

## Module 8: Investment Policy and Northern Economic Infrastructure

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### Overview

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Production infrastructure includes the systems necessary for carrying out core activities. In order to develop natural resources in the North, roads, housing, social and communications infrastructures must be built. Taking into account vast northern distances and the sparse population, the production infrastructure requires enormous expenditures. This module considers how to develop industrial infrastructure in the North and how the state should support economic development using investment policy. This module describes investment policies adopted in European circumpolar countries, North America and the Russian Federation, and the development of northern transportation and communication infrastructures in the circumpolar North.

### Learning Objectives

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

1. Examine the need for public predominance in the tertiary sector of northern countries.
2. Determine socio-economic goals of investment policy in the circumpolar North.
3. Explore characteristics of capital, labour and natural resource flows in and out of the circumpolar region.
4. Explain the economic role of the transportation system in the circumpolar North.
5. Summarize how transportation systems are developed through private and state investments.

### Required Readings (including web sites)

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### Key Terms and Concepts

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- Aviation
- Circumpolar North
- Communication
- Delivery of Goods to the Russian Northern Territories (Seasonal Delivery)
- GDP (Gross Domestic Product)
- Investment Policy
- Investments
- Pipeline Transportation
- River Transportation
- Railway
- Sea Transportation
- Tertiary Sector

## Learning Material

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### Introduction

When studying investment policy, it is necessary to consider the role of government in circumpolar countries. Although state investment policy in circumpolar countries differs there are similarities concerning infrastructure development, attracting people to the North by adding the “Northern bonus” to salaries, transport fare subsidies, etc. Transportation infrastructure has similar features in all circumpolar countries, but the dominant method of transportation differs from country to country. Development of information infrastructure also plays an important role in the **circumpolar North**.

### 8.1 Investment Policy as a Development Factor of Northern Economies

**Investments** are expenditures allocated to the economy for obtaining profit. Investments funds are in the form of cash. Investments can be made in natural-material and mixed forms (e.g., machinery, equipment, technology, shares, licenses and other property and proprietary rights and intellectual values). Investments determine economic growth and increase production capacity.

At the macro level investments are the basis for the raw materials industry and the social sector and security of a country. They are also the basis for solutions for problems of unemployment and environmental protection.

In the circumpolar North **investment policy** plays an important role as people have been attracted to unpopulated northern areas because of mining. Activity depends on the standard of living, which includes comfortable housing, developed infrastructure and services.

Although investment policy differs from country to country, there are common features of investment policy in circumpolar countries:

1. Inaccessibility of the northern territories requires government financial support for transportation expenses.
2. Governments subsidize costs for utilities, clothing, etc. through the northern coefficient system to equalize northern residents' living standards and entice people to stay and work in the North. Governments of northern countries are also responsible for education costs.

3. Governments support scientific research exploring transportation for the North. Significant costs are required to develop infrastructure (e.g. roads, airports, sea and river ports, electricity and heat supply, water supply and sanitation). The main purpose of governments is to provide people with work and high quality services. All northern countries invest in development of cold-resistant equipment and materials (e.g. oils and antifreezes). Much attention is paid to development of transportation logistics. Shift work, natural resource development arrangements and equipment leases are extensively used to offset costs arising from long distances and extreme working conditions.
4. Governments sometimes finance geological surveys that map state natural resource reserves. In Russia geological surveys are not financed and surveys from the Soviet Union period are used. In Canada private companies and government finance geological surveys. Resource producers return part of their investments to the state if they find and develop natural resource deposits.

The above adds costs to investments that would be sufficient to undertake similar activities in southern regions thereby decreasing returns on investment. In order to encourage business activity in the North, governments develop measures that allow northern products to compete with similar products produced in southern areas. For example, on the North Slope in Alaska the cost of producing one barrel of oil is used to evaluate the competitiveness of the industry in the United States.

Northern investment policies can be divided into two parts: direct public investments and measures to reduce northern production costs for investors. Direct public investments in northern development play an important role in the circumpolar world as can be seen by the share of goods and services in the northern economy produced by the tertiary sector and from the share of people employed in the sector. States fund either fully or partially the construction of roads, houses for workers, schools and hospitals, reducing the cost of northern development to investors thereby encouraging private investment.

In order to attract private investment, States use preferential taxation, subsidies, non-repayable and partially repayable loans. For example, in northern territories there is often no property tax, which usually forms the basis of regional budgets. Reduced rates of excise taxes on fuel and a lower tax rate for small businesses are used in the North.

Investments in geological exploration are the riskiest because not all of them lead to mine development. In 1990, transition to a market economy in Russia practically destroyed the exploration industry so new fields have not been explored nor mineral stocks replenished. Companies such as Gazprom and Rosneft, ranked among the richest in the world, consider exploration expensive and risky as do medium and small companies. In the late 1960s, the Canadian government adopted policies that included public financing of geological exploration. Companies were obligated to repay loans in full or in part in cases of successful exploration. This policy made it possible for private companies of all sizes to explore for minerals.

To initiate commercial exploitation for new mines in the North roads, houses and utilities must be built. This stage of production also involves high costs. Mining profits are only realized in the long term; therefore, State subsidizes or finances these activities to reduce the loss of private investors.

In the Canadian North, housing development loans amounting from seventy-five to ninety-five percent of construction costs for up to twentyfive years at 7.5 to 7.7 percent per annum are provided. In 1965 a scheme was developed whereby the State financed 100 percent of paved roads, fifty percent of dirt and winter roads, and the construction of access roads to mines by sixty-six percent. To obtain credit on preferential terms private investors had to meet the condition that the cost of the transportation project could not be less than specified in the investment project. For example, for the development of lead-zinc deposits at Pine Point \$86 million was allocated for the construction of 700 km of railway. Private investors carrying out the construction for the project were required to carry a mandatory amount of goods not less than 150 tons of cargo a year and return twenty-five percent of funds within ten years. These conditions ensured the practicability of public expenditures on the project and a corresponding increase in GDP was guaranteed.

When roads exist investors continue to bear high costs of initial stages of development. Profitability rises gradually with production, but as the deposit is depleted profitability declines. In the Russian North reduced production profitability has become a serious problem. Companies abandon production and move to more profitable fields. This is profitable for private companies seeking to extract as much profit as possible in the short term, but causes the loss of national wealth for future generations. To encourage mining in northern regions, Canada established different rules for oil and gas land leases and minimum capital investment requirements per unit of area. For projects established at latitude sixty-five degrees north or further, lease terms increase from nine to twelve years and the rate of capital investment declines from \$7.5 to \$7.2 per hectare. For projects beyond latitude 70 degrees north, the lease term is not restricted and the rate of capital investment is reduced to \$6.7 per hectare.

Resource development production profitability is low at starting and finishing stages. At the large-scale production stage resource development profits can appear notably higher than other industries. States apply not only tax benefits but also high tax rates thereby maintaining competitiveness between industries. For example, in Norway the government controls private oil companies by imposing a tax rate of seventy-eight percent of income. This ensures the local population can participate in the distribution of national riches. In 1976, the Legislature of the State of Alaska (USA) approved the Alaska Permanent Fund creating the Alaska Permanent Fund Corporation - APFC that is owned by the State of Alaska. The Corporation is a management company and a unifying organization for the collection and distribution of investments and operates in accordance with the Constitution of the State. The main purpose of the fund is to obtain the highest rate of return from investments to support future generations. Mining investments are undertaken with consideration of future generations, nature conservation criteria and job creation for the Indigenous population. The Alaska Fund receives twenty-five percent of all payments for mineral resources, land, and shared income obtained from mineral resources and transfers. Significant portion of the gains from the oil industry is vested outside the State budget. It cannot be spent without an amendment to the State's constitution. Forty-two percent of this amount is paid to citizens of the State and the remainder is spent on social and economic development.

Extraction of northern natural resources tends to be carried out by large companies because of investments required for expensive equipment. Activities of large companies require special regulation because price lowering competitive market mechanisms, use of efficient production technologies and quality improvements have little effect on monopoly or oligopoly markets.

These problems can be solved by State investment policies. The Canadian government encourages activities of leasing companies that lease mining companies costly equipment for specified periods. For example, a leased drilling rig is returned to a leasing company at the end of the drilling stage thereby allowing the unit to be used by several companies. This allows mine development to occur with much less capital, making development of relatively small deposits efficient. Several important goals are achieved, (e.g. maintaining a competitive environment), efficient use of natural resources, growing entrepreneurial spirit and activity of the population.

Many northern States have policies to attract and keep populations in northern regions by issuing “Northern bonuses”. Northern bonuses are compensation for differences in prices of goods and services between northern and southern regions of a country. These differences are caused by high transportation costs. The compensation is paid by the State. These state investments make jobs in the North more competitive and help to develop business in the North.

Active regional policy involvement of the State in the Fenno-Scandinavian economic model does not single out northern territories.

In Finland independent regional councils represent local municipalities and are not controlled by the federal government, but the federal government provides grants to support northern regions.

Sweden has four types of regions and northern districts receive the most support. The government provides northern territories with subsidies from fifteen to fifty percent but never exceed seventy percent of planned investments. A practice of forgiveness of credit exists for education and scholarship of senior school children because they do not have high schools and must study outside their region.

The Swedish government provides transportation costs for residents of remote districts, contributing to increased travelling by northerners. Swedish northerners do not pay income tax or pay it at a low tax rate. Small-scale private companies are granted the right to use industrial zones endowed by government. The government also sets up investment venture enterprises that contribute to regional development.

In Canada, sixty to seventy percent of the budget of northern territories is subsidized by the federal government. Employers often pay “northern premiums” (salary bonuses) to northern workers. The premium varies from three dollars to six dollars per hour depending on the trade. Trade and territorial agreements exist between governments, companies, and Indigenous peoples. These are usually contained in impact benefit agreements negotiated between companies and communities. These agreements contain a number of outlined benefits that must flow to communities such as a certain amount of royalties and training and employment obligations.

Russia has had positive experiences developing northern regions. During the Soviet period investment policy was carried out with State funds. The government conducted a well-considered northern industrial development policy by regulating industrial and social infrastructure and attracting labor to the North to stay and work. The government also equalized the living standards of northerners with those living in other parts of Russia by adding a northern supplement to northerners’ incomes. The influence of the Russian government on northern investment policy became weak after the transition to new market relations. Increasing private capital, including foreign capital, was attracted to develop the resource extraction industry. In times of financial strain, investment partnerships with foreign private companies can be an acceptable method of developing the country. However, it can interfere with the legal system and

local self-government. For example, in the Republic of Sakha (Yakutia), a conflict occurred between the Gazprom Gas Company and the villages of Bele and Orto Nakhara where the natural gas field was located. The communities wished to collect the land tax and dispose of the rent independently.

## 8.2 Transportation and Communication

### 8.2.1 Transportation as a Factor for Increasing Quality of Life in the North

**Transportation** plays a key role in the development of northern regions. Northern regions that produce goods require foods and services to be delivered from southern regions. Transportation is a defining factor in the development of the North. Without transportation northern people cannot get fuel, clothes, food, engineering goods, etc.

The primary transportation objective is the export of raw materials. This role is a State function in almost all northern countries. For example, pipeline construction in Alaska and Russia has been government financed. The second transportation objective is delivery of goods, which is a State function in many northern countries, i.e., “Deliveries of Goods to the Northern Territories of Russia”.

Development of transportation networks is most urgent in the American and Russian North where enormous untouched territories exist. The European North is better developed and northern parts of Sweden, Norway, Finland and Iceland have transportation infrastructure as good as that found in southern regions. Well-developed air transportation, road and railway networks provide accessibility to towns, and where it is economically justified, sea and river transportation infrastructure exists. Low populations in northern territories make it impossible to save costs transporting consumer goods.

Transportation system development strategies in the American and Russian North have similarities and differences. In both regions development of a northern transportation system is a strategic goal of the national government and therefore financed by the State. Emphasis is often on building pipelines to deliver northern resources to consumers. In Russia the northern economy remains focused on the development of large-scale industries and centralization of the transportation system. Railway construction has higher priority than construction of motorways because transportation by railway is economically justified for large-scale production. Delivery of goods and products from railway stations to communities remains problematic complicating development of small and medium-sized businesses. Centralization of transportation routes was partly preserved from the Soviet era when all roads radiated from Moscow to the regions.

Resolution of this problem is extremely slow. For example, the construction of a railroad from Archangel to Perm began in 1996, but is not yet complete despite there being only about 100 km left to be built. However, the railway is already partially destroyed. Local populations have taken away unused and unprotected sections for domestic use. Projects developed during the Soviet era to connect Europe and North Asian Russia remain as projects.

There are few railways in the American North where emphasis is placed on the development of motorways. Construction costs constitute the largest portion of budgets of Canadian northern territories, which are subsidized by federal grants.

Transportation system development differences explain the various ways goods are delivered in the North. In Russia "Northern Delivery" is an article of the federal budget that regulates the amount of food, fuel and other essentials to be delivered while remote northern communities are accessible. At other times, mail and cargo can only be delivered by air. Therefore, the population has little consumer choice (e.g. most food comes in cans). Northern delivery is carried out by a small number of firms that form a monopoly in certain regions. Lack of competition and proper control of public funds leads to abuses such as overpricing and low quality of goods.

### Learning Highlight 2: Winter Roads

Winter roads are roads that function only in the winter season. They consist of existing motorways and river and lake ice passages. Ice passages are created by artificial thickening of ice cover in order to allow heavy transport trucks to use the road.

In Canada "northern delivery" is similarly important although companies engaged in resource exploitation also deliver products. Therefore, delivery costs to the North are reduced as competition between companies allows for control of food and fuel prices and quality control. In some regions this is possible due a well-developed road network to southern regions.

Iceland depends heavily on aviation domestically and internationally. The duration of internal flights around Iceland do not exceed one hour so **air transportation** has an advantage over land particularly with regard to winter road congestion problems.

The railroad system in Norway consists of several lines diverging from Oslo connecting to major cities, Bergen, Stavanger, Trondheim and Bodo, as well as Sweden. In 2005, the total length of railways in Norway was 4,087 km (2,528 km were electrified). In 2007, the total length of roads in Norway was 92,946 km, seventy-four percent of which were hard surface. There are 53 airports with scheduled flights in Norway, including eight international airports.

### Learning Highlight 1: Northern Sea Route (Northeast Passage)

Northern Sea Route is the shortest way from Europe to Japan and China. It is 2 times shorter and 1.6 times cheaper than travelling through Suez Channel. During the Soviet era, 17 transport line ice breakers, 8 of which were nuclear-powered, served the Northern Sea Route.

Transportation in Finland consists of highly developed road, rail, aviation and water networks. Roads in Finland are under control of the Office of Roads, a division of the Ministry of Transport and Communication. The railway network is controlled by the State-owned company Ratahallintokeskus. Finland is served by twenty foreign airlines and a local Finnish airline, "Finnair". The country has twenty-eight airports, the largest of which is Helsinki-Vantaa Airport located in Vantaa.

The State of Alaska (U.S.A.) also has a well-developed transportation network. There are five large airports (four of which are international): Juneau International Airport, International Airport Ted Stevens in Anchorage, Merrill Field Airport (1.6 km east from Anchorage), Fairbanks International Airport, Ketchikan International Airport. There are also 12 smaller

airports. Small-scale aviation is widely used in Alaska, which contributes to improved living standards.

Alaska has a highly developed road transportation system, much of which it shares with the Yukon. The main highways are the well-known Alaska Highway built during World War II (2,237 km from Delta Junction to Dawson Creek, British Columbia, Canada), the Richardson Highway (592 km from Valdez to Fairbanks), the Dalton Highway (667 km from Elliott Highway north from Fairbanks to Deadhorse, a few kilometers from Prudhoe Bay), the Klondike Highway (705 km from Skagway to Dawson in Yukon, Canada), and the Parks Highway (520 km from Anchorage to Fairbanks).

There are nine ports in Alaska: Anchorage, Valdez, Ketchikan, Juneau, Nikiski, Prudhoe Bay (the Beaufort Sea, Arctic Ocean), Barrow (the Chukchi Sea, Arctic Ocean), Kivalina (the Chukchi Sea, Arctic Ocean), and Nome (Bering Sea).

There is also a well-developed railroad system in Alaska (1,550 km from Seward to Fairbanks) and the Trans-Alaska oil pipeline (1,300 km from Prudhoe Bay Arctic Ocean to the Gulf of Alaska at Valdez).

Russia has a well-developed **transportation system** and more recently a pipeline system has been developed. During the Soviet era the government actively pursued a policy of development of northern regions and invested heavily in transportation systems. Western Russia is the most developed. For every square kilometre there are 7.5 kms of railways; 64.7 kms of roads and 8.7 kms of inland waterways.

Transportation infrastructure in the northwestern regions of Russia include **water, rail and air transportation systems**. The road system is well developed and the most important junctions are the cities of St. Petersburg and Vologda. International, federal and local highways connect St. Petersburg with provincial and district centers, the Baltic States and Scandinavia.

A North – South Greater European international water transportation corridor is being developed. Government priorities include upgrading and construction of new port facilities in the Baltic Sea, the White Sea and the Barents Sea and the development of rail, road and pipeline feeder systems.

Russia has developed a transportation strategy for the Russian Federation to 2030 to contribute to the development, construction and reconstruction of roads and highways. This strategy includes construction of new highways to link the following regions and cities<sup>1</sup> “North-West – Siberia”: St. Petersburg – Kotlas – Syktykvar – Perm – Khanty-Mansiysk – Tomsk; “North-East – Polar Ural”: Syktykvar – Vorkuta; Tyumen – Salekhard. These highways will connect Russian European northern regions and will help overcome excessive centralization of the transportation system in Russia.

The above mentioned strategy also addresses the aviation sector through the reconstruction of runways and airports. Amendments to the Federal Law "On the Specific Economic Zones" are to contribute to the creation of special port economic zones

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<sup>1</sup> The Transportation Strategy of the Russian Federation until 2030. Moscow, September 2008, Ministry of transportation of the Russian Federation, draft, p. 42.



### Case Study: The Murmansk Oblast

The Murmansk Oblast is a district of the Russian Federation situated in the northwest European part of the country. It covers the Kola Peninsula and adjacent mainland territory. Its area is 144.9 thousand square kilometers and there are 842 thousand people living in the region. The capital is Murmansk.

In the Soviet period a large industrial economic centre was created in Murmansk Oblast that provided Russia with phosphates, phlogopites, vermiculites, niobium, tantalum, rare-earth metals, brazilites, nickel, ceramic raw materials, iron ore and copper. One sixth of fishing industry production is produced in the Murmansk Oblast. All the produced crude ore, primary metals, and 80 percent of fish and seafood are exported.

The transport system of the Murmansk region is developing faster than other northern regions due to its border location. The transportation system includes sea, rail, air and motor transport. Transportation accounts for 11 percent of the region's GDP. There are 2,566 kms of roads (2,472 are hard surface), and 870 kms of railroads. There are two large airports: Murmansk and Kirovsk/Apatity ("Khibiny"). The Murmansk international airport has scheduled flights to Kirkenes (Norway), Tromso (Norway), Rovaniemi (Finland), and Lulea (Sweden).

The most important transportation link in the region is the Northern Sea Route. It is part of the integrated infrastructure system of the Russian Far North and has international significance as it connects European and Far Eastern parts of Russia, European countries and the northwestern coast of the United States and Canada.

Currently the potential of the Northern Sea Route is not realized due to lack of legal regulation about the passing of foreign ships through Russian internal waters. In addition, shipbuilding has not been financed for the last twenty years. Icebreakers are required to help ships pass through the Northern Sea Route, but none have been built recently. Icebreakers built during the Soviet era have been sold or have become outdated.

The Asian region of northern Russia has a less developed transportation network. Most of this area is situated in the permafrost zone; therefore, costs of road construction are increased. One of the measures to cut these costs is the attraction of private investment. Road construction projects must be carefully planned and should be profitable in order to attract private money. Currently transportation costs make up ninety percent of the cost of northern products, which is considered too high.

### Learning Highlight 3: Deliveries of Goods to the Northern Territories of Russia

Delivery of essential goods (food, fuel, construction materials etc) to remote northern regions is extremely important but expensive. In winter it is hard to reach these regions due to harsh weather conditions, lack of road networks, runways and high aviation costs.

The Northern Sea Route is the shortest transit corridor from Europe to Asia and supplies Russian Northern Territories with deliveries of goods. Almost no permanently operating roads exist in these regions. Service is carried out primarily through the use of winter roads. During summer the main connections are through aviation and vehicles where roads exist, but the roads are of poor quality.

In the Asian part of Russia there are several great rivers – the Ob, the Yenisei, the Lena – as well as branching streams. Hence river connections are very important to the Russian Northern Territories. For a large number of communities this is the only way to deliver goods. Summer navigation lasts for two or three months and during these time riverboats deliver goods to remote

districts. Deliveries of goods to the Russian Northern Territories of Russia are funded through the national budget.

#### **Learning Highlight 4: Sled Dogs**

Sled dog transportation is being revived in Yakutia. In the 1960s, sled dogs played an important role and in some places in the Russian North they were the only form of winter transportation. In the late 1950s, there were approximately 3,000 full sleds consisting of 33,000 dogs in Yakutia's North. Since 1998, the "Yakut laika" breed is being revived. Today sled dogs are also being used by tourists.

Aviation is an important form of transportation in the Asian area of northern Russia. Soviet era centralized government spread aviation services evenly among the regions of the country. At present, however, government influence on aviation is becoming weak and social contrasts among settlements are increasing. Citizens of remote northern villages do not get qualified medical aid, timely mail delivery and are not able to go on summer vacation. For example, for the last twenty-five years' people living in the village of Eyik in the Oleneksky region of the Sakha Republic cannot fly to Yakutsk, capital of the republic, or to other cities in Russia. The main reasons for this is the geographical isolation of the communities and low population density that increases costs of flying.

Much attention has been paid to the development of railway transportation in the Asian part of northern Russia. A railway to Yakutsk is expected to be complete by 2012. Plans are for this railway to extend to Magadan and Chukotka making it possible to deliver goods to the North year round. Railway construction is often accompanied by motorway construction. In northern Russia there are now several federal motorways and others are under construction. Development of this well-developed transportation infrastructure will make seasonal delivery of goods a thing of the past.

Mineral resource development in the Russian North has led to the development of pipelines. The "Eastern Siberia – Pacific Ocean" oil pipeline is being built in the Republic of Sakha (Yakutia). It will be used for the transportation of oil from Krasnoyarsky Krai and Yakutia to the countries of Asian Pacific region, specifically China and South Korea.

#### **Case Study: Aviation Transport Availability in Northern Russia**

Administration of the municipality in Shologonsky National Village of Olenek, Evenky National Region of the Republic of Sakha (Yakutia) provided information about people needing socially important flights. There are 342 people in the village, 46 of whom cannot go to the regional centre or Yakutsk for medical treatment because of low wages and expensive flight tickets. There are 702 people living in Jilindinsky National village of Olenek, Evenky National Region, 150 of whom cannot go for medical treatment for the same reasons.

In addition to the development of transportation infrastructure, nature conservation measures must be taken into account. River transportation pollutes the water, oil pipelines cross reindeer migration paths, road construction ruins large territories of taiga, tundra and forest-tundra. Northern Indigenous peoples' traditional ways of living may be destroyed. For example, reindeer are traditionally used for transportation by Indigenous peoples because they are convenient in arid

to access regions. Geologists and others also use reindeer. This form of transportation does not pollute and must be preserved and developed.

### 8.3. Good Communications Increase Northerners' Quality of Life

**Communication** plays an important role in the circumpolar World. Russian residents of the Arctic zone call the rest of the country the "Big Land". Until recently, the Arctic and the "Big Land" have been like different continents, unconnected by information channels. Development of the Internet, along with video and voice communications has allowed for business and production in remote areas to be managed from more comfortable regions. Remote control monitoring systems help reduce the maintenance costs of main transportation lines. Monitoring transportation systems in the North must be continuous as pipelines and railways are built on permafrost, which is constantly melting and shifting and can cause oil leakage or transportation crashes. Distance learning is another way that new communications technologies can be used to reduce production costs.

Communication networks are well developed in northern regions, particularly northern European countries and Alaska. A good communications network helps provide qualified medical care and distance learning in remote areas. Reindeer breeding brigades (brigadas) can now communicate via satellite phones and radiosets.

The North plays an important role in the Worlds' satellite communication infrastructure because many landline devices providing satellite communications are located in high latitudes.

#### Learning Highlight 5: Reindeer Transportation in Russia

Traditional reindeer transportation is still widely used in northern Russia because of the reindeers' adaptation to the extreme northern climate. Reindeer are usually used in areas where it is impossible to breed cattle.

#### Case Study: Chukotnet

The Chukotka Autonomous Okrug region of Russia is a significant model of communications development in the north. In 2001, the Governor of the Chukotka Autonomous Okrug decided to establish a telecommunication system, "Chukotnet". In 2004, Chukotka held the 3<sup>rd</sup> position in Russia after Moscow and St. Petersburg for per capita use of the Internet. There are 6,800 Internet users in Chukotka. This is much higher percentage of the total population than in other parts of Russia.

### Conclusion

Northern economic development depends on State investment policies. These policies allow for decreased production costs arising from expensive transportation of materials and goods over long distances, the necessity to bring manpower from outside northern regions, and use of cold-

resistant technologies. Direct State support in combination with tax regulations provide economic growth for northern territories.

The most important element of national policy in the North is development of transportation systems. There are different transportation development strategies in northern countries. Another important factor in the development of the North is the communications infrastructure, which allows northern residents to be closer to relatives in southern regions thereby allowing them to overcome the isolation of the North.

### Discussion Questions

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1. Examine the need for public predominance in the tertiary sector of northern countries.
2. Determine socio-economic goals of investment policy in the circumpolar North.
3. Explore the characteristics of capital, labor and natural resource flows in and out of the circumpolar region.
4. Explain the economic role of the transportation system in the circumpolar North.
5. Summarize how transportation systems are developed through private and State investment.
6. How can improvements in communications infrastructure improve life in northern communities?

### Study Questions

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1. Explain the difference between the tertiary sector in the circumpolar North and cities in other parts of the World.
2. Illustrate the current problems facing governments of circumpolar countries.
3. What kinds of transportation are predominant where you live?
4. Examine the importance of transportation development to supply Arctic regions with higher standards of living.

### Glossary of Terms

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**Tertiary Sector (or the Services Sector):** One of the three main sectors of the economy. Services can be divided into two subsectors:

- production of material services (e.g. transportation, trade, living conditions service, etc.)
- production of nonmaterial service (e.g. administration, army and security services, education, health services, science, art, show business, social services, marketing, audit, crediting, insurance, etc.)

**Gross Domestic Product (GDP):** Cost of goods and services, produced in a country per a year by all the enterprises including the foreign ones.

**World Economy:** Whole range of national economies interacted in different forms and on macro- and micro levels.

**Investments:** Expenditures invested in economies to realize a profit.

**Globalization of the World Economy:** Internationalization and integration in the world economy under influence of the modern information technologies.

**Investor:** Juridical or physical person making capital investments.

**Direct Investment:** Participation of investors in creating enterprise and its collective investment fund.

**Profitability:** Ratio between revenue and expenses or gains and costs. It is a relative measure and allows comparing the economic benefits of carrying out different economic activities

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