

Wageningen University and Research centre

Your partner for sustainable development in the Arctic

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Wageningen UR

Management summary

Reduction of sea ice coverage

Most discussions on climate change focus on the consequences of global warming: global sea level rise. A major issue however, has long been disregarded: the reduction of sea ice coverage of the Arctic seas. This is an issue with two sides: on one hand a unique and sensitive ecosystem is reduced in size drastically, while on the other hand an enormous economic potential has become available.

The two most recognised economic challenges are the development of the large potential of oil and gas reservoirs in the extended continental shelf in the Arctic and the availability of the Northern Sea Route (as trailed many years ago by the Dutch explorer Willem Barentsz). A huge area will become available for extension of the current pelagic fisheries and the northern coast of the continents will become available as export routes for goods from the Arctic region. Such export routes will increasingly grow in importance once existing transport routes such as roads, railways and pipelines are damaged due to the disappearance of permafrost.

The Arctic challenge: economy vs. ecology

It is obvious that with changing environmental conditions, local communities will need to change their accustomed way of living in order to survive. It is to be expected that these communities will attempt to benefit from the economic potential that is now to become unlocked. Without significant regional development there is great chance of failure, with possibly important social and ecological consequences as history has shown (Denmark's concentration of people along the Greenland coast).

The Arctic ecosystem is very sensitive in nature, due to the high seasonal differences in light and temperature. The effective biologically productive season is short and therefore natural systems are easily disturbed and require long periods for recovery. The Arctic seas are a refuge for many fish and whale species, while in the meantime serving as an important feeding and nursery area. The Arctic tundra is essential in the life cycle of many migratory bird species, which may be disrupted by only small changes. Additionally the contribution of greenhouse gases from the disappearing permafrost can be substantial.

The activities that form the economic potential of the arctic region imply a strong interaction with this sensitive ecosystem. Delicate development of this potential is therefore essential and the local communities may play an important role in this development.

Arctic opportunities

The Arctic challenge was described above as the regional development of rapidly changing environmental conditions in local communities. There are, however, also obvious opportunities for the Dutch economic sector. The most important of these are:

Offshore and maritime sector

Development of the Arctic region for oil and gas production, as well as possible other resource extractions will require a fast amount of goods and services that are adapted to the extreme Arctic conditions. This is a direct opportunity for the Dutch offshore and maritime sector, as fossil fuel extraction in the shallow North Sea has almost come to an end. Shipbuilding as well as dredging and offshore services may profit significantly from these new developments.

Rotterdam harbour

As soon as the Northern Sea Route (a 7000 km shortcut between East-Asia and the Atlantic seaboard) becomes widely available, the role of Rotterdam Harbour may change dramatically as Rotterdam will become the most important hub towards the new passage.

Export of agricultural goods and services

Sustainable regional and spatial development of the Arctic regions mentioned earlier will require innovative ideas and needs to be supported by outstanding knowledge and front-end equipment. The Dutch agricultural sector should be capable of supporting this need for local food supply chains, better than any other European country. Additionally the concept of (metropolitan) food clusters may provide an integral approach for production, logistics and social aspects.

New fishing grounds

Due to the decrease of the ice coverage in the Arctic region, a significant area of fishing grounds will become available. In these deep waters pelagic fisheries may find an important economic potential of new fish stock. It is obvious that new commercial fish stocks should be exploited sustainably and it should therefore be considered a direct opportunity for the Dutch pelagic fisheries, since the Netherlands is frontrunner in the field of sustainable fisheries.

Spatial planning and design

Wageningen UR has a long tradition in spatial planning and all elements that are required to do this in an integral and sustainable way. GIS data analysis, landscape design, planning, the juridical framework and governance are all vital parts in sustainable planning.

The Wageningen Approach

The Arctic Challenge requires a multitude of expertise, from innovative technology to social and economic excellence. Wageningen University and Research centre comprises many of the required expertise in research and education and is a key player in the national and international networks that are needed to acquire complementary expertise. Wageningen UR has expressed its ambition to become an active player in the Arctic regional and spatial development and is prepared and equipped to take the lead if necessary.

Next steps

The primary focus in this Arctic proposition is on Norway and Russia, mainly because of the excellent relation with institutes and authorities in the Arctic regions of these countries. However, where opportunities exist, Greenland, US and Canada will be included.

In order to further describe the opportunities in the Arctic a 'position paper' was written. This paper is the basis for contacting the national and international network. This round of consultations is scheduled to be finished in 2011, leading to a list of concrete actions.

Autumn 2011 is reserved to carry out the actions as formulated. First results will be presented at Arctic Frontiers, a leading conference in Tromsø, January 2012, and at Arctic Murmansk International Forum, an annual Arctic conference in Murmansk, October 2011. It is the intention to prepare for a Dutch delegation consisting of interested public and private partners as a first milestone towards a shared Arctic Challenge.