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Väitöksiä - Dissertations

Community Perceptions to Climate Change in Finnish Lapland: Examining Vulnerabilities and Adaptive Responses to the Changing Characteristics of Arctic Tourism

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Climate change is increasingly affecting small communities in the Arctic, which are typically resource-dependent. Local communities are progressively relying on more modern livelihoods such as tourism, which has an increasing role in local development in the region. This thesis focuses on the interplay between tourism development and community-based adaptation. It assesses the current and future vulnerabilities of two communities in Northern Finland. The empirical vulnerability assessment was conducted through 47 semi-structured interviews in two case study communities in Finnish Lapland: Kilpisjärvi and Saariselkä. Disaster risk reduction acted as a foundation for developing a selection of participatory tools to visualise vulnerability in space and time. The results indicate that the current vulnerability related to tourism development arises from a limited coping range and strong seasonality. Additional vulnerability is generated through relatively intangible factors related to social vulnerability. The positive impacts of climate change included having relative snow security compared with other regions and warming summers. The perceived negative impacts comprised of shortening winters and impacts on flora and fauna. The differences in vulnerabilities were linked with infrastructure and seasonality. Both livelihood and intangible vulnerabilities are affected by a variety of external and internal stresses. Future vulnerability may increase as communities are keen on increasing nature-based tourism. Several adaptation mechanisms are being deployed to reduce vulnerabilities but more consideration should be placed on sustainability of adaptation responses.

Keywords: Arctic, tourism, climate change, vulnerability, community-based, place attachment, Finland

Introduction

The Arctic regions are expected to experience an increase in temperatures more rapidly than the global mean and the land areas will be particularly affected by the warming (Intergovernmental Panel on Climate Change [IPCC, 2013]). The Arctic Climate Impact Assessment (ACIA, 2004) states that winters will be especially vulnerable to change as the temperatures are expected to rise 4–7°C above current levels in land areas during winters. These factors combined with the expected increase in weather extremes (IPCC, 2012) will generate vulnerabilities among local populations.

The changing climate has resulted in decreasing the role of traditional livelihood, which again has forced local communities and regional developers to search for alternative economic options. Tourism has become increasingly attractive options as a new livelihood opportunity and the role of tourism in the Arctic is currently growing rapidly (see Hall & Johnston, 1995; Hall & Saarinen, 2010; Stonehouse & Snyder, 2010; Grenier & Müller, 2011; Maher, Stewart & Lück, 2011) making it an important essential topic for Arctic research.

Local communities are therefore experiencing several stressors, which are gradually increasingly interrelated: the growing impacts of climate change are affecting the environment and the increasing tourism is generating development pressures. These two factors and the relationship that exists between them strengthens the need to understand community perceptions better in terms of changing conditions, which are also dependent on external factors such as policy-making and global economics.

The research focuses on the interaction between Arctic communities, tourism and climate change. The thesis aimed to examine the *current* and *future* vulnerabilities of Arctic communities in connection to tourism development and climate change. This is done in order to understand better the effects of climate change at the local level and increase our knowledge on adaptive capacity and vulnerability in the tourism sector and among Arctic communities. By recognizing the perceived benefits and threats generated by climate change on local livelihoods, we may be able to create more sustainable futures.

The research questions were the following:

1. What is the role of community perceptions in Arctic tourism development and climate change adaptation?
2. How does the dependency between the components of climate change, community and Arctic tourism manifest itself and what are the implications for vulnerability?
3. In what way are the case study communities vulnerable to climate change in terms of tourism development?
4. What and how effective are the local adaptation mechanisms and strategies?

Results

The results indicate that the importance of community perceptions in climate change adaptation lies in the local knowledge of how climate change is experienced, observed and locally constructed. Socially constructed reality thrives on plurality and complexity while traditional science aims to clarify, objectify and perhaps simplify things. Appropriate and site-specific adaptation mechanisms can be generated and applied more effectively by understanding how the local attributes of concern are affected by climate change. If community views are introduced to adaptation processes, some of the adaptation challenges can be better addressed (Kaján &Saarinen, 2013; see also Dolan & Walker, 2004; Ford & Pearce, 2012). Finding synergies between disaster risk reduction and community-based adaptation, has risen to be a topical approach to community-based vulnerability assessments both in policy level (see IPCC, 2012) and at grass-root level (see IFRC, 2006). In this thesis this is done through developing a selection of participatory tools to understand vulnerability in space (maps) and in time (calendar, historical outline of communities; household-based livelihood portfolio).

Expanding tourism development combined with the effects of climate change are both causing changes in Arctic communities, which are typically dependent on natural resources. Further community-by-community analysis of current conditions is needed due to the highly contextual nature of climate change impacts, vulnerabilities and coping ranges that are location-, time- and group-specific (Smit & Pilifosova, 2003; Duerden, 2004). However, most of the climate change and tourism research has so far largely focused on the effects of climate change from the industry perspective or focusing on tourist flows, and to a lesser extent on community perceptions (Kaján & Saarinen, 2013).

The level of dependency on natural resources may influence the magnitude of climate change impacts. This connection is to a great extent present and displayed in the case study communities through the increasing role of nature-based tourism. Furthermore, other factors, such as locals' regular interaction with the natural surroundings and their attachment to place, strengthen the dependency and the role of the natural environment.

Vulnerability is a combination of many issues, such as social, historical, economic and cultural factors, of which only some have to do with climate. For example, shifts in economic growth, development pressures from the outside or resource depletion can reduce the coping range and increase vulnerability (Smit & Pilifosova, 2003). In the case study communities, vulnerability is present through nature-based livelihoods, which are shaped by a variety of exogenous and internal factors. External factors included global economics and price of petrol, for example. Also features of the communities affect vulnerability: strong entrepreneurship in both communities creates flexibility. In addition, seasonality emerges as source of vulnerability and demonstrates differences in weaknesses. In Saariselkä the season start (October-November) is vulnerable to weather fluctuations whereas in Kilpisjärvi, the main season (spring) is less affected by weather.

The effects of extreme weather events and bad weather in general were perceived differently in communities where one community (Saariselkä) is better at absorbing the effects than the other (Kilpisjärvi). The differences in coping range are created by a range of activities and infrastructure. Vulnerability is thus caused by both climate-induced changes and tourism-related development pressures.

The physical landscape may change due to local development or climate change to such a degree that the meanings of places weaken or are conserved only through an active effort (see Stedman 2003). The results indicate that development pressures initiated from the outside (top-down) have the potential to affect place attachment negatively. Some of these actions can be considered adaptive actions against climate variability (e.g. more infrastructure). Therefore, vulnerability is also shaped by threats to locally valued places, which promote place attachment. When place attachment is disturbed, it may endanger community resilience (Hess, Malilay & Parkinson, 2008) and in some occasions generate or deepen conflicts. This indicates that the dependency on natural surroundings is two-fold and these non-monetary impacts of climate change suggest wider social implications of climate change. Other stakeholder studies in the tourism sector similarly imply that climate change will have both economic and non-economic outcomes (see Turton et al., 2010) which might have substantial impacts on host communities.

In order to accomplish also socio-cultural sustainability in adaptation and development, we should additionally examine how climate change impacts, directly or indirectly, other more intangible areas of life. Direct climate change impacts and development plans may modify place meanings to locals. Globalisation through tourism development and climate change may change and threaten local meanings attached to places by altering or decreasing values attached to them. Concerning future vulnerability, climate change was perceived to affect Arctic communities negatively by the shortening winter season but simultaneously, it generated relative assurance, as there will always be snow contrasted with other regions. The further positive impacts were considered to be connected to warming summers whereas the negative effects included changes in vegetation and animals, increasing winds and changes in seasons. Locals perceived some of these changes to have already occurred, which creates a base-line for future vulnerability. The only weather element, which was perceived not to generate any benefits, were the rapid temperature variations in winter.

Sustainability and effectiveness of adaptation mechanisms is central in determining future vulnerability. Several types of short-term adaptation mechanisms and long-term strategies exist to diminish the negative impacts of the changing conditions, although these are mostly done for other reasons than climate change. Skiing track with man-made snow is created to have an early season start; indoor activities and events are generated to reduce seasonality and weather-dependency; diversification of products (e.g. northern lights viewing) and international marketing are aimed at attracting a wider customer base; and the summer season is emphasised in order to have less seasonality.

While there is a growing interest to develop nature-based tourism further and therefore be more exposed to climate change, some of these adaptive actions have the potential to reduce vulnerability. Yet, all the adaptation measures are not sustainable,

which may in return weaken their effectiveness. Moreover, development pressures from the municipalities affect local development decisions and may increase unsustainable development.

Conclusion

The purpose of this thesis was to assess climate-related current and future vulnerabilities in Arctic communities, which are tourism-dependent. This was done in order to increase our understanding of the effects of climate change at a local level and widen our knowledge on the adaptive capacity and vulnerability in the tourism sector and in Arctic communities. This has been achieved by examining the role of community perceptions in tourism development and adaptation by determining how the dependency between the components of climate change, community and Arctic tourism are exhibited; by examining in what way the communities are vulnerable to climate change; and by evaluating the effectiveness of adaptation mechanisms and strategies.

The main results of the thesis are thus related to the different features of vulnerability and the perceptions of sustainability and changing climate. The results suggest that in terms of vulnerability research, the only determining factor for vulnerability is not economic prosperity, but other more unquantifiable factors, such as place attachment, also exist. These more intangible factors should be included as a standard in vulnerability assessments, as their role may be significant in future development. Applying diverse participatory tools can also assist in visualisation of the vulnerabilities and adaptation options in space and time and present an effective method of involving communities in adaptation and tourism development.

The thesis has also exemplified how communities that are dependent on the same industry and located in the same, can vary in terms of vulnerability. Thus, the results support the statement, where further community-by-community studies are important so we can enhance our understanding of why some communities do better than others. This reflects back to the concept of resilience, which as an emerging concept additionally requires further attention in the context of tourism and climate change. The thesis has also indicated that adaptation to climate change is not a separate path but is deeply coupled with local (tourism) development, which in this case, strengthens socio-ecological relations. Special attention should be paid to the sustainability of adaptation options.

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