



NÝSKÖPUNARSJÓÐUR
NÁMSMANNA

A just and fair transition to carbon neutrality

Gender equality aspects in environmental and climate
issues

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Abstract

There is no place where one can obtain accessible information about which gender and equality aspects are important with respect to measures to be taken regarding climate change here in Iceland. The purpose of this project was to promote the access to, and the use of the knowledge and research into such aspects with respect to environmental and climate issues, and to make such knowledge and research accessible to local communities, government authorities and public institutions and agencies in policy development and planning of environmental and climate issues. The project was done in cooperation with the City of Reykjavík's Human Rights and Democracy Office and the aim was to map the gender and equality aspects that need to be taken into consideration concurrently with the development of the city of Reykjavík towards carbon neutrality. The project was done with an emphasis on the diversity position presented in the city's human rights policy. Efforts were made to give an answer to how to take better note of gender and equality considerations regarding policy development and planning of environmental and climate issues in Iceland. In order to answer this question an extensive process of gathering and analysing the available knowledge, such as treatises and reports already available about gender and equality aspects concerning environmental and climate issues. Following this the material was organised and classified according to areas of priority that were based on the plans of the city of Reykjavík and of the Icelandic government regarding environmental and climate issues. The findings were then classified into five areas of emphasis and sub-categories: Customs and behaviour, transportation, prevailing values and policies of the government, employment, and natural hazards. The content is then analysed according to the gender and equality aspects that need to be taken into consideration. Finally, a [knowledge chest](#) was constructed within the city of Reykjavík website where the results were published according to areas of emphasis and sub-categories. These specific emphases and viewpoints that need to be taken into consideration are available to everyone so that policy development and planning in environmental and climate matters should be able to take into consideration the various status of social groups in the country.

Introduction

Climate issues are one of the greatest subjects and challenges of the present time (The Ministry for the Environment and Natural Resources, 2020) but the effect on people's lives may vary according to their status in society (Islam & Winkel, 2017). In order for measures taken regarding environmental and climate matters to be effective and contribute to equality, equal opportunities, and social justice, it is important that public policy making and decision-making take into account the different status of groups in the society. Public institutions and government ministries must under Icelandic equality laws integrate gender and equality aspects into all policies and planning (The Act on the equal status and equal rights of the genders No. 150, 2020). The goal of gender integration is to prevent discrimination based on gender and must maintain equal opportunities and the equality of the genders in society (Centre for Gender Equality, e.d.). The Human Rights policy of the city of Reykjavik is based on the equality principle and aims at the same time at all persons being able to enjoy human rights irrespective of gender, nationality, class, origin, disability, or other status. This emphasis shall be visible and integrated into all policy formulation and activities of the city (City of Reykjavík, 2016).

The City of Reykjavík Climate Policy for 2021-2025 is the primary plan of the city regarding environmental and climate issues and the policy mentions six main actions which the city will emphasise in order to reduce emissions and work towards its goal to become a carbon neutral city before year 2040 (City of Reykjavík, 2021). The greatest challenge and the biggest opportunities are in a change in transportation in order to reduce greenhouse gasses. In this process the city of Reykjavik will place an emphasis on energy exchange in transportation, promote public transport, and become a pedestrian friendly city. Then there will be an emphasis placed on the construction of environmentally friendly buildings, on circular economy thinking in exploiting resources more efficiently and on carbon sequestration which is going to support those emissions that are impossible to reduce (City of Reykjavík, 2012). The City of Reykjavík has also created an overall approach which describes the future vision for the city until the year 2030 called the Green Plan. The Green Plan is the city's programme for green investment and development where the emphasis is placed i.a. on job creation in the construction of infrastructure and promotion of the city's innovation policy in order to bolster the economy and the creation of capital goods in the future (City of Reykjavík, 2020).

Both the City of Reykjavík Climate Policy and the Green Plan emphasise that no-one will be left behind on the city's journey towards carbon neutrality and that it is important to assess every action under the climate plan based on gender and equality considerations (City of Reykjavík, 2020; 2021). On the other hand, when e.g. considering the Green Plan one can see that the emphasis indicates rather masculine values where there is great emphasis placed on job creation and the enhancement of innovation in the development of infrastructure, such as in transportation and in energy exchange, the development of functional areas and housing projects (City of Reykjavík, 2020). These are all examples of male oriented jobs (Johnston & Reis, 2022) while job categories where women are a majority, such as care responsibilities and teaching receive little attention. The care responsibilities' jobs are to a certain degree a supporting frame for societies which enables parents, and in particular women to attend work. There is also an increasing lack of people in the field of care responsibilities and these jobs are considered to create little pollution (Johnston & Reis, 2022). It is difficult to acknowledge which are the causes for this point of view not having been applied during the development of the Green Plan, but one explanation is that there has been a certain lack of

knowledge among western societies that environmental and climate issues have different effects on the genders and on various fringe groups within industrialised societies. This has had the result that the direct effect of actions and decision making in this policy area, on people, is frequently unclear (Icelandic Ministry offices, 2022; Magnúsdóttir & Kronsell, 2014).

The purpose of this project is to find out and to answer how the city of Reykjavík and the Icelandic government will be in a better position to take note of gender and equality aspects regarding environmental and climate issues so that policies and plans, as referred to in the example above, will in actuality take account of different realities of groups of people in society. The objective of the study and its main innovatory value revolved around presenting the theoretical basis which appears in the findings section of the project about the gender and equality aspects which the city of Reykjavík and the Icelandic authorities need to bear in mind when drawing up policies and plans regarding environmental and climate issues here in Iceland.

For that purpose, the available research and knowledge regarding the issue was consulted. My role as a researcher was to interpret and to present reference material and viewpoints in a clear manner. The reason for using the available research and information for this project is that such research provides a good academic foundation based on much material, and this facilitates the researcher to interpret and present the findings in a clear manner. This also provides an opportunity to spot gaps that need to be filled in by further research (Polzer et al, 2021). A systematic analysis of sources was performed as an aid in the identification of important sources that came under selected areas of emphasis. Such analysis also provides a certain reference standard which prevents the use of inapplicable sources for the research (Bell & Waters, 2018). The sources were then content analysed and coded according to theme/subject matter. Content analysis is a technique which is used to compile and analyse the content of a certain text and refers to words, themes or messages which then must be communicated or further interpreted. Content analysis is useful for projects such as this one which involves a huge quantity of text. The coding of the sources is furthermore used to explain how the researcher converts, in a systematic manner, the symbolic content of the text and forwards/communicates it (Schreier, 2012).

The principal results are divided into five areas of emphasis that need to be taken into account regarding environment and climate issues here in Iceland. The primary area of emphasis pertains to the habits and behaviour of individuals but policies and actions in environmental and climate matters which emphasise an increase in individual responsibility in order to change their behaviour are going to have an encumbering impact on e.g., women and disabled people. Some groups are also more likely than other groups to change their behaviour and habits in the interests of the cause. Area of emphasis number two deals with transportation. In this area it is important that policies and operational programmes in the area of transportation take note of different travel patterns of social groups. This area of emphasis also discusses who profit the most off certain policies with respect to the transportation industry here in this country; usually men and people who have a strong financial position. And who are going to lose the most on measures such as increased carbon taxes and expenses on cars that use fossil fuel; usually poorer people who cannot afford to replace their car fleet. The area of emphasis number three mostly discusses the main points of emphasis by the Icelandic government and the city of Reykjavík regarding environmental and climate issues. Great emphasis is placed on the development of infrastructure and investments while less emphasis is placed on the enhancement of cooperation and the population's love of their neighbourhoods and the nature in the country. The first point is connected with the first area of

emphasis, but the latter is frequently connected with the point of emphasis and values of women in climate matters. The fourth point of emphasis mentions the major industries that have been the subject of the interest of the Icelandic authorities and of the city in connection with environmental and climate issues. These are examples of male oriented industries, and it is probable that other groups will find it difficult to enter such positions. There is also mention of industries that might be emphasised in this connection in order to advance the participation of women in the job market and of the people that are likely to lose their jobs because of the automation of the service sector, and of people who possess little formal education. The final area of emphasis pertains to natural hazard. There is very little research available regarding the impact of natural disasters on groups of people in Western societies, let alone in the Nordic countries. On the other hand, older people, children, and the disabled are worse off during natural disasters than other groups. On the other hand, these groups, and in particular disabled people, do not gain access to the process of the development of policies and plans in these matters and they are viewed as victims as opposed to using their knowledge and experience in the development of policies and plans regarding environmental and climate issues.

Before a more detailed discussion is presented regarding these areas of emphasis and on gender and equality issues which the city of Reykjavík, the Icelandic authorities and other institutions need to take into account in these matters an account will be given of the methodology of the research

Methodology.

Environmental and climate matters are an expansive issue with widespread ramifications. It would not be difficult to research and study a wide variety of subjects and points of emphases within the field and to analyse these subjects based on gender and equality aspects. The purpose and the objective of this project is demarcated by placing a theoretical foundation for those gender and equality viewpoints that must be kept in mind when demarcating policies and actions in the area of environmental and climate issues in Iceland. For this purpose, the available research and knowledge regarding these matters was relied upon and it will hopefully increase the knowledge and understanding of gender and equality aspects within environmental and climate issues. This section will further examine the points of emphasis that were taken into consideration in the gathering and mapping of the sources. Secondly, we will go over how and why specific sources were selected which constitute the findings of this project. Thirdly there is a discussion of the analysis of sources. The findings constituted five themes or areas of emphasis that will be discussed in the chapter on the findings. Finally, the pros and cons of the research method will be reviewed.

The selection of Areas of Emphasis

As mentioned above the purpose of this project was the mapping of gender and equality aspects that might be of use for the city of Reykjavik and for Icelandic authorities in the policy making and planning efforts by Iceland in the area of environmental and climate issues. In order to discover the City's and the Icelandic authorities' main points of emphasis regarding climate issues it was decided to review the City of Reykjavík's Climate Policy for 2021-2025 (City of Reykjavík, 2021), the Green Plan (City of Reykjavík, 2020) which is the City of Reykjavík's offensive strategy until the year 2030, and the Icelandic government's action plan in climate matters (Ministry for the Environment and Natural Resources, 2014). These points of emphasis were then used as a certain kind of framework in order to define the programme and to commence data gathering. Illustration 1 shows the main points of emphasis for each programme with respect to environmental and climate affairs.

Illustration 1. Points of emphasis and programmes.

Programme	City of Reykjavík's Climate Policy for 2021-2025 (2021)	Green plan (2020)	The Icelandic government Action plan regarding climate matters (2020)
Points of emphasis	Transportation, the habits of the population such as environmentally friendly behaviour, eco-friendly buildings, circular economy, energy exchange, carbon sequestration, disasters	Construction of infrastructure, such as housing projects and premises, investments in transportation, employment opportunities in the knowledge sector, biotechnology, software development, creative field, and innovation	Inland transportation, agriculture, waste and wastage, incentives for transition, such as the motivating of transition in society, land use-carbon sequestration

The points of emphasis determined by the city and those of the Icelandic government overlap in many respects as there is a mutual goal involved; to stem climate change. In order for this to be possible there needs to be a high level of cooperation between the government, organisations, and local communities. Transportation, changed habits and incentives for the public to change the behaviour for the benefit of the environment, carbon sequestration and employment play a large part in these action plans. After having mapped the points of emphasis that were of importance in the City of Reykjavík's Climate Policy, the Green Plan and the Icelandic government Action plan regarding climate matters the next step was to do literature search and registration of reference material according to points of emphasis and gender and equality aspects.

Literature search and registration of reference material

The reason for using the available research and information for this project is that such research provides a good academic foundation based on much material, and this facilitates the researcher to interpret and present the findings in a clear manner. This also provides an opportunity to spot gaps that need to be filled in by further research (Polzer et al., 2021). A systematic analysis of sources was performed as an aid in the identification of important sources that came under selected areas of emphasis. Such analysis also provides a certain reference standard which prevents the use of inapplicable sources for the research (Bell & Waters, 2018).

The sources were mostly obtained through Google Scholar according to search terms. Illustration no. 2 shows an example of search words used. Sources were also obtained from the project administrators, and sources which I, the researcher, had used for other essay writing and were related to the subject. In those instances, it was noted who sent the relevant source, or where it had been used earlier instead of a search word. In this way it became possible to create validity for the use of these specific sources. Google Search was also frequently used when searching for Icelandic search words, in particular for reports that frequently did not turn up when searching on Google Scholar. These were most of the time the reports by ministries and institutions. Most sources that were used were peer reviewed treatises, attitude surveys, reports from institutions, organisations or from the government. In total 77 sources were used which elucidated gender and

equality aspects in environmental and climate matters or supported the points of emphasis that were selected. Illustration 2 shows an example of how sources were classified according to search words, their type and a short discussion that was relevant to the results.

Illustration 2. An example of search words, sources, type, and theme/discussion in the sources.

Searchword	Source	Type of source	Theme/topic
Climate change and gender	Nordic Council of Ministers. (2009). Gender and Climate Change. Copenhagen: Nordic Council of Ministers. Sótt frá http://norden.diva-portal.org/smash/get/diva2:700518/FULLTEXT01.pdf	Report	Joint Nordic report from the Nordic Council of ministers discussing how women and men have a different impact on society and the climate, how the impact of environmental and climate issues differs between genders and how the gendered division in decision making about climate issues is not equal.
Sent by supervisor	Auður Ingólfssdóttir (2016). Climate Change and Security in the Arctic (PhD). University of Lapland. Sótt frá https://lauda.ulapland.fi/bitstream/handle/10024/62644/Ingolfssdottir_Audur_ActaE_206_pdfA.pdf?isAllowed=y&sequence=2	Doctoral thesis	Dominating values in government policies in environmental and climate issues. Discussing feminine and masculine values in societies
Gender, Discourse and Climate change	Swim, J., Vescio, T., Dahl, J., & Zawadzki, S. (2018). Gendered discourse about climate change policies. <i>Global Environmental Change</i> , 48(January 2018), 216-225. https://doi.org/10.1016/j.gloenvcha.2017.12.005	Article	Dominating personal values in environmental and climate affairs according to gender

The next step was the mapping of sources according to prior identified areas of emphasis. The areas of emphasis were 133 in total and were all connected in one way or another to the areas of emphasis that were presented in the city of Reykjavík's and the Icelandic government's plans regarding environmental and climate issues. The sources were then classified as "yes" or "no" according to which area of emphasis they belong or were connected with. Illustration No. 3 shows an example of the classification of the first three sources seen in illustration No. 2 according to area of emphasis. The sources were then content analysed and coded according to theme/subject matter. Content analysis is a technique which is used to compile and analyse the content of a certain text and refers to words, themes or messages which then must be communicated or further interpreted. Content analysis is useful for projects such as this one which involves a huge quantity of text. The coding of the sources is furthermore used to explain how the researcher converts, in a systematic manner, the symbolic content of the text and forwards/communicates it (Schreier, 2012). Also, the researcher needs to determine which portion of the content is important and which is not. To do this you need a certain framework. Illustrations 3 and 4 show distinctly which were the references for this project. Sources that were used came under certain areas of emphasis and sources were categorised and coded according to them (Schreier, 2012). The coding for the gender and equality areas of emphasis were more informal and the codes and the themes were created

based on the sources used. This decision was reflecting that gender and equality aspects in this policy area had not been specifically identified for this project and therefore it became the role of the researcher to find out which points of view were most commonly used in the sources.

Illustration 3. Example of the classification of sources according to areas of emphasis.

Area of emphasis												
Innovation	Customs and behaviour	Allocating funds	Transportation	Dominating values and discussions	Energy use	Recycling and sorting	Disasters	Caretaking	Employment	Other-transition	Other-eating habits	Other-CO2
Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
No	No	No	No	Yes	No	No	No	No	No	No	No	No
No	No	No	No	Yes	No	No	No	No	No	No	No	No

Illustration No. 4 shows an example of the first three sources seen in illustration No. 2 classified according to gender and equality aspects, a total of 10. It should be further mentioned that just as the areas of emphasis the gender and equality aspects of the sources are distributed in a different manner. Most of them come under gender while the other categories receive less attention. This might be caused by the selection of search words, but it might also show that in general there is a greater amount of research and data regarding to gender aspects in the areas of the environment and climate than in regard to other groups and this shows a certain gap in that type of research. These are only the speculations of the researcher, and it cannot be confirmed one way or the other whether this is a fact.

Illustration 4. Example of the classification of sources according to gender and equality aspects.

Gender and equality aspects									
Gender	Class	Origin	Age	Family pattern	Education	Integration	Other-salaries	Disabled people	Residence
Yes	No	No	No	No	No	No	No	No	No
Yes	No	No	No	No	No	No	No	No	No
Yes	No	No	No	No	No	No	No	No	No

The illustrations here above only show a fraction of the source material and mapping that took place but the purpose of the examples here above is to show in a simple manner how the gathering, recording and mapping of the sources was conducted. It is further important to mention that the purpose of this project is not to provide a systematic overview of all those sources available regarding the areas of emphasis or of the policy area.

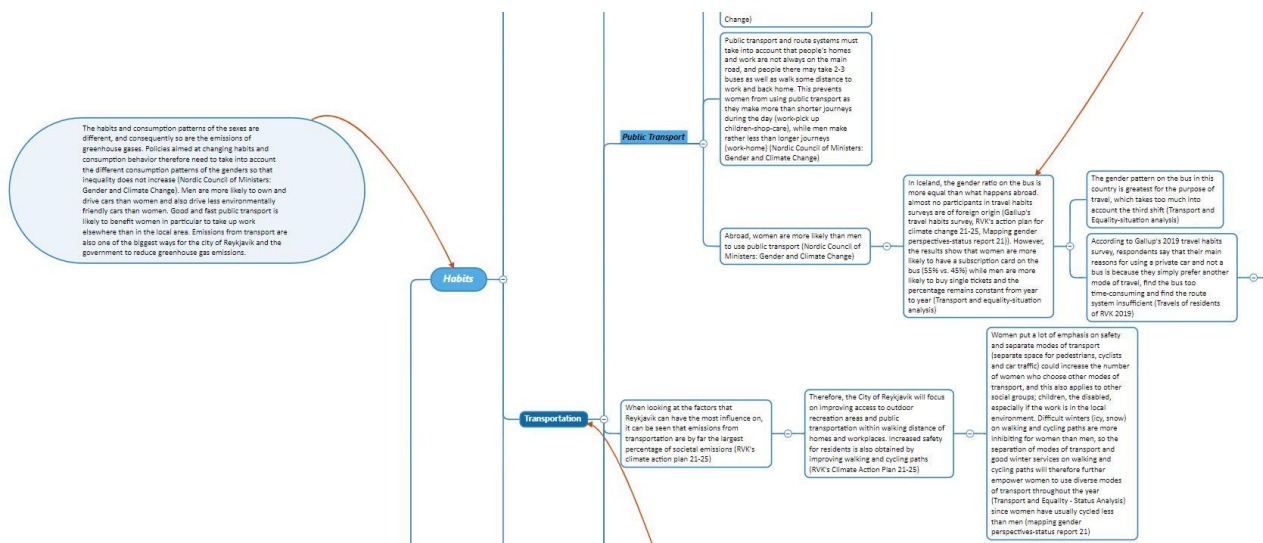
The purpose is to provide an overview of the main discussions and research that characterise the gender and equality aspects of environmental and climate issues that might be used for policy formulation and planning in Iceland.

Thematic analysis of reference material and the line-up of areas of emphasis for the findings

Following the mapping of sources, the next step was the processing and arranging information according to themes and discussion, thematic analysis is frequently used in the field of qualitative research. Such analysis puts emphasis on the definition, content analysis and interpretation/construction of themes that can be found in sources (Schreier, 2012). The program "Mind Manager" was used in order to facilitate overview and links that were created between different sources and areas of emphasis. This also became an aid when determining the setup of the chapter with the findings and the final selection of areas of emphasis. Illustration no. 5 shows an example of how the sources were classified according to areas of emphasis and how sub-categories were formed. That illustration shows e.g., that "customs" are a special area of emphasis and in front

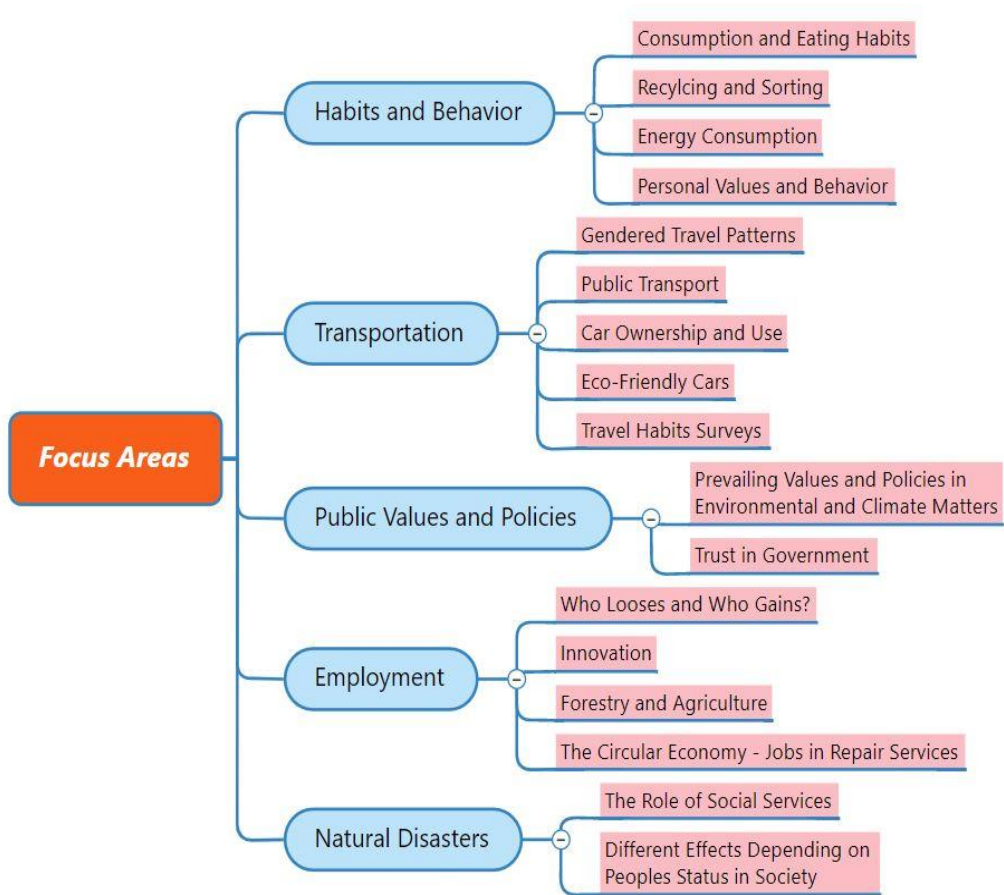
of it there is a summary of the category's gender and equality aspects. Then one can also see that transportation is a sub-category and under the title: transportation you can see a sub-category about public transport. The relevant sources and text are then placed behind each category, and these constituted the findings of this study. The orange arrows show the linkage between certain sources or categories to sources or to the categories of other areas of emphasis. Because of the size of the document, it was difficult to arrange it in an annex and therefore I decided to show a small sample, just as with illustrations 2-4. These are now being uploaded to Gagnís- Gagnaþjónustu félagsvísinda - the data-service centre of the social studies department.

Illustration 5. Example of the classification of sources according to areas of emphasis into major-categories and sub-categories.



All sources and information that was gathered for this project and which were considered to be important were placed on the chart seen in illustration 5. Illustration 6 shows then the areas of emphasis and their subject matter as it appears in the findings. There are five areas of emphasis, and these were selected following the processing and mapping of sources according to theme/subject matter. The areas of emphasis are based on the principal information found in the sources and gender and equality aspects that need to be taken into consideration and then subsequently to be interwoven into sub-categories. This was done in order to store a huge volume of data in a simple and clear manner. The areas of emphasis are however still based on the emphases applied by the City of Reykjavík and those of the Icelandic government with respect to environmental and climate issues as seen in illustration 1. Their interpretation is on the other hand wholly my own, the researchers, and it is guided by the sources and information that was gathered.

Illustration 6. Areas of emphasis and the sub-categories of the results.



Pros and cons of the research method and summary

The primary benefits associated with conducting a research study based on the present knowledge and research is that one is able to collect a huge amount of data in short period of time. The time framework for this project was limited and it was therefore important to gather good quality data and sources which might be used for policy formulation for environmental and climate issues here in this country. The main drawback of such a study is to select and reject.

Information and sources that were selected are perhaps sources which someone else would not have selected and who did not consider these to be important, or vice versa. There is also a huge amount of research and material where not all information in the sources is useable, or do not matter for the development of the project. The researcher is therefore always searching and finding information which will support the researcher's own interpretation of the material.

And these 77 sources that were used for the findings are not at all exhausting and it would be easy to continue and build on the knowledge that had been gathered prior to this project. It is also important to mention that I, as the researcher, would have been able to work on other areas of emphasis rather than those mentioned in the city of Reykjavík's plans and those of the government. In that case somebody else would have been able to interpret the areas of emphasis in another way or could have emphasized other issues. As an example I decided to discuss eco-friendly buildings and the circular economy based on employment. Others might perhaps have discussed the costs involved in eco-friendly buildings and their effect on marginalised groups. The findings are then based on five areas of emphasis and are divided into 17 sub-categories. The sub-categories of the

first area of emphasis, Customs and behaviour deals with consumption and eating habits of people, recycling and sorting, energy use and personal values, concerns, and the behaviour of individuals in environmental and climate matters. Area of emphasis No. two, transportation, is based on different travel patterns of men and women, public transport, car ownership, eco-friendly cars and research into travel habits. The third area of emphasis then discusses the prevailing values and policies of the government in matters regarding the environment and climate and on the public trust in the authorities. The fourth area of emphasis is then based on employment/industry and the four sub-categories then address the question who will be most likely to profit and loss in the industries which the government and City of Reykjavik place the greatest emphasis on in the green transition of industries, the role of innovation, forestry and agriculture, and jobs in the repair services. The last category, natural hazard, was then inserted as my supervisor from the City of Reykjavík pointed out to me that officially there was not much research going on and information available about planning for natural disasters that were the subject of analysis based on gender and equality aspects. That chapter is divided into the role of social service entities during natural disasters and different impact of natural disasters on different groups of society.

Findings

Habits/Customs and behaviour

Consumption and eating habits

The eating habits of the genders are different, and research indicates that men consume generally more meat products than women (Nordic Council of Ministers, 2009). The emission of greenhouse gasses from cattle raising and the consumption of meat products is the greatest polluting factor in all food production (Xu et al., 2021). The findings of a survey about the diet of Icelandic people which was conducted during the years 2019-2021 indicates that Icelandic men eat on average rather more meat per week (736 gr) than women (435 gr). And they eat double the quantity of processed meat products compared to women. Women were a majority of those who said they eat vegetable courses as the main dish and that they are more likely than men to want to reduce meat consumption and the consumption of animal products (38% versus 23%) (Steina Gunnarsdóttir et al., 2022).

Women play a large role in consumption and purchase in as much as they are frequently responsible for the shopping/purchases for the whole family. For this reason, women are often being referred to as the largest consumer group worldwide. It is however worthwhile to note that they do not themselves consume all which is purchased for the home (Nordic Council of Ministers, 2009). Studies show also that the average carbon footprint of single men is more than 10,000 kilogrammes (kg) per year compared to 8,100 kilogrammes (kg) for single women. This is because men spend more funds on things and goods that are more carbon intensive such as petrol, cars and meat products while women spend more on things such as furniture and clothes that have a lower carbon footprint (Nordic Council of Ministers, 2022).

Recycling and sorting

There are indications that women handle to a greater extent the recycling and sorting of garbage in the homes rather than the men (Auður Ingólfssdóttir, 2016; Corner et al., 2014). It also appears that there is a certain gender-based division of labour in place where men at a greater degree take care of bringing the garbage to the sorting centres (City of Reykjavík, 2021). The increased emphasis placed on the sorting of garbage inside the homes is therefore likely to have a greater impact on women as they are more likely than men to change their own behaviour and that of the family as a whole in the interests of environmental and climate issues. (European Institute for Gender Equality, 2017; Alston, 2013).

Energy use

In the case of energy saving in the European countries women find it most useful to receive a better dissemination of information regarding energy efficiency and saving in order to be able to change their behaviour. Men on the other hand are more interested in technical solutions such as energy saving household appliances, or government subsidies. When selecting an energy provider, men for the most part take into account the price while women also consider the environmental impact of the source of energy. Policies that place greater emphasis on energy saving within the homes will in all likelihood have greater influence on women than men as they are more likely to change their behaviour in order to save energy and spend more often than not more time on domestic tasks than men (European Institute for Gender Equality, 2012). Women are more likely than men to

accept what is referred to as energy deficiency because of less income. It is therefore more difficult for low-income groups to invest in environmentally friendly or energy efficient options for the homes such as energy saving household appliances as these are generally more costly (European Institute for Gender Equality, 2017).

Personal values, concerns and the behaviour of persons regarding environmental and climate matters

According to research people who behave and think about themselves as a part of a whole and express selflessness are more likely to contribute to sustainability, to change their behaviour for the benefit of the environment as well as being concerned about environmental and climate issues. On the other hand, the people who are in favour of class division and individualism are more likely to minimise environmental and climate issues (Corner et al., 2014). Then there are the people who exert themselves for unchanged behaviour or a status quo, and these are more unlikely to admit or face up to climate change. These are often people in management positions who benefit personally on the status quo and the points of emphasis. Research indicates that in this context the men are generally the majority of people in management positions and are therefore more likely to justify the system as it is (Goldsmith et al., 2013). There is also a study that points out that men appear to avoid selecting a female spouse or partner who endorses male oriented values and behaviour in environmental matters as they doubt the heterosexuality of these spouses or partners. On the other hand, the same does not apply to men who display female values and behaviour in environmental matters. It may therefore be that there is a certain prejudice towards women who do not endorse expected female values and behaviour in society and which therefore encourages sexual stereotypes (Swim et al., 2019).

In general, it appears though that women possess more knowledge of climate and environmental issues than men. On the other hand, they are more likely to underestimate and understate their knowledge of the field (Salehi et al., 2015). More than half the people in Iceland feel they know neither much nor little about climate change, but men are however slightly more likely to say that they know very much, or rather much about climate change, than women are (Gallup, 2022).

In the Nordic countries women are more concerned about climate change than men are, and young women are the most concerned age group (Nordic Council of Ministers, 2020). Icelandic women are more concerned than men about the consequences that climate change might have on their families and they think more about their impact on the environment (Gallup, 2022). Icelandic women are then more likely than Icelandic men to want to change their behaviour for the benefit of the environment (73% of women versus 53% of men). Icelandic men feel that their behaviour has very little or no effect on environmental and climate issues (44% of men versus 17% of women) and are more likely to think that globally the general public is able to have rather little, very little or even no effect on environmental and climate issues. Icelandic men are also more likely to think that news about the seriousness of the warming of the earth are exaggerated (28% of men versus 15% of women) (Gallup, 2022).

Women in the Nordic countries are more likely to participate in measures in order to counter climate change such as by eating more vegan food, buy and sell second hand and buy less new clothes and consumer goods. Young women in the Nordic countries are then more prepared than all other age groups to get involved in environmental affairs (Nordic Council of Ministers, 2020).

A larger ratio of women in the Nordic countries feel that the most important field of cooperation between the Nordic countries should be in the fields of environmental issues and climate change issues and they support the idea that the Nordic countries should be in the forefront of climate action globally (Nordic Council of Ministers, 2020).

Women appear to carry more of a subjective burden than men with respect to climate issues as they are more concerned about climate issues than men. Therefore it is likely that the subjective burdens linked to the changing of their own behaviour and habits, and even that of their spouse is rather placed on the shoulders of women if an effort is not made to reach out to other groups (City of Reykjavík, 2020, Auður Ingólfssdóttir, 2016). The image of the "perfect" environmentally friendly individual who sorts and recycles, mends and patches clothes and cooks a healthy and environmentally friendly dish does not take into account the fact that most of these tasks will be performed by women (Nordic Council of Ministers, 2022).

There is also a gender difference regarding the attitude of people when it comes to responsibility and solutions in order to stem climate change. An environmental survey in Sweden showed that men felt that the government, industry and corporations should carry the heaviest responsibility. Women in Sweden felt on the other hand that behavioural adjustment of individuals was more important in order to respond to environmental and climate impact but they point out that frequently they did not know what would be the best approach in these matters. They had less trust in technical solutions than men with regard to solving the climate problem. They were also more likely than men to be against a raise in energy prices, carbon taxes or other policies that increase the financial burden of individuals which might be explained by the wage difference between the genders which leads to a lower purchasing power of women. Swedish women were however more likely to have a feeling of guilt about their ecological footprint rather than men and they tried to buy goods from companies and producers who support environmental and climate issues or who sell

-PROJECTS- IDEAS-

- An increased tax-burden or costs placed on non-eco-friendly goods has been a popular way for the governments to encourage a change in the habits of the population in the fight against the climate problem. An increase in the tax-burden will have the worst impact on the poorest people and it is therefore important that the government will develop counter-measures so that inequality does not increase. Tax incentives should also take note of the different financial situation of people and should support those groups who are most in need of aid. For example a certain portion of the funds obtained from carbon/pollution taxes could be earmarked directly to operations or homes that are in a critical condition. It might also be possible to work with the private sector in order to make environmentally friendly goods accessible and at a fair price (Climate Council, 2022).
- It would be interesting to conduct a gender based survey of people's attitude to carbon offsetting as there are not many such surveys, and the few that are available are frequently directed at a limited group, often tourists (Denton et al., 2021).

environmentally friendly and organic products. And they were ready to spend more on such goods than men (European Institute for Gender Equality, 2012).

More than half of the Icelandic population feels that Iceland does too little to address climate change and women are a majority. Men are slightly more likely to be completely happy with their own efforts regarding environmental and climate matters while women are more likely to be dissatisfied with their own efforts (Gallup, 2022). Icelandic women, like the Swedish, are more likely to think that individuals are responsible for actions to counter global warming as well as to be a bit more likely than men to feel that the government and corporations should be responsible. Men replied slightly more frequently than women that individuals, corporations and the government were to a rather little degree, to a very little degree or to no degree at all responsible for actions to counter global warming (Gallup, 2022). Some men might also see it as a threat against manhood, or their position in society, to change their behaviour regarding climate change because this has feminine connotations. To tell men to stop eating meat and driving big cars might be difficult if there is no effort made also to demolish sexual stereotypes (Brough et al., 2016).

The main incentives and reasons for Icelanders to minimise their impact on the environment seems to be found in education and discussion, increased opportunities to change their own behaviour, good timing and financial advantage. Education and discussion appears to be the main reason for people to change their domestic shopping habits. What then prevents Icelanders for the most part from changing their behaviour for the benefit of society is that they think that individualized changes have little impact, they feel that the support of the government is insufficient and it is too costly to change their behaviour. The main ideals for Icelanders towards a change in behaviour regarding environmental matters would be that the people should know that they are helping the next generation together with protecting Iceland and the country's nature in the long run (Gallup, 2022).

It has been pointed out that disabled people frequently feel like they are like culprits or expendable units with respect to environmental or climate issues. Environmental policies and solutions are frequently doable, based on the ability and qualifications of those who create and develop environmental and climate policies. In this context disabled people are considered to be second class citizens. An example of this is a ban on plastic siphons and knife and fork which creates a disadvantage for disabled people, besides disadvantaged people do not always have access to the aid, and the ability or energy to clean non-disposable spoons and knife and fork (Freyja Haraldsdóttir, 2020)

Transportation

Gender difference in travel patterns

When taking into account those factors which Reykjavik will be able to affect the most in the environmental and climate areas there is a frequent reference to transportation where the emissions are by far the largest proportion of societal emissions in Reykjavík. When only taking into account a plain carbon footprint then transportation comprises 82% of all emissions and it is clear that reduction in emissions in Reykjavík needs to a large degree to derive from transportation. In order to reduce emissions the City of Reykjavík plans to focus on promoting services and access to recreational areas, public transport in walking distance from residential areas and workplaces and to develop infrastructure for public transport (City of Reykjavík, 2021). The most significant

measures undertaken by the Icelandic authorities until now have been in connection with road transport. Including a tax on fossil fuel for gasoline and Diesel cars while tax incentives are provided for more eco-friendly vehicles and charging stations (Sigríður Ingibjörg Ingadóttir et al., 2021).

Until now traditional traffic plans, planning and traffic models have in general not taken into consideration different travel patterns of the genders, or of different groups in society. Both foreign and domestic research shows that men on average travel longer distances but in fewer trips through the day while women take many short trips that are related to care taking and domestic work (City of Reykjavík, 2021; Icelandic Ministry Offices, 2022). Gender effects on prioritization in transport projects in Iceland are little known and accordingly it is difficult to assess whether in the prioritization process of projects and in planning the reference point is primarily the travel patterns and needs of men. At the same time almost all decisions regarding transportation projects are taken by men (Lilja G. Karlsdóttir and Ásta Þorleifsdóttir, 2018).

Icelandic and foreign research indicates that women are more likely than men to work near their homes (Lilja G. Karlsdóttir and Ásta Þorleifsdóttir, 2018). This is why there is gender division in the labour market and men are more often working in jobs that are located inside towns or are centrally located. Women on the other hand are more frequently working in places that are spread over the suburbs such as in kindergartens, schools and health care centres. (Nordic Council of Ministers, 2009). There might therefore be a connection between this and a divergent prioritization for the genders in transportation improvements in Iceland where women are more likely to want to prioritize transportation improvements between built-up areas within the workplace areas, but the men want to prioritize larger projects between workplace areas (Ásta Þorleifsdóttir and Sigrún Birna Sigurðardóttir, 2021). Furthermore, people want to spend more time with their families and at work rather than commuting to and from work. For this reason the fastest and the most easily passable travel mode is usually selected, both by women and by men (Nordic Council of Ministers, 2009).

Public transport

Many foreign studies indicate that women are more likely than men to use public transport while men use rather private cars (Arora-Jonsson, 2011; European Institute for Gender Equality, 2017; Nordic Council of Ministers, 2009). In Iceland the gender ratio of those who use public transport (Strætó) on the other hand is more balanced than is common abroad (Gallup, 2020; City of Reykjavík, 2021, Icelandic Ministry Offices, 2021). The only distinguishable difference in the behaviour of the genders in the Strætó bus system in Iceland is that women appear to use a subscription card more frequently (55% versus 45% men) while men are more likely to buy single tickets. The reason might e.g. be caused by different travel patterns among men and women (women frequently travel shorter distances while men make fewer trips but these are over longer distances). It might therefore be a financial benefit for women to use a subscription card (Ásta Þorleifsdóttir and Sigrún Birna Sigurðardóttir, 2021). The accessibility and safety of disabled persons in Strætó is deficient but such elements are an important factor in the selection of travel mode and the experience of many disabled people (Stefán Vilbergsson and Bergný Jóna Sævarsdóttir, 2019). The study by Birta Ósk Tómasdóttir also indicates (2021) that foreign citizens use Strætó significantly more than natives as the costs involved appear to have a greater importance in the selection of transportation with the immigrants than with the natives.

According to the travel mode survey conducted by Gallup in 2019 most of the subjects answered that the main reasons for using a private car instead of Strætó was that they simply chose another mode of travel, people found that Strætó was too time consuming and the route schedule was inadequate (Gallup, 2020). A Gallup environmental survey 2022 shows that only 5% of the respondents take the Strætó bus to and from work or school, irrespective of season and region. The same survey points out that the respondents are more likely to walk to work or to school than taking the Strætó bus in the winter. This applies to all parts of the country except neighbouring municipalities of Reykjavík (Gallup, 2022). The little supply of public transport such as the strætó bus service in the provinces might possibly explain this result.

Women are more likely than men to do unpaid work for the home such as bring and pick-up children at the kindergarten/school, do the shopping for the home and to care for elderly parents or other family members (Prime Minister's Office), 2020; Icelandic ministry offices, 2022). In this context it is right to mention that according to the European labour market study the caregiver burden of individual persons is among the highest here in this country and that more than 10% of Icelanders are regular caregivers to an ill, disabled or aged relative and women are a bit more likely than men to do this. The level of caregiver burden is by far the highest in Iceland. Following is Finland with 3,3% (Icelandic ministry offices, 2021; Eurostat, 2019). Therefore the conclusion can be drawn that if the private car is the fastest and easiest way to take care of all these jobs including going to and returning from work, individual persons decide upon rather travelling by car than by public transport/cycling/walking. The construction of transport infrastructure, especially when such infrastructure will shorten travel time, increase the size of the geographical area where people can attend work, and increase security, is likely to be of more use for women because of their travel methods and travel customs (Icelandic ministry offices, 2021; 2022).

Women also place a great emphasis on safety and separate ways to travel such as dedicated space for walking and cycling could increase the number of women who choose other ways to travel, in particular if their work is in the micro-environment. This also applies to other social groups, such as children and disabled people. Harsh winter seasons with slippery conditions on footpaths and bike paths are more inhibitory for these groups. Separate ways to travel and good snow removal services during the winter for footpaths and bike paths will in all probability encourage these groups to use diverse ways of travel during the whole year (Ásta Þorleifsdóttir & Sigrún Birna Sigurðardóttir, 2021).

-CASE-

A survey which was conducted in Kalmar - Sweden showed that women avoided taking the bus in the evening because they felt that their safety was compromised when they had to walk to their destination from the bus stop.

The town developed what was called "*bus stops with lighting*" that enabled passengers to ask the bus conductors to stop at locations in between specified bus stops. Bus conductors then opened only the front door of the bus and monitored that no other passenger would follow behind. This made trips taken with the evening buses safer and more attractive for women (Sustainable Gender Equality – a film about gender mainstreaming in practice, 2014).

-CASE-

When analysing the gender effects of snow removal in Karlskoga Sweden it then emerged that the snow-clearing had a different effect on the genders. Snow removal began earlier in places where proportionately more men worked than women. It is necessary to bear in mind that the so-called female workplaces are e.g. schools, kindergartens and retirement homes, places that need to be cleared at a required time. Roads that were made for cars and large motorcycles were cleared first and the walk-paths and bike paths were last on the priority list. When studying the numbers it emerged that men would rather use the roads, and women would rather use the walk-paths and public transport. In view of that it is more difficult to walk and cycle in snow than to drive a car, the order of priority has been changed. By changing the order of priority the city became more accessible to all, not least to children, youth and people who use wheelchairs or walking frames. This new arrangement is more suited to the needs of most people and the means of transportation which the public uses without additional cost for the city. The load on the emergency ward was reduced in Karlskoga during icy road conditions due to fewer icy-road accidents (Sustainable Gender Equality - a film about gender mainstreaming in practice, 2014; Icelandic Ministry offices, 2019).

Car ownership and use of cars

Foreign studies indicate that men are more likely to own and use cars than women and one reason for this is that men are frequently in a better position than women to buy and own cars because of a stronger financial situation. (Nordic Council of Ministers, 2009).

Icelandic numbers indicate that men's car ownership in Iceland is significantly higher than women's car ownership as women were only registered for 37% of passenger cars in 2017. These numbers remain constant because according to the Icelandic government's 2022 status report 64% of men and 36% were registered owners of passenger cars in Iceland (Icelandic Ministry offices, 2022). It is

interesting to study gender analysed data about the number of car owners in Iceland for the same year because more than 29,000 single women were registered car owners while single men were registered as owners of 62.000 cars. On the other hand the total number of single women was higher which means that more than 5,200 more single men were registered as owners of cars in the whole country. this indicates that a large number of men are registered as owners of more than one car. More than 29,000 single women (of 57,932) were therefore not registered for any car in 2017 (Lilja G. Karlsdóttir and Ásta Þorleifsdóttir, 2018).

Men in this country are also more likely to be registered as owners of heavier and larger vehicles than women. Larger and heavier vehicles emit more greenhouse gasses into the atmosphere and therefore cause more pollution (Lilja G. Karlsdóttir & Ásta Þorleifsdóttir, 2018; Icelandic Ministry offices, 2022). A survey of the vehicle registry in 2018 showed that cars owned by Icelandic women were generally more energy efficient and that 43% of environmentally friendly cars were registered as owned by women. And cars owned by women release on average 11% less greenhouse gasses than men's cars (Ásta Þorleifsdóttir & Sigrún Birna Sigurðardóttir, 2021). The two main reasons for this could be a greater environmental awareness and less purchasing power of women because of lower pay (Icelandic Ministry offices, 2021). When it comes to choosing cars women think generally more about fuel economy, their effect on the environment and safety while men place more emphasis on power, appearance and range (Sovacool et al., 2019; Gallup, 2022).

Eco-friendly cars

Despite men being more inclined to own a car/cars than women and their purchasing power if frequently greater, women appear however to be relatively more likely to own an electric car. (City of Reykjavík, 2021). This could be explained by an increased willingness of women to change their behaviour for the sake of the environment and their greater willingness to more for such issues than men (European Institute for Gender Equality, 2012).

According to a Gallup environmental survey (2022) women in Iceland were a bit more likely than men to want to buy an electric car (48% of women versus 44% of men) and they mentioned that in 53% of the instances their main reason for replacing the car fleet was because of environmental concerns while this was the main reason given by 33% of men in the survey. According to figures from the Icelandic Transport Authority from 2020 the possessors of electric cars and plug-in hybrid cars 58% men and 42% women (City of Reykjavík, 2021). This is interesting because women are registered for fewer cars than men along with one reason that women own smaller and more fuel efficient cars is because they possess less buying power than men. Up to now eco-friendly cars have been more expensive than cars that use fossil fuel (Sigríður Ingibjörg Ingadóttir et al., 2021). This is therefore a question of whether women are generally more ready to spend more on eco-friendly cars, or if such cars are becoming more accessible than before because of e.g. government tax incentives. This would be a worthy subject of investigation.

Although government tax incentives such as tax relief for the purchase of environmentally friendly vehicles would lower the total price in all probability low income people and fringe groups will be unable to use these incentives as the purchasing power to purchase og replace the car is not present. It might therefore be researched whether money from common funds would be best spent on subsidising transportation for those who best can afford changing or buying more expensive cars

higher income households and businesses (Sigríður Ingibjörg Ingadóttir et al., 2021). Carbon surcharges imposed on cars powered by fossil fuels are worst for low income groups as these groups are more likely to own older cars that pollute more. Investments in public transport are generally less advanced than tax reliefs for environmentally friendly cars. Low income groups are therefore at a disadvantage with respect to access to affordable transportation (Sigríður Ingibjörg Ingadóttir et al. 2021).

Studies of travel habits

It is necessary to place more emphasis on studies and surveys of the travel habits of different groups in society in order to ascertain the best ways to spend time and funds so that it may benefit the greatest number of people (City of Reykjavík, 2021). Approximately one decade ago work began on analysing gender effects on the prioritisation of transport projects abroad. This has not been studied here and therefore it is difficult to assess if during the planning process and the prioritisation of projects the reference point is primarily the travel patterns and needs of men (Icelandic Ministry of Transport, 2019). Furthermore there are also no studies available that emphasise an analysis of the travel habits of people based on their social status, e.g. people of foreign descent, disabled people, according to financial position, occupation etc. There are therefore many unanswered questions when it comes to an analysis of gender and equality aspects regarding transport projects in this country.

-CASE-

The construction of tunnels in this country has shown that such construction projects often are able to stop migration from rural areas and the number of inhabitants can even increase for a short period. Fáskrúðsfjörður tunnel and the construction of the Reyðarfjörður aluminium plant are examples of construction projects where transportation improvements and industrial development joined together and resulted in increases in the number of inhabitants. On the other hand the gender ratios became significantly distorted compared to the situation prior to the construction projects and it became clear that the development and the employment opportunities were more favourable to men than to women. The same development was observed with the advent of the Héðinsfjörður tunnel in Ólafsfjörður while Siglufjörður was more successful as the development of miscellaneous jobs in connection with tourism seems to have mattered following the construction of the tunnel (Lilja G. Karlsdóttir & Ásta Þorleifsdóttir, 2018). However, a study on the social influence of the Vaðlaheiði tunnel from the year 2014, or more than four years prior to the inauguration of the tunnel showed that a large majority of the inhabitants both east of and west of Vaðlaheiði mountain road would in all probability not evacuate and the difference between the genders was very small. However, there was general dissatisfaction with the diversity of jobs, particularly among women east of the Vaðlaheiði mountain road (Hjalti Jóhannesson & Halla Hafbergsdóttir, 2015). No data has been released regarding people's attitude after the inauguration of the tunnel, nor any information about migration during the construction period. It would be interesting to study tunnel construction projects in Iceland in more detail because this involves large construction projects and huge financial resources. The intent regarding these projects is to connect and facilitate access for people between centres of population but little is known about the effect of such projects on gender and equality.

Prevailing values and policies of the government

Prevailing values and policies in environmental and climate matters

The Icelandic government's action plan for climate issues puts great emphasis on a transition in transportation affairs, agriculture, waste processing and actions against wasting. There is also an emphasis on the development of new incentives for transition and carbon sequestration. There is an emphasis on innovation which supports this transition including technical solutions (Ministry for the Environment and Natural Resources, 2020).

City of Reykjavík has its own policy for environmental and climate issues. The City of Reykjavík Climate Policy, for the years 2021-2025 emphasises six main objectives which are: a pedestrian friendly City of Reykjavík, energy transition, health promoting ways to travel, circular economy thinking, environmentally friendly buildings and carbon sequestration (City of Reykjavík, 2021). The city has also created an offensive strategy which is operational until the year 2030 called the Green Plan. The Green plan merges key projects and green investments in the city. Great emphasis will be placed on creating jobs involved in the development of infrastructure, such as in transport, in the development of functional areas and housing projects (Johnston og Reis, 2022; Sigríður Ingibjörg Ingadóttir et al., 2021). A transition in consumer habits is also of great importance in the green plan where inhabitants and operators will be encouraged to recycle and sort (City of Reykjavík, 2020).

The Icelandic government as well as the city of Reykjavík put emphasis on an utilisation ideology, development, technical development and science in the case of conversion in the interests of environmental and climate matters. There is less discussion about how to use cooperation and concern towards the nature and society in this context. The former is considered an example of male oriented values while the latter is an example of female oriented values in societies (Auður Ingólfssdóttir, 2016). In the western countries environmental and climate issues are frequently framed as problems caused by industrialisation and the solutions are measured according to technological advance, a certain control of natural resources and economic expansion. These solutions are then put in connection with male oriented values of societies where the field of competence of science, technology and transportation are more frequently being handled by men than women (Swimet al., 2018; Terry, 2009; Macgregor, 2009).

Although studies and surveys indicate that women are more worried about climate change and are frequently more ready to up the ante than men in order to change their behaviour women are generally a minority of those who have the legal power of decision in the area of environmental and climate matters (European Institute for Gender Equality, 2017). Studies also indicate that when the numbers of female managers increase within businesses this leads to a reduction in the emission of greenhouse gasses into the atmosphere (European Central Bank, 2022; Hossain et al., 2017). On the other hand, gender and equality aspects in environmental and climate matters do not receive support within institutions if women and other minorities are not allowed to participate in discussions and decision making (Mainlay & Tan, 2012). It is also frequently necessary to use more than just the participation of these groups in environmental and climate affairs in order for real change to take place. Studies in Scandinavia show that when women are on an equal level with the men in decision making process in environmental and climate affairs it will not necessarily mean

that actions take note of gender and equality aspects. It often appears that there is limited knowledge of the gender and equality effects of environmental and climate issues and that the will or interest to change is frequently little (Magnusdottir and Kronsell, 2014; Icelandic Ministry offices, 2022). A diverse group of people in management positions, systemic changes as well as knowledge and training in the integration of gender and equality points of view within organisations, businesses and public institutions might advance successful policies that take note of dissimilar effects of environmental and climate issues on different groups in society.

-CASE-

An increased participation of women in forestry associations in Sweden and India did not lead to an increase in integrating gender and equality aspects because there was little interest among men within the associations to change their operations and policies. In Sweden women found it difficult to bring up their views as well as actions were in general predetermined by men who were in control of these associations. In India the men felt that their own interests were more important and there was no purpose in working towards the women's interests until their goals had been obtained (Arora-Jonsson, 2010; 2011). It is therefore important that concurrently with correcting the gender ratios actions should be initiated which centre on changing institutional culture and prevailing values and attitudes.

In order to create space for other viewpoints and policies in environmental and climate affairs there is need of a strong civic society and increased awareness about the climate problem. There is also need for resistance against the prevailing ideology such as the emphasis on male oriented industries and continuous development if transition in the interests of environmental and climate matters are not to create an increased inequality in society (Auður Ingólfssdóttir, 2016). One way to prevent an increase in unequal division in societies because of environmental and climate change is to open up for the participation of marginalised groups and of those who are most vulnerable during transition because of environmental and climate change. These groups normally do not get to participate in policy making and decision making in matters that have the most impact on their lives (Kaijser and Kronsell, 2013; Pearson et al., 2017).

Furthermore the policies and measures taken by the government and local authorities do not necessarily have to originate from people in power, in particular such policies and measures that regard environmentally friendly behaviour of people. Studies show that grass-roots movements and projects that are conducted by society itself aid in the fight against the climate threat. People who demonstrate neighbourly love and solidarity towards their micro-environment frequently present ideas that persons in authority do not conceive (Sandberg, 2020).

-CASE-

In 1997 the Danish island Samsø won a contest which was organised by the government to become the example for Danish communities regarding the use of renewable energy. They decided to harness wind energy and the inhabitants own more than 90% of wind power stations on the island as well as having added other renewable energy sources. In the past the island was totally dependent upon fossil fuel that was imported from the mainland. It was only because of the huge solidarity and will of the inhabitants that the energy exchange could take place. It were not only technical solutions that were important in this but also the local society on the island and the solidarity of the inhabitants. Today the island is almost 100% carbon neutral and the island assists other communities in doing the same by education and dissemination of knowledge (Sandberg, 2020; VisitSamsøe.dk, e.d.).

There is also a lack of statistical data for policy areas, issues, general plans and the principal projects in environmental and climate affairs in order to comfortably be able to assess the effect of such projects on gender and equality in the Nordic countries. The gathering of and access to gender-distinguished data and there is also need for more studies of the status of different groups within society in connection with environmental and climate change (Icelandic Ministry offices 2021; Nordic Council of Ministers, 2022). The Climate Council points out that in many of the EU states work is being done on the introduction of green budgeting in order to ensure harmonisation and financial policy direction in the climate policy of the government and this is something that the Icelandic government could adopt. It is also pointed out that the Icelandic government will need to define in a clear way the goals and points of emphasis in environmental and climate matters, both with respect to counter-measures and adaptation to climate change. If this were to be done it would be easier to assess the present measures including the costs and effects (The Climate Council, 2022).

Confidence in the public authorities to respond to climate threat

The responders in the Gallup environmental survey (2022) were more probable to be dissatisfied with the government efforts to reduce greenhouse gas emissions, than those who appeared content with the efforts of their local communities. And most thought that Iceland would not be able to become carbon neutral before year 2040.

A survey performed among the inhabitants of the Nordic countries disclosed that Icelanders, Faeroese people and Greenlanders have the lowest trust towards the government. More than 3% of Icelandic responders had very high trust in the government compared with more than 10-14% in the other Nordic countries. A report that was issued following the survey points out that in order to introduce reforms that will support a green transition in Nordic communities the public will need to trust the government and believe that politicians will be able to respond to the climate problem. The principal reasons for little trust in the government was that the government is too slow and that politicians did not follow the same policy as the responders (Nordic Council of Ministers, 2020). Surveys show that people who trust the government and politicians are more likely to accept solutions such as carbon taxes and other measures that pertain to an increase in the financial burden of individuals, in particular if such income is used for a good purpose (Green Alliance, 2019; Fairbrother et al., 2019).

Employment

Who loses, who profits?

A lot of work and meticulousness will have to be employed in the transition of jobs because of environmental and climate matters. The definition of green jobs needs to be expanded so that certain groups do not lose their jobs and inequality does not develop among social groups. Today there is more emphasis on greenization of jobs in the building industry, transport, technical development and science which are examples of rather male oriented jobs. Investments, grants, solutions and new jobs that will be created because of transformation in environmental and climate matters will therefore serve the interests of men more if nothing is done in employment affairs (Johnston and Reis, 2022; Sigríður Ingibjörg Ingadóttir et al., 2021).

-CASE-

- Jobs that prioritize sustainability and place interest on the development of environmentally friendly solutions that are generally attractive to women. Jobs that are rather connected with men such as engineering and construction work which emphasise such issues could therefore attract more women to this sector. Studies also indicate that when the number of women increase in the construction job sector there is generally more emphasis placed on environmentally friendly procedures (Nordic Council of Ministers, 2022).
- Two important industries were analysed with respect to a green economy in Canada; transportation and the construction sector. The analysis showed that in general there were not much information about the participation of women in these occupations and because of this, i.a., businesses and organisations had not taken note of gender and equality aspects in the restructuring of these industries for a green economy. It also emerged that it is easier for the employees who were already working in these sectors to receive training in more environmentally friendly working methods and changes than for people who were not used to these jobs or were entering the sector. Women were the majority of those who never had worked in these jobs and the branches of industry had not had this in mind when transforming these jobs (Baruah & Biskupski-Mujanovic, 2021).

With respect to transformation in occupation because of environmental and climate change it is important to analyse from the outset whom the transformation will benefit: who will get these new jobs that will be created, who will get the jobs with the best pay and who are going to lose their jobs? (Nordic Council of Ministers, 2022). Whereas green jobs and their development are rather brand new it should provide the government a certain amount of freedom to emphasise industries that have not been subject to as much attention in the discussion as e.g. care worker jobs (Johnston & Reis, 2022). Care worker jobs are a certain supporting frame for societies. Women are a great majority of those who work the care jobs and these jobs are considered to be an occupation that releases a low level of greenhouse gasses into the atmosphere. These are jobs that are indispensable and therefore the development of these jobs and working conditions associated with them must be further improved in connection with a green industry where increasing numbers of people need care and the day-care of children makes it possible for people to attend work. It could be possible to develop and train people for care worker jobs, who are working in jobs that are exposed to hazards because of green transformation. On the other hand that development must be based on fairness and just conditions (Johnston & Reis, 2022).

It is projected that jobs in production, services, retail and travel industry are particularly exposed because of automatization. These jobs demand generally little formal education and men in jobs that demand little education are rather at risk of losing their jobs than women are, including immigrants and young people in temporary low-income jobs (Sigríður Ingibjörg Ingadóttir et al., 2021). Immigrants have on average a little less than 8% lower pay than natives when adjusted to the main demographic and job-related factors in Iceland. Results show also that immigrants have on average lower pay than the natives having same education and the conditioned difference in pay is ranging from 11-15% (Icelandic Ministry offices, 2021). Employers' ideas about which individuals are "desirable" employees for certain jobs are important and in this respect gender, origin and other factors are important (Katrín Ólafsdóttir & Steinunn Rögnvaldsdóttir, 2015). A summary of data from 140 countries which participated in a UN Gender Equality Index, indicates that there is a correlation between an increase in gender equality, economic growth and lower greenhouse gas emissions into the atmosphere (McGee et al., 2020). This indicates that the social factor of green transition is just as important as the financial factor in order to gain results regarding environmental and climate issues.

innovation

Both the Icelandic government and the City of Reykjavík place heavy emphasis on formulating and promoting an innovation policy here in this country in order to react to new challenges because of environmental and climate change (City of Reykjavík, 2020; Ministry for the Environment and Natural Resources, 2020). In this context it is important that this development in innovation, which has as a goal to resist the climate threat, takes note of the needs and competencies of different groups of people where innovation has until now been a male oriented sector which focuses rather on the needs and specialities of men. (City of Reykjavík, 2021). There is a certain gender bias dominating in the ideas and norms about what is considered innovation and it is frequently difficult for women to penetrate an environment which has been developed and maintained by men. (Katrín Ólafsdóttir & Steinunn Rögnvaldsdóttir, 2015; Steinunn Bragadóttir & Finnborg Salome Steinþórsdóttir, 2021). Men are e.g. a large majority of those who receive excellent grants from the Research Fund which subsidises scientific research and research linked post graduate studies in Iceland (Icelandic Ministry offices, 2021). There has also been a huge emphasis on innovation and

new economic activity connected with energy transition here in Iceland in order to reduce the use of fossil fuel (Stjornarradid.is, 2016).

Energy and innovation in the energy sector are examples of a male oriented industry and men more often apply for and receive innovation grants in the energy sector here in this country. From 2017-2019 women were only 5% of the grantees from the Energy Fund and they received 1% of the total amount. In 2020 no women applied for grants from the Energy Fund. During the same period 67% of the grantees of the Design Fund were women and they received 75% of the allocated funds (Icelandic Ministry offices, 2021). If an effective and comprehensive gender and equality policy is not made regarding innovation in Iceland women and other minority groups will miss out on such opportunities where the interest areas of men and innovation thrust for environmental and climate issues have until now gone hand in hand. The climate fund provides grants for innovation projects on the one hand and grants for promotional and educational projects on the other hand. Women are normally at majority of those who apply for grants for promotional and educational projects which often have the purpose of finding how best to recycle and prevent food waste while men apply for grants for innovation projects that deal with technical solutions (Nordic Council of Ministers, 2022). The chairman of the Climate Fund has criticized the Icelandic government for not providing more funds for the only fund operated by the state which is directly involved in climate matters. The Fund has been receiving ISK 100 million per year which is insufficient for supporting good innovation projects for the purpose of environmental and climate matters and challenges the government policy of increasing innovation in these areas (Ásta Hlín Magnúsdóttir, 2022).

Besides receiving grants the men are more likely to be involved in entrepreneurial activities than women and the main reasons for this is that such activity is characterised by risk, competition and own-account work-environment.

Studies both here in this country and abroad indicate that women are more likely to have an issue with these facts than men are. The women also say that the needs of the family also place a restraint on them when it comes to the operation of own companies (Katrín Ólafsdóttir & Steinunn Rögnvaldsdóttir, 2015). Women furthermore frequently lack models in order to apply for or undertake entrepreneurial work as well as they more frequently need to defend their applications while men more frequently get to play offence gambits and discuss profit opportunities (European Investment Bank, 2020; Menon Economics, 2020; Alma Dóra Ríkarðsdóttir, 2020).

-PROJECTS- IDEAS-

- It doesn't appear that there is much going on regarding Nordic cooperation regarding the participation of women in innovation although each country on its own offers various solutions and incentives for women. It would be possible to empower women in innovation in the Nordic countries if better contact networks and pan-Nordic opportunities were being worked on (*Menon Economics, 2020*). And the European Union also supervises several contact networks and associations that place emphasis on assisting, improving access and empowering women involved in innovation which it would be worthy to introduce (*"Support tools and networks for women", e.d.*).
- Access to grants and funding is one of the primary obstacles for women in the field of innovation (Ebiquity, 2016). Specific measures such as innovation funds that only women can apply to and an increase in funding for projects that are only led by women could increase the participation of women in innovation. Furthermore, the European Union has begun to require that applicants for grants must submit gender and equality plans with their applications to the EU innovation fund (European Investment Bank, 2020).

Forestry and agriculture

The promotion of forestry, soil reclamation, reclaiming and protection of wetland are some of the most successful ways to reduce the emission of greenhouse gasses (University of Iceland's Institute of Economics, 2022). On the other hand only a fraction of the appropriation that goes to the regional forestry projects is directed to the economic activity of women. Every year the Soil Conservation Service of Iceland allocates funds from the Land Improvement Fund for specific projects here in Iceland, e.g. for sustainable land use, reclaiming of vegetation and carbon sequestration of vegetation and soil. During the years 2011-2020 women only received ISK 4 million of the ISK 510 million that were allocated. Institutions and associations received more than ISK 411 million and men received ISK 95 million. The same can be said about other co-operative projects of the Soil Preservation Fund - men and institutions receive a large major part of grants provided (Icelandic Ministry offices, 2022).

An overwhelming majority of those who receive direct payments for traditional farm work are men as they are more often registered as the property owners as well as receiving direct funding and support funding than women. The work contribution of women in agriculture is therefore frequently not recorded anywhere in the public records. That is why men are e.g. rather recorded as the rightful owners of forestry agreements as they are already on the record as beneficiaries of payments. There are therefore certain systemic and legal obstacles that impede female labour force participation with respect to tree farming (Ministry for the Environment and Natural Resources, 2014; Icelandic Ministry offices, 2021). Work has been done on making the interests of women more visible by providing couples and co-habitants an opportunity to receive the payments according to agreements divided equally between the parties (Icelandic Ministry offices, 2021). It is going to be interesting to see whether such actions will be sufficiently successful in order to level the status of women in agriculture and forestry.

Generally speaking no comprehensive analysis and mapping of data regarding nature conservation, forestry and soil reclamation here in this country which takes note of gender and equality aspects. There must therefore be an action taken to analyse and study this field (Icelandic Ministry offices, 2021). An increased sequestration of carbon with a change in land use and forestry will increase the need for labour in this field and information indicates that forestry and soil reclamation is a male oriented sector, and it is therefore more probable to be of use to men than people of other gender, unless specific action be resorted to (Sigríður Ingibjörg Ingadóttir et al., 2021; Ministry for the Environment and Natural Resources, 2020). It would also be interesting to direct more attention to organic farming here in this country as foreign studies shows that women are more likely to practice organic farming than men. Individuals in such farming appear to be more aware of environmental and climate issues, they are younger and have a higher level of education than people working in regular farming (European Environmental Bureau & Women Engage for a Common Future, 2021; Nordic Council of Ministers, 2022). It would furthermore be interesting in this connection to examine whether women are more likely than men to be involved in or want to be involved in vegetable farming (Nordic Council of Ministers, 2009; Steina Gunnarsdóttir et al, 2022).

Repair service jobs- promoting the circular economy

Repair service could become an important industry in order to stem climate change as well as promoting the circular economy. The goal of the circular economy is to prevent that resources become waste, i.a. by improving the useful life and durability of goods and substances. This might prevent surplus production of goods and unnecessary procurement (Rogers et al., 2021). Such jobs would also support a just transition in environmental and climate matters where it is important to create diverse jobs instead of those that would be lost because of green transition (Sigríður Ingibjörg Ingadóttir et al., 2021). Retraining and skill based training could be of good use for such an industry, in particular for people who need to change their field of work because of a change in government employment thrust and for those who find it more difficult to access secure work, such as with a low level of education, people of foreign origin or other fringe groups in society. Furthermore an increase in repair service jobs would be beneficial to consumers in the form of lower expenditures.

On the other hand it is important to contribute to an increase in knowledge among the public about the importance of mending and fixing instead of renewing and to improve the access of the public to repair services at a fair price (Rogers et al., 2021). The European Union has worked towards increasing the right of consumers to repairs on their goods, an improved access to spare parts and access by consumers to repair their own goods (Šajn, 2022). There is however a possibility that repair service jobs conduce to traditional gender roles if there is no particular attention paid when promoting these trades as women are more likely to repair and mend clothing while men more frequently repair cars and all kinds of appliances (Rogers et al., 2021).

-CASE-

The governments of various European countries have been providing tax incentives to the public because of repair services. This is done in order to encourage people to have items repaired instead of buying new ones. In Sweden the VAT for repair services has dropped from 25% to 12% and this applies to everything from clothes, bikes and to larger types of domestic appliances. Consumers can also reclaim half the cost of their earnings because of repairs in their tax returns (Sutherland & Borsi, 2020).

Natural hazard

The role of social service entities during natural disasters

In the Nordic countries social service entities play an important role in the local communities in bolstering the perseverance of individuals and to provide those who need with increased support and aid. This includes senior citizens, children and disabled. Social service employees possess important know-how which might be of good use in the preparation and implementation of emergency services because of natural disasters (Rapeli et al., 2018). On the other hand little or no research is available, or information about which role these service employees play when natural disasters occur in the Nordic countries. Despite certain similarities between the countries the preparation and role of certain parties and agencies differs (Juhola et al., 2012). In Sweden, Finland and Norway the social service entities are specifically mentioned in the legal framework of these countries with respect to natural disasters. Certain contingency plans for social services are also available in these countries. Neither in Iceland nor in Denmark is there mention of social service entities in the legal frameworks because of natural disasters and there are no special operational programmes or instructions for social service parties where their role during periods of natural disasters is clearly explained. Although there is no specific mention of the role of social service entities in the legal frameworks in Iceland and Denmark all public entities and agencies in the Nordic countries are required to prepare for disasters. On the other hand a good and effective disaster control plan is one which defines in a clear manner the role of those who are involved in the plan through all stages of the case whether it is as a defence plan, preparations, response or reconstruction. That is why it might be a good idea to define a seamless and quick response where all parties know what their role is, and when and how to intervene (Rapeli et al., 2018).

Different impact of natural disasters on various social groups

Research shows that disasters caused by climate change have different effect on various groups in society and are most harmful to older people, poor people and children. Women are a majority of older people who live in poverty. Generally, more people are subject to poverty than men and are more responsible for the care of children, family and home (City of Reykjavík, 2021; Salehi et al., 2015; European Institute for Gender Equality, 2017). Studies also indicate that women who are used to occupy nurturing roles, whether this is at work or at home, in a greater degree hold such jobs in society when natural disasters occur and later in the reconstruction of societies (European Environmental Bureau & Women Engage for a Common Future, 2021).

Other factors that have an impact on the defencelessness of people because of natural disasters are, disability, single household individuals with little support network and race. People with a limited support network and physically impaired are frequently less prepared for natural disasters, as well as their options and their capacity for emergency evacuation are reduced. These people have also more difficulties in adapting to society after a disaster (Dietz et al., 2020; Gaskin et al., 2017). And disabled persons who belong to other minority groups find it still more difficult to have their needs assessed (Kett et al., 2021). The hurricane Katrina which occurred in New Orleans in the United States illuminated a deep social segregation in that country and demonstrated that this was not only involving a natural disaster but also a political disaster. Most of the victims were fringe groups; poor black and older people. It turned out that it was easier for financially well-situated people to escape while poor people in New Orleans were more unlikely to have access to a car and it was therefore more difficult for them to evacuate the area in addition to not being able to afford

it (Belkhir and Charlemaine, 2007). Reasons for these groups having a worse outcome than other groups when natural disasters occur, is because of exclusion and inequality when there is a question of participation and decision making in cases involving natural disasters, inducing the worse situation those groups already have in society (Gaskin et al., 2017; Lewis & Ballard, 2011). The exclusion of these groups in the process of policy making and decision making makes these groups victims of their conditions. The government should apply knowledge and the approach of that knowledge of the issue in order to contribute to a fair transition in environmental and climate matters (Bell et al., 2020; Kett et al., 2021).

Discussion and epilogue

The main conclusions of this research project show that undoubtedly policies and plans in environmental and climate affairs have an effect on different groups of society. The main gender and equality viewpoints that the city of Reykjavík and the Icelandic government can and need to take into consideration regarding issues that involve behavioural and habits changes among the public because of climate change, transportation, the prevailing values in environmental and climate affairs, employment, and natural disasters, were explained including with examples and solutions from other countries. By this, the study question has been answered; How can the City of Reykjavík and the Icelandic government be better able to take into account gender and equality aspects in environmental and climate matters. This can be done with a good mapping of these aspects just as was done in this project. That mapping shows that the burden will be placed on these groups that will need the most assistance in the transition of societies because of climate change if this gender and equality aspects are not used as a guide. It is also important to have this information accessible so that the largest number of people benefit just as was done with the development of the knowledge chest operated by the City of Reykjavík. There the conclusions were presented in a simple and effective manner and should be an effective tool for all kinds of entities and institutions.

The primary benefits associated with conducting a research study based on the present knowledge and research is that one is able to collect a huge amount of data in short period of time. The time framework for this project was limited and it was therefore important to gather good quality data and sources that might be used in policy formulation for environmental and climate issues here in this country. A systematic analysis of sources was performed as an aid in the identification of important sources that came under selected areas of emphasis. Such analysis also provides a certain reference standard which prevents the use of inapplicable sources for the research. The sources were then content analysed and coded according to their themes/subject matter. Content analysis is a technique which is used to compile and analyse the content of a certain text and refers to words, themes or messages which then must be communicated or further interpreted. Content analysis is useful for projects such as this one which involves a huge quantity of text.

The main drawback of such a study is to select and reject. Information and sources that were selected are perhaps sources which someone else would not have selected and who did not consider these to be important, or vice versa. There is also a huge amount of research and material where not all information in the sources is useable or does not matter for the development of the project. The researcher is therefore always searching and finding information which will support the researcher's own interpretation of the material. And these 77 sources that were used for the findings are not at all exhaustive and it would be easy to continue and build on the knowledge that had been gathered prior to this project. It is also important to mention that I, as the researcher, would have been able to work on other areas of emphasis rather than those mentioned in the city of Reykjavík's plans and those of the government. In that case somebody else would have been able to interpret the areas of emphasis in another way or could have emphasized other issues. As an example, I decided to discuss eco-friendly buildings and the circular economy based on employment. Others might perhaps have discussed the costs involved in eco-friendly buildings and their effect on marginalised groups.

It is important to point out that many of the sources that I used discussed the different effects of policies in environmental and climate matters on genders while there was less discussion of other

groups such as the disabled and immigrants. Very little material exists concerning natural disasters, mainly the effect of action plans on various groups of society at times of natural disasters.

It is my hope that this project will only establish a foundation for further studies and mapping of gender and equality viewpoints in environmental and climate affairs here in Iceland and this is a large field. It would be possible to examine more areas of emphasis or points of view that were not studied in this project. Environmental and climate affairs are and will be one of the main issues and tasks for cities and governments around the world in the future where continuously there will be a greater demand that a green transition of societies because of climate change will take note of gender and equality viewpoints. The City of Reykjavík, as well as the Icelandic government should therefore use the opportunity and become pioneers in this area and disseminate their knowledge and experience to other nations and cities. The benefits would provide a huge return in the form of a variety of opportunities, and it deserves attention internationally.

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