Complacency or resilience? Perceptions of environmental and social change in Lofoten and Vesterålen in Northern Norway

Bjørn P. Kaltenborn*
Norwegian Institute for Nature Research
Fakkelgården, Storhove,
N-2624 Lillehammer
Norway
e-mail: bjorn.kaltenborn@nina.no

John D. C. Linnell
Norwegian Institute for Nature Research
PO Box 5685 Sluppen
7485 Trondheim
Norway
e-mail: John.Linnell@nina.no

Jørn Thomassen
Norwegian Institute for Nature Research
PO Box 5685 Sluppen
7485 Trondheim
Norway
e-mail: jorn.thomassen@nina.no

Henrik Lindhjem
Norwegian Institute for Nature Research
Gaustadalléen 21
0349 Oslo
Norway
henrik.lindhjem@nina.no

ABSTRACT

Arctic and northern coastal environments are among the least developed regions in the World in terms of density of settlements, population and resource exploitation. It is often assumed that northern coastal regions will be frontiers of future change, conflict and opportunity due to climate change, new transportation routes, geopolitical tensions and increasing demands for the region's natural resources. But to what degree do global discourses about future challenges in northern coastal areas align with the perceptions and concerns of people living there? We surveyed a representative sample of residents in the Lofoten – Vesterålen archipelago in Northern Norway to identify their perceptions of the main conflict issues and drivers of change facing the region. Petroleum exploration, infrastructure development, the fishing industry, and uncertainty around future municipal governance and public services emerged as the key conflict themes. Perceptions of drivers group in positive forces; developments and improvements in transportation, the fishing industry, tourism, new marine industries and cultural heritage protections, as well as negative factors; climate change, declining rural populations, degrading of the cultural landscape due to reduced grazing, and bureaucratic obstacles in the fishing industry. The main attention is on social and economic drivers of change, as well as doorstep concerns rather than global discourses. Environmental and geopolitical issues are largely absent in the responses. Identifying the mainstream public concepts of change can be useful in understanding where people are most likely to pay attention to policy changes in coastal environments.

Key words: drivers of change, conflicts, coastal regions, perceptions, Lofoten and Vesterålen, Northern Norway

INTRODUCTION

Northern areas and the Arctic in particular, are often cast as frontier regions of vast opportunities and challenges (Olsen et al. 2011, Noble et al. 2013). It is a tantalising image – a large region of the world gradually becoming more accessible due to climate change and technology suited to extreme conditions holding promises of valuable natural resources, but also potential for geopolitical conflict and dramatic changes to traditional lifestyles. How representative however, is this image in terms of what coastal northerners are concerned about during their daily life? Perceptions of social, economic and environmental forces of change among the general public in northern areas have received relatively little attention compared to those of indigenous populations, or other special interests groups which number far fewer people. Mainstream public concepts of drivers of change and conflict are core factors of local politics and indicate where people will direct their attention. This type of knowledge can be useful in the process of designing policies for adapting to climate change and transforming economies of the North.

Contemporary change is evident in environmental and social processes in terms of climate change, intensified extraction of non-renewable and renewable resources, tourism, new transportation routes, developing economies and more focus on indigenous land tenure and related issues (Mazo 2010, Fay & Karlsdóttir 2011, Arbo et al. 2013, Noble et al. 2013). Governance issues and the particular geography of the North are at the forefront of international controversies, discussions and negotiations about development of this region (Huskey et al. 2005, Arbo et al. 2013). The strategic importance of this part of the world is formidable (Dodds 2010). Barring drastic changes due to more aggressive Russian and Chinese foreign politics, there seems to be reasonable agreement among the circumpolar nations that while military and territorial tensions may be on the rise, peaceful cooperation will continue to dominate, at least in the Arctic , given the broad commitment to various international agreements and geopolitical 'realities' (Howard 2009, Brigham 2010, Haftendorn 2011). Most of the documented valuable natural resources are located in largely undisputed lands and coastal zones of the Arctic states. The outer continental shelf is well delineated through UN conventions, and the relevant states have agreed through the Arctic Council to cooperate and resolve disputes peacefully (Arctic Council 2011 a, b). In a survey of predicted future changes in the North, Arbo et al. (2013) distil two main themes. One departs from predicted climate change and reduced sea ice cover and emphasises economic activity and associated social and environmental effects. Here the key drivers are population

growth in other parts of the World, globalization, still growing demands for petroleum- and other natural resources, new shipping lanes, new technology and regulatory frameworks. The other theme focuses on governance, politics and security. The key elements here are the end of the cold war, economic and political actors and power struggles, and UN conventions on marine and transboundary issues (Arbo et al. 2013).

These meta-themes interact in complex and different ways throughout the north, but inevitably have some form of natural resource extraction at the core in most cases (Forbes et al. 2004, Haley et al. 2013). Northern communities are often directly and indirectly dependent on natural resources. Transformations in the North are dominantly driven by forces and development outside the region (Solli et a. 2013), but resource policies are shaped in a social-ecological context based on external as well as local regulatory frameworks. A salient question however, is how these drivers of social and natural change are perceived by the affected publics and communities, and which questions appear to be on the local agenda in the particular cases?

The issue of monitoring the state of the northern environment in the context of resource development is paired with the equally important question of how northern communities experience change, livelihoods, quality of life, and satisfaction with public services, as resource development and industries are increasingly globalised and dominated by outsiders. To answer such questions we need more information on local and vernacular understandings of change and conflicts, social indicators of quality of life, and how public perceptions relate to resource policies (Lowe 2011, Dannevig & Hovelsrud 2016).

Socio-ecological management issues are inherently complex and require in-depth understanding of local stakeholder perspectives in order to achieve effective and legitimate solutions (Reed 2008, Prell et al. 2009). Part of dealing with potential or manifest conflicts in environmental management is to ascertain whether people tend to be unaware of or complacent about problems or challenges, or whether they indicate resilience to changes through lack of expressed concern. Furthermore, mapping public perceptions of drivers of change is important because what we know about environmental challenges is largely associated with science. However, in a time where environmental science is increasingly politicized, ‘politics of facts’ mixes with politics of interests and values (Pellizzioni 2011). Effective policies needs to recognize and incorporate this mingling, not the least since different stakeholders represent different levels and types of power. Ignoring this can affect

the level of trust achieved in cross-scale networks in natural resource management (Adger et al. 2006)

In this paper, we examine local perceptions of drivers of direct and indirect change and contemporary conflicts in the Lofoten – Vesterålen (LV) region in Northern Norway (Figure 1). The relationship between perceived conflicts and drivers of change is important, because origins of conflict usually go beyond material incompatibilities and reflects different cognitive understandings or interpretations of issues (Adams et al. 2003), and hence different ideas about what will be effective policy measures and strategies.

Conflicts are a characteristic of the human-environment dynamics and emerge in a multitude of forms (for summaries e.g. Homer-Dixon & Percival 1996, Maser & Polio 2012, Redpath et al. 2013). There are many definitions of social- and environmentally oriented conflicts, Redpath et al. (2012, building on Young 2010) summarises 'situations that occur when two or more parties with strongly held opinions clash over conservation objectives and when one party is perceived to assert its interests at the expense of another'. Conflicts in natural resource management tend to reflect dichotomies (opposites, adversaries), can be latent or manifest, constructive or destructive, and range from the inter-personal (personal relations, small groups), to social (larger groups, national and sub-national levels, between genders, ideologies, religions etc.) to international and global conflicts (power based, trade wars, armed conflicts, global strife over resource allocation, between socio-political systems) (Bruckmeier 2005). In this paper, we take an exploratory approach to the concept of conflict, and we are simply interested in the subject areas that local people identify as 'areas of conflict', without going into interpretations of actors, relationships, value disagreements, or resources at stake. Rather, the focus is on the areas of public concern and to what extent this these are seen as linked to perceived drivers of change.

The Barents Sea and Northern Norway along with Russia has been termed the last great petroleum frontier with large potential reservoirs offshore (Gautier et al. 2009). Although exploration and exploitation are underway in the Barent's Sea, active exploration and extraction are still on hold in LV due to political disagreements and currently low oil and gas prices. Given that the LV area is a world-class tourism destination as well as the spawning ground of the North Atlantic cod fisheries, both potentially vulnerable to impacts from petroleum exploration, deciding on resource policies and achieving political consensus on development paths is extremely challenging. The entire LV region has been proposed as a World Heritage Site (Sande 2015), but the application process is currently stalled by local

disagreements among the municipalities. Along with the potential closing down of large military bases, the foremost contemporary debate in the region seems to be the pros and cons of opening the region for petroleum exploration. The debate revolves around the question of whether this is compatible with traditional industries like fisheries and tourism, as well as less tangible issues like local identity and traditional ways of life (Kristoffersen & Young 2010, Buck & Kristoffersen 2011, Jensen 2012, Misund & Olsen 2013, Kristoffersen & Dale 2014).

An ecosystem based management plan developed in 2002-2006 (Miljøverndepartementet 2006) provides a tentative regulatory framework with time-limited exploration closures on parts of the offshore areas. This is the first integrated Norwegian management plan for a marine area (Ottersen et al. 2011, Hoel & Olsen 2012). Political negotiations have also resulted in a decision not to carry out scoping or full environmental impact assessments (EIAs) of future drilling, since the potential drilling sites are given temporary protection. However, several projects have been carried out to improve the knowledge platform for future decisions on development paths, but circumventing the formal EIA route. Examples are projects examining the direct and indirect effects of prioritising funding and support for fisheries, aquaculture, new marine industries, tourism, minerals and renewable energy, and potential trade-offs between different sector developments (e.g. Magnussen et al. 2013). The decision not to implement a formal and comprehensive impact assessment of future petroleum exploration is frequently challenged by various political fractions with a petroleum extraction agenda. Those who are against petroleum development, on the other hand, are concerned that starting the formal EIA process will in fact be an indirect approval to go ahead with petroleum development. The socio-political landscape around future development options is fragile, partly because of policy implications on multiple levels (local, regional, national and international) and the resulting conflicting interests between and within these levels, and because of a lack of knowledge on public perceptions and attitudes, especially locally.

As in any prediction of the future, there are a number of signals of possible trends and outcomes, as well as wild cards. Several of the global factors like climate change, international mechanisms and composition of demand in the food- and fish industry, military tensions and potential conflicts and war, are extremely hard to model, and are essentially wild cards that can produce a range of effects from little or none to dramatic tipping points. For instances, oil prices have plummeted over the last couple of years to an extent foreseen by few, if any, analysts. Other forces like increasing global energy- and food demands,

population decline in rural areas, and the on-going processes of restructuring administration and public services, are in principle well-known but hard to estimate in magnitude. A summary of technical reports (e.g. Magnussen et al. 2013), popular media, and our own impressions from fieldwork in this area, suggest that the local discourse about the future in the LV region revolve around four types of questions. First, there is widespread concern over economic development pathways. Should future revenues come from fisheries, oil and gas, tourism, other marine industries – or some combination of these? Second, how can rural population decline be stabilised and/or reversed, particularly outside regional centres? Third, what form of governance structure can provide the best level and diversity of public services in the on-going process of regionalisation and restructuring municipalities into larger units? Finally, is petroleum exploration compatible with environmentally dependent industries like fisheries and tourism, and environmentally conscious lifestyles?

Future development paths in this region will reflect local as well as national political moves influenced by public perceptions of problems and opportunities. In this study we specifically examined; 1) What are perceived as the main conflict areas in the LV region, 2) To what extent do people in this region think that a range of potential drivers will influence development in positive or negative directions, 3) What are the effects of socio-demographic variables on perceptions of drivers of change?, and 4) How are perceptions of drivers linked to local perceptions of key conflict areas?

FIGURE 1 ABOUT HERE

METHODS AND DATA COLLECTION

Study area

The LV region (Figure 1) collectively covers a large group of islands along the northern coast of Norway. Lofoten comprises seven main islands and a number of smaller ones over an area of 1300 km^2. The population numbers approximately 25 000 people distributed across six municipalities. Vesterålen to the northeast is geographically part of the larger archipelago, but is considered a distinct region with a population of approximately 30 000 living in six municipalities. Fisheries and tourism dominate the commercial sector in both regions, although small scale agriculture also plays a part. The LV region is a focal point and base for

a substantial part of the cod-fisheries in Northern Norway. Atlantic fisheries and aquaculture in the three northernmost counties Nordland, Troms and Finnmark is estimated to be around 2 billion euros annually (Directorate of Fisheries 2014). Approximately 180 tourism companies in the LV region (2011 figures) employ around 800 people with an estimated local annual value generation of 40 million euros (Enger et al. 2013).

Sample and data analysis

We designed a representative sample among adult residents in all, except one of the municipalities in Lofoten and all municipalities in Vesterålen. Røst, the smallest municipality in Lofoten (N=540) was omitted from the study due to other on-going research activities in that area in order to avoid response fatigue. The sampling frame of 553 respondents was stratified and weighted to be representative of the population in the region. Data were collected by a data collection agency during May and June 2015 by means of telephone interviews using a structured questionnaire. Interviews lasted approximately 20 minutes. Interviewers followed a specific sample protocol, and in cases where an interviewer could not reach the type of person specified by the sample frame (gender, age, location), or in case of non-compliance, new calls were made to reach a similar type of respondent.

The survey focused on two sets of questions in addition to background information about the respondents (age, gender, profession, education level and location of residence). We first asked each respondent in an open-ended question to list in their own words what he or she considered the three largest areas of conflict in the region today. This was followed by a structured set of questions about drivers of change. The wording of the question was: "There is a lot that can affect the future of a local community. To what extent do you think the following factors can influence the development in area (Lofoten or Vesterålen dependent on location of respondent) during the next ten years in a negative or positive direction? We defined drivers, including natural and anthropogenic-, and direct and indirect drivers, according to the Millennium Ecosystem Assessment definition as 'any natural or human – induced factor that directly or indirectly causes a change in an ecosystem', (Millennium Ecosystem Assessment 2005, Nelson et al. 2006), but we also included 'society' in our definition. We selected a list of 17 potential drivers (Figure 3) based on preliminary interviews and a newly completed scenario process on the islands of Røst at the western end of the Lofoten chain of islands (Thomassen et al. 2015), as well as reviews of relevant literature from the region. Respondents were asked to state to what extent they thought each driver would affect the development of the region over the next ten years in a positive or

negative direction on a five-point scale ranging from ‘Will have a large negative effect’ to ‘Will have a large positive effect’.

Responses to these open-ended question on conflicts were categorised through a series of iterations resulting in 16 categories (Figure 2). We did not ask the respondents to rank the three main areas they considered important, so all responses are pooled to show the relative importance of the categories. The responses to the set of question about perceived effects of drivers of change were analysed descriptively, and we also used analysis of variance (ONEWAY ANOVA) to test for differences between Lofoten and Vesterålen for each item/driver, and for relationships between sociodemographic characteristics and perceived importance of drivers.

RESULTS

Perceived conflicts

Four areas stand out as the most conflictual topics to the residents of the LV region. Oil- and gas development is a major concern to about equal percentages of the population in Lofoten (51,6 %) and Vesterålen (52,0 %). In Lofoten, infrastructure development, and in particular roads is seen as a problem to many. This category also contains statements about the ferry situation (to and from the mainland), and the long term debate about a new regional airport, which would allow for larger aircrafts and thereby facilitating new long distance routes and a different transportation situation for the archipelago. This is seen as especially important for the tourism industry. However, the dominant concern is the condition of roads with serious congestion problems in the tourism season. There is a distinct difference between Lofoten and Vesterålen on this issue, which probably can be attributed to larger volumes of tourists in Lofoten as well as the geography, which is less rugged and demanding in Vesterålen. The long lasting, and largely state-driven deliberations on municipal fusions and uncertainties around future governance structures, including the level and adequacy of public services, is also seen as a major conflict area. Perhaps, more than anything it creates uncertainty about the future due to the complexity of potential effects and outcomes. The topic of fisheries, which constitute the backbone of local commerce, also raises concern. Answers suggest that the reasons are diverse. There are many uncertain factors in the fishing industry, perhaps foremost - what will happen to fisheries if the waters are opened for petroleum exploration. Young people find it hard to access the fishery profession due to increasing bureaucracy around

quotas, high investment costs, uncertainties about market access, and conflicts with new marine industries and international fishing fleets. A slightly larger portion of the Vesterålen than the Lofoten residents see this as an area of conflict.

A number of other areas were also mentioned, but in sum, none of these were ranked high up nearly as often as the topics mentioned above. Interestingly, issues that often seem to come up in media and political discussions like rural population decline, tourism development, the expansion of aquaculture, renewable energy and immigration, are not listed by many as key conflict areas. Labour in-migration for instance (admittedly not the same as immigration, but related) is of vital importance for the fish processing industry, but was not mentioned by anyone in Lofoten, and only three people in Vesterålen. Environmental issues also gain very limited attention as conflict areas. Climate change, agriculture and forestry, and protected areas are perceived as main conflict topics by very small percentages of the population in Lofoten as well as in Vesterålen (Fig. 2).

Perceptions of drivers of change

Of the 17 drivers of change included in the survey, 15 were perceived to a have a positive influence to some extent on the development of the region in the future. Five of the drivers of change were seen to have some degree of negative effect on future development. It should be noted that, on average, none of the drivers of change were perceived to have major negative or positive influence on the future in the region, and most drivers were ranked somewhere in the range somewhat negative to somewhat positive influence by the populations as a whole. Furthermore, several of the drivers of change were ranked right around the neutral position on the scale, i.e. close to no influence, although they indicate a slight tendency one way or the other, such as for instance labour in-migration (slightly positive), or changes in lifestyles and public values (slightly positive in large Lofoten municipalities, and slightly negative in small Lofoten municipalities and Vesterålen). Drivers of change that are thought to influence the future in positive ways include improved infrastructure and transportation systems, commercial fisheries and new marine industries, nature based tourism and second homes, and the potential for World Heritage status. Drivers of change that may have a negative influence include climate change, offshore petroleum exploration, population decline, bureaucracy in the fishing industry, pollution, and a changing cultural landscape due to shrub encroachment and reforestation on formerly open grasslands / moorlands.

The general pattern is the same for Lofoten and Vesterålen with a few exceptions. There is a significant difference between Lofoten and Vesterålen residents when it comes to the influence of climate change on future development (F=3,636, p=0,027). Lofoten residents are more negative/concerned on this issue. The same is the case for second home development (F=9,534, p=0,000), where Vesterålen residents see this as a more positive driver than people in Lofoten. However, while these differences are statistically significant, it should be noted that they are actually quite small. In both parts of the larger region, people see climate change as a negative driver of influence, and second home development as a factor that can contribute positively, but to a limited extent (Figure 3).

Effects of sociodemographic variables

For the analysis of relationships between sociodemographic characteristics and perceptions of effects of drivers on future development, we pooled the data from Lofoten and Vesterålen. We found a significant effect of gender (Men = 53%, Women = 47%) on perception of effects on future development for five of the seventeen drivers; climate change, petroleum exploration, labour in-migration, coastal pollution, and the LV region as a potential World Heritage Site. Women think that climate change (F=11.075, p==,001), petroleum exploration (F=24,160, p=0,000) and coastal pollution (F= 12,688, p=0,000) will affect the future more negatively than men do. Women to a greater extent than men think that labour in-migration (F=7, 784, p=0,005) and the potential of World Heritage Status (F=4,341, p=0,038) will affect the future of the region in a positive direction.

Level of education has a significant effect on the perception of four of the seventeen drivers; climate change, labour in-migration, second home development and coastal pollution. Increasing level of education correlates positively with increasing concerning that climate change (F=2,632, p=0,049), second home development (F= 2,640, p=0,049) and coastal pollution (F= 3,908, p=0,009) will have a negative effect on future development of the region. Higher levels of education also correlate positively with a view that labour in-migration (F=9,485, p=0,000) will have a positive effect on future development, i.e. those who have only completed primary- or secondary school are less inclined to think that external labour will be a positive think for the region in the future than those who have completed college- or university level education.

Age has a significant effect on evaluations of the importance on six out of the seventeen drivers of change; petroleum exploration, labour in-migration, state bureaucracy in the fishing industry, second home development, coastal pollution, and international environmental politics. The effects are less consistent here, than for gender and education. Young adults (up to age 40) are more concerned about the negative effects of petroleum exploration (F=2,708), p=0,030) than older age groups. 26-40 year olds are the most concerned, and the oldest age group (70+) are the least concerned, although all age groups consider petroleum exploration as having somewhat of a negative effect on future development. When it comes to foreign labour in-migration (F=4,251, p=0,002), the 26-40 and 70+ age groups are the most positive, and the youngest group (25 or younger) are the least positive. For the driver of state bureaucracy in the fishing industry (F=2,603, p=0,035) the age effect is more linear with the younger age groups being more negative than the older age groups, although the entire sample expresses opinions in the somewhat negative to no effect range. For second home development (F=3,260, p=0,012), the youngest and oldest age groups are most positive, while the 26-40 year olds score the lowest (essentially no effect on future development. On coastal pollution (F=3,497, p=0,008), all age groups see this as a negative effect in the future, but the 70+ age group is a little less concerned than the remainder of the population, and the 26-40 year olds are most concerned (large- to somewhat negative effect). Finally, for the effect of international environmental politics (F=2,461, p=0,044) the youngest part of the population (25 and below) score the lowest (no effect), and the 26 – 40 year olds and the 70+ groups score a little higher than the rest of the respondents (between no effect and somewhat positive effect).

FIGURES 2 AND 3 ABOUT HERE

DISCUSSION

Oil- and gas exploration, infrastructure development – particularly sub-standard roads in Lofoten, governance questions regarding new administrative levels and public services, and various aspects of the fishing industry, stand out as the main conflict areas in the Lofoten-Vesterålen region. There is a certain correspondence between what the majority of the population see as the key conflict areas and their perceptions of how different drivers of change may affect the future development of the region. The region is divided on the issue of petroleum exploration. This is not surprising given the coverage in popular media (Jensen 2012) and the sheer magnitude and complexity of the question. Contrary to most other issues considered important locally, possibly with the exception of new municipal boundaries, the

decision to temporarily, freeze oil- and gas exploration in the Lofoten-Vesterålen region has become a hot political issue on the national level. Media tends to polarise this as oil against fish and tourism. However, a number of critical questions are not yet clarified, such as how far from shore will the drilling take place, what are the specific environmental risks, will oil and/or gas be shipped out directly or piped to Lofoten, what safety measures will be put in place, and will it create new employment? The debate is characterised by a high level of uncertainty about the environmental, social and economic costs and benefits, and the results indicate that there is widespread scepticism and resistance against this development path.

Petroleum exploration clusters with a group of other drivers of change thought to impede positive future development; climate change, pollution, the 'closing' of the cultural landscape through forest regrowth and shrub encroachment due to declines in sheep grazing, decline in the rural population, and the inertia and obstacles created by bureaucracy in the fishing industry. In sum these drivers of change are not perceived as growth factors, while improved transportation systems, developments in nature based tourism, the fishing industry, new marine industries and cultural heritage protection to some extent are.

When we look at general picture of how people view the influence of drivers of change, the average perspective, (i.e. the mean of the population) is that most drivers of change will affect the future in moderate ways. However, this conceals important differences among sectors in the public. For one thing, socio-demographic characteristics play a part. Women are (as is often the case in similar surveys,(e.g Zelezny et al. 2000, McCrighth 2010) more concerned about environmental issues like climate change and pollution, and they are more concerned about what a future built around petroleum exploration will bring. They are also more positive towards cultural heritage protection and people coming to the region to work. Cross-cultural studies on the role of women in natural resource management have also show that women score higher than men on collaboration, solidarity, conflict resolution, and the capacity for self-sustaining action (Westermann et al. 2005).People with a higher level of education are also more environmentally concerned and more positive towards external labour and developing the second home sector. Age also appears to play a role in how people look at for instance petroleum exploration. Interestingly, increasing age correlates with less scepticism, which is counter to the traditional notion that people get more conservative with age. However, in this case it may be that older people are more conservative in the sense less worried about environmental vulnerability, and see new income from oil- and gas as a rescue measure in an uncertain future. There is diversity in perceived influence for all of the drivers

examined, as one would expect for any question regarding future environmental, social and economic conditions. For some issues there is a skewed response towards positive or negative perceptions, whereas for others there is more of a normal distribution. For instance, approximately one-half of the population (45%) claim that climate change will have a large negative influence on the future, but only 13,5 % think it will have a little or a large positive influence. A similar pattern is found for oil- and gas exploration and coastal pollution, and the public clearly sways toward a negative perspective on this issue. Likewise, there is fairly strong consensus on the (positive) impact of improved roads, renewable energy development and nature-based tourism, while themes like second home development, aquaculture, labour in-migration, and international environmental policies elicit more of a normally distributed response curve.

A key message is that Lofoten and Vesterålen residents focus on social and economic drivers and conditions, rather than natural drivers of change. Conflict perception is linked to social and economic development and dominated by local scale issues. Topics like local governance, infrastructure development and resource extraction vary in their complexity and tangibility. They are both direct and indirect drivers of change, but they exist at the doorstep of the residents and have a comprehensible potential to affect their future. Environmental topics gain much less attention as conflict areas, except for oil- and gas exploration, and this is as much a social issue as an environmental issue. Virtually no one listed climate change as a key conflict area, nor do aquaculture, forestry or protected areas rank high on the list of salient conflicts. For instance, it is noteworthy that a significant majority of the Lofoten and Vesterålen residents think that petroleum exploration will have a negative influence on the future, but they are not particularly concerned about climate change. This suggests that the costs and benefits of natural resource extraction are linked more to future social and economic conditions and much less to the state of the environment.

So, is this part of Northern Norway a frontier of opportunity and global challenges? Within our frame of study, there is a discrepancy in people's mind between the major global geopolitical and environmental issues and the less spectacular and perhaps less tabloid concerns of these northern coastal communities. It is debatable how vulnerable and geopolitically tense the Arctic is currently (Young 2008, Sharp 2011, Coffey 2012) and some researchers suggest that crisis perspectives on the Arctic tend to be exaggerated (e.g. Yalowitz 2012, MacDonald 2015). At any rate, there is little in our material to suggest that these communities consider themselves to be at a frontier line, or on the verge of social or

environmental crisis. There is no mention of military presence or threats, very little focus on climate change, ecosystem services, or other environmental issues, albeit climate change was recognized as a potentially negative driver of change. Then again, the LV region is only a small part of the sub-Arctic, and by no means representative of the entire circumpolar region.

Does this suggest complacency about the bigger picture, or does it reflect a certain intrinsic confidence in their resilience and capacity to adapt in a world of rapid change? Moreover, what does it mean that these northerners have a pragmatic – middle of the road view of most drivers of change? Coastal communities in Northern Norway are known traditionally to be strongly resource dependent and constantly dealing with a demanding environment (Amundsen 2015). Lifestyles have evolved around coping with hardships, even to some extent embracing it as a component of well-being (Kaltenborn et al. in prep), and overcoming change. In a culture used to adaptation to a somewhat unpredictable socio-ecological environment, complacency may be mistaken for resilience towards the big and long-term issues. These are communities and cultures characterised by multiple skills and diverse work through the seasons where nature and culture is highly intertwined in local perceptions of the environment and opportunities. If there is confidence in their ability to adapt, global big picture' issues like climate change, new types of resource exploration, or changing geopolitical positions, may appear either too abstract to merit immediate concern, and/or not yet relevant.

A key policy challenge is how to link some of the major issues that may be looming on the northern horizon with everyday concerns of these coastal communities. Media plays a key role in shaping discourses about the North (Pincus & Ali 2016), and policy makers and managers can have a tendency to pay more attention to these, than to factual knowledge about more representative public outlooks on the future. The Lofoten – Vesterålen region faces some hard decisions about how to best use its natural resource base in a sustainable way.The lack of local concern about environmental ramifications points to the need for increasing public awareness around the complexity of how multiple drivers in concert affect future livelihoods. In more vernacular terms; there is a need to find effective communicative means to show how the seemingly more mundane, but locally important concerns of the public, are connected to the large scale issues of achieving sustainable livelihoods in the North. These include developing governance systems that can deal with changing conditions for logistics, marine-, mineral- and petroleum- industries in the arctic and sub-arctic regions in the face of

climate change and other globalising factors (Young 2008, Noble et al. 2013) as well as environmental security and the risk of domestic and military conflicts (Barnett & Adger 2007) developments in land use and conservation such as abandonment of agricultural lands and rewilding trends (Navarro et al. 2012), and a rapidly growing arctic tourism sector (Fay & Karlsdóttir 2011).

Moreover, it points to linking environmental valuation across policy scales, since questions regarding the future of the main industries of the Lofoten-Vesterålen region; fishing, tourism, and possibly petroleum, involve political and administrative decisions on local, regional and national scales. At the same time conflicts over natural resource management are not merely material. Policy exercises to resolve or reduce conflicts often assume that the problems at hand are self-evident (Adams et al. 2003), but most natural resource related conflicts involve different perceptions of the problems and have a value/emotion basis in addition to material interests. In a time where environmental science is increasingly politicised, there is also a growing need for forums for deliberation in order to adequately understand the social basis for policy development (Adger et al. 2006).

Stakeholder analysis is important to ensure that deliberative efforts avoid inflaming conflicts through marginalisation of certain interests, but also to target groups that are the most likely to contribute positively. This can be a delicate balance since fairness in representation is always a factor in terms of legitimacy. However, in this study it appears that women in general and people with higher education are inclined to be more concerned about the future environmental situation of the study region and less conservative in terms of change and new people coming to the region to find work. Although merely a speculation, women and the better educated may be more motivated to avoid zero-sum games (e.g. Colyvan & Regan 2001) in deliberations about future development paths in the Lofoten-Vesterålen region than other residents. The policy implication for the complex socio-ecological nature of coastal regions is that understanding public concepts of drivers of change are indicators of where people will direct their attention and position themselves in around conflicts, where one in most cases will benefit from non-zero sum solutions with a higher degree of cooperation among stakeholders.

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Figure 1. Study area – Lofoten – Vesterålen archipelago

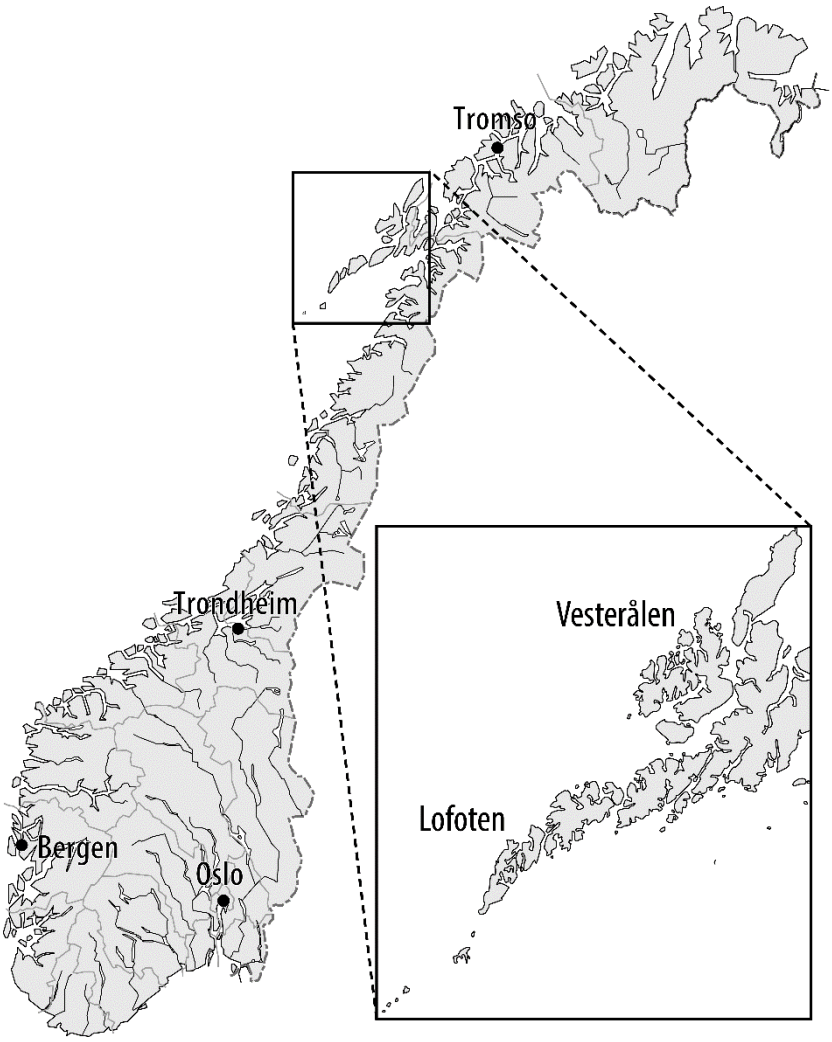


Figure 2. Perceptions of main conflict areas in Lofoten and Vesterålen (in per cent. Percentages can add up to more than 100 since respondents could answer to more than one item).

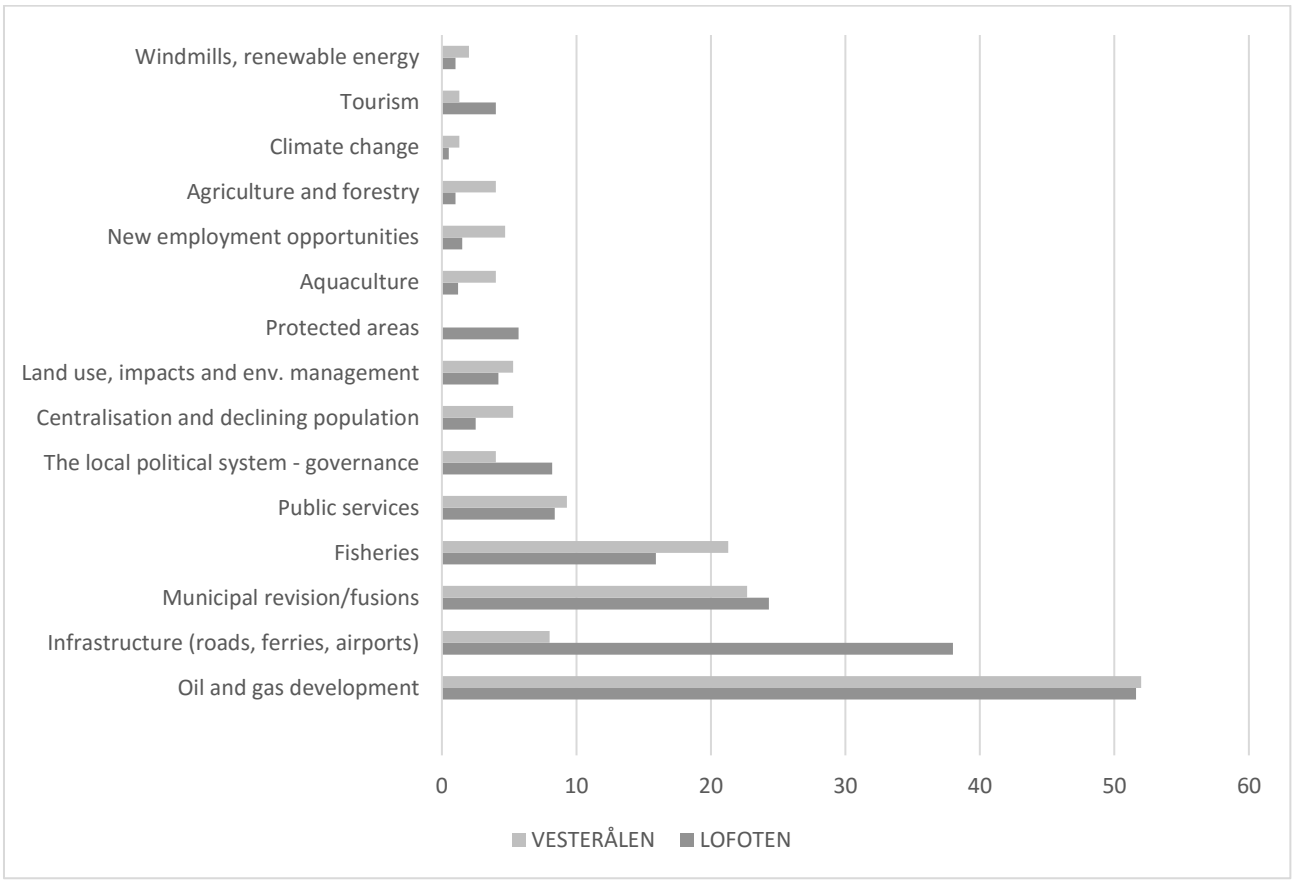
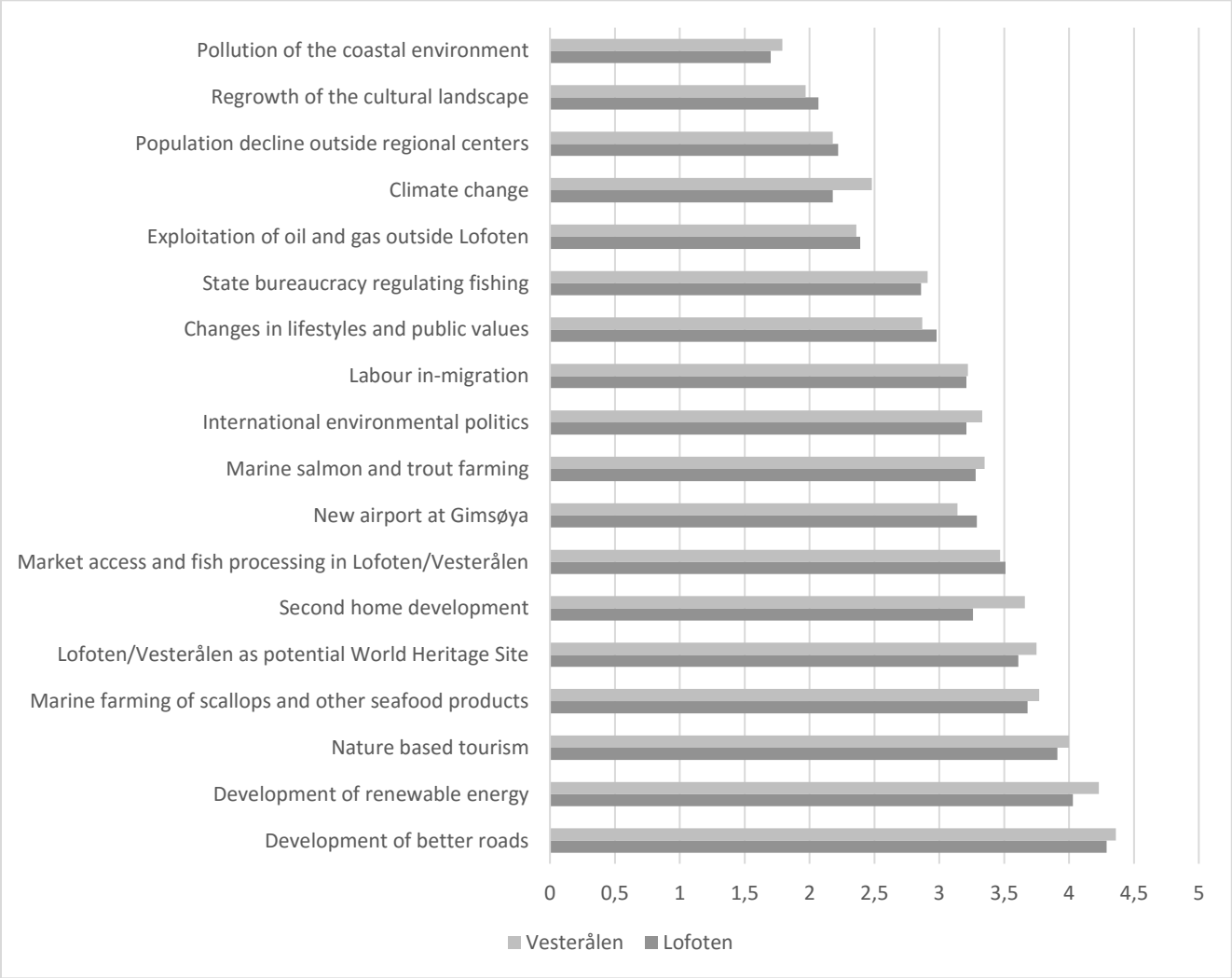


Figure 3. Perceptions of influence of drivers of change on future development in the Lofoten – Vesterålen region (mean scores)



Response format: 1: Large negative influence, 2: Somewhat negative influence, 3: No influence, 4: Somewhat positive influence, 5: Large positive influence

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