

A photograph of a fishing boat in a snowy coastal town with many seagulls flying in the sky. The boat is white with a red stripe and has the number 'GR12-206' on its side. It is moving through blue water, leaving a white wake. In the background, there are several houses with snow on their roofs and many seagulls flying in the sky.

## **Fisheries under pressure**

The impact of climate change on  
Greenlandic fishermen

**Walter Faaij**

August 2010

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The impact of climate change on Greenlandic fishermen



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**\*Cover picture:** Ilulissat fishing vessel,  
returning from a fishing trip near the  
Ilulissat glacier

# Contents

<b>ACKNOWLEDGEMENTS .....</b>	<b>3</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>5</b>
<b>INTRODUCTION .....</b>	<b>6</b>
<b>1. GREENLAND, AN ARCTIC CONTEXT .....</b>	<b>12</b>
1.1 MODERNISATION AND GLOBALISATION .....	14
1.2 SOCIAL ISSUES IN A SHIFTING SOCIETY .....	18
1.3 CLIMATE CHANGE AND GREENLAND .....	20
1.4 CONCLUSION .....	22
<b>2. SUSTAINABLE DEVELOPMENT .....</b>	<b>23</b>
2.1 PERCEPTIONS ON CLIMATE CHANGE.....	23
<i>Words matter</i> .....	24
<i>Change is constant</i> .....	25
<i>Climate change: an instrument</i> .....	25
2.2 PERCEPTIONS ON THE ARCTIC .....	26
<i>Pristine wilderness or living environment?</i> .....	26
<i>The status of knowledge</i> .....	27
2.3 ROAD TO DEVELOPMENT .....	28
<i>A western perspective</i> .....	28
<i>The local perspective</i> .....	29
2.4 CONCLUSION .....	31
<b>3. FISHERY AND CLIMATE CHANGE.....</b>	<b>33</b>
3.1 GREENLANDIC FISHERY IN SOCIETY.....	33
3.2 A DUAL INDUSTRY: COASTAL VS OFFSHORE FISHING .....	36
<i>Industrial trawlers</i> .....	36
<i>Coastal vessels</i> .....	37
<i>Type of work</i> .....	38
<i>The role of money</i> .....	39
3.3 ‘SHIFTING’ ENVIRONMENTS .....	41
<i>A complex environment</i> .....	41
<i>Locality matters</i> .....	43
3.4 CHALLENGES FOR A GLOBALIZING FISHERY.....	45
3.5 CONCLUSION .....	47



<b>4. ARCTIC AGENCY .....</b>	<b>49</b>
4.1 GIDDENS' STRUCTURATION THEORY.....	50
4.2 INDIVIDUAL AGENCY AND ADAPTATION .....	51
<i>Tale of a Nuuk fisherman</i> .....	52
<i>Tale of an Ilulissat clerk</i> .....	53
<i>Tale of a fisherman set adrift</i> .....	54
<i>Civil society</i> .....	55
4.3 CORPORATE PERSPECTIVES.....	56
4.4 INSTITUTIONAL AGENCY AND ADAPTATION .....	58
4.5 CONCLUSION .....	60
<b>CONCLUSION .....</b>	<b>62</b>
FINDINGS .....	62
ANSWERING THE QUESTION .....	65
DISCUSSION .....	66
<b>LITERATURE .....</b>	<b>70</b>
READINGS .....	70
INTERNET SOURCES.....	75



## Acknowledgements

In October 2009 one of my teachers suggested to conduct my research in Greenland. While I planned my fieldwork in Holland, this thought occupied my mind and finally I decided to go up there and try my luck. Expecting an isolated, remote country with the ‘typical Nordic aloofness’ and distant attitude, I found an open, warm-hearted and very helpful people. Caught by surprise I still feel warmed by the thought of those beautiful people, struggling to maintain a livelihood at the edge of the world, but open to a stranger as if it were family.

First and foremost I want to thank Teit Groth, the international coordinator at the university Ilisimatusarfik, for unselfishly offering me a place to stay. You could not have given me more than you did: your own bed. Moreover, you provided me with an essential insight in Greenlandic society during our long evening discussions.

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Walter Faaij

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## List of abbreviations

ACIA	-	Arctic Climate Impact Assessment
AP	-	Coastal and Seafaring Fisheries Association <i>(Sinerissami Qanittumi Avataanilu Aalisariutaatillit Peqatigiiffiat)</i>
COP15	-	Conference of Parties, no. 15 <i>(also called Copenhagen Climate Summit 2009)</i>
EU	-	European Union
GA	-	Greenland's Employers Association <i>(Gronlands Arbejdsgiverforening)</i>
GFLK	-	Greenland Fisheries License Control <i>(Grønlands Fiskerilicenskontrol)</i>
KNAKP	-	Greenland Fishermen and Hunters Association <i>(Kalaallit Nunaanni Aalisartut Piniartullu Katuffiat)</i>
KNR	-	Greenlandic Broadcasting Corporation <i>(Kalaallit Nunaata Radioa)</i>
ICC	-	Inuit Circumpolar Conference <i>(also known as INUIT)</i>
IPCC	-	Intergovernmental Panel on Climate Change
ICES	-	International Council for the Exploration of the Sea
ITQ	-	Individual Transferable Quota
IWC	-	International Whaling Commission
MSC	-	Marine Stewardship Council
NAFO	-	North Atlantic Fisheries Organisation
NAPP	-	Nuuk Fishermen- and Hunters Association
NGO	-	Non-Governmental Organisation
OCT	-	Overseas Countries and Territories (EU)
TAC	-	Total Allowable Catch
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation



# Introduction

*Eeh, remember not to joke about suicide!*<sup>1</sup>

You might wonder what this thesis is about. It's not about suicide, it's about climate change in Greenland and its impact on the fisheries. Allow me to explain the correlation later, in the next chapter on Greenlandic society.

Ecological shifts always occur, and are nothing new to the planet nor to mankind. They can have a fundamental impact on different places in the world, varying with time, location, and societal context. Many expect the Arctic to be the area where the biggest impact will manifest itself, partly because of the delicate ecological balance (ACIA 2005; IPCC 2007). Its geographic characteristics make Greenland naturally highly dependent on marine resources: for the abundance of a lot of ocean, and the fact that the only inhabitable areas are located along the coast. This logically leads to a society with a relatively high number of fishermen, which means that any environmental change – let alone a combination of changes currently called '*climate change*' – impacts not only the fishermen but has implications for the entire society. Climate change is being studied extensively, but:

*[...] despite these studies of climate change, the relationship between ecosystem changes, changing resource dynamics, and socioeconomic responses to these changes is poorly understood. (Nuttall 2009: 301)*

With this thesis I attempt to comprehend the impact of climate change on the fisheries and indirectly on the society. During my research I tried to find an answer to the following question, and in this thesis I'll provide you with my findings with respect to this central question:

*What is the impact of 'climate change' on the Greenlandic fishery?*

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<sup>1</sup> Informal conversation with student, 24<sup>th</sup> February 2010



I sought to know whether and how climate change affects the everyday lives of coastal fishermen. The coastal fisheries play a big socioeconomic and cultural role, but there is more; I took a closer look at offshore fishing industry, and compared the impacts of climate change with those on the small-scale fisheries. I peeked into the everyday lives of different people, spoke with representatives of industrial concerns and interviewed government officials. To cite the pioneer sociologist Emile Durkheim: “*social facts can be explained only by other social facts*” (1895). The arctic scholar Lawrence Hamilton brings in an additional step, and states that this can be a limiting approach, “*particularly if applied to fishing communities, where marine life and conditions constrain many aspects of social life*” (2007: 2959). In other words, he claims that environmental facts should have a role in explaining social life, especially in fishing communities. I want to supplement and complete his argument, and state that one needs to understand the social context, in order to understand and explain biological or environmental changes. The social circumstances determine the impact of environmental changes on society. In order to understand the impact of the environmental changes on the fishery, I needed to understand society as a whole.

Climate change is a big thing in international science, and environmental changes are part of the societal transition Greenland is in the midst of. Accordingly, in Greenland the discourse on climate change and according policies aren't prevailing as independent issues, but are embedded in a structure of economic development<sup>2</sup>. A similar trend is seen in ‘third world’ or developing countries: economic development is of utmost importance. Only after reaching a certain welfare status, the discourse on sustainable development starts to peek into politics. The developed, mostly western countries argue against this ‘non-sustainable approach’ focused on economic development. However, their arguments can be seen as neo-imperialistic and the environmental anthropologist Vassos Argyrou illuminatingly points this out with his work *The Logic of Environmentalism* (2005). I will apply his view on my findings and will use it as a theoretical lens to frame my research.

Given the colonial heritage and the nationalist dreams, these economic developments are very necessary. Especially in the case of Greenland this focus on economic development makes sense, since the country depends to a high extent on a Danish block grant of approximately 60 percent of its national budget. After centuries of colonialism and political

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<sup>2</sup> Coalition Agreement 2009-2013; Interview with government official 2, 8<sup>th</sup> April 2010



dependency, Greenland wants to be fully sovereign. As Nuttall points out, “*when Greenland achieved Home Rule from Denmark in 1979, it embarked on a process of nation building*” (Nuttall 2009: 306). The project of nation-building is in full swing now – supported by the current economic processes – and with the help of the famous scholar Ernest Gellner (1983), I will frame the developments in a context of nationalism. The wish to acquire political independence, prompts Greenland to create a self-sufficient and sustainable economy. This explains the narrow focus on economic development, and the minor importance of climate change related policies on the level of national politics. Moreover, people in Greenland prove not to be caught in the web of a surrounding structure of climate change, disappearing economic opportunities, a discourse of sustainable development and a colonial heritage. They showed me a tireless effort of adaptation to a historically ever-changing Arctic environment. I observed a remarkable flexibility combined with a short-term view on the future and I will look into these processes with the eyes of the leading sociologist Anthony Giddens (1984).

Moreover, a wide gap remains between the scientific literature and local reality. According to western science only small fishermen try to make a living on Greenland, and for them the ecological circumstances explicitly change. However, the impact of climate change on the fishery depends on the geographical focus, and science – except for a few arctic scholars – paints a very traditional and coastal picture of the Greenlandic fishery. The fishing industry with its trawlers and processing plants is to a large extent overlooked when talking about impacts of climate change, and the implications of climate change differ for the small-scale coastal and industrial offshore fisheries.

Regarding my cover picture, I am aware that I could be accused of doing exactly what I accuse others of: painting a traditional picture. However, it is a remarkable picture and tells the story I want to tell; it resembles a picture of a coastal fishing vessel, with snow and ice on the background. Normally it would be more than only this thin layer, but probably due to climate change there is less snow and ice. Furthermore the dynamic atmosphere of the flying seagulls and the fishermen in action symbolise the Greenlandic fishery and society best. It is a coastal vessel, but it accommodates the story and dynamics I want to display with this thesis.

In order to capture reality in the most objective – though inherently subjective and coloured – approach, I used several complementary research methods. Like I stated before, much quantitative and beta-research is conducted, but as Nuttall underlines the role of the social sciences:



*Complementing scientific research on global environmental change, the social sciences offer a vital perspective on understanding the relationship between climate, environment, politics, economy, society and human behaviour.* (Nuttall 2005: 22)

I attempt to contribute to Nuttall's suggestion with my thesis and produced a qualitative, holistic and anthropological study. This means the information is of no use to generalize, but is aimed at telling a story and painting a detailed picture, of one topic in one place. My research therefore is holistic in its nature: while trying to understand the issue of a changing fishery I embedded it in a societal context and refused to treat it like an isolated and thus easier to study topic ('t Hart et al. 1996: 269-70).

Hanging around proved to be a very valuable research method, since being there makes an experience more complete and different from what the early 'armchair anthropologists' (Evans-Pritchard 1965: 101) must have experienced. Much information just awaits in observing a situation, analysing positions of objects and people, and trying to grasp the non-verbal communication. I wrote down my observations in field notes which I worked out at home. In this way I was able to read them over in a later stadium, and to extract information I didn't regard as such earlier in my research. Next to this I kept a logbook, to keep track of my activities and to be able to see my progression – compared to my plans – and interpret my interviews and other observations in a timescale.

Naturally, I also used my verbal skills during my research, and had a variety of conversations, with a variety of people. Since a new culture means a new way of living, one not always understands the proper behaviour. In order to get a full understanding of the current processes, as an outsider I asked all the 'stupid' questions one could ask. It proved to be valuable approach and provided me with a thorough understanding of the perspective of the people involved (Boeije 2005: 27). At the same time these simple questions led to interesting conversations, in which my informants reflected upon their own ideas or behaviour. I conducted about twenty interviews, ranging from quite formal meetings with presentations and representatives from companies, to semi-informal street-conversations. During the first phase of my research I used topic lists to be well prepared and mitigate the language barrier. When my research evolved I prepared my interviews ever less, since my understanding of the topics developed rapidly and it turned out to be more interesting to talk



about the topics my informants brought up. Next to these interviews I had numerous informal conversations on the streets, in bars and in the harbour. These proved to be also highly valuable, since my informants felt more at ease and were in their own environment.

During a majority of the conversations and during all of my interviews, I applied the concept of informed consent (DeWalt & DeWalt 2002). Informal conversations on the street put the researcher in a difficult position, since asking for permission is potentially disturbing the conversation and stopping the flow of valued information. Moreover, in a small society people tend to know each other and without naming particular people, it is easy to induce identities due to the personal networks and public positions of some of my informants. Throughout my fieldwork and while writing this thesis I have been most careful with personal and potential harming information, following my anthropological conscience.

Every second week, I had a moment of reflection by reading through my notes and interviews. In this way I searched for complementing or contradicting information and statements to enhance my comprehension of the processes and discover different perspectives. Several times I conducted follow-up interviews, which proved a valuable source of information. I interchanged collecting and analyzing my data, and triangulated the information I obtained ('t Hart et al. 1996: 270-2); this proved to be a thorough basis for this thesis.

In addition to observing, listening and talking I also have been reading; the recently merged (online available) newspaper *Sermitsiaq·AG* and the broadcasting station Kalaallit Nunaata Radioa (KNR) demonstrated what was going on in broader society and kept me up-to-date, to the day of delivering this thesis. The political debate, perspectives on current processes and reactions provide an illustrating portrait of Greenlandic society.

My main geographical focus was on Nuuk, but I also conducted some complementary research in Ilulissat, a northern city and in population numbers the third of Greenland – with 4,546 inhabitants and an additional 446 in smaller settlements around Ilulissat<sup>3</sup>. This turned out to be a very fascinating area and the information I obtained from observations and (in)formal conversations proved to be highly useful.

One of the major setbacks during my research appeared to be the language. I found it very hard to contact the coastal fishermen, which resulted in a lack of informants and information

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<sup>3</sup> [www.stat.gl](http://www.stat.gl), Greenland in Figures 2010: 9



in this part of my research. Greenlandic is the first and most widely spoken language among fishermen, followed by Danish; English-speaking fishermen are simply hard to find. Naturally, this does not make conversations with fishermen impossible, but it is definitely a complication; building up rapport proved to be a difficult task when both parties can't use their mother tongue or second language. I partly compensated this deficiency by interviewing chiefs of representing associations, like KNAPK, GA and NAPP. They have contact with the fishermen and the industry on a daily basis, know their concerns, represent their wide-ranging interests and mediate in the fishermen's grievances towards third parties like the Self Rule government.

In order to provide you with a clear and comprehensible answer, this thesis is structured thematically; first I will discuss the context Greenland is located within and I will use the opportunity to explore the local environment, society and atmosphere, in order to give a full understanding of the local context. Furthermore I will position environmental developments in the Greenlandic society and show the social issues connected to these processes. I chose to dedicate the second chapter to the international discourse on sustainable development, with a focus on the Arctic and Greenland. This chapter accommodates a variety of topics, focused around perceptions and questions of development. Different perceptions on 'climate change' and the Arctic are at stake here, combined with different understandings of 'knowledge'. Finally I will situate the economic developments in the scientific and political discourse on sustainable development. Chapter three starts with a detailed description of the nature and structure of the Greenlandic fisheries. Thereafter I continue with an elaboration on the current environmental changes and the complex ways the fisheries are affected. I end with discussing the threats and challenges Greenland's fisheries face within the near future. I will conclude the empirical part of this thesis with a fourth chapter and explain how Giddens' understanding of society applies to Greenland. I demonstrate the impact of climate change on the level of individuals and discuss how the fishermen adapt to the changes and their levels of agency. Furthermore I will elaborate on the role of civil society and the adaptive capabilities of companies. I will conclude the chapter with an analysis the perspectives of the Greenlandic government and the position of Greenland in an international framework. Naturally I will finish this thesis with a summary of my findings, followed by a final answer to my main research question. Furthermore I will make use of the opportunity to reflect on the theoretical implications and the flaws I found within scientific literature.



# 1. Greenland, an Arctic context

*To the rest of the world it may seem as if Greenland stands on the threshold of change. [...] But I would remind you, that Greenland and the people of Greenland have already experienced enormous changes during the past 100 years. We passed the threshold of change some time ago.<sup>4</sup>*

Introducing the themes of this theses, I have coined that Greenland is in the middle of a profound change. This is not untrue, but it needs some perspective: during the 1900's Greenland has already been through profound structural changes (Rasmussen 2007; Winther 2005). However, this 'trend of change' is continuing up until the very present, with new and huge challenges for Greenland and its people. One of the most articulated and recent challenges is climate change and the need to adapt, on a variety of levels, and across a vast geographic area. This has not remained unnoticed, on the contrary:

*For many years Greenland was regarded as the last frontier of the world. Within the last few years this has dramatically changed. Greenland has become the showcase of climate change.<sup>5</sup>*

Nevertheless, arriving in Greenland felt like finding the edge of the world. After a transfer at the international airport, I found myself in Nuuk stepping out of a four-engine propeller airplane – since a 'common' Boeing 747 cannot land on the extremely short runway. It took my breath. This was not only due to the views of a barren land of snow and ice and the extreme cold, but by realizing that a more remote place on earth hardly exists. The easygoing Customs-department, the small-scale airport and the ever-present vastness of pristine wilderness made me feel small, completely dependent on the whims of nature. In a country where, due to scarcity and thus high prices, 'flyfrisk'<sup>6</sup> milk, cucumbers and flowers almost outrank jewellery as birthday presents<sup>7</sup> – where in the northern city of Ilulissat only the only

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<sup>4</sup> Speech Minister of Social Affairs Maliina Abelsen, 26th May 2010:

[http://uk.nanoq.gl/Emner/News/News\\_from\\_Government/2010/05/Maliina\\_tale\\_nm.aspx](http://uk.nanoq.gl/Emner/News/News_from_Government/2010/05/Maliina_tale_nm.aspx)

<sup>5</sup> Speech Premier Kuupik Kleist, 28th of May 2010

[http://uk.nanoq.gl/Emner/News/News\\_from\\_Government/2010/05/kuupik\\_tale\\_katuaq.aspx](http://uk.nanoq.gl/Emner/News/News_from_Government/2010/05/kuupik_tale_katuaq.aspx)

<sup>6</sup> Danish for: "Flown in freshly from Denmark"

<sup>7</sup> Fieldwork observations



available vegetables comprise of oranges and onions in case of a delayed ship<sup>8</sup> – I realized how much the nature shapes, restricts or, put simply – defines everyday life in Greenland.

Climate change is in western science and public consciousness regarded as a wholly new phenomenon, but I state that climate change, or at least climatic variation is nothing new for Greenland and its inhabitants. The *Inuit* have been adapting to changes for centuries, as the Minister of Social Affairs accurately points out in her earlier quoted speech. The arctic is naturally a highly variable geographical area intertwined with social systems: society is defined by nature, but (the perception of) nature is also defined by society (Müller-Wille, Kingsley & Nielsen 2005: 11). Naturally, the current changes should be placed in context: they occur amidst a range of other processes, which all have a deep and interrelated effect on different areas and levels of society. To understand the impact of climate change on fishery, one needs to understand the surrounding processes, and embed both climate change and fishery within society.

Geographically my research was situated in Nuuk, Greenland's capital with approximately 15,000 citizens<sup>9</sup>. Like the Minister of Social Affairs said, “*Nuuk is a small world on its own*”, differing from the rest of Greenland in several ways. Nuuk is located on a peninsula in an extensive fjord system in the southwest of Greenland. Like the rest of the Greenlandic civilization, people settled on a narrow inhabitable coastline, since 80 percent of the country is covered in a thick icecap<sup>10</sup>. About 80 kilometres of road exist within the town, and not even one road leaves Nuuk for another place, so all



<sup>8</sup> Fieldwork observations

<sup>9</sup> Greenland in Figures 2010

<sup>10</sup> Ibid.



'intercity' transport is by plane or boat. In itself an interesting observation, but it defines society in a number of ways. For the longest time of its inhabited period, Greenland was effectively isolated from the rest of the world, due to the long communication lines. The arctic climate and geography constrain many activities (Hamilton et al. 2000: 196), and pose a great deal of pressure on the society. During the 50's and 60's of the previous century, the government – consisting of Danish rulers – actively supported or even enforced a wave of urbanisation and choose the road of industrialisation. In order to create a more self-sufficient economy and to provide better and more social services to its citizens, centralization of the population is necessary, and a number of Soviet-style concrete blocks arose, providing the necessary housing capacity. When entering the city centre today, this rack of grey industrial and poorly constructed buildings still defines the streetview; the travellers guide Lonely Planet even speaks of a “*monstrous housing situation*”<sup>11</sup> selling the place as a tourist attraction. Especially Block P – housing 1 percent of Greenland's population – symbolises the rapidly changing social structure and a disrupted generation (Andersen & Poppel 2002: 194).

## 1.1 **Modernisation and globalisation**

*Look around you at all those private cars! I have been a taxi-driver for 28 years now, but in earlier years business was a lot better. With the modernisation more and more people can buy a car. What do you think is happening to my business?*<sup>12</sup>

A period of de-isolation and 'contact with the world' started with the American military base in Thule (northern Greenland) during the Second World War, and contact with the world continued after the war ended (Hamilton et al. 2000: 196). A wave of modernisation took hold of Greenland and was actively reinforced by the government, in order to “*reduce the backwardness of the economy, and to bring a modern standard of living to the population*” (Rasmussen 2007: 171). The taxi cited above observed these changes; for him the quantity of private cars and quality of his business – nowadays he needs to have an additional job – symbolise this process of modernisation. During this process Greenland was formally a colony of Denmark, until 1979 when Greenland was granted the Home Rule status, with

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<sup>11</sup> Lonely Planet Greenland and the Arctic 2005: 148

<sup>12</sup> Informal conversation with Nuuk taxi driver, 29<sup>th</sup> March 2010



limited sovereignty. This modernisation process following the end of the Second World War brought immense changes to Greenlandic society (Poppel, Rasmussen & Winther 2005: 94). The national economy traditionally was organised around subsistence-based hunting and fishing and depended heavily on the block grant from Denmark. Modernisation basically brought industrialization to the fishery, and focused on organising Greenland in a ‘modern’ way. This resulted in a governmental driven urbanisation (Poppel, Rasmussen & Winther 2005: 88), an inherent partner of industrialization and nationalism, like Gellner (1983) abundantly pointed out in his leading work on nationalism. Education was another feature of the changing societal characteristics, and all this mounted up to deep economic, political and cultural changes. The political focus after 1979 was on independency from Denmark, but economic self-sufficiency was needed first. All eyes were on the developing fishery.

From the 1990’s onwards, a rapid globalisation took place; communication possibilities improved, information technology and shipping and air-transport became widely available. Globalisation reaches unto Greenland, where in Sisimiut – Greenland’s second city – one can stumble across a Chinese restaurant, with glocalisation (Bauman 1998; Robertsen 1994) serving a musk ox or reindeer – the local specialties – prepared in a typically Chinese way; however I was caught by surprise<sup>13</sup>. Greenland became more and more connected to the world, not in the least to Denmark, but also to Europe and North-America. At the same time the prawn industry provided Greenland with ever more profits, and the hopes for independence grew. Powerful multinationals started to show interest in the arctic country, not in the least for its natural resources like hydrocarbon based oil and minerals. These developments coincided with the Greenlandic nationalist wish to be independent from Denmark. Since the Greenlandic budget is funded by Denmark for 60 percent<sup>14</sup>, the country needs to be economically self-sufficient in order to become politically independent. Thus the country favoured the entrance of foreign companies and capital, since they carried the dream of independence one step closer. Not surprisingly this produced profound changes, and opportunities for the desired economic developments. In the course of my fieldwork (spring 2010), permits for exploration-drillings were granted to several international oil conglomerates, including Esso, Chevron, ExxonMobile and Shell<sup>15</sup>.

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<sup>13</sup> Fieldwork observation

<sup>14</sup> [www.stat.gl](http://www.stat.gl), Offentlige Finanser 2010: 6

<sup>15</sup> BMP list of licenses, 4<sup>th</sup> June 2010, [www.bmp.gl/petroleum/list\\_of\\_licences\\_20100601.pdf](http://www.bmp.gl/petroleum/list_of_licences_20100601.pdf)



Furthermore, mining operations throughout Greenland intensified and new opportunities are explored. Close to Maniitsoq, the fifth city of Greenland, the international company with anything but a clean track record, ALCOA, is close to start operating an aluminium smelter. These foreign companies influence society in an economic, political and socio-cultural way when they bring capital, people and goods and western ideas. Especially in the case of non-renewable-resource exploitation, the time between discovery and closure of the exploitation activity is relatively short, leaving newly adapted local economies with nothing but the dependency on an industrial activity no longer existing; the well known boom-and-bust cycle, connected to the oil business, leaves its traces in the appearance of collapsed communities (Poppel, Rasmussen & Winther 2005: 90).

On the 21<sup>st</sup> of June 2009 Greenland was granted Self Governance, an extensive form of political sovereignty, and the freedom to decide about its future independence. The colonial legacy has a profound impact on the wish to be independent, and the nationalist momentum heavily points to national sovereignty. During my fieldwork I noticed many aspects of this well-known nationalist sentiment. First and foremost is the shift from being represented in the slipstream of Danish delegations in international events, to an independent and separate representation, for example during COP15 in Copenhagen<sup>16</sup>. The first advantage is international recognition of Greenland as a nation-in-the-making, and thus mainly a symbolic but very important step in the process of nation-building<sup>17</sup>. Secondly, this newly acquired political leeway enables Greenland to pursue and defend its own interests and needs, for example an increase of CO2 emissions<sup>18</sup>. Another aspect of the enhanced independence from 1979 onwards, is the recognition of Greenlandic – next to Danish – as official language (Goldbach 2000: 264). Like Gellner (1983) states, language connects people and creates an imagined community (Anderson 1983), while nourishing an awakening nationalism (Agersnap 1999: 96-98).

An intertwined process is a more standardized and especially more readily available educational system. In order to protect and support Greenlandic as language, it is necessary to provide schooling in Greenlandic (Agersnap 1999: 96-97). More importantly, in order to gain political independency, Greenland well understands that economic self-sufficiency is a prerequisite. Improving the level and accessibility of education is the road and as such one of

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<sup>16</sup> [www.sermitsiaq.gl](http://www.sermitsiaq.gl), 19<sup>th</sup> December 2009: *Greenland's climate independence approved*

<sup>17</sup> Premier Kuupik Kleist, 19<sup>th</sup> May 2010

[http://uk.nanoq.gl/Emner/News/News\\_from\\_Government/2010/05/TheCircle\\_Changes\\_Challenges.aspx](http://uk.nanoq.gl/Emner/News/News_from_Government/2010/05/TheCircle_Changes_Challenges.aspx)

<sup>18</sup> [www.sermitsiaq.gl](http://www.sermitsiaq.gl), 12<sup>th</sup> December 2009: *Climate plan up for discussion Monday*



the focal points in governmental policy<sup>19</sup>. During my fieldwork period this became very clear while participating in local university life. Only in 2007 a new university building arose: a modern building with an open and transparent character rendering the Greenlandic dream of intellectual development. However, the building is used only by 200-300 people<sup>20</sup>. The amount of money spent per head struck me with amazement, and even astonished me when I realized that a significant part of these people consists of staff members<sup>21</sup>. Moreover, the government attracts students with tempting travel funds – aimed at importing knowledge and a broader perspective on the world – and scholarships in order to enhance Greenland’s changes for a sustainable society (Agersnap 1999: 98). In my eyes, the university fulfils a – both internally and externally – symbolic role, but also a highly functional one: no country can be independent without a properly educated elite to rule the country. Even though Greenland obviously has a long way to go, this university can be perceived as a step towards independence.

Finally, to enhance the desired economic development, the government actively attracts foreign capital by creating “*an optimal environment for the development of business and industry and thereby enable growth of the Greenland economy*”<sup>22</sup>. Especially the policy around the exploration of oil- and mining activities points out the governmental eagerness to attract foreign capital. During the *Baffin Bay oil tendering application round*, ending on 1<sup>st</sup> of May 2010, twelve international oil companies applied, with great approval of the government<sup>23</sup>. The very existence of a Bureau for Minerals and Petroleum and their unlimited authority to decide about the spatial planning of any area including the powers to overrule other governmental departments, tells the attentive observer a lot. Such a bureau can only exist within a government focusing strongly on attracting foreign capital:

*BMP [Bureau of Minerals and Petroleum] aims at ensuring professional promotion of the mineral potential in Greenland to the international mining industry. [...] BMP is the only authority the industry needs to contact in order to receive necessary licenses.*<sup>24</sup>

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<sup>19</sup> Coalition Agreement 2009-2013

<sup>20</sup> [www.ilimmarfik.gl](http://www.ilimmarfik.gl)

<sup>21</sup> [www.ilimmarfik.gl](http://www.ilimmarfik.gl); fieldwork observations

<sup>22</sup> Coalition Agreement 2009-2013: 7

<sup>23</sup> Ove Karl Bertelsen, Member of Naalakkersuisut for Industry Business and Mineral Resources, 3<sup>rd</sup> May 2010, *Successful oil tendering round in Baffin Bay*

<sup>24</sup> [www.bmp.gl](http://www.bmp.gl), 2<sup>nd</sup> June 2010



Those immense foreign companies with budgets bigger than Greenland's national budget, may effect Greenland in a great number of ways. Especially the hydrocarbon industry brings along challenges in the near future, a development the government is well aware of, according to Premier Kuupik Kleist:

*If we begin extracting large quantities of oil this will result in significant social and economic challenges. The benefits of such development will bypass the people of Greenland unless they are part of a cohesive and well-functioning society.*<sup>25</sup>

The entrance of powerful and strong international companies won't stop with mining and oil companies; rumours exist that "Google or other internet companies running hot and energy-hungry servers, may be attracted to the big cool rock in the north Atlantic" (Roberts 2009: 54). Shipping companies, the tourist industry and energy-firms might be attracted to specific Arctic characteristics as well (Borgerson 2008: 68-71; Roberts 2009: 54).

Furthermore, not only economic and thus political challenges will emerge with an intensification of corporate presence, but also socio-cultural problems. People have been hunters and fishermen for centuries, especially outside of the capital, and may be forced to change their personal lifestyles in a profound way. In the sparsely populated Greenland even small numbers of foreigners will have impact with bringing new traditions, customs, worldviews and new ideas, even though the actual effects remain unclear at the time of writing this thesis.

## **1.2 Social issues in a shifting society**

*This process of change [modernisation], and the population's attempt to adjust to it, have not been without problems—not least because changes took place at an unprecedented speed. Changes in economic, political and social structures led to a break with traditional norm and value systems. Owing to the rapidity of the process these systems, however, were not*

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<sup>25</sup> Premier Kuupik Kleist, 28<sup>th</sup> May 2010



*immediately replaced by new norms and values.* (Poppel, Winther & Rasmussen 2005: 94)

The challenges and changes I mentioned in this chapter, can and probably will have severe social consequences. The changing economic system, a changing political climate and an ongoing modernisation, carried on by globalisation make people change their lives in a profound and personal way. One example could be the forced closure of small and isolated settlements, since they are very costly to maintain. Traditionally Greenland has been a very egalitarian society maintained by a royal Danish socialism (Nielsen 2001: 231-2). Until today this is secured in a countrywide egalitarian price system and where “*the state plays a crucial role in terms of regulations, demand, allocation and ownership*” (Poppel, Winther & Rasmussen 2005: 89). In very remote and isolated settlements the gap between the consumer-price and the actual price is being subsidized by the government, irrespective of the price-difference. (Nielsen 2001: 231) Obviously this is a very costly enterprise and could be an incentive to close the smaller settlements.

Another strong, economic and political-strategic incentive to close settlements, is the difficulty to provide schooling in remote areas. However costly to maintain these settlements, everybody understands closure has a huge impact on the lives of the inhabitants of the closed settlements. When people are forced to leave, they leave not only their homes, but also their birth ground, their social network and the environment they are familiar with. The government realizes the existing problems and the need to address them:

*I touched, in the course of my address, on the massive societal consequences that the speed of the modernisation process has entailed for the people of Greenland. Just 50 years ago there were still people living in peat dwellings without running water, and today the majority of the population lives in modern accommodation. This rapid pace of development has of course had significant consequences for Greenlandic society, and these have been both positive and negative. Today we are still living with the consequences of this development, consequences such as an extremely high suicide rate.*<sup>26</sup>

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<sup>26</sup> Minister of Social Affairs Maliina Abelsen, 26<sup>th</sup> May 2010



Moving from a place of residence, finding a new job and building up a new social network has a deep impact on people's lives, especially when they are – due to human or environmental circumstances – forced to do so. Nuttall states that “*the loss of community is a threat to individual and social identity*” (2009: 300), endorsed by disaster-anthropologist Anthony Oliver-Smith (2009: 123). Exactly this is happening in Nuuk, symbolised by the earlier described appearance of Block P. Vast social problems produce a vicious circle, resulting in poor emotional environments, alcohol problems, (domestic) violence and a high suicide rate (Poppel, Rasmussen & Winther 2005: 94-95).

Now is the moment to return to the somewhat curious quote from Mike I started with: “*Eeh, remember not to joke about suicide!*”<sup>27</sup>. The described social problems seem to lead to a high rate of suicide, like the Minister of Social Affairs already gave account of in her earlier quote. Taking a closer look at the numbers, it turns out that the number of (attempted) suicides is especially high among men in the age of 15-24 with 400-500 suicides per 100.000 persons a year (Bjerregaard & Lyng 2006: 1). Those statistics seem to be interconnected with, perhaps symbolic for, the rapid and profound societal shift, even though a specific correlation between the variables is hard to prove. According to Bjerregaard and Lyng (2006) it all comes with the modernization package, symbolising the huge changes occurring in peoples lives, and the fact that especially the mentioned part of the population, boys from 15-24 years old, can't live the traditional life of their parents and grandparents, and at the same time haven't found a new place in society yet. Moreover, there seem to be specific characteristics about the ‘new society’ which don't match the traditional Inuit values, that make modern life and the related rejections and limitations in the modern world more difficult to cope with (2006: 216-17). The connection between suicide and climate change thus is to be found in the rapidly changing social environment and the overwhelming uncertainties.

### **1.3 Climate change and Greenland**

In short, a subsistence-economy, based on hunting and fishing, transformed to a modernised, western economy based on wage-earning. An ongoing modernisation, currently taken over by globalisation, can be hold responsible for the changes during the second half of the 20<sup>th</sup>

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<sup>27</sup> Informal conversation student, 24<sup>th</sup> February 2010



century. However, a new threat to the status quo came up during the end of the 1990's and the first decade of the 2000's: climate change. For its connection to both climate change and Denmark, Greenland was the focal point in the global preparations towards the COP15. Efforts to develop long-term perspectives and policies on international scale are locally received with indifference or outright resistance. In Greenland, "*Ajungilaq*<sup>28</sup>, *we'll find a solution*" is a commonly heard phrase, giving expression to the Greenlandic version of *laissez-faire*. Preceding the COP15 in Copenhagen, the Greenlandic government developed a website, expressively called [www.climategreenland.com](http://www.climategreenland.com).

*The idea was to bring information on Greenland today, and information on the challenges and possibilities that Greenland faces in the light of climate change.*<sup>29</sup>

However, with the end of the summit the owners stopped to update the website and the issue of climate change is left aside, probably to be brought up when the international focus is on Greenland again. A big opportunity to educate the (inter)national public on the impact of climate change on Greenland is missed, and explanatory for the importance the issue has in national Greenlandic politics.

COP15 in Copenhagen also shows that political awareness arrived globally at governmental levels, and that economic and societal pressure create incentives to prepare adaptational measures and prevent the occurrence of other negative effects and slow-onset processes. However, awareness proved to be insufficient to reach a large-scale and progressive agreement on international cooperation. Interests are huge and differ greatly from region to region, from country to country and from continent to continent. Developing – and polluting – states like China and India use the opportunity to exercise their new power. Greenland reached a deal with Denmark, bringing them the right to negotiate on their own behalf during the summit in order to defend the planned increase of CO<sub>2</sub> emissions<sup>30</sup>. Developed countries like the US and European states use climate change and 'sustainable development' to develop a structure of neo-imperialism (Argyrou 2005), which I will return to in the next chapter.

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<sup>28</sup> Greenlandic for: "It'll be alright"

<sup>29</sup> [www.climategreenland.com](http://www.climategreenland.com)

<sup>30</sup> [www.sermitsiaq.gl](http://www.sermitsiaq.gl), 19th December 2009: *Greenland's climate independence approved*



## **1.4 Conclusion**

Climate change is a very present theme in the scientific world, and provides an occupation to a lot of researchers trying to grasp the complex environmental and biological structures. However, I state – in accordance with other scientists<sup>31</sup> – that the socio-cultural area of climate change research to a large extent is underdeveloped. With this thesis I hope to contribute to an increased knowledge of these socio-cultural dynamics. I focus on one story, the tale of Greenlandic fishermen. In order to have a proper understanding of the current changes, I extensively explained the arctic situation in which Greenland is positioned.

I stated that current economic, political and socio-cultural shifts can be explained with the colonial heritage Greenland has. A wave of industrialisation and modernisation coincided with a rising nationalism, perfectly illustrated by the themes of language, education and increasing international political leeway. Perhaps the most important result of nationalism is to provide for an incentive to economic development. Combined with climate change there will be profound effects on Greenland. Since the society depends heavily on the fishery in economic and cultural respect, climate change may have a unexpected huge impact on society – through the fisheries. High suicide rates characterise a radical social transition – started by industrialisation and modernisation – probably being reinforced and extended by climate change.

In the next chapter, I will elaborate on the international discourse on sustainable development embedded in the Greenlandic context. I will turn to the present-day consequences of centuries of Danish rule, come back to the nationalist sentiments and explain how the discourse of sustainable development can be explained as neo-imperialism from a Greenlandic point of view, and how society and the fishermen cope with this situation.

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<sup>31</sup> Like Mark Nuttall (2009), Rasmus Ole Rasmussen (2007, 2009), Lawrence Hamilton (2007)



## 2. Sustainable development

*Why shouldn't we fish the shrimp right away, now we still can? If we don't do it, the cod or climate change will deplete the oceans.*<sup>32</sup>

Different opinions and perspectives exist on the much debated concept of sustainable development. The quote above comes from a staff member of a processing plant in Nuuk, and expresses an internationally rarely heard opinion. The local perspective strongly differs from the scientific views on sustainable development and the way to use available natural resources. In this chapter I will explain the international discourse of sustainable development, located in the Greenlandic context. Since it is a central concept in this chapter, I will start with defining it. I follow the Brundtland Commission in their widely recognized definition of sustainable development:

*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.* (United Nations 1987)

Naturally a range of differing opinions and disagreements exist with respect to this definition. Since the concept is not central but illustrative to the case I want to make in this thesis, I will not elaborate on it further. I will start the chapter with providing an understanding of the different perceptions on climate change, followed by a variety of perceptions of the Arctic. I will continue with two different perspectives – from a western and an indigenous point of view – on the road to development. Furthermore I discuss the present-day economic developments and embed the fisheries in the debate.

### 2.1 Perceptions on climate change

*Climate change is becoming an explanatory account for almost everything that seems unusual in the weather, the environment, or in people's actions and encounters with the natural world.* (Nuttall 2009: 293).

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<sup>32</sup> Staff member industry 1, 29<sup>th</sup> March 2010



In this paragraph, I discuss different ways of perceiving climate change. I will elaborate on the discourse of climate change from three angles, all based in a Greenlandic locality. I want to show that climate change is a socially constructed concept, with different definitions and usage in different contexts.

## Words matter

first of all, the concept of climate change has its origin in western science. Marino and Schweitzer observe that the term *climate change* exerts great levels of power and alters local patterns of speech (Marino & Schweitzer 2009: 209). This is an important methodological observation and one I made myself too. People react differently when asked about the weather patterns, land usage or ultimately ‘changing environmental circumstances’, than when asked about ‘climate change’ or ‘global warming’. The conversation immediately becomes more distant and it seems that people repeat what they have heard in the media. When talking while using the first set of concepts, stories become more personal, detailed and situated in the local setting<sup>33</sup>. People seem to comprehend the local occurrences of environmental changes and weather patterns, whereas climate change is something faraway affecting them but leaving them without power to mitigate the changes. Accordingly, I preferred the term ‘environmental changes’ for the mentioned reasons.

Illustratively, the educated captain Jens Ole recognized the need to slow the process of *climate change* down. However, he did not filter his boat’s CO<sub>2</sub>-emissions, because “*nobody asked me to do so, but I would do it, if somebody asked me*”<sup>34</sup>. Meanwhile he observes the icebergs disposed by the Ilulissat-glacier getting smaller every year, and characterizes them currently as *ice cubes*.<sup>35</sup> Accordingly, most fishermen definitively observe changes in the contemporary weather patters and temperatures, but do not frame them in a complex process of climate change. The terms I chose as researcher influenced the people I spoke to, mostly in their feelings of agency. This has important consequences for the impact of climate change I tried to trace as Nuttall points out (2009: 299), and I will return to this issue in the fourth chapter on arctic agency and adaptation.

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<sup>33</sup> Fieldwork observations

<sup>34</sup> Informal conversation captain tourist boat, 22<sup>nd</sup> April 2010

<sup>35</sup> Ibid.



## Change is constant

The concept of ‘climate change’ is quite controversial and not at all unambiguously defined, let alone agreed upon. According to Nuttall (2009: 297-8) people not necessarily view their environment as ‘changing’, but rather in a permanent process of ‘becoming’. Western science considers the current environmental change as a new phenomenon, both qualitatively and quantitative different from anything so far. However, Arctic people tend to experience their environmental neighbourhood as being in a constant state of *changing* and as such as embedded in a daily live of changes. Western science regards *climate change* almost as something evil, threatening to destroy human society, while the contemporary *environmental changes* perfectly fit in the Greenlandic framework of continuous change (Nuttal 2009). These views exist independently and simultaneously, but clash where western science and indigenous perspectives meet. A typical theme of disagreement – and very relevant for this thesis – is fishing quota; they are established based on scientific stock assessments without much space for indigenous perspectives<sup>36</sup>. Two opportunities exist to frame the natural stock fluctuations: constant environmental change without intentional human interference is the first, a downward process to be acted upon is the second point of view. The way the environmental processes and political discussions are framed has important consequences for how the changes are perceived and thus experienced. I will return to this issue in the third (fishery and climate change) and fourth chapter (arctic agency).

## Climate change: an instrument

*For indigenous peoples climate change is another chapter in the history of how the rest of the world has reached into, explored, exploited and influenced the Arctic for centuries. But they are portrayed (and often portray themselves) as victims of change unable to respond effectively to the environmental and social crises that the arctic meltdown will bring.*  
(Nuttal 2009: 305)

Finally, the concept of climate change is used instrumentally. Western science attempts to impose its view concerning climate change on others and subsequently attempts to influence

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<sup>36</sup> Fieldwork observations



local development in a number of ways (Argyrou 2005). However, also local agents make use of the concept of climate change. The indigenous organisation ICC frames climate change to defend indigenous rights (Nuttall 2009: 294). Climate change is said to exert a negative influence on the traditional indigenous lifestyle<sup>37</sup>. The structure of a changing climate is instrumental to put indigenous rights on the national and international agenda. The change *as such* is not supposed to be a negative element threatening the precarious ecosystem and human survival within it; the fact that the traditional lifestyle is threatened yet again – like it has been by western imperialism – is of interest here and structures the discussion. Climate change is being recast as a human rights issue, drawing attention the position of indigenous people and their rights in particular (Nuttall 2009: 294). This gives a new dimension to the discourse of climate change. As a result societal debate and especially the political decision making processes are confounded by one more dimension in the debate.

## **2.2 Perceptions on the Arctic**

Recently a fierce debate around climate change evolved globally from concern about (irreversibly) changing ecological circumstances, the responsibilities for these changes and thus the involved accountability (Economist 2009). This discussion often focuses on the Arctic, since this area can be seen as measuring the effects of global warming. Reason for this iconic status of the Arctic is its very precarious and sensitive ecological balance, easy to disturb and among the first areas in the world to suffer from the effects of climate change (IPCC 2007; ACIA 2005).

### **Pristine wilderness or living environment?**

Naturally, a debate evolved around the perception of the Arctic, and the leading arctic anthropologist Mark Nuttall provides us with a useful discussion on this topic. He states that the arctic often is viewed as a ‘pristine wilderness’, one where humankind should not start his operations in order to exploit the natural potential. Nuttall shows us on the other hand that this is a simplified and especially outdated perspective on reality; for centuries people actually have been living in the Arctic, and they definitely do affect their living environment since

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<sup>37</sup> Fieldwork observations



they make use of the available natural resources, like all other civilizations in the world (Nuttall 1998: 36).

Locally people strongly disagree with the idea of the arctic as pristine wilderness. The Inuit have been living on Greenland for generations and centuries, and live their lives as we live our lives in Europe or elsewhere. Greenlanders make use of the available natural resources, like all human populations do, and thus see the Arctic as their living environment. They recognize their strong dependency on natural resources, and allege to be among the first environmentalists around the world<sup>38</sup>. They claim to be careful with their natural environment and ecological system, by using the land and making use of its opportunities (Nuttall 2009).

### The status of knowledge

A strong scientific dichotomy exists, and even within these opposing lines of thought, consensus is absent. From a position of the ‘arctic as a pristine wilderness’, logically a policy of non-use follows, so consensus is easy to find here. However, accepting the claim of local inhabitants that the arctic is not a pristine wilderness but a living environment – for 56,000 people on Greenland alone – strong discussion erupts around the topic of how to use the available natural capital in a responsible and sustainable way. Scientists strongly disagree among themselves about the ways to reach this target, and a bigger gap exists between the local inhabitants and science. What is at stake is the status of *knowledge*, and the way it’s collected.

*The ability to thrive in the Arctic depends in large part on the ability to anticipate and respond to dangers, risks, opportunities, and change. Knowing where caribou are likely to be is as important as knowing how to stalk them. Sensing when sea ice is safe enough for travel is an essential part of bringing home a seal. The accuracy and reliability of this knowledge has been repeatedly subjected to the harshest test as people’s lives have depended on decisions made on the basis of their understanding of the environment. Indigenous knowledge is far more than a collection of facts. It is an understanding of the world and of the human place in the world. (ACIA 2005: 65)*

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<sup>38</sup> ICC staff member, 11<sup>th</sup> March 2010; Kuupik Kleist 19<sup>th</sup> May 2010



In the western world science is almost exclusively recognized as the method to acquire knowledge, in strong contrast with the indigenous point of view. Local, indigenous knowledge thus is not taken seriously, let alone recognized as being a way to gather knowledge. Knowledge occupies a very important place in society as it defines the organisation of society and it structures societal ideas about the surrounding world. The fact that indigenous knowledge is not accepted nor recognized, is denying an understanding of the world.

### **2.3 Road to development**

Developing countries tend to have a colonial history and thus have to cope with the legacy of this period; the same goes for Greenland. The Danish government stands benevolent towards an independent Greenland, but requires the country to be economically self-sufficient first. At the moment of writing, Greenland receives a Danish block grant of about 60 percent of its national budget. These dynamics create a country and population willing to develop economically in order to be politically independent. At the same moment they find themselves embroiled in the dichotomy of ‘the Arctic as a pristine wilderness’ versus a ‘place to live’.

#### **A western perspective**

Developing countries wonder what right the richer and more powerful western – so-called ‘developed’ – countries have to guide the direction in which the ‘developing countries’ should develop. Moreover, the western countries demand the developing countries to fit in a ‘proper framework’ as well. Lately, developing countries and specifically Greenland received support from scientists like Mark Nuttall. He claims that developing countries possess the ‘*right to development*’, just as many western countries developed during previous centuries, for example Denmark (1998: 117). Giddens even develops a stronger case and suggests a ‘*development imperative*’. Developing countries should develop economically in order to enlarge their own and the global community’s chances of long-term survival (Giddens 2009: 64). Although he recognizes a certain “*license to pollute*”, economic development mostly is placed in a sustainable perspective, which brings us back to the earlier disagreement. The environmental anthropologist Vassos Argyrou analyzes this discourse on sustainable development and comes up with a controversial conclusion; the discourse is almost neo-



colonialist in its modern, globalized attempt to exert power over developing countries. The West once again uses its earlier development and ‘knowledge’ to force a specific worldview and corresponding way of thinking and living upon others, this time disguised as ‘sustainable development’ (Argyrou 2005).

An example of the international stand towards Greenlandic industrial development – inherently resulting in increased pollution – is the debate around the oil explorations. Especially in the light of the recent disaster in the gulf of Mexico with the BP oil platform Deepwater Horizon, internationally critics pour their doubts on the global public and the Greenlandic government, regarding the Greenlandic plans to start the oil explorations on a larger scale<sup>39</sup>. To quote the Atlantic: “*Will Greenland become the Nigeria of the Arctic?*”<sup>40</sup>. To put it in an international perspective, during the COP15 developing countries like China and India felt the suggested measures to decrease CO2 emissions hit them relatively hard compared to other developed countries. The line of reasoning I explained before: developing countries started polluting in this very decade, the developed western countries polluted and emitted CO2 for the two previous centuries. They feel that western countries try to delay, if not stop their rapid economic development at all, and impose their worldview once again. Argyrou aptly coined the concept of *Logic of the Same* (2005), with the western countries claiming to protect the global environment and protecting the interests of all inhabitants of the world, but in fact just creating a kind of neo-imperialism or eco-imperialism in an attempt to extend their powers once again.

## The local perspective

This argument is getting used ever broader, and the Greenlandic government recognizes this logic. However, Greenland tries to exert its newly acquired powers to determine its national direction and its own pace towards acquiring full independence. This means economic development is more important than complying with western wishes to minimize pollution and protect the vulnerable environment by stopping economic growth:

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<sup>39</sup> <http://www.greenpeace.org/denmark/press/pressemeddelelser/stop-boringerne-i-gronland> 2nd July 2010; *Stop boringerne I Grønland*

<sup>40</sup> <http://www.theatlantic.com/magazine/archive/2009/11/oil-on-ice/7716/>: Oil on Ice



*Greenland is in the middle of a very challenging period. Creating new job opportunities and economic growth should be a priority, after which we should consider the problems and setbacks. But only after that.*<sup>41</sup>

Naturally, Greenland is highly dependent on the surrounding nature and its resources, and the economic developments are approached with an environmental perspective. But again, environmental concerns are ranked lower than economic development:

*Of course, globally the changes are worrying, and if emission of CO2 causes these changes (in part), we should take measures. However, on local level it would mean a disaster for Greenland, since a decrease in the use of fossil fuels would mean a slower or even stagnating economic development. Especially in the high arctic this creates huge problems, because of the high costs of transport, and the relative consumption of energy in daily life and industrial activities.*<sup>42</sup>

The government official argues that climate change is worrying on a global scale, but it is not Greenland which is most responsible to act. Moreover, it is Greenland's right to develop economically, and a changing arctic is just part of the considerations and not leading in the decision-making processes.

Alfred Jakobsen, chairman of a national organisation representing the fishermen and hunters called KNAPK, demonstrates the subtle act of balancing between economic development and environmental awareness and caution. He states that natural resources definitely should be used for the development of Greenland. However, caution and intellect should be practiced, and what happens at the moment could be questioned in that respect.

*Our best security lies in our natural resources. Selling them out to the highest bid is stupid. Yesterday I bought four finwhale steaks in the supermarket, and I realized it is marvellous that Greenland possesses and processes these natural resource, and we should be careful with it.*<sup>43</sup>

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<sup>41</sup> Government official 2, 8<sup>th</sup> April 2010

<sup>42</sup> Ibid.

<sup>43</sup> Interview Alfred Jakobsen, chair of KNAPK, 16<sup>th</sup> April 2010



This applies both for the marine resources and fossil resources. This quote displays the presence of environmental awareness. On the other hand it is continuously weighed and counterbalanced to economic development, in almost every national account on climate change or sustainable development. An example of the tension between economic and sustainable development is the way Greenland manages its fisheries and stocks. A senior scientist at the Institute of Natural Resources based in Nuuk, explained to me that the Total Allowable Catch is a quite symbolic figure: “*Basically we can speak of a free fishery, since quota are so high, they’re not restrictive*”<sup>44</sup>. This is partly due to the current political system and the steps in the decision-making process. On supranational level quota are set, states divide these quota on a national level and sometimes one more step in the process exists. This results in “*large-scale freeriding*”<sup>45</sup>, everybody strives to maximize his profits. A *tragedy of the commons* (Hardin 1968) is likely to occur, since nobody wants to pay the price of cutting back on short-term profits.

Yet again a paradox emerges, with the government funding the scientific institute, but not fully complying with the *knowledge* it gathers. Naturally, the governmental interests differ from those of a scientific institute, in that it has to take a diversity of perspective into account, not in the least public support for its decisions. The perspectives and interests of the fishery differ quite strongly from the scientific knowledge, and the fishery claims that ‘since we are more dependent on the fish and shrimp than anyone else, we are the obvious source of knowledge’. They claim the fish stocks are high enough to fish extensively, but at the same time completely depleted the cod stock in the 80’s (Hamilton, Brown & Rasmussen 2003) and possibly the shrimp stock in a matter of years<sup>46</sup>. This results in an internal clash of interests, since the stocks should be taken good care of, but at the same time the fishermen want to optimize their profits.

## **2.4 Conclusion**

The different notions of climate change make it a very controversial concept, with different intertwined and complex levels in the scientific debate. The words chosen, the status of

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<sup>44</sup> Interview scientist 2, 11<sup>th</sup> May 2010

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.



change as new phenomenon or constant factor confound the discussion to a high degree. Moreover, climate change is used – by some – as an instrument to advocate indigenous rights and thus frame the debate in a human rights structure. A second problem comes with the fact that perceptions on the Arctic differ strongly. Should it be perceived as a living environment with inhabitants and users, or as a pristine wilderness where no human activity should be tolerated? The answer produces important scientific and political implications. A subsequent discussion is the ‘proper road’ to development; Greenlanders do feel they have the right to develop, but the question remains what can be considered sustainable, and what crosses the thin line of sustainable development. A third problem arises when one realizes that the discourse and available policy measures most frequently are defined by western societies, with a scientific understanding of knowledge. This conflicts with the indigenous Greenlandic views on climate change, sustainable development and division of power.

The general debate on ‘sustainable development’ develops as follows: developing countries claim that Western countries seize the opportunity to impose a worldview on other once again and dismount it as neo-imperialism, using the argument Vassos Argyrou clarified perfectly. Accordingly, Greenland acknowledges this discourse, and attempts to escape in a two-level approach. Firstly Greenland pursues economic and political independency, the second ‘escape’ is to support and actively participate in international cooperation<sup>47</sup>. However, ambiguity, contradictions and different interests exist. Greenland is searching for a proper place for sustainability in the national discourse.

In the next chapter you will find an empirical account on the local occurrence of climate change. I will demonstrate the impact of climate change on Greenland, and especially on the fishery. Given that the fisheries are intertwined with many other societal dynamics and constitute 80-90 percent of national exports<sup>48</sup>, changes within the fishery have a big impact on society. In order to have a full understanding of the current changes, I will elaborate on those broader societal dynamics as well.

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<sup>47</sup> Premier Kuupik Kleist, 28<sup>th</sup> May 2010; Minister of Social Affairs Maliina Abelsen, 26th May 2010

<sup>48</sup> Greenland in Figures 2010



### 3. Fishery and climate change

*Commercial and non-commercial fishing and hunting practices are inextricably linked and are integral to the social, economic and cultural lives of Greenlanders. (ACIA 2005: 965)*

Fishery is embedded dynamically in the environment and in all levels of society. Until recently fishery was the only viable economic activity in Greenland and marine resources accounted for over 90 percent of national exports<sup>49</sup>. Consequently, environmental changes are inextricably linked to economic and societal shifts. Climate change is basically regarded as an environmental process but since nature defines society – especially in the case of Greenland climate change has a very social face. In this chapter I will start with a detailed description of the nature and structure of the Greenlandic fisheries. Thereafter I continue with discussing current environmental changes and the complex ways the fisheries are affected. I end with discussing the threats and challenges Greenland's fisheries face within the near future.

#### 3.1 Greenlandic fishery in society

*It's not about biology. It's about society and the way it appreciates, understands and prioritizes the environment and accordingly the quota we establish.<sup>50</sup>*

Traditionally Greenland is very dependent on its marine resources. This makes fishery the primary industry of the country and the backbone of the economy (Poppel, Rasmussen & Winther 2005: 87; Nielsen 2001: 235; Duhaime 2004: 72). Most individual coastal fishermen are also hunters, mostly depending on the season and the need to supplement their subsistence-income (Müller-Wille, Kingsley & Nielsen 2005). This combination of occupations inherently bears both opportunities and challenges, which I will return to in the next chapter. The fishery is administered with the use of a system of Total Allowable Catches (TAC) and Individual Transferable Quota (ITQ) (Arnason 2005: 101; Aparico 2005: 152).

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<sup>49</sup> Greenland in Figures 2010

<sup>50</sup> Interview scientist 2, 11th May 2010



**Figure 1: Export Greenland (2009)**

	<b>Export (mln. DKK)</b>	<b>Export (in %)</b>
Fish products	1,690	87.9 %
Shrimp	1,044	54.3
Other	646	33.6
Non-fish	233	12.1 %
<b>Total</b>	<b>1,923</b>	<b>100%</b>

Source: Greenland in Figures 2010

the national export. The biggest share of these exports are shrimp, accounting for 54.3 percent of the national export, DKK 1,923 mln. Thus the economy is not only based on one economic sector, but also largely on a single product, making Greenland very vulnerable both to world-market fluctuations and sustainability of their natural resources (Nielsen 2001: 235).

Since Greenland traditionally is a country of hunters and fishermen, fishing still is one of the most significant options to earn a living. Considering the icecap – covering over 80 percent of Greenland<sup>54</sup> – is uninhabitable, the entire population is located along the coast. Because few economic opportunities are available, huge numbers of inhabitants resort to a life as a fisherman and hunter. The official statistics count 1,442 people directly and ‘fulltime’ employed within the fisheries, on a total employment figure of 29,472<sup>55</sup>. This figure however is biased and needs some revision; an additional number of 5,003 works in the *trade and repairs* sector, largely created by supplying and processing demands from the fisheries. Furthermore the *transportation* sector provides work for 2,582 persons, the *industrial services* branch employs 924 people; again the fishery largely provides for the demand. An astonishing 13,064 persons (44.3%) are employed in the public administration and services, making *construction and building* (2,904 people employed) the only industry worth mentioning not involved in fishery related activities. These numbers signify that the fisheries are deeply

Furthermore, the government consults the scientific Institute for Natural Resources<sup>51</sup> and international organisations like the International Council for the Exploration of the Sea<sup>52</sup> and the Northwest Atlantic Fisheries Organisation<sup>53</sup>. The fishery related exports of 2009 value 1,690 mln. DKK, comprising 87.9 percent of

<sup>51</sup> [www.natur.gl](http://www.natur.gl)

<sup>52</sup> [www.ices.dk](http://www.ices.dk)

<sup>53</sup> [www.nafo.int](http://www.nafo.int)

<sup>54</sup> Greenland in Figures 2010

<sup>55</sup> See figure 2: Employment Greenland (2006)



embedded in society. The strong dependency on the sea results moreover in the fact that socio-cultural life is constructed around the marine environment, proof of which is the belief in the ‘mother of the sea’, the ways government buildings are furnished and the location and design of municipal statues<sup>56</sup>.

The sheer number of people (indirectly) involved in the fisheries makes them a determining element in

Greenlandic society. Every fisherman represents a family – dependent on the catch of the day and the dangers of the life of a fisherman. Moreover, an entire processing industry exists around the hardcore fishery: land-based processing factories handling the catches, logistic companies arranging the local and international transporting transportation. Besides the processing of the products, a secondary industry evolves around the supply and maintenance of the fishing fleet. Then a large body of governmental regulation exists to protect the oceans from depletion, embodied by a ministry of Fisheries, Hunting and Agriculture and a consulting agency called ‘*Styrelsen for Fiskeri, Jagt og Landbrug*’<sup>57</sup>. Finally, a range of organisations operating on local (NAPP) and national level (KNAPK, ICC), represents the interests and rights of the fishermen (and hunters). Fluctuations in fishing circumstances thus have large effects on society, both on financial level and politico-societal. An example of this chain of effects could be a small change in temperatures. When a certain threshold-temperature is reached later in the season – even a matter of weeks – the fishing activities are delayed as well, since temperature is a highly constraining factor both for industrial trawlers and individual fishermen on small open boats. Logically also the processing plants are affected by a delay, as well as the suppliers. It also means a shorter growing season for the fish and prawn, resulting in smaller sizes and thus smaller catches, since official catch

**Figure 2: Employment Greenland (2006)**

	<b>Employment (persons)</b>	<b>Employment (in %)</b>
Fishery related	12,855	43.6
Fishery (directly)	1,442	4.9
Trade and repairs	5,003	17.0
Construction and building	2,904	9.9
Transportation	2,582	8.8
Industrial services	924	3.1
Public administration and service	13,064	44.3
Other	3,553	12.1
<b>Total</b>	<b>29,472</b>	<b>100</b>

*Source: Greenland in Figures 2010*

<sup>56</sup> Fieldwork observations

<sup>57</sup> [http://dk.nanoq.gl/Emner/Landsstyre/Departementer/Departement\\_for\\_fiskeri.aspx](http://dk.nanoq.gl/Emner/Landsstyre/Departementer/Departement_for_fiskeri.aspx)



requirements state minimum sizes. This could have long-term societal effects on the population and thus be an incentive to adjust legislation, with profound implications.

### **3.2 A dual industry: coastal vs offshore fishing**

The Greenlandic fisheries can be characterized into two categories: coastal and offshore fishery. The main distinctive feature is the exploited area; coastal vessels mainly fish in the fjord systems or just outside the coastline, for a diverse range of fish and shrimp. The offshore fishing vessels principally fish for shrimp on the oceans and thus travel longer distances and have a higher degree of self-sufficiency. Generally, the size of the boats is the main reason for this division, and could certainly be based on the length of the ship or its 'bruto register tonnage' (BRT). However, the distinction I will apply is based on the number of employees, corresponding with many other features.

#### **Industrial trawlers**

The bigger offshore vessels mostly have a crew of 20-30 people, operating the highly sophisticated onboard processing facilities. The vessels can venture out for longer trips of two to three weeks, the limiting factor being the loading capacity of the ship and the willingness of the crew to stay away from their home and



families. When the nets are hauled in, the onboard factory facilities select, sort, cook and pack the catches. Subsequently the packages of shrimp are transported to the big cargo compartment, stretching from bow to stern. When the vessels return to the harbour with a maximum load of 800 tons, unloading and resupplying takes about 24 hours, conducted by a separate land-based unloading crew<sup>58</sup>.

About twelve vessels can be counted to this type of shrimp trawlers based in Nuuk. These are partly owned by the government-owned *Royal Greenland* and the private company *Polar Seafood*, the two biggest and most powerful fishing concerns. Next to these million-

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<sup>58</sup> Interview captain shrimp trawler, 28<sup>th</sup> April 2010



dollar conglomerates<sup>59</sup> five smaller industrial fishing corporations like *Sigguk Greenland A/S*, *Niisa Trawl ApS*, *Nanoq Trawl A/S*, *Qajaq Trawl A/S* and *Ice Trawl Greenland A/S* possess relative large shares of the prawn quota and own one or two modern shrimp trawlers<sup>60</sup>. Then some of the bigger vessels based in other towns – like Ilulissat, Aasiat, Sisimiut and Paamiut – unload occasionally at the Nuuk facilities<sup>61</sup>. Finally, an international fleet from Canada and EU fishes in Greenlandic waters, comprising of approximately fifteen vessels<sup>62</sup>.

Industrial vessels are legally obliged to land and process at least 25 percent of their catches locally. This means they are allowed to export a maximum of 75 percent of the catch. Processing in low-wage regions, for example Poland, China and Vietnam proved cost-cutting, and the higher prices paid on foreign markets create an incentive to export<sup>63</sup>. This ‘25-percent measure’ principally aims at preserving a certain number of jobs on Greenland and to a lesser extent ensuring a supply of the local market (FAO 2004; Rasmussen 2005: 58).

## Coastal vessels

The smaller boats vary from open boats with capacities for one person, catching up to several 100’s of kilograms and taking out just for an afternoon, to vessels with a capacity for four to five people, loading capacities of several tons and limited onboard processing capacities. The limiting factor in the length of their trip is the freshness of the catch upon delivery to the land-



based processing factories. A fishing trip naturally does not last for longer than two to three days, depending on the air- and sea temperature. The number of coastal fishing vessels surpasses the number of offshore fishing vessels by far and statistics indicate that around 2,500 persons are fishing from small boats in the Nuuk area, landing only 5 percent of the formal economic outcome (Rasmussen 2005: 57). This

<sup>59</sup> Interview captain shrimp trawler, 28<sup>th</sup> April 2010

<sup>60</sup> Greenland in Figures 2010; GFLK Fangstrapport 2010

<sup>61</sup> Fieldwork observations

<sup>62</sup> GFLK Fangstrapport 2010

<sup>63</sup> <http://innovisio.ipaper-cms.dk/RoyalGreenland/WWW/AnnualReportRoyalGreenland200809/>, Royal Greenland Annual Report 2008-2009



estimation however contradicts the official statistics, and unfortunately I have not been able to find out where the difference stems from.

The smaller and coastal fishing boats sell their catches to one of the processing plants. Royal Greenland owns and operates the biggest, Polar Rajaat – owned for the largest share by Polar Seafood – being another big processing plant. For their subsistence the small fishermen thus depend on the prices paid by the factories, which in turn are dependent on the local supply and demand, the international market and the wavering costs of the production process. Even with good catches, the fishermen might end up disillusioned since the prices paid are just enough to survive another fishing trip, especially since fuel prices are rising. Moreover, the world market is flooded with warm-water prawns from the south-east Asia region like the Indian Tiger shrimp, lowering the prices for the Greenlandic cold-water prawn<sup>64</sup>.



## Type of work

Another characteristic of the different fisheries is to be found in the type of work and the required knowledge; on the big industrial trawlers the main part of the work is unskilled labour. After a couple of weeks or months of experience, one is able to haul in the nets and function properly in the onboard factories. These two tasks are the most labour-intensive jobs onboard a fishing vessel, and can be fulfilled without a high level of education. The captain of a shrimp-processing vessel explained that even a relative poor mastery of Danish is sufficient to work on his ship, where body language and learning-by-doing fill in the language gaps. Nevertheless the four to five staff members necessarily hold a higher degree of education, and the captain needs to be skilled in a range of subjects<sup>65</sup>.

In contrast to the low-skilled labour in the offshore fishery, the labour on a coastal vessel is more specific and requiring a broad range of skills and knowledge, usually gathered

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<sup>64</sup> Interview government official 2, 8<sup>th</sup> April 2010

<sup>65</sup> Interview captain shrimp trawler, 28<sup>th</sup> April 2010



in the course of a fisherman's life. Similarly, the bulk of the fishing activities consists of setting out and hauling in the nets, storing the catch, maintenance of the boat and – it goes without saying – navigating the boat. However, the density of the work is higher, since a smaller number of people is onboard, with a lot of coastal fishermen venturing out alone. This requires a fisherman to have a profound knowledge of navigating a boat in difficult arctic icy circumstances and unpredictable weather. He needs to possess detailed seasonal knowledge with regard to good fishing spots. Moreover, he needs extensive fishing skills and the capacities to maintain his boat and in case of problems the individual fisherman should be able to solve them with the available means<sup>66</sup>.

It is not uncommon for boys to start sailing – with their father – from an age of ten years. In this way they acquire the necessary knowledge and skills. This type of knowledge is in international science referred to as *traditional knowledge*, or *indigenous knowledge* (Crate & Nuttall 2009; ACIA 2005). Over the generations this knowledge is collected, reinforced, extended extend and passed on to the next generations. I will provide an illustration of the importance of this life-long education in the next chapter on agency and adaptation, with the story of a UNESCO World Heritage Park Ranger in Ilulissat<sup>67</sup>.

## The role of money

The final dividing feature I want to address, is the role of money. In the coastal small-scale fishery the individual fishermen work to make a living; this type of fishery thus is subsistence-based in the sense that catches are being sold to provide in ones subsistence. The fishermen depend heavily on the amount of catches and the prices they receive from the processing plants like Royal Greenland or Polar Rajaat<sup>68</sup>. The level of their catches is highly seasonal and depends on many environmental factors, making their economic survival vulnerable.

In contrast to this economically precarious subsistence fishery, the fishermen on the bigger trawlers earn a standard wage, with additional bonuses corresponding to the catches<sup>69</sup>. This puts them in a very safe and comfortable position, since they are assured of monthly

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<sup>66</sup> Interview staff member industry 2, 4<sup>th</sup> March 2010; interview fisherman 3, 14<sup>th</sup> April 2010; interview Alfred Jakobsen 16<sup>th</sup> April 2010; interview fisherman 2, 19<sup>th</sup> April 2010

<sup>67</sup> Interview fisherman 2, 19<sup>th</sup> April 2010

<sup>68</sup> Interview fisherman 3, 14<sup>th</sup> April 2010; interview staff member industry 1, 29<sup>th</sup> March 2010

<sup>69</sup> Interview captain shrimp trawler, 28<sup>th</sup> April 2010



wages and do not need to fear low catches on the next trip. Moreover, these ‘commercial-wages’ are about four times the ‘subsistence-wages’ earned by the coastal fishermen<sup>70</sup>. This unequal income structure creates strong social stratification, an observation endorsed by Poppel et al.:

*This process [increasing numbers of large-scale projects coming with modernisation, like industrial fisheries] has caused a marked divergence between on the one hand a traditional sector heavily dependent on subsistence, with small money incomes and personal transfers, and on the other hand a modern sector with high dependence on money income as well as high transfer rates. This process has resulted in a very diverse and unequal income structure with social stratification and unemployment as important elements. (Poppel, Rasmussen & Winther 2005: 90)*

Compared to each other, the coastal fishery could be described as subsistence-fishery, while the sums of money involved in the offshore fishery make ‘capitalist’ an appropriate term to apply on this type of fishery (Rasmussen 2005: 58). The catch of two to three weeks of offshore fishing can value about DKK 5-25 mln. (€ 0.7 – 3.5 mln.), producing a day’s return of DKK 1 mln. (€ 130,000). However, the costs to deduct from this figure are quite high, with 20-30 onboard employees, 800,000 L diesel, high maintenance costs, and a vessel’s purchase price equating DKK 150-250 mln. (€ 20-33 mln.)<sup>71</sup>. Whereas coastal fishing boats mostly are inherited or purchased with a loan, the offshore trawlers with onboard factory capacities require huge investments, and thus have a pronounced financial profile, accompanied by higher risks, and higher profits.

As a consequence, the different types of fishery have different positions within Greenlandic politics. The sheer number of coastal fishermen make them a powerful political force, in matters of electorate but also in civil society. As I already said, at least three organisations represent the fishermen: the local Nuuk-based NAPP, the national KNAPK, and finally the internationally operating ICC (also called *Inuit*), defending indigenous rights. All have political influence and, for instance, participate in negotiations about the prices for

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<sup>70</sup> Interview government official 2, 8<sup>th</sup> April 2010

<sup>71</sup> Interview captain shrimp trawler, 28<sup>th</sup> April 2010



different species or the design and adjustment of legislation<sup>72</sup>. However, the financial structure of the coastal fishery makes the organisations dependent on governmental subsidies and small membership contributions. Contrastingly, the nature of the industrial offshore fishery is involved with large sums of capital and thus possibilities to exert political influence. Two well organised associations, the Employers Association of Greenland (GA)<sup>73</sup> and the Coastal and Seafaring Fisheries Association (AP), represent the offshore industry and its interests<sup>74</sup>.

In this paragraph I explained the different characteristics of the Greenlandic fishery. The distinction into two categories is important to make, since environmental shifts have a different impact on the different types of fisheries. In the next section I will elaborate on the complexities of environmental and biological shifts.

### **3.3 ‘Shifting’ environments**

*The anticipated consequences of climate change are more complicated than warming temperatures that could shift a species range northwards. Other variables such as currents, stratification, seasonality, waves and storminess, which affect fish both directly and through species interactions, make prediction a daunting task. (Hamilton 2007: 2961)*

#### **A complex environment**

The first and foremost change people think of when talking about climate change, is a rising temperature followed by rising sea levels. When the current process of global warming continues like expected, the temperature could rise for approximately 2°C over the course of a couple decades (IPCC 2007; ACIA 2005), the Arctic being probably affected twice as heavy (IPCC 2007: 30). Moreover, 2°C might appear to be a minor increase, but Nuttall states that:

*“... relative minor variations in temperature have produced large positive feedbacks in the Greenlandic environment, that have often had dramatic impacts on physical and biological systems” (Nuttall 2009: 298).*

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<sup>72</sup> Interview Alfred Jakobsen, 16<sup>th</sup> April 2010; interview government official 1, 13th April 2010

<sup>73</sup> [www.ga.gl](http://www.ga.gl)

<sup>74</sup> <http://sermitsiaq.gl/indland/article86557.ece?ref=mf>, 5<sup>th</sup> June 2009



Naturally the rise in temperature is an important and highly ‘visible’ process, but many underlying processes will occur at the same time. The rising temperature in Greenland probably results in a specific set of environmental conditions shifting northwards, relocating the local climate. The temperature of the seas translates into a geographic habitat for marine species like cod and prawn. A multiplicity of conditions exists as a prerequisite for a viable prawn stock, and an appropriate temperature interval – the range between the minimum and the maximum temperature required for survival – is one of them<sup>75</sup>. Currently this results in a specifically located habitat outside the coastline of Greenland. I will take you on a thought experiment: with a rising temperature, the conditional temperature interval of a specific habitat – say 4 to 8°C – shifts northwards. The fisheries thus have to relocate their operational area as well, with the offshore fishery suffering most because the distances they cover increase exponentially<sup>76</sup>.

Furthermore, these changing temperatures have secondary consequences as well; ice behaviour will change – arriving later and melting earlier in the season – with profound consequences for arctic logistics and food chains<sup>77</sup>. Shifts in freshwater proportions produce significant changes in the mixture of brackish watersystems (Lippsett 2005: 24-25; ACIA 2005: 371-377; IPCC 2007: 33). Changes in the proportions of the types of water can have profound effects on the living circumstances for the stocks.

*Climate affects marine biota directly, through temperature, currents, sea ice and snow, and indirectly through processes that affect nutrient availability (Schrank 2007: 11)*

Besides the described secondary chains of consequences, other and more complex environmental mechanisms exist and are subject to the changes. Temperatures vary on land and sea, and result in different air pressures and changing wind patterns and especially increased unpredictability. Furthermore, a potential acidification of the oceans looms affecting the construction of the carbonate shells of shrimps (Lippsett 2005; IPCC 2007: 52; Munday et al. 2009; Orr et al. 2005), and the complex systems of global currents might

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<sup>75</sup> Interview government official 2, 8<sup>th</sup> April 2010; interview scientist 1, 29<sup>th</sup> March 2010

<sup>76</sup> Interview government official 2, 8<sup>th</sup> April 2010; interview industry representative, 31<sup>st</sup> March 2010

<sup>77</sup> Interview captain tourist boat, 22<sup>nd</sup> April 2010



change (ACIA 2004: 36-37). The weather and climate used to be very stable and the predictability of potential dangers was high. Far away changes can have a profound impact on the local environmental context (Lippsett 2005: 24-25; ACIA 2004).

Finally, a range of complex biological consequences turns up. Changes in temperature, ice conditions, currents, wind dynamics all affect the different stocks in different ways. Viable living conditions for cod might turn into a decline of the existing shrimp stocks, since they are an important source of food for Atlantic Cod. The more stocks and groups of animals ‘participate’, the more complex and difficult to understand the inter-stock dynamics become (ACIA 2005; IPCC 2007). Since this thesis is primarily about the socio-economic impacts of a changing climate, I leave these complex ecosystems now. However, to gain a proper understanding of the impact of climate change on Greenlandic society, I think it was a necessary exercise.

## Locality matters

Of course the discussed dynamics do not occur everywhere in the same way: locality matters. My research is based on data collected in the capital, Nuuk, differing in many aspects from other places in Greenland. Especially the environmental and biological differences deserve our interest here. I can only compare my findings in Nuuk with a week-long fieldwork in Greenland’s third city Ilulissat – Greenlandic for ‘icebergs’<sup>78</sup> – located in the Disko Bay area about 250 km north of the arctic circle. Ice is a determining aspect of the Ilulissat-fishery, whereas in the year round ice-free Nuuk-area ice is of minor importance. A changing temperature with the subsequent environmental and biological processes thus has a complete different impact in an ice free area like Nuuk, than in a locality based on the presence of ice. During the winter in the Disko Bay area, the ice provides a highway of transport opportunities for dog sledges, a common means of transport. When the icesheet covering the Disko Bay starts to thin, it becomes dangerous or outright



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<sup>78</sup> National Geographic, June 2010: 61



impossible to travel and fish by dogsledge. At the same time the ice is still too thick to allow small and open fishing boats to sail, trapping the fishermen at home.

Different localities experience different consequences of environmental changes and the social structure determines the impact of environmental changes on a socio-economic system (Hamilton et al. 2003: 275-277). An illuminating example of a ‘comparable’ shift with complete different outcomes is the decline of the cod fishery during the 70’s and – after a modest revival – a full-scale collapse at the end of the 80’s. Hamilton et al. (2003) tell a tale of two different cities called Sisimiut and Paamiut, having different social structures and administrations. Paamiut, being a centre for the landing and processing of cod on the southwest coast of Greenland, proved unable to adapt to a sharp fall in cod catches. Sisimiut, south of the Disko area, historically flexible and administered progressively, appeared to be able to shift its cod fisheries towards shrimp. When the new status of ‘shrimp-centre’ was established, the city flourished, even when the shrimp fishery extended southwards, in the direction of the former cod-centre Paamiut. The authors firstly conclude that:

*Socially important environmental changes result not simply from climatic change, but from interactions between climate, ecosystem, and resource usage, (Hamilton, Brown & Rasmussen 2003: 280)*

followed by their second conclusion:

*[...] environmental changes affect people differentially through interactions with social factors. Social networks and cohesion (social capital), as well as skills (human capital), investments (physical capital), and alternative resources (natural capital), shape how the benefits and costs are distributed. (Hamilton, Brown & Rasmussen 2003: 280)*

An environmental change has a complete different outcome in two cities. This example of the cod-to-shrimp transition points out that environmental changes are embedded in societal circumstances. In order to obtain a holistic understanding of the transition the fishery finds itself in the midst of, I will use the next section to discuss the potential challenges the fishery faces.



### 3.4 Challenges for a globalizing fishery

*Fishermen want to live the traditional fisherman's life and at the same time make use of the luxuries of globalisation while buying expensive television sets, cars and mobile phones.<sup>79</sup>*

The current modernisation-related changes the Greenlandic government tries to accommodate, affect the fisheries in several structural ways. The first I want to discuss here is the industrialisation of the fishery. Since the big offshore trawlers reach a higher level of efficiency, a smaller number of people is involved in landing the same catch. Naturally the capitalist industry tries to optimize its profits and thus save on the number of employees. Job opportunities in the offshore fishery decrease, and an increasing number of people have to find jobs in other branches<sup>80</sup>.

At the same time the coastal fishermen have difficulties to maintain their subsistence. Partly caused by a changing environment, but not in the least by a more globalized lifestyle like the quote above underscores. The fishermen want to be a part of the modern world and participate in western luxury, as the quote above shows. Yet they don't reach the same level of professional efficiency and thus have relative higher costs to land the same catch. Scaling up is the only appropriate answer to these 'globalized needs', and especially the individual coastal fishermen find it hard to meet to these conditions. This results in a harder existence or 'bankrupt' fishermen having to find new jobs in different branches<sup>81</sup>.

Moreover, the very common combination of being a fisherman and hunter brings a new dynamic with opportunities and vulnerabilities. I would like to focus attention on the EU ban on sealskin, set to take effect in August 2010. Since the seal is a commonly hunted animal, constituting both a source of subsistence and income for the hunter/fisherman, the ban on sealskin creates considerable problems because the financially important skin cannot be sold. Even though an exception for sealskin from Greenland exists, the international market is destroyed and leaves the fishermen with another challenge to face<sup>82</sup>. An additional problem is

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<sup>79</sup> Interview government official 2, 8<sup>th</sup> April 2010

<sup>80</sup> Ibid.

<sup>81</sup> Ibid.; interview fisherman 3, 14<sup>th</sup> April 2010

<sup>82</sup> Ibid.; interview ICC staff member, 11<sup>th</sup> March 2010



the fact that the seal can be considered “*the rat of the oceans*”<sup>83</sup> and according to the Minister of Fisheries, Hunting and Agriculture Ane Hansen, the seal appears to be a fierce competitor of the fishermen<sup>84</sup>. Without being hunted the seal population will increase and thus minimize the fish stocks. Since seal populations primarily live along the coast and both the seals and fishermen depend primarily on fish – in contrast to the offshore trawlers – the EU ban on sealskin might affect the coastal fishery profoundly.

According to an assessment biologist at the Greenland Institute for Natural Resources, also overfishing threatens the sustainability of the stocks. Especially the industrial fishery has a role here since their (short-term) goal of economic profits combined with the large-scale fishing operations created a *tragedy of the commons* (Hardin 1968) with regard to the cod-fishery<sup>85</sup>. A senior scientist complements his colleague’s statement with his view that “*no reason exists to save the prawn-industry from a similar development*”<sup>86</sup>. Like in most fishing nations, quota limiting the conditions of fishing activities do exist. However, they are set too high to effectively restrict the fishery, practically creating a free-fishery<sup>87</sup>. Moreover, the previously dominant political party – for 30 years – granted the industry higher quotes whenever requested<sup>88</sup>, a commonly observed process (Poppel et al. 2005: 90). Since 2009 the political climate changed somewhat in a more restrictive direction, but the government still has to cope with the legacy of its predecessors. The senior scientist gives the example of the return of a small but fishable cod-stock during the years 2003 and 2005. Immediately the fishery requested for permission to fish, and high quota were allocated. It resulted in a stock that was unable to settle and thus effectively vanished – whether migrated or overfished – when the fishing season was over<sup>89</sup>.

Finally, like I discussed in the context chapter, an emerging oil industry brings new challenges and opportunities to the fisheries. The boom-and-bust cycle discussed in the context chapter plays a big role in this respect. The possibilities of heavy pollution of the seas threaten both the offshore and coastal fishery, and the social impact on a small-scale society is potentially huge.

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<sup>83</sup> Interview industry representative, 31<sup>st</sup> March 2010

<sup>84</sup> Speech Ane Hansen, 25<sup>th</sup> June 2010:

[http://uk.nanoq.gl/Emner/News/News\\_from\\_Government/2010/06/iwc\\_ane.aspx](http://uk.nanoq.gl/Emner/News/News_from_Government/2010/06/iwc_ane.aspx)

<sup>85</sup> Interview scientist 1, 29<sup>th</sup> March 2010

<sup>86</sup> Interview scientist 2, 11<sup>th</sup> May 2010

<sup>87</sup> Ibid.

<sup>88</sup> Ibid.; Interview scientist 1, 29<sup>th</sup> March 2010

<sup>89</sup> Interview scientist 2, 11<sup>th</sup> May 2010



### 3.5 Conclusion

Summarizing, in this chapter I explicated the structure of the Greenlandic fishery. I displayed a dual economy, consisting of a subsistence-based coastal fishery - consisting of individual fishermen with small boats – and an industrial offshore fishery, founded in capitalist business models. The small-scale coastal fishery mostly provides jobs for individual fishermen with small open boats, whereas the industrial fishery employs crews of 20-30 people on a vessel paid with a monthly wage. Then I moved to the environmental shifts – also called *climate change* – and showed the complexities of these multidimensional processes. An increasing temperature, moving stock habitats, changing ice characteristics and alterations of global currents and winds, as well as an increasing acidification are among the most important shifts. Finally, highly unpredictable ‘interstock’ dynamics exist.

This range of environmental and biological changes has a different impact in different localities. This is not only due to varying natural circumstances, but also to differing social structures, receiving and acting upon the changes very differently. I ended with discussing several of the challenges the Greenlandic fishery faces in the near future. These challenges can have an economic character, in the case of restructuring the fishery and industrial professional efficiency or a (geo)political nature, when a EU ban on sealskin destroys the international market and local stocks. Finally environmental challenges exist, due to changing circumstances and a fishing pressure too high to maintain the current level of stocks.

Schrank (2007) hypothesises that the overall outcome of a changing climate eventually will be positive for the Greenlandic fisheries:

*In Greenland [...] a warming climate trend is likely to improve the state of fisheries, particularly of the cod stock, although increased cod predation would reduce the shrimp population which now dominates the Greenland fishery. (Schrank 2007: 14)*

However, since the shrimp industry is the financial pillar of the Greenlandic economy, I question Schrank’s claim. More likely is that the effects of a warming climate first will have a devastating impact on the shrimp fishery and thus on society. Greenland will probably face an economic comeback after restructuring its fishery and shift focus from shrimp to another



species, like Atlantic Cod or Greenland Halibut. The net result in my eyes is nevertheless highly unpredictable, in accordance with ACIA:

*As a result of this missing information, any projections of what will happen to fish stocks, and any projections to the effects on society, must be tentative and highly uncertain. There are three major categories of uncertainty: (a) uncertainty about the causes (natural or anthropogenic) of past changes in fish population; (b) uncertainty about future climate change; and (c) uncertainty about the effects on society of changes in fish populations.*  
(ACIA 2005: 693–694)

In the next chapter I will discuss the ways the fishermen adapt to the changes they witness and need to act upon. Furthermore I will explain the role of civil society and I will elaborate on the governmental role in overcoming or at least facing the environmental challenges embedded in societal circumstances.



## 4. Arctic agency

*The present international focus on climate change tends to take attention away from the fact that life in the far north has always been challenged by both regular and random changes in nature and that communities in these regions generally have managed to adjust to these changes (Rasmussen 2009: 524)*

Change is nothing new. Neither is adaptation. New is our perspective on it, as Rasmussen aptly expresses. “*The Arctic is by nature highly variable*” (ACIA 2005: 90), and accordingly Arctic inhabitants have been adapting for centuries to changing circumstances. They simply vanished when unable to adapt rapidly (Hamilton et al. 2003: 2959). The settlement (ca. 985 AD) and subsequent extinction (ca. 1500 AD) of the Norsemen on Greenland is an instructive example (McGovern 1980; Diamond 2005: 264-344). As it appears, the highly variable and extreme natural circumstances in the Arctic limit the inhabitants severely in their economic opportunities (Rasmussen 1999: 217). Like I concluded in the previous chapter, an economy based on fishery and one single product within that sector – prawns – is extremely vulnerable. Under influence of environmental shifts, lifestyles and entire economies need to change rapidly and profoundly. With the current discussion around climate change, globally a strong debate evolves with respect to local adaptation, agency and the surrounding structure. In this chapter I will consider the adaptational changes through the lens of the structuration-theory of the leading sociologist Anthony Giddens (1984). He identifies two opposite but intertwined concepts, *agency* and *structure*, and situates them in a conceptual framework in order to explain the behavioural choices people make. In this chapter I distinguish two levels of structure and agency. Firstly, on the level of the individual fisherman within the national Greenlandic framework. And secondly, agency on the level of the Greenlandic nation-state in a global framework. Both have impact on the changes the fisheries currently face. I conclude with an elaboration on the short- and long-term behavioural choices of Greenlandic fishermen, companies and policy measures of the government.



## 4.1 Giddens' structuration theory

Flexibility and the ability to adapt do not exist in a vacuum, but are embedded in a social situation. In order to describe and understand this 'local situatedness' the sociologist Anthony Giddens developed a framework called *structuration theory* (1984). He states that the level of flexibility and resilience of individuals is determined by a duality of the structure of the surrounding society and the level of agency one experiences (Giddens 1984). These concepts of *agency* and *structure* presuppose each other and are complementary. A definition of the concept *agency* seems appropriate here, and I extracted the following definition:

*Agency is the capability of individuals to do things resulting in the individual being a perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently. Whatever happened would not have happened if that individual had had not intervened.* (Giddens 1984: 9)

Supplemented by the following remark:

*To be able to 'act otherwise', means being able to intervene in the world, or to refrain from such intervention, with the effect of influencing a specific process or state of affairs.* (Giddens 1984: 14)

In accordance with many philosophers, Giddens starts a separate though related discussion around the issue of unintended consequences of intentional conduct (1984: 11-14), which I will leave aside. The behaviour – defined as a lifelong set of choices – of individuals can be described as being a product of their agency and the surrounding structure. The structure people live within and act upon, defines the framework of their possible social actions, in the meanwhile creating opportunities, challenges, limitations and impossibilities (Tucker 1998: 84). On the other hand, a society consists of individuals, and a structure exists because of choices of many individuals together, some more powerful than others. People not only live within a structure, but also influence the structure, by living within it passively, actively shaping it or acting deliberately outside the societal structure. This of course can take many



forms, from heavy criminality to demanding additional quota, a ‘friendly’ way to manipulate the structure but nevertheless proving the existence of agency<sup>90</sup>.

Contrasting the appearance of the concept, global phenomena – like climate change – always exist in a locality. Moreover, Giddens states, social practices also exist and take place in space and time (Giddens 1984: 36). Global phenomena, local occurrences and social practices thus are interconnected and shape each other mutually and on different levels (Tucker 1998: 86). Allow me to take you on a trip through the lives of the individual fishermen.

## 4.2 *Individual agency and adaptation*

*Resilience depends on how people perceive and conceptualize change. [...] I have been struck by the fact that people do not necessarily talk of the environment around them as changing, but of being it in a constant process of becoming.* (Nuttall 2009: 299)

The same goes for the fishermen in Nuuk. Greenlanders regard the environment as changing constantly, and as such *change* becomes a state of being: the fact that nature changes is a constant factor, as well as the fact that one constantly has to adapt to those changes. Moreover, he remarks that

*In a world of flux, uncertainty and unpredictability, social relationships are a source of constancy. If a person breaks from networks of kin and social relationships, they are set adrift from the security of their social world. Loss of community is a threat to individual and social identity.* (Nuttall 2009: 300)

An example of this loss of social security can be found in the case of the collapsed fishing community in Paamiut, with its inhabitants set adrift since local job opportunities vanished as quickly as the cod did (Nuttall 2009: 301; Hamilton, Brown & Rasmussen 2003). Another example is the huge influx of people in Nuuk from all over Greenland. People are looking for

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<sup>90</sup> Fieldwork observation



job opportunities in the economic centre of their country, but do not have access to the same network of social relationships as in their hometowns<sup>91</sup>. This creates a lot of social problems, combined with the already existing social problems of a nation in a search for its identity. However, as Anthony Giddens convincingly argued, people do have agency.

### Tale of a Nuuk fisherman

The story of Johannes Heilmann, fisherman and secretary of the local association representing fishermen's and hunters interest NAPP, shows how people might adapt. When he was eleven years old, he began to accompany his father on fishing trips. He has been a fisherman throughout his life, only interrupted by a period of ten years being a taxi driver in the winter. In this period of the year with its harsh environmental circumstances, being a taxi driver was a means to earn more money than sailing out to fish. Johannes always liked to lead a fisherman's life, with all the freedom and hardships. In 2002 his driving licence expired and ever since he has been a fisherman.

This brief life-history shows that he had the ability to adapt to changing circumstances, whether man-made or environmentally. However, since the previous decade the Total Allowable Catch (TAC) and corresponding individual transferable quota (ITQ) are decreasing. This poses the Greenlandic fishermen for great trouble, since fishing and hunting is their main source of income. Naturally the TAC of an area should be corresponding with the environmental and biological circumstances. To Johannes it nevertheless occurs that the Institute of Natural Resources, consulting the government about the TACs developing future scenarios, demonstrates an incorrect view upon the level of available stocks. He literally states that the amount of available cod is sufficient to maintain the current level of quota, even though he is aware of the fact that overfishing can have devastating effects on a stock<sup>92</sup>. This provides us with a typical example of a clash of indigenous knowledge and western science, where science prevails, for now. This means Johannes has to cope with the changing circumstances and the low quota allocated this year. He states that it might well be that these quota will be fished by the end of September –confirmed for the Ummannaq-area by *Sermitsiaq* in the course of July<sup>93</sup> – confronting the fishermen with severe economic pressure

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<sup>91</sup> Fieldwork observations; informal conversation taxi driver, 10<sup>th</sup> April 2010

<sup>92</sup> Interview with Johannes Heilmann, 14<sup>th</sup> April 2010

<sup>93</sup> [www.sermitsiaq.gl](http://www.sermitsiaq.gl), 29th July 2010: *Kvoten er snart fisket op*



to find another source of income. Even worse, the cod-quota for 2011 are set on zero, implying that the fishermen have to shift to other species or solely depend on hunting, both restricted by quota. To earn a wage big enough, this year poses Johannes for an enormous challenge, not to speak about next year, with a zero-quota. In order to cope with this difficulties, he plans to request for additional quota for this year, but he doesn't even dare to think about next year<sup>94</sup>.

This tale exemplifies the story of a fisherman within changing circumstances, both environmental and social, and the way he constantly adapts. It also shows the structure of environmental policies, including quota, whether corresponding to the 'real situation' or exaggerated by western scientists. Moreover, it demonstrates the way he can exert control or at least a certain level of agency to adapt or cope with changing circumstances.

### Tale of an Ilulissat clerk

Another case showing agency is the one of Emil Aaron Petersen. Like I explained in the previous chapter, he was a fisherman for approximately ten years. He quit, because he experienced the job as being too hard, especially since he missed the inherited knowledge and skills. However, at the moment of my fieldwork he holds a position as Park Ranger of the Ilulissat icefjord, an UNESCO World Heritage Site. By finding this new position – via some other occupations – he wields control and agency; he applies his previously collected knowledge of the local circumstances and takes control of his life, while *making use* of the changing circumstances: the increasing international attention for Greenland in general and the Ilulissat icefjord in particular, and the climate change induced retreat of the glacier<sup>95</sup>. Like Nuttall (2009) states, probably not having Aron's crosscutting career-change in mind:

*The sea dominates and influences daily life, but it does not necessarily constrain it. [...] This is an environment of opportunity rather than one of external environmental constraint, a place of constant unfolding of possibility.* (Nuttall 2009: 302)

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<sup>94</sup> Ibid.

<sup>95</sup> Interview Emil Aron Petersen, 19<sup>th</sup> April 2010



Although nothing forced Aron to stop being a fisherman, he shows a high degree of flexibility by choosing to quit his occupation. Moreover, he demonstrates the ability to observe and make use of opportunities by applying and securing a job as a park ranger for UNESCO. He disliked the structure of the fishery, he actually chose himself; however, Aron is very well able to escape from this structure by finding different jobs, and he finally *makes use* of the changing structure and circumstances by working as a park ranger. He could have acted differently in a number of ways, and by making the choices to quit and find another job, by *“intervening in the world”* and *“influencing the state of affairs”* (Giddens 1984: 9) he certainly displayed agency.

### Tale of a fisherman set adrift

Then there is the story of Karl Peter; he used to be a fisherman/hunter in the Uummanaq area, northern Greenland. In 2008 he came to Nuuk to follow his wife in her wish to study at the university in Nuuk. He likes the freedom of being a fisherman, and continues to fish and hunt in the unfamiliar Nuuk-area. However, according to Karl Peter the fishery in the north is declining and he points out that being a fisherman/hunter is surrounded by ever increasing challenges and difficulties, both environmental and socio-political. First back to Nuuk; several years ago biologists from the Institute of Natural Resources suggested to put quota on the number of reindeers to be shot every year, *“in order to create sustainability”*<sup>96</sup>. He complies with the need to hunt in a sustainable manner, but points out that dying reindeer suggest food shortages and thus too big a reindeer population. Food shortages can have several causes, but it does not make any sense to prohibit people from hunting, while the reindeer die at the very same moment from famine, according to Karl Peter. *“If they must die, let them serve a good cause like providing in someone’s livelihood”*, is what he seems to say non-verbally<sup>97</sup>. The NAPP – representing Nuuk-based fishermen – devotes itself to the adjustment of these quota, and with his membership Karl Peter influences a process and state of affairs. The world might not change immediately, but he could have acted differently and certainly (Giddens 1984: 9) he interferes by letting NAPP represent his interests. The earlier mentioned discussion around unintended effects of intentional behaviour is relevant but does not alter the act of being a member, and this act thus provides us with an example of agency.

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<sup>96</sup> Interview Karl Peter, 1<sup>st</sup> March 2010

<sup>97</sup> Ibid.



Back to Karl Peter's family in the Uummannaq-area; fishing and hunting in the north of Greenland requires the use of the available ice, and particularly knowing when not to do it. Nuttall (2009) observed this during his fieldwork when he accompanies a skilled hunter on a hunting trip. One night they camp on the sea ice, wake up and find themselves on a large chunk of ice surrounded by open water. Only after two days they could continue their journey, when their ice floe reconnected to the sea ice (Nuttall 2009: 303). Karl Peter's family members – still living in the Uummannaq area – experience these rapidly changing circumstances very closely:

*For my family it [climate change] is a big problem. The sea ice comes later and is thinner than it used to be. Hunting is more difficult now, because if they want to go, they have to bring their sledge dogs on a boat, sail to the place they want to go hunting and fishing, venture into the land with their dog sledges and only then the hunt can start. When they return home they have to conduct the same the other way around.<sup>98</sup>*

The trip thus is longer, requiring more supplies and with increasing dangers. However, Karl Peter's family manages to keep running these economically and culturally important hunting- and fishing trips by changing their behaviour and travelling routines. They make use of the available transport options and combine them in a new way in order to be able to hunt and fish. They display their agency while coping with the changing circumstances. Even though they are more or less forced to change, the course of events would have been differently if they would not have 'intervened' in this way (Giddens 1984: 9). They manipulate the available possibilities and are still able to keep pursuing their principal aim: hunting and fishing.

## Civil society

Furthermore, a civil society of several non-governmental organisations – also known as NGOs – exercise a certain amount of agency within the existing structure, while influencing that same structure at the very moment. Through these NGOs, individuals exercise their agency with an increased leverage since they form an organised group, have a bigger budget

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<sup>98</sup> Ibid.



to their disposal, and have easier access to political institutions. Especially in a small society like Greenland with its tiny bureaucracy – where it is possible to make an appointment with the minister of finances the next day<sup>99</sup> – this way to manage ones interests might be particularly productive. As I already mentioned, one of the organisations in this respect is the KNAPK, representing the rights and interests of hunters and fishermen throughout Greenland. The organisation negotiates prices with different companies, advise the government on and participate in drafting policy measures. They also develop long-term perspectives on a range of topics, like stock levels, impact of environmental changes, impact of societal or economic changes and so on. In most cities and bigger villages subsidiary organisations established themselves independently, though are still strongly connected to KNAPK, like the Nuuk-based NAPP<sup>100</sup>. Furthermore, the Greenlandic branch of ICC – also known as *INUIT* – has a broader angle and serves the interest of indigenous Greenlandic people in general. However, the traditional subsistence activities of fishing and hunting are an important part of Inuit life. The ICC thus can be seen as changing the course of events, while able to act differently. With serving the fishermen’s interests, ‘intervening in the world’ as Giddens exemplary labelled it (1984: 9), the ICC provides the fishermen with a certain amount of agency, both on a national and international level<sup>101</sup>.

In this section I showed the levels of agency individual fishermen and organisations can exert. Naturally they live within a structure that shapes their behavioural opportunities to a certain extent, but I convincingly showed argued that they do exert agency, to a varying extent, and with varying success. People do shape their own life, within or just outside a given structure.

### **4.3 Corporate perspectives**

In this section I will consider the level of agency companies can exert. Naturally a company is bigger than one individual so it can be perceived as inappropriate to apply the concept of agency. However, it perfectly serves the purpose of this thesis: illustrating the possibilities people and companies have to cope with a dramatically changing situation.

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<sup>99</sup> Fieldwork event 14<sup>th</sup> March 2010

<sup>100</sup> Interview Alfred Jakobsen, 16<sup>th</sup> April 2010

<sup>101</sup> Interview ICC staff member, 11<sup>th</sup> March 2010



Next to the individual fishermen, there is a small number of medium-size companies with one or two industrial trawlers, and two big companies – Royal Greenland and Polar Seafood – with several big trawlers, mainly used to fish for shrimp. In terms of revenues these companies put more weight on the balance and their interests are being represented in one of the two earlier mentioned associations AP or GA. During my fieldwork period these associations worked together on a project to get their members certified by the Marine Stewardship Council (MSC)<sup>102</sup>. The general requirements to receive this certificate are to conduct fishing activities in an environmental-friendly and sustainable manner, already achieved by his members, claims the AP union boss Frans Heilmann<sup>103</sup>. However, when their members are certified, the accessible market will be enlarged and profits probably rise. This brilliantly proves the corporate agency and adaptational capacities within a national and international structure. Next to this certification project, the associations have regular contact with the government and advise it on some topics. This naturally brings some level of political power, if only thinking of the agenda-setting power of the associations or the negotiations conducted with the government regarding price levels or allocation of quota.

Moreover, the sheer amounts of catches these companies represent and the economic dependency on shrimp exports, make the government to a high degree dependent on the taxes paid by these companies. Especially the government-owned company Royal Greenland exerts a high level of agency and is well able to influence the structure they are operating within. Although bleeding for money (2008/2009) and receiving huge financial injections<sup>104</sup>, both the government and the population are dependent on this powerful concern. Both dependencies can be found in numbers; the company provides direct incomes for a large number of people, and when the company leaves a village, it takes the reason of existence from the village and the local economy might be destroyed<sup>105</sup>.

However, apart from the ability to exert a certain amount of agency, both the mid-size and big companies do not demonstrate strong adaptational capacities. Throughout the industry the sound can be heard that no policy can be made in an ever changing environment, and an even more unpredictable international political environment<sup>106</sup>. When asked if they made use of future scenarios, or developed plans to cope with specific events, the common reply was:

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<sup>102</sup> [www.msc.org](http://www.msc.org)

<sup>103</sup> Interview industry representative, 31st March 2010

<sup>104</sup> <http://innovisio.ipaper-cms.dk/RoyalGreenland/WWW/AnnualReportRoyalGreenland200809/>, Royal Annual Report 2008-2009

<sup>105</sup> Interview staff member industry 1, 4th March 2010; interview ICC staff member, 11<sup>th</sup> March 2010

<sup>106</sup> Interview staff member industry 4, 9<sup>th</sup> March 2010



“How can we look into the future and develop plans? We’re no magicians”<sup>107</sup>. No future scenarios, long-term views or whatsoever were developed, the short-term perspective prevailed and defined the day’s order.

Concluding, corporate agency and adaptational capacities are absolutely present, due to the economic and political leverage the medium and big companies can claim, especially when cooperating on projects like the MSC-certification. These adaptational capacities are only confined to the socio-political area. With regard to the changing environment, thinking ahead a couple of steps, future adaptations and the reinforcement of resilience appears to be surprisingly absent throughout the corporate perspective.

#### **4.4 Institutional agency and adaptation**

I explained in the previous sections that people adapt to changes on an individual level; organisations and companies also adapt to the shifting environment and a society in transition. However, adaptational strategies are also deployed on a national level, with governmental policies which I discuss briefly. Furthermore, a nation also exists within an international structure, and accordingly I will situate the Greenlandic nation and its inhabitants’ agency in this geopolitical framework.

First and foremost, I feel obliged to define the concept of *institutional agency*. Giddens extensively defined and characterized the concept of agency, though on the level of single individuals. I want to extend the concept in this paragraph with the notion of institutional agency being the “capability of institutions and nations to do things and intervene in the world. At any moment they [institutions or nations] could have acted otherwise and the state of affairs would have been differently, without institutional influence”. In reality this means that larger bodies within states – like departments and directories– are able to exert a certain amount of influence over the course of events, naturally on the national level but also in an international context. For example, the agency exerted by the Greenlandic government when negotiating their independency from Denmark during the COP15 would be called *institutional agency*. Furthermore, their seat in the Nordic council and the Greenlandic cooperation with (member states of) the EU provides us with another example of what I call institutional agency. With this concept I want to illustrate the governmental levels of agency

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<sup>107</sup> Interview staff member industry 1, 4th March 2010



and thus power to alter the course of the national course of events, and situate Greenland in an international framework by showing their possibilities to exert agency and power.

The strong promotion of education I explained in the contextual chapter, is aimed at improving the adaptive capacities of the Greenlandic population (Agersnap 1999: 96-8). Especially the predicted decline of the fishery and the potential rise of the oil and mining industry create opportunities as well as challenges. Fishermen not used to be very educated, but with a declining fishery, decreasing TACs and a potential devastating climate change, there is a necessity to change. The fishery thus might be restructured in a profound way, with additional internally-induced causes<sup>108</sup>. At the same time the oil- and mining industry is rising and might bring along extensive job opportunities<sup>109</sup>. Exemplary is the political incentive to privatize the country's biggest company Royal Greenland<sup>110</sup>, since it's been bleeding for money and clearly doesn't live up to the expectations of a profitable company. Another reason for restructuring is to break the semi-monopoly of Royal Greenland and Polar Seafood in order to develop a more competitive market<sup>111</sup>. All these developments point towards preparing the fishermen to the rapidly changing circumstances, environmentally but not in the least economically and politically.

Also in the international context Greenland works hard to obtain a higher level of self-determination and thus agency. Naturally this becomes visible in the shifting relationship with Denmark and the increasing political powers Greenland is granted. However, in a wider context Greenland also becomes more visible and in this way exerts more agency and gains power. Illustrative is the more distinctive role they fulfil within the EU-OCT framework and the bilateral cooperation with other EU member states, not in the least with respect to the Fisheries Partnership Agreement<sup>112</sup>. Moreover, Greenland actively participates in both the Nordic Council<sup>113</sup> as well as the Arctic Council<sup>114</sup>.

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<sup>108</sup> Interview government official 1, 6<sup>th</sup> May 2010; interview scientist 2, 11<sup>th</sup> May 2010

<sup>109</sup> Interview government official 2, 8<sup>th</sup> April 2010

<sup>110</sup> Newsletter Sermitsiaq, 8<sup>th</sup> February 2010

<sup>111</sup> Interview government official 2, 8<sup>th</sup> April 2010; interview Alfred Jakobsen 16<sup>th</sup> April 2010

<sup>112</sup> [http://ec.europa.eu/fisheries/cfp/international/agreements/greenland/index\\_en.htm](http://ec.europa.eu/fisheries/cfp/international/agreements/greenland/index_en.htm), 12th August 2010

<sup>113</sup> [www.norden.org](http://www.norden.org)

<sup>114</sup> [www.arctic-council.org](http://www.arctic-council.org); Interview ICC staff member, 11th March 2010



## 4.5 Conclusion

In this chapter I explicated Giddens' understanding of society (1984) and applied it on Greenland. Human behaviour is shaped in a constitution of societal structure and human agency. I showed paths Greenlandic fishermen choose when adapting to changing circumstances. Different degrees of agency exist, people manoeuvre within structural boundaries, or operate just outside of them. In a number of cases the structure gets adjusted to the wishes or activities of the fishermen and other actors. However, individual adaptation mostly is based on ad hoc decisions and current developments. The Arctic is highly variable by nature, and its inhabitants are used to adapt quickly and this makes *change* a constant factor in their lives. That explains the fact that they know how to make use of the available opportunities and in this sense take their lives in their own hands; as individuals they "*change the course of events and intervene in the world*", if I may quote Giddens (1984) once again.

Most fishermen have difficulties to understand complex and faraway processes, due to their low levels of education. Emptying the seas while possible, seems to some a more viable option than to restrict the level of catches and thus create a higher level of sustainability. And probably hauling higher catches in the long-term. This – to western standards unsustainable – path to develop an economy and a country, touches upon the discourse of sustainable development, discussed earlier. Again, the status of knowledge and the methods to acquire it, are at stake.

In contrast to the fishermen, both the bigger companies, NGOs and the government have a profound understanding of the changes. Bigger companies like Royal Greenland naturally have a higher potential to influence their surrounding structure, but even they adjust last-minute to the changing environmental circumstances. Nevertheless, the possibilities Greenlandic companies have to exert influence and intervene in the structure, is quite high. Comprehending the profound changes and their possible impacts, differs from developing policies to prevent, adapt or mitigate the changes; even the governmental directorate advising the governmental fishery department did not develop a long-term policy regarding the impact and potential effects of climate change<sup>115</sup>.

Finally, Greenland does not exist in a vacuum but is located in an international context which develops unpredictably, again both geopolitically and environmentally, economically and socially. Due to the uncertainties, developing future scenarios is a difficult assignment

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<sup>115</sup> Interview government official 1, 6th May 2010



and the plans might be outdated before they had a chance to be implemented. These arctic characteristics and circumstances, both environmental, economic, geopolitical and social, favour a short-term view with a high level of last-minute adaptational possibilities. And since the Greenlandic government particularly does not have much experience with developing those plans and experiences strong difficulties to find educated and capable employees, developing a long-term perspective on the issue of climate change and its potential impacts remains extremely difficult. Concluding, I claim that – very aware of the fact that I generalize – the short-term perspective regarding adaptive strategies prevails, both on the level of individual fishermen, medium-size and bigger companies, as well as the Greenlandic government.



## Conclusion

During this study, I elaborated extensively on a variety of processes taking place in Greenland. I always brought my writings back to fishery and climate change, the themes of this thesis. With this study I attempt to provide an understanding of the rapidly changing Greenlandic society, due to the interrelated changing environmental circumstances and the society-determining fishery. Moreover, I attempt to contribute to the scientific discourse of climate change, especially in the socio-economic field. In what follows I will provide you with an answer on my principal research question: *What is the impact of 'climate change' on the Greenlandic fishery?* In order to provide you with a comprehensible answer, I will first summarize my findings, then answer my primary research question and finally discuss my findings in the light of the discourses on climate change and sustainable development.

### *Findings*

First of all, I found a remote country involved in complex processes of modernisation and globalisation, blended with the dynamics coming with climate change. Moreover, I encountered a colonial heritage and a rising nationalism, perfectly illustrated by economic developments, the changing role of the fisheries, the question of education and increasing international political powers. Perhaps the most important outcome of these processes is to provide for an incentive to economic development. Since Greenland depends heavily on the fishery in economic and cultural respect, climate change will affect the society in a profound way. This package of modernisation brings along many social issues from alcohol abuse to high suicide rates, symbolising the uprootedness of a people standing in the traditional past with one leg, and in a globalized future with the other.

Unwillingly, the country also performs a role in the international discourse on sustainable development. The issues at stake are perceptions. Perceptions on climate change, perceptions on the Arctic, and perceptions on knowledge. The 'proper road' to development brings these issues together; countries should be 'allowed' to develop economically – imperatively, some claim – but to what environmental costs, and who sets the boundaries? Developing countries claim that developed – mostly western – countries are not in the position to restrain them from developing – and thus polluting. These western countries subordinate the developing countries once again. The controversy is being sold as an



environmental-biological issue, but actually is a political-ideological collision, regarding the way societies should organise their relationship with nature and – more fundamentally – the way science and knowledge are regarded (Caulfield 1997: 3). The Greenlandic dream of sovereignty requires economic development, and the emerging nation is searching for a proper path to development.

Economic development brings us to the central themes of this study: fishery and climate change. Both are hard to overlook in Greenlandic society and play a strong role in domestic and international politics. Many factors play a role in the changing climate, ranging from temperature to the size of icebergs, from currents to the length of the ‘warm season’. The complex and dynamic structure of the arctic ecosystem, make it hard to comprehend, let alone predict, the changes on a long-term scale.

I found a dual fishery divided in economically small-scale coastal activities and an industrial offshore industry. Coastal fishery has a strong socio-cultural resonance throughout society, especially in the more remote areas. Currently especially this type of fishery has a hard time, since the environmental changes affect the *fish* stocks – which the coastal fishermen heavily depend on – in a negative way, resulting in decreasing quota. Moreover, especially in the northern communities the traditional means of transportation no longer fulfil their role; dog sledges cannot cope with the thinning and later appearing ice, while the small open boats are not usable in waters scattered with ice fields and -bergs. The changing climate imposes a high pressure on the coastal fishermen, dependent on the catches of the day for their families’ subsistence.

The industrial fishery, focused on *shrimp*, is of utmost economic importance for the financial revenues, the taxes paid and the job opportunities created. This part of the Greenlandic fisheries profits from the climate change, at least logistically. The sizes of icebergs decline and the waters are getting warmer, favouring the fishing circumstances – at least in the short-term. Biologically, the impact of climate change is less clear: the complex environmental dynamics confound the stock sizes and long-term stock developments. However, a general trend is to be seen in a declining size of landed shrimp. This could be due to a returning cod stock eating the shrimp, but again this is confounded by the complexities of a dynamic ecosystem. Moreover, several local scientists observe a general tendency of severe overfishing. A diminishing stock is the result, and together with the changing climate it could be devastating for the Greenlandic fisheries, both coastal and offshore.



Despite all these environmental, economic and political shifts, the fishermen of Greenland take their life into their own hands. However, individual adaptation is mostly based on ad hoc decisions and contemporary developments. Since the Arctic is highly variable, its inhabitants are used to adapt quickly. *Change* is a constant factor in their lives. This flexible and adaptive nature of Arctic inhabitants explains their short-term perspective on current and future developments. Fishermen adjust to the changes they have to face in their fishing activities, find other (additional) occupations or move to other places – mainly the capital Nuuk – to cope with the environmental changes.

For their daily survival, companies are less dependent on the catch of the day; they do not face the same short-term consequences of climate change as the coastal fishermen do. Eventually they will have to adapt to the changing circumstances but due to their financial and political leverage they have a reasonable level of agency to exert. Nonetheless, the smaller – though even the million-dollar – companies do not have a long-term business policy concerned with adaptational measures. Like the individual fishermen, the companies adhere a short-term philosophy and communicate the strong climatic and environmental unpredictability as a disincentive to develop long-term plans. As one of my informants emblematically expressed: *“How can we look into the future and develop plans? We’re no magicians”*<sup>116</sup>.

Meanwhile, the government attempts to adjust the fisheries to the changing circumstances. However, their measures are mainly aimed at embedding the modernisation-related shifts like changing social, economic, and political patterns. The climate change related shifts are not incorporated in the adaptational measures. Illustrative is the fishery department, where no future scenarios are developed to cope with possible environmental changes. Governmental agency on the global stage nevertheless increases with every step towards political sovereignty and economic self-sufficiency. In a wider international context Greenland asserts more political powers and starts to position itself on the international geopolitical map.

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<sup>116</sup> Interview staff member industry 2, 4th March 2010



## *Answering the question*

Finally, I want to return to my main research question: ‘*What is the impact of climate change on the Greenlandic fishery?*’. I provide a three-level answer; firstly climate change has many faces, and complex interactions make it a process hard to demarcate, let alone predict. In different areas, climate change has different impacts. The local geographical circumstances determine the range of possible appearances of climate change. To conclude, climate change has a highly differentiated impact, geographically speaking.

Secondly, the influence of climate change is divided along the stratifying line between the coastal subsistence and offshore industrial fishery. The differing characteristics of the two types of fisheries result in a distinct impact of climate change. Moreover, the different locations of action – coastal or offshore – reinforce the different impact of changing environmental circumstances. Thus, climate change is not only differentiated geographically, but also in socio-economic terms.

Thirdly and most important, Greenland already changed profoundly and continues to change under influence of a variety of modernisation processes. The relative high suicide numbers are emblematic for the Greenlandic search for a new social model. In recent history the rapid industrial developments, the wave of state-supported urbanisation and nowadays the globalisation explain the changes in Greenlandic society. Climate change is only part of this package of challenges Greenland finds itself facing. More important developments in my opinion are the restructuring of the fisheries – due to overfishing, a changing society and naturally climate change; the arrival of large foreign companies, especially oil-related, affect Greenland potentially in economic, political and socio-cultural dimensions. Finally Greenland experiences great influences from globalisation and the improved access to information and communication – both physical and digital. These developments and processes are inextricably connected to climate change, and in that sense climate change has a deep impact on society. However, climate change is also just a part of the current processes, and probably only in the long-term climate change will fully manifest its complex implications. As Hamilton aptly observes:

*The anticipated consequences of climate change are more complicated than warming temperatures that could shift a species range northwards. Other variables such as currents, stratification, seasonality, waves and*



*storminess, which affect fish both directly and through species interactions, make prediction a daunting task. Fisheries pressure, too, can interact with climate-driven change, sometimes in unpleasant ways. On land, the consequences of climate change for fisheries-dependent societies will be even more contingent and complex. (Hamilton 2007: 2961)*

## *Discussion*

This study is not only embedded within a social reality, but also grounded in a scientific approach. Therefore I will finally reflect on the theory and situate my findings and conclusions in the relevant discourses. Since climate change is such a central and interconnected process in my research, I will take it as a starting point. I already extensively described the place of climate change in Greenlandic society. It is only *part of* the challenges Greenland faces, and as such not the overwhelmingly important issue western science and politics like us to believe. I want to return to the arctic anthropologist Nuttall (2009), stating this controversial view:

*Climate change is becoming an explanatory account for almost everything that seems unusual in the weather, the environment, or in people's actions and encounters with the natural world. (Nuttall 2009: 293).*

My findings reinforce this perspective, in the sense that many man-made processes are currently taking place in the Arctic and are affecting its inhabitants. The dynamic and complex interplay of environmental processes affects societies in unexpected ways, but that does not alter the fact that many changes are instigated by human activity. The current scientific and political trend is to ascribe these changes to *climate change* or *global warming*, but scholars and politicians overlook the human capability to affect societies and their environment. Naturally, climate change does affect the environment and societies in fundamental ways, but we should not overestimate the role of climate change. We should especially be careful not to ignore the role of non-natural processes like modernisation and globalisation, and the huge societal transition and social problems they can bring along. I want to endorse Nuttalls bright view on climate change in the Arctic; he claims that long-term policies – i.e. demographic shifts, the entitlements of rights to access resources and the



governmental hesitation to develop small and remote villages settlements – “*have greater significance for changing hunting and fishing practices than climate change does*” (Nuttall 2009: 307). I fully support this controversial view, but kindly disagree on a detail; I believe that the successive processes of modernisation and globalisation and more specifically the rapid economic developments are of greater importance than the processes Nuttall mentions.

A climate change related discourse is that of sustainable development. Like I explained in the second chapter, the indigenous perceptions on climate change, on the Arctic and on knowledge differ quite strongly from the ‘western’ scientific view. The relevance of these differing views lies in the fact that the development of the Arctic is framed in different ways. Whether the Arctic is perceived as a pristine wilderness or as a – scarcely – populated region, makes a huge difference in perspectives on the development of the area. Whether changes in environmental circumstances are seen as profoundly new phenomena, or as a constant factor of arctic lives, makes a difference in the way to enact upon these changes. Similarly, a different perception on *knowledge* results in strongly opposing views on the ‘trueness’ of the hunting and fishing quota and the value of western science compared to indigenous knowledge.

Particularly the coastal fisheries are affected – or perceive themselves as such – by the differing views on knowledge. The offshore capitalist fishery is more westernized in the sense that its owners have a more ‘western’ background. Furthermore, this industry accommodates a stronger interdependency with the global economy than the coastal fisheries and thus reasons more from a western perspective. The coastal fishermen disagree with western science, because historically their fishing rights were not restricted at all. Instead they were based on a policy of fair use, founded in self-interest and indigenous knowledge. This disagreement manifested itself strongly during my fieldwork period. In international science a trend of appreciation of indigenous knowledge cautiously emerges, and in my opinion this should be nourished and reinforced. I think this is a precarious development, and especially anthropology can protect it with displaying a holistic picture of reality.

My findings validate Giddens’ (1984) view on structure and individual agency. In contrast to the ‘passive victim narrative’ many scientists defend – or at least show in their works on the power of structure – I found the local inhabitants of Greenland adaptive and nothing less than empowered. In my opinion this is due to a reality of living in the harsh arctic environment,



where change is a constant factor and continuous adaptation a necessity to survive. Climate change definitely affects the lives of Greenlanders, and brings along many unexpected and difficult challenges, but it does not leave the individual powerless to find his path through life and make the choices he considers best.

Moreover, Greenland demonstrates increasing political powers and takes steps towards sovereignty. These powers enhance the national capability to choose what is best for the country, at least from the national perspective and with contemporary knowledge. Climate change influences the structure, but the Greenlandic nation-state is not a victim of these changes. On the contrary, Greenland is able to choose – to a certain extent – its direction in the course of events. This study illustrates once again the scientific necessity not to focus solely on limiting structures and frame a society defined on a macro-level exclusively. Science needs to focus on the micro-level as well, bringing home individual stories of people. Again, an exemplary and leading role could be undertaken by anthropology.

Furthermore, the rapid economic developments, the upcoming oil-business and the desired economic self-sufficiency mount up to an increasing sense of nationalism, illustrating Gellners theory (1983) on nations and nationalism delightfully. In my opinion Greenland can be seen as a nation-state in becoming, notwithstanding a high degree of uncertainty about the how's and when's. Enormous questions remain with regard to the road to independency Greenland should, can and probably will choose – eventually. Uncertainties and questions arise especially in the light of the increasing activities of the oil-industry. Science needs to explore these complex interactions and whenever possible Greenland should *consult* – not accept blindly – the available knowledge to enrich its policy choices.

Science not only misinterprets the levels of agency Greenlandic people have, science also displays Greenland and its people as very traditional. While preparing my fieldwork at home – reading scientific sources mostly published by western scientists – I could not avoid to get an impression of Greenland being traditional and stuck in the past. The image of a country of fishermen and hunters forced itself upon me, with people still living in dwellings scattered throughout the coastal areas, fully depending on the catch of the day and living in a very traditionally organised society. Both the ACIA (2005) and IPCC (2007) paint a picture of a traditional Greenland, and even the highly capable arctic specialist Nuttall (2009) expands this image with a detailed description of the lives of hunters and fishermen. However, when I arrived in the capital Nuuk, this traditional world only appeared on the horizon. Instead a



modern and in many respects quite western lifestyle unfolded before my eyes. During my visit to the northern city Ilulissat the more traditional Greenland made a stronger appeal, but I believe that overlooking the city-life is a major scientific shortcoming and more importantly, does not do right to Greenland and its people. A range of scholars tries to make up for this scientific lack of thoroughness, but their voices are hardly heard as strongly as those of the global and almost political institutions like the IPCC and to a lesser extent, ACIA.

This scientific lack of thoroughness surprised me. I found that the scientifically painted picture of a traditional Greenland does not match urban reality at all. With this thesis I hope to contribute to the voices of scientists trying to show the ‘real’ Greenland, with both a very modernized and a traditional face. I want to emphasize the scientific need to voice this sound and depict an image reflecting the local reality and doing justice to Greenland.

Finally, we return to an early quote: *“the relationship between ecosystem changes, changing resource dynamics, and socioeconomic responses to these changes is poorly understood”* (Nuttall 2009: 301). I would like to encourage fellow scientists and students to conduct more holistic sociocultural and –economic research. The current scientific focus is very much confined to the environmental and biological spectrum of science, while policymakers and governments are urgently searching for knowledge with regard to the socioeconomic and -cultural domain. I see a role for the discipline of anthropology, with its participating research methods and holistic manner of reporting, as I have tried to provide you with.

I hope you enjoyed reading this ‘Masterpiece’, being the end of an inspiring and life-changing study of Cultural Anthropology. I can tell you that it was a wonderful and bizarre experience to live on the remote Greenland for three months, with its harsh environmental circumstances but very friendly people. Writing this thesis proved a struggle – mostly with myself – but I conclude with a feeling of satisfaction. Moreover I feel grateful for being given the opportunity to research a topic, a country and a people this fascinating. It has been a pleasure and a privilege. Thank you for reading this piece of work.



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