

# The impact of climate change on Arctic tourism in Svalbard, implications for innovation

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## *Summary statement:*

*We present research on the impact of climate change on tourism actors in the Arctic archipelago of Svalbard and how the industry is innovating.*

## **Abstract**

This paper presents the results of research into the impact of climate change on the tourism actors in the Arctic archipelago of Svalbard. Tourism in Svalbard is heavily reliant on the seasonal weather patterns. From February to May, tourists enjoy the winter season's activities on the ice and snow. From June to October, tourists come by sea. Climate change means the levels of ice and snow are changing from the previous long-term averages and the snowmobiling season is shortened, this also means the cruise ship industry's season is lengthened as the sea ice is retreating. In addition to such external changes, internal environmental regulations have also tightened, creating an additional challenge to the sector.

Actors in the tourism sector in Svalbard were interviewed on the impact of climate change on Svalbard over the last 20 years; they particularly recalled changes over the last five years. They provided practical examples of how these changes affect their businesses and how they are adapting to change with sustainable business practices while dealing with increasingly stringent environmental regulations. The tourism sector of Svalbard has to innovate its products and services in the face of climate change and the associated regulatory framework.

The impact of climate change on tourism in Svalbard threatens the industry by changing the weather and seasons. It also brings opportunities by lengthening the cruise ship tourism season, though the regulatory framework surrounding shipping is becoming increasingly restrictive—which could provide opportunities for operators conforming to the regulations.

## **Introduction**

Svalbard is a geographically isolated archipelago in the Arctic. It lies 643 km north of mainland Norway, the country that has sovereignty over the islands under the 1920 Svalbard Treaty. The main island of Svalbard is Spitsbergen and its main settlement is Longyearbyen. The main industries are mining, tourism and higher education and research (p. 12 Statistics Norway, 2012). The population is approximately 2,500, with more people resident in the summer months than the winter ones. There is no indigenous community and the residents (defined as those staying more than 6 months) are considered temporary as they must keep a fixed address outside of Svalbard by law.

There have been considerable social and economic changes in the settlement over the last 100 years and particularly rapid growth in the last 20 years. The environmental changes that are of interest here are the depletion of sea ice and the melting of the glaciers. There is less sea ice forming around the archipelago each winter and each summer the glaciers melt at greater rates. Studies have shown that Svalbard is experiencing climate change at approximately twice the world average (IPCC 2007). The effects of climate change mean that the weather and seasons are changing substantially from the long-term averages and this consequently affects how companies in the tourism sector operate.

This paper presents the results of research into the impact of climate change on the tourism actors in the Arctic archipelago of Svalbard. Tourism in Svalbard is heavily reliant on the seasons being predictable. From February to May, tourists enjoy the winter season's activities on the ice and snow: dog sledding, snowmobiling, and cross country or back country skiing. From June to October, tourists come by cruise ship to tour the archipelago, hike, birdwatch and study the plant life. From October to February, the dark season, is a low tourist season with only some visitation for the Northern Lights, although attempts are being made to increase winter tourism through conferences and a jazz festival in February.

Climate change means the levels of ice and snow are changing from the previous long-term averages, the snowmobiling season is shortened (this is the most lucrative part of the winter market) by sea and river ice cracking early. Theoretically the cruise ship industry's season is lengthened as the sea ice is retreating, ships can arrive in May rather than June and the season can continue into October. Practically, it is difficult to predict and therefore to fill ships with passengers ahead of time at either end of the season. In addition to such external changes, internal environmental regulations linked to the impact of climate change have also tightened, creating an additional challenge to the sector.

In addition to identifying the challenges to the tourism industry in terms of the impact of climate change on their businesses, this research asked questions relating to how businesses were going to innovate in the face of climate change. Innovation of products and services is essential to continued business growth and development. In a context such as tourism, tour operators must continuously update their portfolio of offerings, hotels, activities and recommendations for destinations and eating out.

## **Methods**

The fieldwork started with the design and delivery of a Social Network Analysis (SNA) standardised survey sent by regular mail to all 92 tourism businesses identified through the public business registry as the total potential sample size. Of these, 83 were found to be still active, and 22

questionnaires were returned. After regrouping based on recent ownership changes and buyouts, a list of 61 businesses were identified as tourism-related actors. This research focused only on local tourism actors based in Longyearbyen, therefore cruise companies based on the mainland of Norway and further afield were excluded.

Twenty qualitative interviews were carried out using a semi-structured survey questionnaire. Some of these interviews were conducted as a follow-up to the SNA questionnaire and some of the interviews were conducted with people who had not filled in the SNA questionnaire. Most respondents were the owners or senior managers of tourism SMEs, reflecting the fact that most businesses are small, employing one to nine person-years per annum (LongyearbyenLokalstyre 2004, Kelman et al 2012). Interviews were conducted in English (18) and Norwegian (2).

## Results and Discussion

The 20 respondents were asked “what were the major changes affecting their businesses in the last five years?” Respondents were able to give several answers. The majority (30%, where there were 13 answers) cited external issues as major factors of change over the last 5 years e.g. the global financial crisis, the ash cloud of 2010, the cost of flights (which includes increase in oil prices) and the lack of growth of visitors (due to limited number of flights). Twelve per cent (n=5) cited “creeping” environmental issues such as changes in seasonality, climate and weather. Seventeen per cent (n=7) cited the increase in environmental regulations affecting the tourism sector. However, the same number of respondents said there were no major changes. This perception may be due to the fact that these people have not been on Svalbard for long.

Respondents (n=17) were asked how they were adjusting their businesses to change. Seventeen per cent cited limitations on business innovation due to the growing number of environmental regulations imposed by the Governor of Svalbard (the Sysselmannen). Eighteen per cent responded that they expect a decrease in the number of cruises in the near future due to the more stringent regulations that will come into effect from 2015 on heavy oil, requirements for trained navigation pilots, and restrictions on the number of passengers landing ashore. Given this decline, investment related to activities and services for the cruise industry has also slowed. The return on investment for ATV (All Terrain Vehicles), introduced in the summer months as an alternative off-road activity for tourists and local recreation, has dropped sharply after it was prohibited due to potential damage to the fragile ecosystems.

*“the irony is the only coal-driven power station in Norway is based here. [Svalbard is the] Best-administrated wildlife area – not necessarily most administered. Well meaning regulations are being imposed.”*(anon 2012) This comment came in relation to perceptions of more stringent regulations on the tourism industry than on the other (larger) industries on the archipelago.

Respondents (n=26) were asked to discuss what innovations they were working on in relation to their businesses and in the face of economic and environmental changes. Fifty per cent did say that they were working on product diversification. Cultural heritage regulations around the use of cabins in wilderness areas was perceived as stifling growth in development of tourism products, so respondents were looking for a relaxation in such regulations. Respondents (11%) recognised the importance of improving marketing, being more proactive and using more innovative methods.

*“it is not the right time to invest”* – This comment was given in relation to the decline in the global economy and the increase in environmental regulations in Svalbard.

*“I have so many ideas and fantasies about what you can do, but the Sysselmannen (the Governor) says no because of the environment [regulations]”*

Recent studies on innovation in tourism highlight that shifts in tourism practices can produce major benefits, stimulating change towards greater sustainability within the tourism supply chain and other sectors. An increased focus on sustainability - in particular, ‘green innovation’, can lead to more jobs and reduce environmental impacts, cutting costs and increasing competitive advantages for companies and destinations while enhancing the visitor experience (OECD, 2013). Regulations do not always have to be detrimental to business. Research on auto emissions policies in the USA from the 1970s to the late 1990s, for example, supports the ‘Porter Hypothesis’, that environmental regulations can also foster innovation and commercial competitiveness, rather than hamper it (Lee, Veloso and Hounshell, 2011).

Businesses that already function in a more heavily regulated environment are more likely to take that fact into account in the very design of their products and services. Applied to the specific case of Svalbard, for example, tightening of regulations may eventually create demand for less-polluting snowmobiles, providing incentives to manufacturing companies to invest in innovations to lower fuel consumption and emissions. Similarly, shipping and cruise companies will do a cost-benefit analysis of heavy oil restrictions in the Arctic and may determine that it is still financially viable to invest in refitting engines.

Obstacles to such innovations in tourism remain, including lack of awareness among tourists - many remain unwilling to pay a premium price for a more sustainable holiday experience; there are information gaps on the perceived investment costs; limited access to finance by SMEs; or lack of policy integration across key sectors, such as tourism, transport, energy and environment.

*“Environmental changes – I have witnessed dramatic increase in snowmobile traffic to East Coast... There is a continuing expansion of each season into other seasons. I advocate regulations that put responsibility on tour operators: For example if we find there are tracks / damage left then you will be stopped from coming again.”* This comment shows that there is a willingness within the tourism sector to take responsibility for environmental impacts and an acknowledgement that the increase in snowmobile traffic has deleterious effects.

Respondents were more vocal on how they would have to adapt to climate change rather than mitigate. They perceived carbon usage as coming from beyond the borders of Svalbard and therefore did not see that mitigation was how they would deal with climate change.

## **Conclusions**

Actors in the tourism sector in Svalbard were interviewed on the impact of climate change on Svalbard over the last 20 years; they particularly recalled changes over the last five years. They provided practical examples of how these changes affect their businesses and how they are adapting to change with sustainable business practices while dealing with increasingly stringent environmental regulations. The tourism actors of Svalbard have to find innovative and environmentally responsible

products and services in the face of climate change and the associated regulatory framework in order to remain in business and to not damage the natural environment that tourists come to visit.

The impact of climate change on tourism in Svalbard potentially threatens the industry by changing the weather and seasons. It also brings opportunities by putting businesses in a position where they must innovate in order to survive economically. Time will tell whether the tourism sector in Svalbard can cope with the financial burden of meeting new environmental regulations and whether it provides new opportunities that the businesses need to develop.

## References

Intergovernmental Panel on Climate Change (IPCC) (2007): Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland.

Kelman, Ilan, Trude Rauken, and Grete Hovelsrud. 2012. Local business perceptions of weather impacts on tourism in Svalbard, Norway. *The Northern Review* (Spring 2012: 96-124)

Lee, Jaegul, Francisco M. Veloso and David A. Hounshell. 2011. Linking induced technological change, and environmental regulation: evidence from patenting in the US auto industry. *Research Policy* 40(9):1240-52

Longyearbyenlokalstyre. 2004. *Retningslinjer for Brukav Longyearbyen Lokalstyres Disposisjonsfond Merket Næringsfond. Longyearbyen Lokalstyres*. Longyearbyen, Svalbard, Norway.

OECD.

<http://www.oecd.org/cfe/greeninnovationintourismcantriggermajoreconomicandsocialandenvironmentalbenefits.htm> accessed 12/3/2013

Statistics Norway. 2012. This is Svalbard: What the Figures Say. [www.ssb.no](http://www.ssb.no)