. 92, 664; AHDR, 2004, p. 57, IPCC, 2007, pp. 672, 675.

152 ACIA, 2005, pp. 668-669; IPCC, 2007, pp. 727, 728 ; Ford et al., 2006, online, para. 6.3.2.

153 This is the case with community freezer programme, where hunters receive cash for harvesting and in the same time need to give part of the catch for the use of the whole community (which is also a significant help for families in the worst financial situation). In this way former sharing system is transformed and formalised to encompass whole community, not only certain group of relatives. Moreover, rising risk of harvesting, uncertainty of the hunting outcome and changes in ownership of land and resources are counteracted. See ACIA, 2005, p. 665.

154 Ford et al., 2006, online, para. 6.3.4. See Canadian example in Nunavut Wenzel, G., 2000, Inuit subsistence and hunter support in Nunavut In Dahl et al. (Eds.) *Nunavut. Inuit regain control of their lands and their lands*. Copenhagen: IWGIA, pp. 184-190.

155 ACIA, 2005, pp. 663-666.

management, etc., so called “mainstreaming”) may prove valuable, especially when it comes to development strategies, macro policies and even institutional and organisational structures. For example programmes aimed specifically at resolving typical social problems can have a notable impact on climate adaptation, since addressing new threats may be impossible in communities facing major social disruptions. In addition, assessment, data gathering and information policy are the important elements of the process of adaptive capacity building.[156] Furthermore, some action by international actors may support the efforts on national and local level.[157] Eventually, governmental policies, which do not take into account indigenous traditions and perspectives or are simply badly designed, may limit adaptation options.

Hunting trips currently have to be planned more carefully and there is a need to provide indigenous people with sufficient information, which they could previously acquire using their traditional knowledge. Therefore, precise weather forecasts, including snow and ice quality information should be available (ideally in the indigenous language of the area).[158] Traditional knowledge, although less useful than before, is still an important source of information, but because of existing intergenerational knowledge transmission barriers younger hunters may be acquiring it only on limited level. For this reason it seems reasonable to put more effort and resources into formalising, applying new methods of knowledge transfer and documenting orally passed information about environment and basic skills necessary for harvesting in the Arctic together with enhancing and supporting existing indigenous efforts to retain cultural systems.[159] Again, whatever strategies are finally adopted must meaningfully involve indigenous peoples at the outset. In addition, indigenous communities should be provided with information on new health risks and more generally, behavioural adaptation to climate change, since preventing diseases is cheaper than medical assistance, especially in the Arctic where access to health service is rather limited.[160]

Due to climate change, reassessment of hunting and fishing laws may have a positive impact in some areas. Some changes may be required in spatial limitations for harvesting, fishing quotas (e.g. individual transferable quotas - ITQs[161]) and environmental protection regimes to adjust these better to specific indigenous subsistence and changing social and climate conditions.[162] Since changes are advancing, legal adjustment should also be a process rather than a single reform. There are also postulates for allowing indigenous populations to

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156 IPCC, 2007, p. 732;

157 E.g. Framework Convention on Climate Change provides funding adaptation through National Adaptation Programmes of Action, which ought to identify specific projects that are to be implemented. However, this is designed mostly for poorest countries affected by climate change. See IPCC, 2007, pp. 731-732.

158 ACIA, 2005, p. 668.

159 ACIA, 2005, p. 669; Ford et al., 2006, online.

160 ACIA, 2005, pp. 1001, 1002; Furgal and Seguin, 2006, online.

161 ACIA, 2005, p. 665.

162 A good example for policies revision is the return to subsistence whale hunting in Canada in 1990s. However, this was done on the grounds that hunting constitutes a specifically important part of indigenous economy and culture. See Høgh, H., 2001, Bowhead whale hunting in Nunavut: A symbol of self-government. In Dahl et al. (Eds.).

acquire more cash through traditional harvesting. Sport hunting and more food sold on the commercial markets may provide money needed for equipment, fuel, building renovation or reconstruction and may prevent indigenous people from leaving their homelands.[163]

Eventually, in some areas a possibility arises for more direct involvement of indigenous communities into the formal, global economy. That includes such activities as fossil fuels and raw materials extraction, organised tourism[164], transport or production (especially in situations when communities have certain degree of legal control over the land they occupy). It is worth noting, that while in some places these developments have already been taking place, some indigenous leaders oppose that kind of economic involvement, hence participation in large scale projects may endanger indigenous identity and indigenousness itself.[165]

Given all the circumstances and possibilities discussed above, there will be a need for governments and indigenous leaders to work together. This may require state and regional governments to enhance the financial capacity of indigenous organizations and governments to meet with their communities to develop their visions of what must be done in light of climate change, and then to adequately engage with their national governments. Given the scope, speed, and degree of existing and emerging climate change in the Arctic, time is of the essence.[166]

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163 ACIA, 2005, pp. 664-665, 999; IPCC, 2007, p. 673;

164 Tourism is a vital option for many communities and their sustainable development, but it is connected also with certain dangers when it comes to environment and indigenous culture. See Nuttall, 2000, p. 398.

165 IPCC, 2007, p. 673; ACIA, 2005, p. 658, Nuttall, 2002, pp. 63-68, 119.

166 See, e.g., ACIA, 2005, pp. 665-666.

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