Module 3:
Contemporary Issues within Small Scale Indigenous and Traditional Northern Economies

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Overview

In this module traditional economies and activities of Arctic Indigenous peoples are discussed. The economic basis for preservation of traditional ways of life and sustainable development in Arctic countries is presented. The role of the state and the importance of resource co-management by companies and local communities are emphasized. The module examines global challenges to traditional ways of life and sustainable development in the Arctic, particularly using Alaskan and Russian examples.

Learning Objectives

Upon completion of this module, you should be able to:

1. Analyze the importance of small scale Indigenous and traditional northern economies on the development of northern regions.
2. Explain possible consequences of global challenges and how they may affect traditional economic activities and sustainable development in small northern communities.
3. Examine potential economic benefits of producing traditional products for western cultures and societies.
4. Examine how property rights and resource ownership affect governance in the North.
5. Estimate the importance and role of education and ecological knowledge in sustaining traditional economies and sustainable development in the North.
6. Illustrate how devolution of power within Indigenous communities affects co-management of resources.

Required Readings (including web sites)

Nuttall M.,et al. (2004). *Hunting, Herding, Fishing, and Gathering: Indigenous Peoples and Renewable Resource Use in the Arctic*. **Arctic Climate Impact Assessment**. Cambridge, Cambridge University Press. Pp. 649-690. http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch12_Final.pdf

Aslaksen, J. et al. (2008). *Interdependency of subsistence and market economies in the Arctic*, in Glomsrød, S. and Aslaksen, J. (eds.) **The Economy of the North**, Oslo: Statistics Norway. p 75-98. http://www.ssb.no/a/english/publikasjoner/pdf/sa112_en/kap6.pdf

Key Terms and Concepts

- Global challenges
- Land ownership and right to land
- Indigenous peoples
- Resource-dependent communities
- Co-management resources
- Traditional economy (e.g. economic activities of Indigenous peoples)
- Sustainable development

Learning Material

3.1. Introduction to the Traditional Economy of the North

The Arctic has significant resource potential. Renewable natural resources include large reserves of timber, fish, wild animals and plants. Traditional economic activities of Indigenous peoples of the circumpolar North are closely connected with the use of land and renewable natural resources, and provide the economic basis for survival and sustainable development. Traditional activities such as mining, fish processing, hunting, herding, gathering and processing of wild fruits, mushrooms and nuts, national crafts and souvenir production are the basis of livelihoods and traditional lifestyles.

Northern peoples preserved many customs and traditions in the Indigenous economy. Most of the Indigenous population lives in the Taiga. These settled hunters and fishers are also involved in reindeer herding, gathering and crafts.

3.1.1 Main Traditional Activities

Fishing is an ancient and essential form of economic activity of northern peoples. Fishing is usually combined with gathering, hunting and farming, but for pastoral tribes it was less important. Historically fish was a good trade item and more recently fishing has acquired an industrial nature. **Hunting** is the main and oldest type of economic activity of humankind.

Skin Dressing.
Source: http://www.narodsevera.ru/service/photo?sec=2#

Reindeer herding (breeding) is one of the most important activities in Northern economies. This industry involves the cultivation and use of domesticated reindeer. Tundra communities based their activity on processing reindeer meat and skin. Taiga communities combine reindeer breeding with hunting and fishing and use reindeer as a means of transport.

Reindeer breeding spread from Siberia through the European part of Russia to Scandinavia in about 1,000 BC. Today many Indigenous peoples of the North, Siberia and Russian Far East, i.e., Nenets, Komi-Izhemts, Khanty, Dolgans, Evenk, Chukchi and Koryaks, herd reindeer. In Norway, Sweden and Finland reindeer are bred by the Saami. Reindeer herding is characterized by high mobility connected with the availability of pastures and fodder.

Historically reindeer herding has formed a part of the Indigenous economic structure and life of northern peoples and remains important to preserve their unique culture. Reindeer herding has always had a significant influence on the food supply for the population living in the vast territory and extreme conditions of the North.

Gathering is one of the oldest human activities and consists of collecting wild roots, berries, honey, mollusks and insects. Gathering was primarily a women's activity. Gathering of wild plants led to the emergence of farming. Currently gathering is a minor activity, but still an important food source (e.g., picking mushrooms, berries and nuts).

Learning Highlight 1: Traditional Economy
The traditional economy of Indigenous peoples is based on use of land and renewable natural resources.

3.2 Traditional Activities of Indigenous Peoples of the Arctic

Canada. Traditional occupations of Indigenous peoples in sub-Arctic areas include hunting, fishing and meat and fish processing. Hunters of the taiga and tundra primarily hunted large game (e.g. caribou, moose, and mountain sheep) using pens or traps. Meat was dried or mixed with fat to form pemmican. Fish was also dried. In the boreal forests, people led a semi-nomadic life with small families dominating and separating into smaller groups depending on the calendar cycle. In the Arctic people led a nomadic lifestyle and primarily depended on the hunting of whales and other marine animals such as seal and walrus. They also hunted caribou and deer.

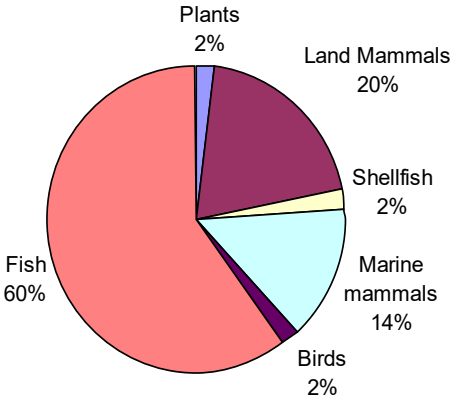
Learning Activity 1: Traditional Economies in Arctic Countries
Examine types of traditional economies and evaluate their influence on the development of your region and community.

Northwest Coast of North America. Indigenous economies included fishing (e.g. salmon, halibut, cod, herring, fish candles and sturgeon) using dams, nets, hooks and traps, whaling (e.g. Nootka, Makah) using flat-bottomed boats and stone or bone harpoons and spears, and hunting (e.g., snow goats, deer, elk and other fur-bearing animals). They gathered roots and berries and developed crafts such as weaving (e.g. baskets, hats and capes made of snowy goat wool). They processed bone, horn and stone, and made totem poles, houses and masks from wood. They also cold-forged copper.

Alaska. Traditional Inuit occupations included hunting large marine animals (e.g. walruses, seals and whales) deer and caribou as well as fishing. These economic and cultural activities were established and shaped among Alaskan Indigenous peoples.

Whaling continued into the mid-19th century then declined. Whales were hunted using javelins, spears and harpoons tipped with bone splitting at rookeries, on ice and in water. Reindeer and mountain sheep were hunted with bows and arrows and since the mid-19th century with firearms. Hunting arctic fox for fur has increased as has fishing, gathering and sled dog breeding.

Composition of wild food harvests in Alaska. 1990s. Per cent of total quantity



Source: The Economy of the North 2008: Figure 6.2 on p.78

Learning Highlight 2: Reservoir of Resources
Arctic economies are characterized by large-scale extraction of minerals, hydrocarbons, precious and semiprecious metals and fisheries in coastal regions.

Russia. Cultural and ethnic specificity and established customs of Russian Indigenous peoples help to explain their lifestyles and traditional economies. Russian Indigenous peoples include settled and half-settled sea hunters along Arctic and subarctic coasts (e.g. Asian Eskimos, sedentary (coastal) Chukchi and Koryaks). Nomadic reindeer herders of the tundra and forest tundra zones include the Saami, Nenets, Komi-Izhma, northern Khanty, northern Selkup, Enets, Nganasans, Dolgans, northern Yakut, northern Evenkis, Evens, northern Yukagirs, Chuvans, Chukchi and Koryaks. Settled and half-settled fishermen and hunters of the taiga and the tundra lived in valleys of large rivers. These

include the Russian Old Believers (from the northern group of coast-dwellers in the west to the Markovtsevs and Gizhigintsevs in the northeast), Komi and Yakuts as well as individual groups of reindeer-herding Indigenous peoples including the Saami, Khanty, Dolgan, Yukagir.

The traditional economies of Indigenous peoples of northern Russia cover a wide range of activities. In May 2009, the government of the Russian Federation approved an official document containing an exhaustive list of Indigenous peoples' economic activities divided into thirteen large groups.

The Saami. Prior to the 17th century, hunting and fishing were the main occupations of the Saami, but reindeer herding has become the major occupation for most Saami (e.g. mountain Saami) since then. The traditional economy of the Saami on the coast, especially in Norway, was salmon fishing in the summer and fall and cod in the spring. In the interior regions of Sweden and Finland, the river Saami fish, hunt and trap. The Saami are involved in reindeer, fisheries, dairy farming and other non-traditional activities. Today most Saami people live in cities.

Table 1. Composition of income in reindeer pastoralism of Norway, 2005 and 2007.

	2005		2007	
Type of Income	Value (1000 NOK)	Percent	Value (1000 NOK)	Percent
Meat production for official sales	95,594	38.7	117,551	39.8
Own consumption, private sales	15,247	6.2	17,565	5.9
Change in the value of the herd	-1,668	-0.7	10,155	3.4
Subsidiary incomes	5,758	2.3	5,160	1.7
Other production-based incomes	12,725	5.1	14,703	5.0
Subsidies	84,894	34.3	69,202	23.4
Compensation	34,617	14.0	61,279	20.7
Total incomes	247,167	100.0	295,615	100.0

Source: The Economy of the North 2008: Table 6.11 on p.94

3.3 Global Challenges to Traditional Ways of Life and Sustainable Development in the Arctic

3.3.1 Large-scale Resource Exploitation is a Basis of Arctic Development

As pointed out in Module 1 of this course, the Arctic regions are considered vast reservoirs of natural resources. Originally exploited for fish, whales and furs, Arctic regions have enormous quantities of diverse resources such as minerals and fossil fuels. The economic activity of Arctic countries is now characterized by large-scale exploitation of minerals, precious metals, hydrocarbons, precious and semi-precious stones and fish. Russian Arctic regions have vast reserves of gold (Magadan, Chukotka), nickel (Murmansk, Krasnoyarsk), tin (Sakha, Chukotka) and diamonds (Sakha). Petroleum and gas exploration is important, especially in the Yamalo-Nenets and Khanty-Mansii Autonomous Okrugs. In Canada exploitation of mineral resources and hydrocarbons is occurring in the Yukon, the Northwest Territories, Nunavut, Nunavik, and Labrador. Mineral exploitation is also a central economic activity in Finnmark in Norway and Norrbotten and Västerbotten in Sweden. Alaska extracts considerable

quantities of oil from the Beaufort Sea and has one of the world's largest zinc mines. While industrial-scale natural resource exploitation creates considerable wealth, these activities mainly supply markets outside Arctic regions. Sources of capital outside the Arctic generally control the resources, activities and profits.

3.3.2 Influence of Industrial Resource Companies

Natural ecosystem destruction causes loss of resource value. Industrial development in the Arctic potentially threatens ecological systems and often damages natural resources.

Table 2. Ecological Situation in Places of Industrial Production in Northern Russia

Impact Region	Source of Pollution	Indigenous Peoples	Ecological Situation in the Impact Region
Kola Peninsula	Metallurgy, mining industry, heating plant, transportation, extraction and transportation of hydrocarbon	The Saami, the Nenets	Crisis
Timano-Pechorsky	Oil and Gas production	The Nenets	Critical
Novozemelsky (land and marine)	Military facilities (proofingground, nuclear facilities, etc.)	The Nenets	Critical (potential crisis)
Vorkuta	Mining Industry, heating plant	The Nenets	Critical
Pur-Nadymsky	Oil and Gas production	The Nenets	Critical
Middle Obninsk	Oil and Gas production	The Khanty, the Mansy	Critical
Norilsk	Mining and metallurgic industry	The Nenets, the Nganasans, the Dolgans, the Evenks	Critical
Yana – Indigirsky	Mining Industry	The Evens, the Yukagirs	Sharp
Valkumeisky	Mining industry, heating plant	The Chukchis	Sharp
Bilibinsky	Nuclear power plant	The Chukchis	Potential sharp up to catastrophic (in case of plant accident)

Source: Klokov K.B., Krasovskaya, T.M., Yamskov, A.N. (2001) *The problems of transition to sustainable development of the resettlement areas of Indigenous peoples of the Russian Arctic*. Moscow: IEA RAN.

The disturbance of ecosystems caused by industrial activities endangers traditional economies such as reindeer herding, fishing, farming and hunting. Reindeer pastures are decreasing and their condition is deteriorating. Feedstocks and domestic reindeer number are declining in some regions. Land transferred to industrial enterprises and contaminated by industrial emissions has deprived rural populations of grazing lands, hunting areas, traditional fishing waters and wild plant gathering areas.

Large-scale resource exploitation has considerable impact on local natural and human environments. Often disparities in standards of living and social status exist between industrial employees and the remainder of the population, which can be correlated with ethnicity.

3.3.3 Climate Change Creates New Challenges

Climate change in the Arctic is beginning to be understood and analyzed in terms of its potential effects and impacts on resource governance, livelihood and sustainable development. Global challenges caused by human, external and natural factors dramatically impact the sensitive Arctic environment. Global impacts include changes in marine and land ecosystems, melting permafrost, decrease and disappearance of islands, melting ice and the rise in the level of world oceans. Changes can immediately and fatally influence the traditional economies of Arctic peoples (e.g. hunting areas change due to changes in animal migration and habitats). It is expected that climate change will result in open navigation in Arctic seaways, leading to infrastructure and industrial development and urbanization. These impacts and the potential demise of traditional subsistence systems may affect community viability. Climate change impacts could be profound and pose significant challenges to established and fledgling Arctic governance institutions (AHDR, 2004). In general, climate change represents new and uncertain challenges in the Arctic.

3.4 Modern Global Development Trends

The growing connection between the Arctic and the world may cause the Arctic to become dependent on global economic and political trends. Arctic economies will continue to depend primarily on the production and export of mineral and hydrocarbon resources. Production volumes of non-renewable natural resources will increase and the accompanying transportation infrastructure will expand. The role of Northern Territories in the export of raw materials will grow. Anthropogenic impacts in the North will inevitably increase.

Economic development of the North has led to significant differences in living standards of Arctic Indigenous peoples including representatives of the widely dispersed groups of the same people (e.g. the Nenets from Nenets Autonomous Okrug have a lower standard of living than the Nenets of Yamalo-Nenets region who receive grants from the oil and gas industry) (Klokov, 2001).

Economic development due to an expansion of extractive industries and the coastal infrastructure associated with the Northern Sea Route (Russia) and the Northwest Passage (Canada) may lead to the degradation of traditional Indigenous territories.

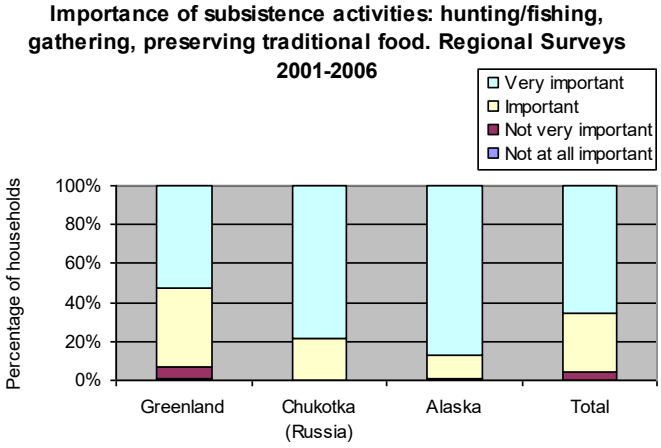
3.5 Growth Potential of Traditional Economies

3.5.1Traditional Environmental Management and Sustainable Livelihoods in the Arctic

There cannot be traditional livelihoods for northern Indigenous peoples without **traditional nature management**. This can be a source of cash focused on personal and family consumption not profit maximization. Based on traditional values, special skills and comprehensive knowledge of the local natural environment, traditional nature management uses small, simple technologies and distributes finished products through a well-established system of exchange among relatives and friends. These features are considered to be the traditional environmental and ecological basis for sustainable livelihood development of northern peoples. Traditional nature management is an integrated system that includes several combinations of various activities.

Nature’s gifts were the basis of livelihoods for many generations of Arctic Indigenous peoples and settlers. Traditional industries such as fishing, hunting and gathering are still

valuable for many communities. Agriculture and animal husbandry in high latitudes are also an important source of income for Arctic communities. For example, reindeer is an important source of food, income and export.



Source: The Economy of the North 2008: Figure 5.6 on p.69

3.6 New Economic Opportunities

In some regions local populations are interested in developing their economy and receiving shares of profits and other benefits. It is not uncommon for regions rich in resources and sufficient political power to enable residents to defend their interests in the region's development. For example, in the Yamalo-Nenets and Khanty-Mansiysk districts of Russia, political reforms and an abundance of strategic energy resources have made possible the development of regional power. In North America, new comprehensive land claim agreements have empowered indigenous populations with the ability to exercise a great deal of influence over resource developments. Similar situations have arisen where large companies have reached agreements with local and regional authorities usually in the form of mutually beneficial agreements (known in North America as Impact Benefit Agreements). In some cases, local authorities or citizens' associations become investors or entrepreneurs. Active local participation can reduce negative effects of exploitation as the interests of the local population become increasingly taken into account.

Arctic renewable resources are becoming increasingly important in the world market. In particular, the commercial fishing industry has reached an international level. Aquatic and marine industries are well developed in many areas and constantly enriched due to development of technologies and expanding markets for farmed salmon, halibut, shellfish and other species. This increases the anthropogenic load on the environment, which can be regulated and optimized.

The northern economy is diversifying, particularly in Iceland, and Fennoscandia where the economies are not centered on large-scale exploitation of a single resource. Examples

include ecotourism or *green tourism* where Finland and Iceland serve as models (AHDR, 2004).

Development of non-renewable resources has had an enormous impact on the history and living conditions of Arctic Indigenous peoples. A balanced approach that considers traditional and modern Arctic economies may help the Arctic secure an important place in the world economic system and provide greater financial and social benefits.

1. Economic sectors associated with the extraction and processing of natural resources will cause economic growth through which Indigenous peoples engaged in traditional farming may be supported.

2. Local communities will have opportunities to obtain jobs and well-paid work.

3. The emergence of production facilities and in-migration of populations from outside will contribute to recovery of income through the sale of traditional food and non-food items (e.g. meat, fish, berries, medical herbs, food, souvenirs and folk handicrafts) and services (e.g. eco-tourism).

4. Active local participation can reduce negative effects of exploitation because it will consider the interests of the Indigenous population.

5. Newcomers will help maintain Indigenous traditional ways of life by disseminating information about Indigenous ethnic groups' national cultures beyond northern territories thereby contributing to sustainable development and conservation of global diversity.

Existing and new opportunities for preserving Indigenous ways of life and socio-economic growth in the Arctic depend on political issues dictated by the economic interests of all parties. These issues increasingly depend on decisions related to land ownership, natural resources, effective communication and management.

Case Study: Diamond Industry and the Evenkis (Yakutia, Northern Russia)

The Evenki is a native population in the Olenek region of Yakutia (the name of the district came from the word "deer"). For centuries the people were engaged in the hunting and herding of domesticated reindeer. The region borders on Mirny city, the center of the Russian diamond industry, where the leading company Alrosa extracts 98% of all diamonds in Russia and 25% of the world total. Exploration and small-scale extraction of diamond placer deposits are carried out in the region.

The local communities, with the support of the regional authorities, have managed to build a good relationship with the company. It has become possible to preserve traditional lifestyles and to achieve economic growth in reindeer herding. The number of reindeer is constantly growing and on January 1, 2008 amounted to 4072 compared to 3499 reindeer in 2003.

The proximity to the market allows the Evenki reindeer herders to sell the meat at a good price. Some divisions of the Alrosa company entered into contracts to supply meat to feed their workers. Local communities gain profit from such relationships.

With the support of the diamond companies, roads and social facilities are being built; national activities and holidays are held. The employees of the diamond industry who are representatives of other cultures and societies respect and honor the traditions of the Indigenous people. It is shown in sponsorship, joint management, the activities related to respect for the local population, national culture and its promotion far beyond the Sakha Republic and Russia. All these are very important for self-identification and the preservation of culture and traditional lifestyles.

3.7 Traditional Economies and Arctic Sustainable Development

Principles of *sustainable development* include:

- Economic development without destruction of the human environment
- Human development
- Attention to interests of current and future generations

Strategic objectives of sustainable development include:

- Growth of the general welfare of the population
- Growth of the economic potential of the local area
- Growth of the educational, cultural and spiritual potential of the population
- Ensuring the safety and security of the human and non-human population
- Improving the quality of the human and non-human environment

Sustainable development (e.g. ensuring the quality of life) in the Arctic is particularly important. Currently, the following situations can be observed:

1. The Arctic economy is mainly based on large-scale exploitation and export of minerals, hydrocarbons and marine resources.

2. Arctic regions do not have political authority and are dependent on transfer payments from central governments to local authorities. These payments are lower than profits from regional production.

3. Fishing, traditional activities and reindeer breeding continue to play an important role in the economy of northern peoples. Therefore, the means used to carry out their effectiveness and distribution methods are essential for people's income and standards of living.

The natural human environment is at risk. Companies try to maximize their economic benefits and are not always socially responsible. Treaties that protect the interests of local populations are important. For example, in the northern territories there are mono-industrial cities that are economically dependent on mining companies.

The legal regulation of economic relations between central governments and northern peoples is the economic basis for safeguarding traditional ways of life and sustainable development in Arctic countries. States play major roles in these relations. Governments regulate economic relations through laws and are intermediaries between private interests and civil society.

Researchers identified four trends affecting the current management of Arctic resources:

1. The growing importance of *property rights*.
2. Incorporation of traditional or local ecological knowledge with western science in decision-making.
3. Transfer or devolution to local decision makers and co-management.
4. Widening involvement of Arctic peoples in ownership and development of lands and resources.

These trends reflect changes in resource management regimes and have implications for long-term sustainable development and self-determination in the Arctic (AHDR, 2004).

3.8 Securing Rights to Resources

Effective resource management is associated with **rights to resources**. Arctic renewable resources are increasingly important in world markets and are beginning to affect the global economy.

Alaska. Longstanding Indigenous claims to land and fishing rights were addressed in part through the 1971 Alaska Native Claims Settlement Act (ANCSA) caused by the 1968 discovery of oil on Alaska's North Slope.

ANCSA came after the 1958 Alaska Statehood Act that made Alaska the 49th American State and set aside more than a quarter of land for development and use by the new state. These laws, together with the 1980 Alaska National Interest Lands Conservation Act (ANILCA), created an ownership model where the United States federal government owns nearly 60 percent of the land, the State of Alaska owns 28 percent and Native Alaskan corporations own about 12 percent. Other private lands make up less than 2 percent of the total territory. ANILCA created vast new national parks, wildlife reserves and other conservation areas in Alaska. Traditional subsistence hunting and fishing is practiced on most of these territories. They provide opportunities for world-class tourism development. The United States' government manages Alaskan marine environment resources in its exclusive economic zone, which extends 200 miles offshore. Federal fisheries management based on the 1996 Magnuson-Stevens Fishery Conservation and Management Act includes a broad-based North Pacific Fisheries Management Council, individual fishing quotas and innovative community development quotas. Alaska's State Government manages near-shore fisheries, mostly salmon, through its Board of Fisheries, Commercial Fisheries Entry Commission and the Alaska Department of Fish and Game.

Learning Highlight 4: Ecological Sustainability Criteria
The essence of ecological sustainability is maintaining of such rated of economics where the level of its *pressure* on the environment is balanced by nature self-restoring its qualities.

Comprehensive Land Claim Agreements in Canada. The ANCSA Treaty was seen as an important influence on the negotiation of new comprehensive land claim agreements in the Canadian North. These agreements however went further than the ANCSA agreement in terms of empowering northern indigenous peoples and protecting their traditional subsistence economy. Starting with the James Bay and Northern Quebec Agreement of 1975, indigenous peoples in Northern Canada rejected the market-based share system of ANCSA, refused to surrender their indigenous rights to lands surrendered under the treaty, and, as part of the treaty, put in place programs, such as Hunter Support programs, to protect traditional subsistence activities.

Learning Highlight 3: Securing Rights to Resources
The concept of sustainable development was introduced in 1987 and is defined as "*Mankind is able to make development sustainable that is to ensure it satisfies the needs of the present without compromising the ability of future generations to meet their own needs*." (G.H. Brundtland, 1987)

Greenland. Greenlanders achieved *Home Rule* from Denmark in 1979. The Home Rule Government represents Indigenous and non-Indigenous populations and controls terrestrial and marine resources within a common frame-work throughout Denmark. Home Rule arose partly as a result of the contradictions between Greenlanders and the Danish Government regarding development policies, particularly in the 1950s and 1960s.

Under Home Rule, Greenlanders gradually took over responsibility for **managing developing living and non-living resources**. In Greenland there is no private land

ownership; all land is owned in common by the Greenlandic population through the state. Greenlanders have the right to use living resources according to Home Rule regulations designed for care of resources and their long-term preservation. Management of fisheries in Denmark's exclusive economic zone off Greenland's coast uses a system that includes individual fishing quotas (including transferable quotas for shrimp) and Home Rule regulations. As part of Denmark, Greenland strengthens its role in resource management in partnership with Denmark, which can be seen in the negotiations for multilateral fisheries agreements. Greenland and Denmark have an agreement on the division of royalties received from development of non-living resources.

Case Study: Danish Greenland Obtains the Status of Extended Autonomy

On June 21, 2009 Greenland obtained the status of extended autonomy within Denmark. The results of the referendum held in November 2008, where two-thirds of voters supported the expansion of self-government, have taken effect exactly on the thirty-year anniversary of the *Home Rule Act*, under which the former colony gained the right to have its own sovereign government and parliament and to manage education, health and social security. In addition to this, now local authorities will control the police and judiciary system and will also have more influence over Danish foreign policy concerning Greenland.

An important innovation is a system of division of revenues from the extraction of mineral resources between Denmark and the former colony. While expanding its autonomy, Greenland will continue to receive subsidies from the Danish budget, which until recently accounted for more than half of the local budget – about 500 million euros. The subsidies are planned to be cut over time: aid will be cut proportionally to the increase of revenues from mineral resources. Previously, all resource income of the island was controlled by the Folketing (Danish parliament). Now Greenland will take 75 million crowns (about 13 million dollars), while the remaining revenues will be shared equally.

In other *Nordic countries* national governments create broad frameworks for use of **publicly owned resources** by state-owned and private corporations. The Norwegian government remains the main investor in *Statoil*, the largest Norwegian oil producer, which recently opened to private investors. *Norsk Hydro*, a developer of hydroelectric energy, is forty-four percent owned by the Norwegian State. In Sweden activities of private wood-products and pulp firms are regulated by the *Swedish Forestry Act*. In the Barents region an example of regional cooperation affecting management and use of resources is the *Barents Euro-Arctic Council*, which consists of representatives from northern Norway in the west to Russia's Nenets Area and Novaya Zemlya in the east. The Barents Euro-Arctic Council's work is focused on the development of international cooperation with particular emphasis on forest management, renewable energy and development of the Northern Sea Route.

Learning Activity 2

A. Evaluate modern challenges to Arctic sustainable development.

B. Which challenges can be solved at the national level and which at the local level?

3.9 Education and Ecological Knowledge as a Means of Effective Resource Management

Traditional ecological knowledge reflects knowledge, practices and beliefs about the relationships between living beings and their environment, which has emerged through adaptation and is passed on from generation to generation.

Human exploration of the Arctic is linked to the historical, cultural and environmental conditions that have formed traditions and beliefs over generations. Northern Indigenous peoples' traditional norms, practices and relationships were built on continuously obtained and perfected ecological knowledge. Settlers also developed local knowledge and practices important for effective resource management.

In some Arctic regions the term **local ecological knowledge** is often used. Traditional or local knowledge systems can be divided into several interrelated components. Central to this is local knowledge of resources and resource management systems including practices, tools and techniques. Often this includes knowledge of social institutions ("rules-in-use"), principles of social relations and a worldview enriched by the concepts of religion, ethics and broader belief systems. For many Indigenous populations customary practices and a profound sense of the sacred fill everyday life.

Traditional winter seine fishing in Yakutia (Russia)
Photo Credit: Oxana Romanova

Traditional or Local Knowledge, Beliefs and Practices can be essential elements of effective resource governance regimes especially when they are supplemented with the best achievements of modern science.

Researchers have observed that the knowledge of local hunters and fishermen is generally underutilized. Critical assessments show that the way to overcome this problem is to transfer resource control to local peoples.

The challenges of adopting traditional and local knowledge have not kept Arctic resource users, their advocates and many biologists and managers from promoting its use. For example, the Canadian studies "Inuit Land Use and Occupancy Project" and "Voices from the Bay" (AHDR, 2004) illustrate the wealth of ecological knowledge about the Arctic environment and landscape.

More recently traditional knowledge has been an instrument for applied projects in the Arctic ranging from assessments of the cumulative effects of hydroelectric development in Quebec to planning for gas pipeline development in Canada's Mackenzie Delta. In addition, the North Atlantic Marine Mammal Commission held a conference on the integration of local and scientific knowledge in management decision making for marine mammals.

Scientists warn that use of traditional ecological knowledge can be problematic if not carefully undertaken; uncritical use can lead to misunderstandings such as characterizing Indigenous peoples as "natural conservationists" or "original ecologists" whose knowledge and actions cannot be questioned.

A growing number of scientists believe traditional knowledge complements western science. There are multiple ways of knowing the world and effective resource management implies understanding this diversity. Awareness of traditional knowledge leads to resource management systems based on community participation revealing the potential of diverse knowledge-practice-belief systems.

3.10 Co-management of Local Resources in the North

Co-management is the joint management of local regions by all managing partners with the objective of ecological and social environment conservation. A **co-management** regime is an institutional arrangement in which stakeholders establish:

1. A system of rights and obligations for those concerned with the resource.
2. Rules indicating actions that stakeholders are expected to follow under various circumstances.
3. Procedures for collective decision making affecting diverse interests.

Co-management in the North is aimed at resolving conflicts concerning the interests of local communities, corporations and the state. Each partner has specific interests, however, the goals and interests of local communities take precedence. Arctic resource governance is showing a trend toward recognizing and formalizing property rights, including the rights of Indigenous peoples.

In northern Russia large companies dictate the conditions of resource co-management in Indigenous territories. Companies that win the tender for mining and extraction of resources make agreements with regional governments. Companies occasionally assist in the socio-economic development of Indigenous peoples.

Arctic sustainable development is regulated by the state through various methods. Governments directly improve local regions through the development of infrastructure at the expense of the federal center or in conjunction with regional authorities. Indirect government impacts are connected to changes in tariff policy, intergovernmental fiscal relations, tax exemptions and other preferences.

Arctic sustainable development cannot be based only on the preservation and development of traditional activities. Northern communities must also promote their competitive advantages in other activities, e.g., unique natural resources and favorable geographic position. Canadian First Nations are an example of a movement towards effective resource co-management based on legal regulation at the local level. They are increasingly achieving **co-management** over their lands through agreements with various levels of government.

Case Study:

Extract from the Constitution of the Lheidli T'enneh Community (dated January 30, 2007), with a population of 300 people in the province of Northern British Columbia (Canada)

Part III - Lands and Resources

Ownership of Lheidli T'enneh Lands

26. Lheidli T'enneh Lands are governed by Lheidli T'enneh under the Final Agreement and this Constitution.
27. Ownership of Lheidli T'enneh Lands will be established in accordance with the Final Agreement and this Constitution.

Expropriation

28. The Lheidli T'enneh Government will make Laws in respect of expropriation of interests or estates in Lheidli T'enneh Lands by the Lheidli T'enneh Government for necessary community purposes or works of Lheidli T'enneh.
29. Laws enacted under section 28 will substantially reflect the expropriation principles and provisions of the Lheidli T'enneh First Nation Land Code, and for greater certainty, will include procedures for the determination and payment of compensation.

Designation of Lheidli T'enneh Lands

30. The Lheidli T'enneh Government will make Laws in respect of:
(a) the zoning and Designation of Lheidli T'enneh Lands; and
(b) changes to the boundaries of Lheidli T'enneh Lands.

Duty to Consult on Land Use

31. The Lheidli T'enneh Government will establish a process for the involvement of Lheidli T'enneh Citizens and others in land development planning.
32. Within the scope of its authority, the Lheidli T'enneh Government will endeavor to protect Lheidli T'enneh Lands, Lheidli T'enneh Fee Simple Lands and other lands within Lheidli T'enneh territory from environmental and ecological degradation, including loss of biodiversity.

3.11 Conclusion

Prospects for future Arctic economic development will have a major impact on the standard living and lifestyles of Arctic Indigenous peoples. Economic sectors that will lead the growth of the Arctic economy will be oil and gas extraction, mineral resources, transportation and possibly recreational nature management.

Arctic sustainable development requires effective resource management. The traditional economies of Indigenous peoples are under pressure from global challenges. In order to respond to these challenges, the state, companies and Indigenous communities must make efforts to co-manage available resources.

The economic foundations of sustainable development in the Arctic are:

- the maintenance and development of the traditional way of life, which implies the preservation and development of traditional economic activities;
- participation in resource management including state participation through regulation, participation of companies through agreements and contracts (e.g., programs of companies in social development) and most importantly participation of local communities.

Resource dependent communities play a vital role in the development of the northern regions. Arctic development experience shows a need for participation in resource management by the state, companies and local communities of Indigenous peoples. The interests and needs of Indigenous peoples are a priority in the development of Arctic resources. Governance in the North must take into account property rights and ownership of resources in each territory.

Discussion Questions

1. Explain the roles of Indigenous peoples' traditional economies in Arctic sustainable development. Use examples from northern communities to illustrate your answer.
    A. What is the key factor for preserving traditional activities?
    B. How can the experiences of traditional economies of northern communities be used in the development of modern society?
2. Evaluate potential dangers of global challenges to the traditional economies of Arctic Indigenous peoples.
    A. What global challenges to traditional economies currently exist?
    B. How can Arctic Indigenous peoples resist the incursion by companies of land used for traditional purposes?
    C. How does climate change affect the traditional lifestyles of northern Indigenous peoples?
3. What forms of co-management are used in Arctic states?
    A. Define co-management?
    B. What is the importance of social initiatives on local communities in Arctic resource co-management?

Study Questions

1. How are small scale Indigenous and traditional northern economies important for the development of northern regions?
2. What are potential global challenges for northern communities and how may they affect traditional economic activities and sustainable development of these communities?
3. What are the potential economic benefits of producing traditional products for western cultures and societies?
4. How do property rights and resource ownership affect governance in the North?
5. How can the use of traditional knowledge have a positive impact on the sustainability of northern communities?
6. How does the devolution of power within Indigenous communities affect the co-management of resources?

Glossary of Terms

Sustainable Development: aims to achieve a balanced development of three main components, i.e., nature, society and economy, of socio-economic systems at global and regional levels**.** Mankind needs to make development sustainable and ensure that current needs are satisfied without compromising the ability of future generations to meet their needs.

Traditional Ecological Knowledge: a system of knowledge, practice and beliefs concerning the relationships between people and their environment formed during the adaptation process and transferred generationally.

Traditional Economy: an economic system with a strong social network. Resources are allocated by inheritance and based on Indigenous technology and methods.

Traditional Nature: historically established and ecologically balanced use of biological resources of northern wilderness of the tundra, taiga and coastal seas by Indigenous peoples.

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Sami Council. The Sami Council is a voluntary Sami organization (a non-governmental organization), with Sami member organizations in Finland, Russia, Norway and Sweden. www.Samicouncil.net

Republic of Sakha-Yakutia www.yakutia.org - Unofficial webpage of Sakha-Yakutia Information about Sakha-Yakutia in English.

Internet site of the Russian Association of Indigenous Peoples of the North. www.raipon.info