A survey of natural resources in Greenland

As well-known Greenland covers an enormous area when the total Greenland territory including sea, land, and icecap is added up. Due to this fact and to the very limited economic resources available for exploring the territory, relatively little is known about natural resources. Different strategies for exploring territories can be followed. Through GGU (Greenland Geological Investigations) the Danish State has mainly followed a strategy of exploring area by area, and a relatively small part of the Greenland territory has been explored. Another more economic strategy is to try to find specific valuable resources and then concentrate the investigations where there is a certain probability of finding these resources. This strategy has been used by private corporations for finding oil, zinc and lead at Marmorilik. Also Nanortalik (a municipality in South Greenland) has followed this strategy in the search for gold.

Natural resources in Greenland include mineral deposits, energy resources, and living sea resources.

Mineral deposits include: Cryolite. The richest deposits ever known in the world have been found at Ivigtut and have been exploited from 1860 to the beginning of the 1980s. Deposits of cryolite are now almost depleted after having yielded some 35 million tons pure cryolite. Lead and zinc. About 130,000 tons of concentrated ore were shipped from the lead mine at Mestersvig in East Greenland between 1956 and 1962. From 1971 up till now the lead and zinc mine at Marmorilik in the district of Uummannaq has been in production with a large surplus. Unfortunately for the Greenland economy the deposits now seem to be depleted. Iron is found at the head of the fjord complex Ikusia at the edge of the icecap 150 km northeast of Nuuk (Godthåb). The content of the ore is very low so even though the deposits are very large, they have no commercial value. Chromium has been found at Fiskenesset in the southwest of Greenland. The deposits are scarce and the chemical composition is poor, but it is the largest deposit in any NATO member state. Molybdenum with a low metal content is found south of Mestersvig. The deposits are very large but situated between two glaciers. Tungsten is found in East Greenland, but still not exploited. Anorthosite is found near Qaqortorssuaq at Sondre Strømfjord and could be the foundation of a Greenlandic aluminium industry.

In recent years the municipalities have shown great interest in exploring their territory to find mineral resources. New deposits have been discovered, e.g. gold is found in Nanortalik as mentioned above.

* Associate Professor, Institute of Economics, Copenhagen School of Economics and Business Administration.
Energy resources include coal, uranium, oil and natural gas, and hydroelectric power.

*Coal* was mined at Qutligssat on the island of Disko from 1924 to 1972. There are still large deposits in the area. *Uranium* is found near Narssaq but not exploited due partly to economic, partly to political decisions. *Oil and natural gas* are being investigated in Jameson Land, and present the most interesting oil and gas potential in Greenland. *Hydroelectric power* has been exploited in recent years by setting up small scale hydroelectric plants as in Narssaq.

Living sea resources include fish and marine animals.

*Fish.* Commercial fishing began after World War I. It is very dependent on climate and changes in climate. The 200-mile zone was introduced in 1977 and fishing has since then developed and increased. Today it is the basic condition for the economy as in other small nations of the North. *Marine animals* include seals, walruses and whales. Catching seals was previously main livelihood in Greenland, but is less important today - due to development and sale.

### Exploitation of mineral resources

Since 1860 private mining corporations have been in production in Greenland. From the start it was the Danish corporation “Kryolitselskabet Øresund A/S”, which produced cryolite in Ivigtut. From 1973 the Canadian corporation “Greenex” has produced zinc and lead in the “Black Angel” at Marmorilik. In the mid-eighties when the US$ exchange rate sank and zinc prices went down, the Canadian corporation nearly stopped investment and in 1986 the mine was sold to the Swedish corporation “Boliden AB”. The take-over was based on a belief in large deposits in the “Deep ice zone”, but investigations have shown no deposits under the icecap. The cost of production has been 2-3 times bigger than in Europe in general, but in spite of this the mine has given a big surplus each year except 1985. Mining will stop in 1989 and very comprehensive resources will be needed for cleaning up and reestablishing the environment. Greenex caused an increase in taxable incomes, which in these years made Uummannaq the municipality in Greenland with the third highest income level. At the moment there is no sign of mining activities of an extent which can be compared with earlier mining activities.

### Prevailing rules of law concerning economic exploitation

Greenland got Home Rule in 1979. One of the most debated subjects was the right to the underground. In the Home Rule Act it is stated that Greenland has the fundamental right to the underground. This “sentence” was the only basis for agreement. It was stated that receipts from exploitation should reduce the State grant to Greenland. If the receipts should exceed the State grant, negotiations should take place to find a formula for sharing the receipts. This law gave no motive for Greenland to exploit minerals and energy resources. In the book “Grønlands økonomi – og relationerne til Danmark” (Greenland Economy – and the Relations to Denmark) it was further pointed out that Danish State grants to Greenland were not an unambiguous amount, but accounted differently in the Ministry of Greenland and in the Danish national account. Last