Meat and Climate Change:

A study on environmental organizations' approach in addressing meat consumption in relation to climate change with a focus on Norway

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Abstract

This thesis addresses the relationship between meat consumption and climate change. Its purpose is to bring attention to the findings of the FAO report *Livestock's Long Shadow: Environmental Issues and Options* (2006); i.e. that the production of animal derived foods is a significant contributing factor to climate change. The main focus of the thesis is investigating how environmental organizations address meat consumption in a climate change perspective and the underlying reasons for their chosen approach. Furthermore, I compare men and women's habits and attitudes towards meat consumption to test the theory that meat consumption appears to be associated with masculinity, as Tobias Jansson addresses in his thesis titled "Vad blir det för kött? Om konstruktion av maskulinitet hos Per Morberg." The findings of this thesis show that there is an unwillingness of environmental organizations to criticize meat consumption and that the reason for this seems to be rooted in cognitive dissonance and fear of losing supporters. Furthermore, the results of my survey support the theory that meat consumption is perceived as a masculine act.

Key-words: Meat consumption, Climate change, Environmental organizations, Cognitive dissonance, and Norway

Norwegian title: Kjøtt og klimaendringer: En studie om miljøorganisasjoners holdning til å omtale kjøttkonsumpsjon i forbindelse med klimaendringene med fokus på Norge

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Preface

Prior to choosing a topic for my thesis, I have been doing my own research on the production of meat and other animal products and how this affects the environment. I found the book *Eating Animals* (2009) by Jonathan Safran Foer and the documentary *Cowspiracy: The Sustainability Secret* (2014) to be particularly informative regarding environmental destruction caused by raising animals for food. This documentary also addresses the connection between the production of foods of animal origin and climate change. I decided to make this the topic of my thesis, yet with a focus on the underlying causes that hinder environmental organizations and people in general to address this issue.

1 Introduction

1.1 Purpose

The overall purpose of this thesis is to give attention to the meat industry's significant contribution to global climate change and how our everyday choices affect the climate. More specifically, the purpose is to find out why environmental organizations are addressing this issue in such a small extent.

1.2 Research questions

1. How do environmental organizations address meat consumption in relation to climate change and what are the reasons behind their chosen approach?
2. How is meat consumption related to masculinity?

1.3 Delimitation

The topic in question is of course a global one. However, as my thesis requires a more narrow approach, my research is restricted to the study of Norwegian organizations and citizens. I have chosen Norway for practical reasons and because it is of particular interest to me as I am a Norwegian citizen.

1.4 Disposition

In the following section I will present the theories I have chosen for this thesis. Thereafter, I will account for the material and methods I have used. Furthermore, I will provide some background material where I address climate change, the FAO report (Steinfeld et al. 2006), and Norway's greenhouse gas emissions. Following this, I will analyze my two research questions separately. After this, I will provide a conclusion followed by a list of references. The appendix at the end of this thesis contains the questions I sent to organizations and others via email and the questions from my survey.

2 Theories

In order to discuss my research questions, I have chosen the following theories: *Cognitive dissonance*, the theory on environmental organizations' unwillingness to address meat consumption, *Carnism*, and the theory on meat and masculinity.

Cognitive dissonance

Cognitive dissonance is a theory, introduced by Leon Festinger in 1957, which describes the discomfort we might experience when our attitudes and actions contradict one another. The theory is based on the assumption that we are strongly motivated to be consistent in our attitudes and actions. Thus, when this fails (e.g. we believe *one* thing, but do *another*) we experience discomfort, i.e. cognitive dissonance (Nilsson & Martinsson 2012:41). An example of this can be the discomfort, or guilt, felt by a frequent driver that is aware of the negative environmental consequences caused by driving. There are mainly three different ways to alleviate this discomfort. The first way is to change your actions, e.g. to stop driving. The second way is to change your attitude, e.g. to take on a positive attitude towards driving. The third way is to change your perceptions of the action, e.g. to look at driving as a necessity, or argue that your car has a lesser impact on the environment than other cars. It is most common to change whatever appears to be the easiest option at the moment (Ibid.). I will readdress this theory when analyzing my first and primary research question, i.e. "How do environmental organizations address meat consumption in relation to climate change and what are the reasons behind their chosen approach?"

Environmental organizations' unwillingness to address meat consumption

In 2014, Laestadius, Neff, Barry, and Frattaroli published an article titled "'We don't tell people what to do': An examination of the factors influencing NGO decisions to campaign for reduced meat consumption in light of climate change". In this article, Laestadius et al. examine how non-governmental organizations (NGOs) discuss meat consumption. Their focus is on environmental, animal protection, and food-focused NGOs in Sweden, the United States, and Canada (Laestadius et al. 2014:32). They found that there is unwillingness among environmental organizations to address meat consumption in light of climate change. According to Laestadius et al, some of the reasons behind this include NGO staffers not

perceiving this as part of their core missions, little social and political appeal, and reluctance in addressing personal behaviour change (Laestadius et al. 2014:32). This theory is relevant in the analysis of my first research question.

Carnism

Melanie Joy is a Harvard-educated psychologist, and a professor of psychology and sociology at the University of Massachusetts in Boston. She is also the author of the book *Why We Love Dogs, Eat Pigs, and Wear Cows.* In her book, she describes the idea of *carnism* which is a term coined by her (Carnism 2012a). *Carnism* is defined as an invisible belief system or ideology in which people find it acceptable to eat *some* animals but not others. It is the opposite of *veganism*, an ideology in which consuming animals is considered unethical and inappropriate. Joy points out that people that follow veganism are not called "plant-eaters", but *vegans*, because it is more appropriate to refer to their underlying ideology. In spite of this, people that consume meat are referred to as "meat-eaters", although their actions (e.g. enjoy eating a pig, but refraining from eating a dog) are based on an ideology as well. However, as carnism is the *dominant* ideology it is seen as commonly accepted and "just the way things are". Joy describes carnism as a "violent, exploitative ideology (…) organized around intensive, extensive, and unnecessary violence toward, and exploitation of, animals" (Carnism 2012b). Furthermore, she states that the principles of carnism do not comply with the core values of most people "who would not willingly support the exploitation of others or condone such violence toward other sentient beings" (Ibid.). Therefore, "carnism, like other violent, exploitative ideologies, must hide itself to ensure the participation of the populace; without popular support, the system would collapse" (Ibid.). Joy is also the founder and president of the Carnism Awareness & Action Network (CAAN) (Carnism 2012a). CAAN, also known as Beyond Carnism, is a charitable organization whose goal is to create awareness around carnism and thus making it visible (Carnism 2012c). I have included this theory, in addition to the two above, to analyze my first research question.

Meat and masculinity

In January 2012, Tobias Jansson published a thesis in Swedish titled "Vad blir det för kött? Om konstruktion av maskulinitet hos Per Morberg." In the thesis, Jansson discusses how men express masculinity through the consumption and handling of meat, more specifically exemplified by the Swedish TV-chef, Per Morberg. The study is based on Morberg's television series and cookbooks analyzed in the light of theories by philosopher Judith Butler and the theory of hegemonic masculinity by Robert Connell, also known as Raewyn Connell (Jansson 2012:3 ; Raewynconnell 2015). Jansson finds that Morberg's television series appears to be a scene of masculinity displayed through the violent handling of large pieces of meat. Furthermore, there seems to be an underlying message that "real" men are supposed to take part in, and enjoy, the preparation of meat and the killing of animals (Jansson 2012:35). I have included this theory to analyze my second research question, i.e. "How is meat consumption related to masculinity?"

3 Material

The primary material used in this thesis is the FAO report titled *Livestock's Long Shadow: Environmental Issues and Options* published by the Food and Agriculture Organization of the United Nations in 2006. Furthermore, the communication with environmental organizations and others through email play a central role. Other materials include a survey, and various studies and reports I found relevant in relation to my research questions. Two of the studies of particular importance are Laestadius, Neff, Barry and Frattaroli's article titled "'We don't tell people what to do': An examination of the factors influencing NGO decisions to campaign for reduced meat consumption in light of climate change" (2014) and Tobias Jansson's thesis with the Swedish title "Vad blir det för kött? Om konstruktion av maskulinitet hos Per Morberg." (2012).

4 Method

In relation to my first research question I have used qualitative method in the form of personal communication; more specifically, communication through email. To address my second research question I have used quantitative method in the form of a survey. I found that these two methods were most suitable when approaching the research questions at hand.

4.1 Communication through email

As I have chosen to look at those who provide, or fail to provide, information on climate change, I have contacted environmental organizations, an animal rights organization, a political party, and the Norwegian Ministry of Climate and Environment. The environmental organizations include Framtiden i våre hender, Greenpeace Norway, and World Wide Fund for Nature (WWF) Norway. The animal rights organization is called NOAH for dyrs rettigheter, and the political party is Miljøpartiet De Grønne. The purpose of contacting these was to find the reasons behind their chosen approach to meat consumption as a significant contributing factor to global climate change. They have been contacted through email where I have asked a series of questions concerning their views and approach to the topic of my thesis.

The questions I sent out differ slightly as my study goes beyond environmental organizations. However, most of the questions are the same. Firstly, I ask them to describe their core issues in a briefly manner and how highly they prioritize climate change on their agenda. I have done this to see whether climate change is among their core issues and how they describe the importance of this issue. These two questions help form a main impression of their concern for climate change. Further, I introduce meat consumption by asking how great a share of greenhouse gas emissions they consider comes from meat production and how severely they view the meat industry's effect on the climate. The environmental organizations were also asked to motivate their focus on fossil fuels versus meat consumption. Based on the FAO report, it can be argued that there should be more focus on meat consumption as the livestock industry is responsible for a greater share of greenhouse gas emissions than transport (Steinfeld et al. 2006:xxi). How the environmental organizations respond to this question can help explain their approach in reducing the effects of climate change, though it might also reveal some underlying concerns that keep them from giving meat consumption the attention that matches its severity as a contributing factor to climate change. Furthermore, I ask why they have chosen to share information on how meat consumption affects the climate. This question was only sent to those whom have done this according to my research on their respective websites. This research was conducted by typing the Norwegian equivalent of "meat" in the search field on their websites to search for articles addressing the link between meat consumption and climate change. Everyone was asked whether public opinion plays an important role in what they choose to focus on. Further, I asked what kind of responses they

have received after encouraging a reduction in meat consumption and how this has affected their organization/political party. I also ask what they think the effects would be if they to a larger extent promoted less meat consumption or a plant based diet, and how that would affect them as an organization/political party. The last question that I find relevant to mention here is about their strategy for reducing greenhouse gas emissions. The remaining questions address their opinions on NRK (the Norwegian Broadcasting Corporation), Miljøpartiet De Grønne (political party), and the current Norwegian Ministry of Climate and Environment in terms of their focus on meat consumption in relation to climate change. I found that these questions were not relevant to my study. Moreover, I also sent questions to NRK, the Norwegian TV2, and the Norwegian environmental organizations Bellona and Naturvernforbundet. TV2 and the two environmental organizations did not respond to my emails. The questions I sent can be found in Appendix.

4.2 Survey

In order to get an idea of how habits of meat consumption look like I conducted a survey aimed at Norwegian citizens. The surveys were handed out during my travel back and forth from Sweden to Norway, more specifically, on the train from Oslo to Stavanger 14th Nov. 2014, the express ferry from Stavanger to Sauda 15th Nov. 2014, and the train from Stavanger to Oslo 25th Nov. 2014. I chose these places because they were convenient and time efficient as I was going to travel this route regardless of my work with this thesis. Furthermore, I consider the train and express ferry to be suitable environments for people to answer surveys as they are sitting down and have time to think about their answers instead of rushing through them without much consideration. In this respect, I believe that the *quality* of these answers is most likely higher than if I had handed out surveys on the street or at a parking lot. In total, 75 people agreed to take part in the survey; 29 on the train from Oslo to Stavanger; 27 on the express ferry from Stavanger to Sauda; and 19 on the train from Stavanger to Oslo. The handed-out surveys were in Norwegian to increase the participation rate.

Representativeness of the survey

The degree of representativeness is of course affected by the restricted time at hand. This means that the number of surveys handed out as well as the *places* they were handed out is

not optimal to draw any groundbreaking conclusions. Nonetheless, I still think the number is satisfactory to get an idea of people's opinions as the minimum required number of participants in a survey is 30 (Burdess 2010:146). As for the place where the surveys were handed out, one might claim that those who prefer to travel by airplane or driving in their own car etc. were left out of the survey. Those who travel by train might, although not necessarily, be more concerned about environmental issues. However, I believe that there are other factors than environment that are considered equally, or perhaps more, important by most travelers, such as cost. With this in mind, I find train travelers to be a relatively varied group of people, including their knowledge of, and concern for, the environment.

Questions in the survey

As my second research question focuses on meat consumption rather than climate change, I find that the survey questions relevant to my thesis include "How often do you eat meat?" and "Could you imagine reducing your meat consumption?" in addition to the gender of the respondent. The gender is important as I compare the respondents' answers to the questions above based on this. For the reason explained above, I will not discuss the other survey questions concerning climate change. The survey questions can be found in Appendix.

5 Background

5.1 Climate change

Climate change is defined as "a long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature"(Dictionary 2015a). *Anthropogenic* means that it is causes by humans (Dictionary 2015b). Due to greenhouse gases such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons some of the heat received from the sun is trapped in the atmosphere. This process is called the *greenhouse effect* and is important for temperature regulation. Increase in greenhouse gases since the industrial period is causing global warming. Since the late 1800s, the average temperature of the earth's surface has risen by 0.6 degrees Celsius. By 2100 it is expected to rise another 1.4 to 5.8 degrees Celsius. Ice-core-based climate records have shown a correlation between the concentration of greenhouse gases and the rise and fall in average temperature (Steinfeld et al. 2006:80. The deepest ice-core ever drilled, the Antarctic Dome C

ice-core, which represents about 740 000 years of annual climate record shows that "human activities have resulted in present-day concentrations of CO_2 and CH_4 that are unprecedented over the last 650 000 years of earth history" (Steinfeld et al. 2006:80). In 2014 the intergovernmental panel on climate change (IPCC) published the *IPCC Fifth Assessment Synthesis Report* which, among other, addressed the observed impacts on the environment. Some of them include that...

"[m]any terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change" (Pachauri et al. 2015:6).

Furthermore, the Greenland and Antarctic ice sheets as well as glaciers almost worldwide have been losing mass. (Ibid.:40). Other observed impacts include sea level rise, changes in precipitation patterns and intensification of heavy rainfall (Ibid.:40,51).

5. 2 *Livestock's long shadow. Environmental issues and options*

5.2.1 Introduction to the FAO report

The Food and Agriculture Organization of the United Nations (FAO) is an intergovernmental organization with 194 Member Nations, two associate members (Faroe Islands and Tokelau), and one member organization (the European Union) (FAO 2015a; FAO 2015b). FAO's main areas of work includes reducing hunger and malnutrition, creating sustainability and increasing productivity in agriculture, forestry, and fisheries, making livelihoods more resilient to disasters or crises, and more (FAO 2015c). In 2006 FAO published a report titled *Livestock's long shadow. Environmental issues and options.* The report was intended to raise the attention to animal agriculture's contribution to climate change, air pollution, degradation of land, soil, and water, and the reduction of biodiversity (Steinfeld et al. 2006:iii). FAO acknowledges that there is a rising demand for food products of animal origin, and that the production of meat was predicted to double from 2006, when the report was written, to 2050. Based on this prediction, action is needed to reduce the environmental impacts that are already severe (Ibid.). The FAO report also includes mitigation options and advice to meet the challenges ahead.

In the following, I will provide a summary of what the FAO report says specifically on climate change and, briefly, address the other environmental issues mentioned in the report. Further, I will account for the suggested solutions presented by the FAO and discuss some of the response that the report has received.

5.2.3 FAO on climate change

The livestock production's effects on climate change are explained in chapter three of the FAO report. As pointed out here, "[a]nthropogenic climate change has (...) become a well established fact and the resulting impact on the environment is already being observed" which I addressed above (Steinfeld et al. 2006:80). The FAO report states that three of the most important greenhouse gases; carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as mentioned in the previous section, are emitted largely due to livestock activities (Ibid.:82). I will address each of them in the following as they are presented in the FAO report.

The FAO's account on livestock-induced CO_2 emissions is divided into separate sections based on the different stages in the livestock production. These are feed production, livestock rearing, and livestock processing and refrigerated transport (Ibid.:vi). I will summarize this accordingly.

The limited amount of nitrogen naturally existing in the soil sets limits to food production. This is solved by using artificial nitrogenous fertilizers almost exclusively made from synthetically produced ammonia (Ibid.:86). Every year about 100 million tonnes of fertilizers are produced to increase food production, using about 1% of the world's energy. Animal feed, especially maize, but also grains like barley and sorghum require high doses of nitrogenous fertilizer. It is also used in the intensive production of rapeseed, soybean, and sunflower, all of which are mostly used as animal feed (Ibid.:86-87). Around 20 -25% of the annual 80 million tonnes of nitrogenous fertilizer worldwide is used for feed production (Ibid.:87). Natural gas is the most commonly used fuel in the production process (Ibid.:86). CO_2 emissions can be estimated based on energy requirement in natural gas-based systems per ton of ammonia, ranging between 33 and 44 gigajoules per tonne ammonia (Steinfeld et al. 2006:87). Including packaging, transport, and application of fertilizer this is estimated to an annual CO_2 emission

of more than 40 million tonnes (Steinfeld et al. 2006:87-88). The estimated CO_2 emissions from on-farm fossil fuel use, including fossil fuel for machinery, seed and pesticide production are not considered fully reliable due to lack of sufficient studies on all world regions (Ibid.:89-90). However, estimates based on numbers from Minnesota combined with global feed production and livestock populations in intensive systems indicate that "[o]n-farm fossil fuel use may emit 90 million tonnes CO_2 per year" (Ibid.:88). Land use changes, such as clearing forests for pasture or plant feed crops, releases large amounts of CO_2 into the atmosphere (Ibid.:90). It is estimated that ""livestock induced" emissions from deforestation amount to roughly 2.4 billion tonnes of CO_2 per year" (Ibid.:91). CO_2 in cultivated soil is released by practices such as burning, erosion, volatilization, harvest, and grazing. It is estimated that 28 million tonnes CO_2 may be released per year from cultivated soil linked to livestock activities (Ibid.:92). Livestock contributes greatly to carbon loss resulted by desertification. It has been estimated that the desertification rate is higher under pasture than under other land uses. In total livestock-induced desertification may release 100 million tonnes CO_2 per year (Ibid.:93).

Livestock respiration is part of a cycling biological system where the input and output of CO_2 is considered equivalent. Therefore, the CO_2 emission from livestock respiration is not considered as a net source. On the other hand, overgrazing or bad management of feed crops disrupts the cycle (Ibid.:95). Ruminant animals like cattle, sheep, and goats, produce large amounts of methane as part of their digestive process, as opposed to monogastrics (included humans), that produce small amounts of this gas (Ibid.:95-96). The total amount of methane released from enteric fermentation is estimated 86 million tonnes per year (Ibid.:97). Methane is also released from the decomposition of livestock manure, especially if it is managed in liquid form such as in holding tanks or lagoons. It is estimated that 18 million tonnes of methane is released from animal manure per year (Ibid.).

Animal-product processing may emit several tens of million tonnes CO_2 per year (Ibid.:99, 100). The transport of livestock products occurs mainly in the delivery of feed to animal production sites and the delivery of animal products to consumer markets (Ibid.:100). Steinfeld et al. note that "[o]ne of the most notable long-distance feed trade flows is for soybean, which is also the largest traded volume among feed ingredients, as well as the one

with the strongest increase."(Steinfeld et al. 2006:100-101). The trade from Brazil to Europe is of a particularly large volume. A study shows that shipping one tonne of soybean cake from the Mato Grosso in Brazil to Swedish dairy farms "requires some 2 900 MJ, of which 70 percent results from ocean transport." (Ibid.:101). It is estimated that the annual soybean cake shipped from Brazil to Europe "results in an annual emission of some 32 thousand tonnes of CO_2." (Ibid.). The total CO_2 emission induced by meat transport is estimated to be around 800-850 thousand tonnes per year (Ibid.).

In total, livestock activities account for about 9 percent of global anthropogenic carbon dioxide emissions according to the FAO report. There is, however, "a considerable degree of uncertainty" on this estimate (Ibid.:112).

Steinfeld et al. point out that global climate change is primarily associated with CO_2 emissions, which account for about three quarters of anthropogenic emissions, and that; as a consequence, the energy sector has received the most attention as it accounts for about three quarters of anthropogenic CO_2 emissions. Thus, there has been less attention on other greenhouse gases emitted from other sectors (Ibid.:114-115). Furthermore, the FAO report states that...

"[i]n a development context, particularly, this is not justified. While developing countries account for only 36 percent of CO_2 emissions, they produce more than half of N_2O and nearly two-thirds of CH4. It is therefore surprising to see that even in the case of a large country such as Brazil, most mitigation efforts focus on the energy sector." (Ibid.:115)

In the following, I will account for these greenhouse gases which are given less attention than CO_2, and how they contribute to climate change as stated in the FAO report.

The most important source of anthropogenic methane emissions are livestock, especially ruminant animals, like cattle, sheep, and buffalo. These animals produce large amounts of methane as a by-product of their normal digestive processes. This is due to the microbial

fermentation of fibrous feed, called enteric fermentation (Steinfeld et al. 2006:95-96). The amount of methane emitted varies based on the animals' species, age, diet, and more (Ibid.:96). In total, it is estimated that enteric fermentation results in a total of 86 million tonnes of methane emitted annually (Ibid.:97). Methane is also released from animal manure, mostly when managed in liquid form, such as lagoons or holding tanks (Ibid.). The methane emitted from manure depends on factors like surrounding temperature, which affects the growth of methane-forming bacteria, and the animals' diet (Ibid.:97-98). A total of 18 million tonnes of methane may be released from animal manure per year (Ibid.:97). It is estimated that livestock account for 35-40 percent of global methane emissions (Ibid.:112).

Nitrous oxide (N_2O) is another greenhouse gas of importance. Though there are very small amounts of N_2O in the atmosphere, it is "296 times more effective than carbon dioxide in trapping heat" (Ibid.:82). In addition, it has an atmospheric lifespan as long as 114 years (Ibid.). The FAO report states that the concentration of N_2O in the atmosphere has increased by 16 percent since 1750 (Ibid.:103). Furthermore, it is stated that "[n]atural sources of N_2O are estimated to emit approximately 10 million tonnes N/yr, with soils contributing about 65 percent and oceans about 30 percent" (Ibid.) and that "N_2O emissions from anthropogenic sources (agriculture, biomass burning, industrial activities and livestock management) amount to approximately 7–8 million tonnes N/yr" of which 70 percent originates from agriculture (crop and livestock production) (Ibid.). The N_2O emissions from livestock results mainly from the use of artificial fertilizer in feed production and livestock manure (Ibid.:105,108). The FAO report finds that livestock activities account for 65 percent of global anthropogenic N_2O emissions and 75–80 percent of agricultural emissions (Ibid.:114).

All in all, the FAO report states that "livestock activities contribute an estimated 18 percent to total anthropogenic greenhouse gas emissions" (Ibid.:112). Emission from livestock constitutes more than 50 percent in the land use- and land use change and forestry and agriculture sectors and nearly 80 percent in the agriculture sector alone (Ibid.). According to the FAO, the overall contribution to greenhouse gas emissions by livestock "is (...) higher (...) than [that of] transport."(Ibid.:xxi).

5.2.4 The FAO report on other environmental issues

In addition to climate change, the FAO report addresses other environmental issues that are influenced by the livestock industry. These include land degradation, air pollution, depletion and pollution of water, and biodiversity loss.

The livestock sector contributes to land degradation[1] through increasing pressure on land, most importantly the degradation of pastures in the dry environments of Africa and Asia, as well as subhumid zones of Latin America. In addition, pasture expansion and the conversion of forest land into pastures, especially in Latin America, also results in land degradation (Steinfeld et al. 2006:63).

Air pollutants[2] can affect places that are hundreds of kilometres from the point they were released as they are carried by wind. They may also return to earth in the form of acid rain and snow. Ammonia volatilization, primarily originated from livestock excreta, is one of the most important causes of acidifying wet and dry atmospheric deposition (Ibid.:83). The livestock sector accounts for 64 percent of global anthropogenic ammonia emissions (Ibid.:114).

The FAO report states more than 8 percent of global human water use is dedicated to the livestock sector. Most of the water is used in feed production, which accounts for 7 percent of global human water use (Ibid.:167). Country-level analysis has shown a strong contribution by the livestock sector to water pollution. The pollutants include pesticides, antibiotics, and heavy metals. The pollution process is gradual and the impacts may not be visible until they become severe (Ibid.).

[1] The United Nations Environment Programme (UNEP) defines land degradation as " (…) a reduction of resources potential by one or a combination of processes acting on the land, such as: (i) soil erosion by wind and/or water, (ii) deterioration of the physical, chemical and biological or economic properties of soil; and (iii) long-term loss of natural vegetation" (Steinfeld et al. 2006:29).

[2] According to the FAO report, some of the most important air pollutants are "(...) carbon monoxide, chlorofluorocarbons, ammonia, nitrogen oxides, sulphur dioxide and volatile organic compounds" (Steinfeld et al. 2006:83).

Conservation International has identified 35 areas with particularly high biodiversity. These areas are called *biodiversity hotspots*, and are characterized by holding large numbers of *endemic species*, i.e. species that are not found in other areas (Conservation 2014). Out of the 35 hotspots 23 are reported to be affected by livestock production. Some of the major threats include "conversion of natural land to pastures (including deforestation), planting of soybean for animal feed, introduction of exotic fodder plants, use of fire for pasture management, overgrazing, persecution of livestock predators and feral livestock" (Steinfeld et al. 2006:215).

5.2.5 Responses to the FAO report (2006)

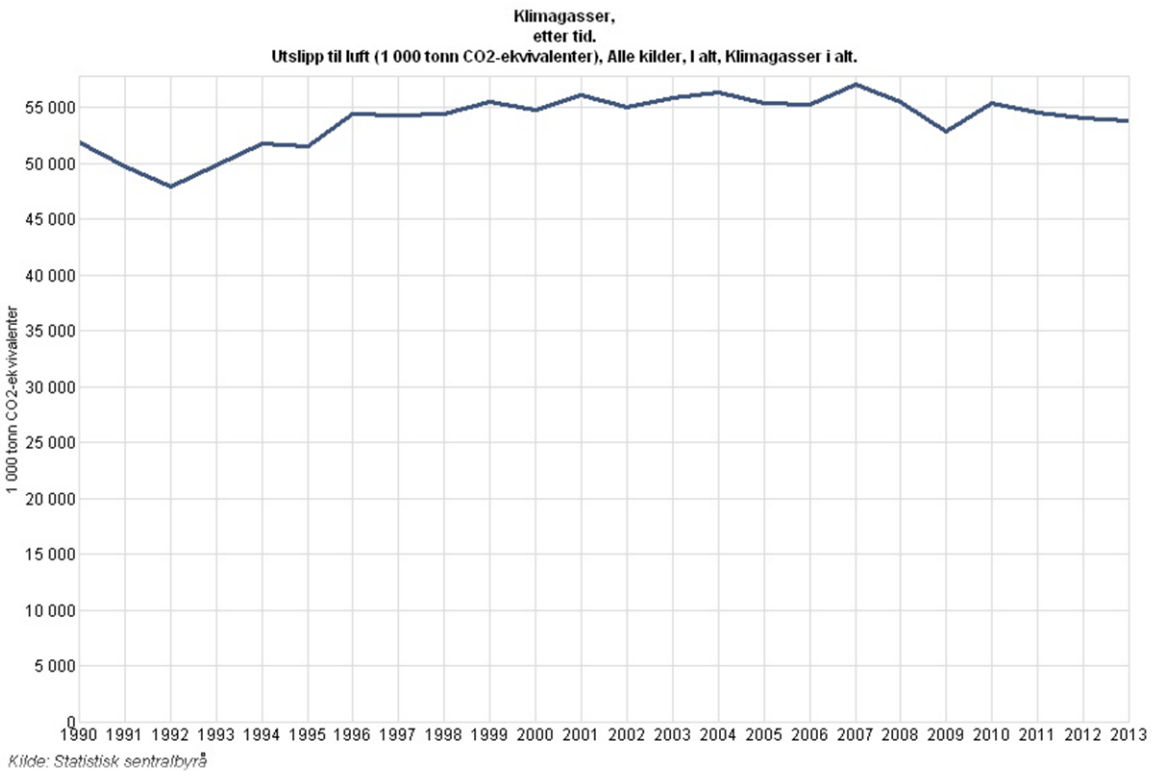
After the release of *Livestock's Long Shadow* in 2006, there have been claims that the share of greenhouse gases caused by livestock is lower than 18% of total anthropogenic greenhouse gas emissions, but also claims that the share is higher than 18%.

Frank Mitloehner, University of California Davis Associate Professor and air quality specialist, is one of the co-authors of the study "Clearing the Air: Livestock's Contributions to Climate Change" which was published in the journal *Advances in Agronomy* in October 2009. In this study, Mitloehner argues that the amount of greenhouse gas emissions caused by livestock is exaggerated compared to that of transport. This, he claims, is because the emissions from livestock were measured through a detailed life cycle analysis whereas the emissions from transport only included the emissions from driving (not the production of cars, etc.). Based on this, Mitloehner refers to the FAO report as "lopsided" and an "apples-and-oranges analogy" (UC Davis 2009).

In contrast to Mitloehner's claim, Robert Goodland, a retired lead environmental adviser at the World Bank Group, and Jeff Anhang, a research officer and environmental specialist at the World Bank Group's International Finance Corporation argue that livestock is responsible for more than 18% of global greenhouse gas emissions as stated by the FAO (Goodland & Anhang 2009:19,11). Their study, published in *World Watch Magazine* in 2009, is titled "Livestock and Climate Change: What if the key actors in climate change were pigs, chickens and cows?". According to Goodland and Anhang, their analysis "shows that livestock and

their byproducts actually account for at least 32,564 million tons of CO_2e per year, or 51 percent of annual worldwide GHG emissions." (Ibid.:11). Their conclusion was reached by adding what they claim to be overlooked and undercounted livestock-related GHG emissions. For example, Goodland and Anhang included livestock respiration in their analysis, which was not included in the FAO report (Goodland & Anhang 2009:11). Furthermore, they calculated livestock methane emissions in a 20-year timeframe instead of a 100-year timeframe which is the most common method. This means that methane has a GWP (global warming potential) of 72 rather than 23, which makes livestock methane responsible for 7.9% of global greenhouse gases rather than 3.7% as stated by the FAO (Ibid.:13-14).

5.3 Norway's Greenhouse Gas Emissions



Total greenhouse gas emissions from Norwegian territory from 1990 – 2013 (Statistics Norway 2014a).

According to Statistics Norway the greenhouse gases emitted within Norwegian territory in 2013 was estimated to 53.9 million tons CO_2 equivalents. This is an increase of 3.7% since 1990. However, compared to the preceding year 2012 the emissions have decreased by 0.3% (Statistics Norway 2014b). In a report from World Wide Fund for Nature (WWF) published in

2008 it is stated that "Norway's domestic CO_2 emissions have remained relatively static from 2001 to 2006, indicating that the emissions embodied in export (36 Mt in 2001) are also relatively static." (Reinvang & Peters 2008:13). Yet, "Norway's carbon footprint abroad is growing steadily." (Ibid.). In this report it is argued that emissions outside the country caused by production of goods consumed by Norwegians are not included in the calculation, as opposed to a *carbon footprint*. A carbon footprint is usually defined as the CO_2 emissions from *consumption* within a country, i.e. emissions within a country plus imports minus exports (Ibid.:7). The incomplete calculation is problematic because it leaves out an important part of what causes greenhouse gas emissions. As the report puts it, "[u]ltimately, it is consumers (including companies and government) buying products, that triggers the chain of events that leads to most pollution." (Ibid.). This is exemplified by the purchase of a TV set in a Norwegian shopping centre. A person buying such a product is responsible for the energy used by the shop, and the energy used for its transport and production, including the production of individual components which, most likely, have taken place in other countries (Ibid.). WWF points out that "one tonne of CO_2 (…) emitted in China, (…) causes exactly the same climatic effect as if it was emitted in Argentina, Botswana, Canada or Norway itself." (Ibid.). It is therefore "both an ethical duty and in the self-interest of Norwegians" to take into account the emissions outside of Norway that are caused by Norwegian consumption (Ibid.).

Norway depends heavily on imported products. The WWF therefore questions whether reductions in greenhouse gas emissions in Norway will lead to increased emissions abroad due to increased imports (Ibid.:10). As a signatory to the Kyoto Protocol, "Norway is allowed to increase its emissions to 1% above 1990 levels" (Ibid.). To reduce domestic emissions, Norway relies on mechanisms like the Clean Development Mechanism (CDM) of the Kyoto Protocol in which emissions are shifted to other countries. According to the WWF, the main country for Norwegian CDM-investments in the future is China (Ibid.). Further, the WWF states that "[t]he mass of imports into Norway has grown 10% from 2001 to 2006" (Ibid.:13). During the same period "the emissions occurring abroad have grown almost 35%." (Ibid.). The reason for this, as explained in the report, is that Norway is "increasingly importing products and from countries with comparatively large CO_2 footprints for the production processes in question." (Ibid.). As a result, the growth in the embodied CO_2 emissions of imported products is greater than the mass of imports (Ibid.).

Liv Thoring[3] in the Norwegian environmental organization Framtiden i våre hender explains how the consumption of meat in Norway contributes to global warming due to the large import of soy from Brazil used for animal feed as the production of this soy causes destruction of the rainforest. This is also expressed in an article on their web site published 23. Sep. 2014 (Framtiden 2014). Thoring[4] states that 40 % of the animal feed in Norway needs to be imported to support the Norwegian meat consumption, of which a big part is Brazilian soy. Furthermore, she[5] claims that the amount of greenhouse gases emitted by the production of one kilogram of beef is equivalent to driving a car more than 200 kilometres.

6 Analysis

6.1 How do environmental organizations address meat consumption in relation to climate change and what are the reasons behind their chosen approach?

My first and primary research question will be addressed by analyzing my findings from the email communication with the help of my chosen theories, i.e. the theory on environmental organizations' unwillingness to address meat consumption (Laestadius et al.), *Cognitive dissonance* and *Carnism*.

The first theory I will address is *cognitive dissonance*; the discomfort felt when one's attitudes and actions are in disharmony (Nilsson & Martinsson 2012:41). To relieve this discomfort one has to change one's actions, attitudes, or perceptions of the action. In relation to meat consumption, a person experiencing cognitive dissonance by consuming meat can relieve the discomfort by excluding meat from the diet, decide that meat consumption is a good thing, or decide that meat consumption is a necessity or that no other options are available. Which of the three option one chooses usually depends on which is the easiest at the time (Ibid.). In an article from 2014, Laestadius et al. point out that meat consumption is an important part of the western culture (Laestadius et al. 2014:33). Seemingly, this is also the case in Norway judging

[3] Liv Thoring, senior adviser, Climate and Environmental Department, Framtiden i våre hender, email, 06.01.2015.
[4] Ibid.
[5] Ibid.

by the statements of Simen Kristiansen[6] from Greenpeace Norway, who claims that a campaign on reducing meat consumption could be perceived as an attack on Norwegian culture and lifestyle. With this in mind, the option of excluding meat from one's diet is probably the least appealing. When faced with meat consumption's negative effects on climate and the environment in general, it might be more likely that one tries to avoid this information all together. For environmental organizations this can mean losing members and funding. For political parties it can mean losing voters. According to Laestadius et al, this is one of the reasons to why most environmental organizations hardly address the impacts of meat consumption despite its severity (Laestadius et al. 2014:37). Furthermore, to intervene in people's diet is considered preachy and seems to be in contrast with the principle of free choice (Ibid.:33). Jon Bjartnes[7] in World Wide Fund for Nature (WWF) Norway states that they hardly address individual behaviour change. Instead, they focus on influencing important policy makers. Senior adviser in the Norwegian Ministry of Climate and Environment, Philip Mortensen[8], claims that emissions from burning fossil fuels is the greatest source of greenhouse gas emissions in Norway, which is why they choose to focus on this and not meat consumption. Based on my research on their website, any mention of meat consumption as a contributing factor to climate change is nonexistent. By comparison, the website of Miljøpartiet De Grønne contains several articles addressing this issue. Yet, Lars Kjelkenes Giæver[9] from the Norwegian political party expresses difficulty in approaching the topic of meat consumption and that they do this with caution in fear of alienating voters. Moreover, Giæver states that, allegedly, it is easier to make people change their beliefs than their diets. Giæver points out that they will probably lose many members and voters if they become a "vegan party", i.e. a party supporting the exclusion of all animal products.

As expected, the organizations' responses confirm that cognitive dissonance to a large extent explain why the environmental organizations hardly address meat consumption. Addressing meat consumption can create cognitive dissonance among organization members and political voters that will ease their discomfort by turning their backs on the organization or political party. To avoid this, most environmental organizations and political parties are very careful

[6] Simen Kristiansen, donation service manager, Greenpeace Norway, email, 06.01.2015.

[7] Jon Bjartnes, Senior communication and policy advisor, WWF Norway, email, 21.01.2015.

[8] Philip Mortensen, Senior adviser, Climate and Market Section, Climate Department, Ministry of Climate and Environment, email, 15.01.2015.

[9] Lars Kjelkenes Giæver, Miljøpartiet De Grønne, email, 22.01.2015.

when discussing this issue. This also confirm Laestadius et als' theory that environmental organizations are unwilling to address meat consumption.

Another theory I will discuss is *carnism.* In some ways, this theory is related to cognitive dissonance. Carnism, introduced by Dr. Melanie Joy, describes an invisible belief system in which it is considered acceptable to consume certain animals, but not others (Carnism 2012b). Dr. Joy points out that most people would not support or tolerate the exploitation and violence toward other sentient beings. Therefore, the principles of carnism must remain hidden to keep the system from collapsing (Carnism 2012b). Meat consumption, as mentioned earlier, appears to be strongly rooted in western tradition, and in addition, or as a consequence, constitutes a significant part of people's lifestyle. Because of this, cognitive dissonance in relation to meat consumption can more easily be relieved by taking on a positive attitude towards eating meat or defend one's actions by claiming it is necessary. When confronted with information that challenge one's convictions, for example that it is possible to get all nutrients needed from a plant based diet, as stated by Giæver[10] in Miljøpartiet De Grønne, one might ignore this information to avoid cognitive dissonance. However, if the cognitive dissonance is relieved by excluding meat from one's diet other arguments against meat consumption will not create discomfort, but, on the contrary, support one's current lifestyle.

When comparing environmental organizations and animal rights organizations, the latter seems to be less concerned with being perceived as controversial. Hanne Johansen[11], chief secretary in the Norwegian animal rights organization, NOAH for dyrs rettigheter, states that they make no compromises on behalf of the animals regardless of public opinion. Moreover, Johansen[12] claims that, as an animal rights organization, most people find it quite natural that they encourage not exploiting and killing animals, and that all their members are aware that they promote a plant-based diet. The findings of Laestadius et al. support this apparent trend of animal rights organizations promoting the exclusion of meat consumption to a greater extent than environmental organizations, also in a climate change perspective. A number of animal rights organizations "that routinely campaign around meat consumption commented that it was not their job to raise the profile of climate change." (Laestadius et al. 2014:35). A

[10] Lars Kjelkenes Giæver, Miljøpartiet De Grønne, email, 22.01.2015.
[11] Hanne Johansen, Chief secretary, NOAH – for dyrs rettigheter, email, 17.12.2014.
[12] Ibid.

staff member of a U.S. animal protection NGO (non-governmental organization) stated the following: "I actually feel pretty strongly that this shouldn't be the role of the animal rights movement to do; it should be the role of the environmental movement." (Laestadius et al. 2014:35). Nevertheless, several organizations chose to do the campaigns as the issue offered "secondary benefits to their core missions." (Ibid.). "[W]hen we embark on a campaign to change people's diets for the environment, the real – the goal is to reduce the number of animals for food, and get all the benefits of that goal – environmental, animal, and human health," a U.S. animal protection NGO member claimed (Ibid.:36). Johansen[13] in NOAH – for dyrs rettigheter expresses a similar standpoint, pointing out that they are concerned about climate change because it affects animals, and that they have chosen to give attention to meat consumption's affect on the climate because it is a very good reason to eat a plant-based diet.

In contrast, environmental organizations, according to Laestadius et al, did not find meat consumption to be a part of their core missions, and some expressed that this is the domain of animal protection organizations. Furthermore, an expansion of their core missions would require training the staff in a new field, and could possibly confuse their members (Ibid.:35).

Based on these results, I find it likely that carnists, meaning people living by the principles of carnism, are, to a greater extent, found within environmental organizations and among their supporters than is the case with animal rights organizations. Thus, being a carnist appears to be an obstacle in confronting this particular issue that contributes to climate change. Animal rights organizations, on the other hand, are willing to address the issue as it supports their core missions and, possibly, also their current lifestyle.

6.2 How is meat consumption related to masculinity?

In a Swedish thesis, Tobias Jansson discusses the link between meat consumption and masculinity. Based on masculinity theories by Robert Connell and Judith Butler, Jansson analyzed the behaviour and attitude of the Swedish television chef, Per Morberg, and found that he displayed his masculinity through the handling of meat (Jansson 2012:3, 35). Morberg also seemed to express that meat consumption, with all that it involves, is an essential part of

[13] Hanne Johansen, Chief secretary, NOAH – for dyrs rettigheter, email, 17.12.2014.

being a "real" man (Jansson 2012:35). If eating meat is considered more masculine, one might assume that men eat more meat than women. In a survey[14], conducted by myself, I asked various questions about meat consumption, including how often one ate meat. In total, 39 of the responses were from women and 36 were from men. 13.9% of the men answered that they consume meat every day, compared to 7.7% of the women. Furthermore, there were four people who did not eat meat, and one that could imagine excluding meat from the diet in the future; all of these were women. It must be noted that this is not an extensive study, yet it appears to be in accordance with Jansson's findings.

7 Conclusion

As stated in the introduction, the purpose of this thesis is to give attention to the meat industry's significant contribution to global climate change and how our everyday choices affect the climate. More specifically, the purpose is to find out why environmental organizations are addressing this issue in such a small extent.

My first and primary research question reads as follows:

How do environmental organizations address meat consumption in relation to climate change and what are the reasons behind their chosen approach?

My findings in relation to this research question show that environmental organizations have difficulties in criticizing meat consumption that can be explained to a large extent by the theory of cognitive dissonance. Environmental organizations as well as political parties risk losing supporters if they criticize meat consumption. This is because current or potential members/voters are most likely to avoid information that causes cognitive dissonance by distancing themselves from the organization or party. Furthermore, the findings of Laestadius et al. regarding environmental organizations' unwillingness and animal rights organizations willingness to address meat consumption as a means of reducing greenhouse gases coincides with my results from email correspondence with the organizations. The theory of carnism can give a broader explanation for this as it is more likely to find carnists (people living by the

[14] Survey, conducted by Gro-Marit Dørheim, Norway, 14th, 15th & 25th Nov.2014. See Appendix.

principle of carnism) among members and supporters of environmental organizations than among animal rights organizations. Whereas criticizing meat consumption can create cognitive dissonance on a personal and core mission level for the environmental organization, it creates additional support for the animal rights organization's core mission and possibly also the current lifestyle of the members and supporters.

My second research question reads as follows:

How is meat consumption related to masculinity?

My results confirm the theory as presented by Jansson, namely that meat consumption (and preparation) is considered masculine. I found that the results from my survey confirm that this assumption exists among the general public (in Norway).

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9 Appendix

9.1 Email Questions

1. Hva er deres kjernesaker i kortfattet versjon?

2. Hvor høyt prioriterer dere klimaendringene på deres dagsorden?

3. Hvor stor del av klimagassutslippene anser dere kommer fra kjøttproduksjon?

4. Hvor alvorlig ser dere på kjøttindustriens påvirkning på klimaet?

5. Hvorfor har dere valgt å informere om kjøttproduksjonens påvirkning på klimaet?

6. Hvordan motiverer dere fokuset på fossile brensler kontra kjøttkonsumpsjon?

7. Spiller folks interesse en viktig rolle for hva dere velger å fokusere på?

8. Hvilke tilbakemeldinger har dere fått etter oppfordringer til minsket kjøttkonsumpsjon, og hvordan har det påvirket deres organisasjon?

9. Hvilken effekt tror dere det hadde hatt dersom dere i større grad hadde oppfordret folk til å spise mindre kjøtt eller helt vegetarisk, og hvordan hadde det påvirket deres organisasjon?

10. Hva er deres strategi for minske klimagassutslippene?

11. Hva synes dere om mediadekningen i NRK m.h.t. klimaendringene?

12. Hva synes dere om Miljøpartiet de grønnes fokus på kjøtt i klimadebatten?

13. Hva synes dere om dagens Klima- og miljødepartements fokus på kjøtt i klimadebatten?

9.2 Survey Questions and results

The number in parenthesis at the end of each alternative represents the number of people choosing this alternative.

Hvor mye bekymrer du deg over klimaendringene?

(Velg ett av alternativene under)

- ☐ Jeg bekymrer meg ikke eller svært lite. Jeg tror ikke at klimaet er i forandring. (0)
- ☐ Jeg bekymrer meg ikke eller svært lite. Jeg tror at klimaet er i forandring, men det påvirker ikke meg. (10)
- ☐ Jeg er moderat bekymret. (42)
- ☐ Jeg er ganske bekymret. (17)
- ☐ Jeg er svært bekymret. (6)

Hva tror du er ***hoved***årsaken til klimaendringene?

(Velg ett av alternativene under)

- ☐ Jeg tror ikke at klimaet er i forandring (0)
- ☐ Naturlige årsaker som har forandret klimaet før (11)
- ☐ Brenningen av fossile brennsler (kull, olje og gass) fra industri og transport (50)
- ☐ Storfe som gir fra seg store mengder metangass (1)
- ☐ Avskoging (2)
- ☐ Annet _____ (5)

Six did not respond or gave multiple answers.

Hvor stor andel av klimagassutslippene tror du kommer fra kjøttproduksjon?

(Velg ett av alternativene under)

- ☐ 0-5% (12)
- ☐ 5 – 10% (13)
- ☐ 10-15% (18)
- ☐ 15-20% (16)
- ☐ 20-25% (11)
- ☐ 25-30% (4)

One did not respond.

Hvor mye kunnskap synes du selv at du har om klimaendringene?

(Velg ett av alternativene under)

- ☐ Jeg kan ingenting eller svært lite om klimaendringene (6)
- ☐ Jeg kan litt (35)
- ☐ Jeg kan det mest grunnleggende (30)
- ☐ Jeg har ganske mye kunnskap (4)
- ☐ Jeg har svært god kunnskap (0)

Hva synes du om medias dekning av klimaendringene?

(Velg ett av alternativene under)

- ☐ Jeg synes dekningen er svært god (6)
- ☐ Jeg synes dekningen er tilstrekkelig (21)
- ☐ Jeg synes dekningen kunne ha vært bedre (40)
- ☐ Jeg synes dekningen er svært dårlig (8)

Kunne du tenke deg å lære mer om klimaendringene?

- ☐ Ja (66)
- ☐ Nei (8)

One did not respond.

Hvor ofte spiser du kjøtt?

(Velg ett av alternativene under)

- ☐ Hver dag (7)
- ☐ Nesten hver dag (12)
- ☐ Minst fire ganger i uken (15)
- ☐ Et par ganger i uken (31)
- ☐ Mindre enn en gang i uken (4)
- ☐ Aldri (4)

Two gave ambiguous or no answer.

Hvilken type kjøtt spiser du oftest?

(Velg ett av alternativene under)

- ☐ Storfe (8)
- ☐ Får (1)
- ☐ Svin (13)
- ☐ Kylling (40)
- ☐ Annet _____ (1)
- ☐ Jeg spiser ikke kjøtt (4)

Eight gave multiple answers.

Kunne du tenke deg å minske ditt kjøttforbruk?

(Velg ett av alternativene under)

- ☐ Nei (36)
- ☐ Ja, til en viss grad (34)
- ☐ Ja. Jeg kunne tenke meg å ikke spise kjøtt i det hele tatt (1)
- ☐ Jeg spiser ikke kjøtt (4)

(Dersom du svarte JA på forrige spørsmål)

For hvilke årsaker kunne du tenke deg å redusere ditt kjøttforbruk?

(Rangér dine årsaker fra 1 (viktigste årsak) til 6, eventuelt 7 (minst viktige årsak)

___ Helsegrunner

___ Global matmangel

___ Klima

___ Dyrevelferd

___ Andre miljøhensyn

___ Personlig økonomi

___ Annet _____

Results:

Helsegrunner	Global matmangel	Klima	Dyrevelferd	Andre miljøhensyn	Personlig økonomi	Annet
1	3	6	2	4	5	7
5	6	2	3	4	1	7
1	3	4	5	6	2	7
3	5	6	2	4	1	7
5	2	1	6	4	3	7
2	4	5	3	6	7	1
5	3	6	4	2	1	7
5	1	6	4	3	2	7
1	2	6	5	4	3	7
4	3	6	1	5	2	7
1	3	6	2	4	5	7
5	1	4	3	2	6	7
4	5	6	1	2	3	7
6	5	1	2	4	3	7
1	5	6	2	3	4	7
4	6	5	2	3	1	7
1	4	3	5	6	2	7
1	5	3	4	6	2	7
1	4	6	2	3	5	7
1	5	6	3	4	2	7
Total	**57**	**75**	**94**	**61**	**79**	**60**	**134**
Ranking	**1**	**4**	**6**	**3**	**5**	**2**	**7**

Hva er din alder? _____

Results:

11 - 25 years old	14
26 - 35 years old	21
36 - 45 years old	11
46 - 55 years old	15
56 - 65 years old	6
66 years old or older	4

Hvilket kjønn er du?

- ☐ Kvinne (39)
- ☐ Mann (36)
- ☐ Annet (0)

Hvilken utdanning har du?

- ☐ Grunnskole (5)
- ☐ Videregående skole (22)
- ☐ Høyere utdanning ved høyskole eller universitet (48)
- ☐ Annet _____ (3)

Hva er din brutto inntekt?

(Velg ett av alternativene under)

- ☐ Høy (50 000 kr. eller mer) (12)
- ☐ Middles (mellom 30 000 kr. til 50 000 kr.) (28)
- ☐ Ganske lav (10 000 kr. til 30 000 kr.) (25)
- ☐ Lavere (10 000 kr. eller mindre) (9)

Hvor bor du?

(Velg ett av alternativene under)

- ☐ By (42)
- ☐ Tettsted (27)

Six did not respond.

Hvilket parti stemte du på ved forrige stortingsvalg?

- ☐ Arbeiderpartiet (17)
- ☐ Fremskrittspartiet (7)
- ☐ Høyre (10)
- ☐ Kristelig Folkeparti (4)
- ☐ Miljøpartiet De Grønne (4)
- ☐ Senterpartiet (4)
- ☐ Sosialistisk Venstreparti (2)
- ☐ Venstre (8)
- ☐ Annet _____ (4)

Nine stated that they did not vote and six did not respond.