



*Living within the boundaries*

**Empirical research on the accessibility and  
attractiveness to mitigate climate change through  
sustainable living**

Judit Batlló Kooijmans  
Bachelor thesis Geography, Planning and Environment (GPE)  
Nijmegen School of Management  
Radboud University Nijmegen  
June 2018

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Judit Batlló Kooijmans

Student number: s1008388

Supervisor: Irene Dankelman

Bachelor thesis Geography, Planning and Environment (GPE)

Nijmegen School of Management

Radboud University Nijmegen

June 2018

*23500 words*

## *Acknowledgments*

I would like to express my gratitude to Irene Dankelman for her teaching and guidance, for her positive and constructive approach on the topic.

Also I would like to thank the people who participated in this study, specially to M. Zijlstra, H. Broekema, J. Juffermans, D. Sloot and M. van Huizen.

Moreover, my appreciation to the members of IEWAN and the project itself, for making a dream come true and being chance-makers of learning and environmental action.

Lastly but not least, my gratitude to my beloved ones, for their support and sharing.

## *Abbreviations*

**CC** Climate Change

**AGW** Anthropogenic Global Warming

**IPCC** International Panel for Climate Change

**CO<sub>2</sub>** Carbon dioxide

**GHG** Greenhouse gases

**DEFRA** Department for Environment, Food and Rural Area (UK)

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## 1. Summary

*'Don't be distracted by the myth that 'every little helps'. If everyone does a little, we'll achieve only a little''*

(Thøgersen & Crompton, 2009: 2)

This research analyses the accessibility and attractiveness to mitigate Climate Change (CC) through a sustainable lifestyle, by responding the following research question: *How accessible and attractive is a sustainable lifestyle for Dutch citizens in order to mitigate Climate Change?* Climate Change Mitigation has been targeted as another of the unresolvable social issues, listed as one of the least relevant by the public (Lorenzoni et al., 2007). Although the scientific community has been alarming about its eminence and forecasts, and the significant play that humans have in the mitigation of it (Berliner, 2003; Gassl, 2011; Dunlap, 2013; Klein, 2014; IPCC, 2018). The list of consequences predicted are an ecological disaster that will -and is already- affecting life on Earth (Grassl, 2011; IPCC, 2015). In order to preserve the diversity and balance of Nature, the mitigation of the forecasted consequences of CC is vital (IPCC, 2015).

Mitigation programs are primarily focussed on fossil neutral actions, which have a low environmental impact and do not aggravate CC (Gifford, 2011; IPCC, 2015). On other words, mitigation actions are based on respecting the limits of the Earth and living together with the rest of species in a sustainable way (Thøgersen & Crompton, 2009). The current dominant lifestyle however, particularly of Western societies, is not at all sustainable (Thøgersen & Crompton, 2009; Whitmarsh & O'Neill, 2010; Grassl, 2011; Klein, 2014; Pedersen, 2015). The major issue is that this lifestyle is based on fossil fuels and the overconsumption of resources (Berliner, 2003; Gassl, 2011; Klein, 2014). Therefore in order to be able to maintain Nature's health and a viable future, massive structural and lifestyle changes need to happen (Thøgersen & Crompton, 2009; Klein, 2014; Pedersen, 2015).

My hypothesis regarding this massive lifestyle change is that several factors are retaining the population of the Netherlands, since it is not accessible and/or attractive to everyone. In this study psychological factors and sociodemographic ones are studied as possible deterrents and/or facilitators of the attractiveness and accessibility -respectively- of sustainable living. The attractiveness of this lifestyle are based on several of Gifford's list of psychological barriers (Gifford, 2011). I had particular hypothesis regarding *capitalistic worldviews* and *political orientation*, since I conceived the first one as a major deterrent of the engagement on sustainable living and a green-left political orientation as a facilitator (Whitmarsh & O'Neill, 2010; Klein, 2014). Moreover, in the study is highlighted the influence of *values* in the person's success in living more environmentally friendly. Finally accessibility was tested through the sociodemographic factors: were my assumptions were that a higher *educational level achieved* was a facilitator to engage sustainably and high *incomes* and low profiles of *employment* (volunteering, unemployed and students) were less likely to do so.

In order to investigate and test my hypothesis, the research was designed as a mixed model one. Mixed model researches offer several benefits, the most important of them is the triangulation of data (Amaratunga et al., 2001). In this research qualitative data had an explanatory and compensatory role to the quantitative outcomes -triangulation-, contributing to the validation and reliability of the results. Moreover, because of the mixed methodology, it was possible to collect and analyse very diverse data (Amaratunga et al., 2001). Both types of research followed the same procedure: literature review, design of the project, collection of data, analysis and conclusions of the data. Each of the research procedures -quantitative and qualitative- had independent data collection techniques and participants. On the quantitative part, a survey was used to collect the data from a random sample of

the population. 102 people answered an online questionnaire, which provided diversity on the sample and the data (age, educational level, income, etc.). Although the presence of some data clusters was found: 51,6% females, 61,6% with employment and 56,6% living in cities, it had not a relevant impact on the outcomes. On the other hand, qualitative data was collected through five semi-structured interviews to academical and field experts on the phenomenon, primarily in the area of Nijmegen.

Likewise, the analytical methods used were also mixed. For the quantitative data the most suitable method was ordinal regression, where sustainable living (dependent variable) was measured by attractiveness and accessibility factors (independent variables). Otherwise, qualitative data needed a more interpretative approach for its analysis, so phenomenology research was the most appropriate method. Following the phenomenological tradition, in this research the bracketing or epoché technique was used, in order to intent to put aside my biases and interpretations on the phenomenon by embracing them (Creswell & Poth, 2018). Accordingly, in the study the quantitative analysis was first presented, followed by the qualitative (horizontalization) and concluding with a combination of the results and the discussion of the outcomes.

Several outcomes were reported in this study. There were found facilitator and inhibitor factors either in attractiveness and accessibility. It is concluded in the study that the attractiveness and accessibility to mitigate CC through sustainable living it highly depends on the person, providing an ambiguous perception of the phenomenon. However, I can empirically state that the attractiveness to this lifestyle is promoted by a strong motivation, environmental values and a green-left political orientation. On the other hand, it is inhibited by several psychological barriers as Intention-Behaviour Gap, environmental numbness and not green-left political orientations. Regarding the accessibility to sustainable living the current structure and dominant worldview, capitalism, has a significant inhibitor role. Capitalism is portrayed as an antagonism to sustainability. The sociodemographic factors are revealed to be symptoms of this system, with a double-edged power primarily dependent on the context. Finally social norms are also a remarkable outcome of the study with a double-edged power in the embracement of environmentally friendly lifestyles.

The study did empirically test thus several hypothesis. In the line of Gifford's, Metag, Füchslin and Schäfer's, and Whitmarsh and O'Neill's studies psychological, sociodemographic and identity-related factors are inhibitors of green behaviours. Although in this study no clusters of population are identified -as in the work of Metag, Füchslin and Schäfer-, still citizens and policy makers can make use of the outcomes of the study. For the readers of this study, the theoretical framework and the outcomes may allow a thought-provoking self-reflection. With a better comprehension of the sources of daily life challenges and habits, each of us can analysis and plan an improvement in our lifestyle to go towards a greener and more respectful life. Especially concerning the psychological barriers that we -citizens- face, but that are not tangible neither visible at a first look. Identifying the obstacles, the inner conflicts and tensions is basic for the behavioural change. On the other hand, sociodemographic factors may be more tangible, but acknowledging the limitations and restrains that the system imposes, provides also awareness regarding the decision-making power that we have as citizens.

However, an individual change may be insignificant without the further structural and political modification. As it is mentioned in the research, 'just recycling' CC will not be mitigated neither just one individual cannot confront a societal issue alone (Thøgersen & Crompton, 2009; Klein 2014). Thus, a massive change has to happen to the Western societies and all the areas of the structure of these, if we desire to preserve life on Earth in healthy constrains (Thøgersen & Crompton, 2009; Klein 2014; IPCC, 2015). The prioritization in policies of economic gain and overconsumption above Nature and health needs to switch, and lead in a responsible manner society towards a sustainable, healthy and respectful relationship with the Earth.

## 2. Introduction

### 2.1. Research objective

Humans are connected and interdependent with Nature, ecosystems and the rest of beings. Humankind's lifestyle however has been abusing massively of this balanced relationship (IPCC, 2014). Earth is a huge smart organism that brings life and death equally, offers resources to the beings living in it as well as the resources are the beings itself. It has its own tempo, mood and warmth. Respecting and living together with Earth's flow has been and still is a challenge for humankind, in particular modern societies (Klein, 2014). With the focus on growth and innovation, we have been using indiscriminately the sources of our past, present and future (IPCC, 2001; Berliner, 2003; Gassl, 2011; Dunlap, 2013; Klein, 2014). Governments and scientists worldwide have incorporated this problematic in their agenda and are working towards the mitigation of CC. Indeed CC, can be mitigated if the main destabilizing factor diminishes -Anthropogenic Global Warming (AGW)- and humankind has an essential role to play (Berliner, 2003; Gassl, 2011; Dunlap, 2013; Klein, 2014). Our society has constructed its identity antagonistically to Nature's health, a fossil fuel dependent identity (Berliner, 2003; Gassl, 2011; Dunlap, 2013; Klein, 2014). Fossil fuels were extremely useful forces of change in the Industrial Revolution, however they are limited resources and harmful for the Earth (Berliner, 2003; Gassl, 2011). Worldwide societies have been and are still playing and crossed the boundaries of Earth and Nature, creating a not viable neither sustainable way of living.

The sustainability movement and degrowth ideologies mean to bring humankind to live within Earth's boundaries and establish a healthy relationship. Sustainable living is considered to be those lifestyles with low (negative) impact on the environment, usually characterized by low or neutral carbon (fossil fuels) footprint (Gifford, 2011). Surprisingly, even population aware of CC and its tremendous impact do not easily engage in sustainable living (Whitmarsh & O'Neill, 2010; Gifford, 2011; Metag et al., 2017). Academics have investigated possible barriers to explain the retention that people feel when getting involved in sustainable living (Poortinga et al., 2004; Gilg et al., 2005; Whitmarsh, 2009; Gifford, 2010; Griskevicius et al., 2010; Whitmarsh & O'Neill, 2010; Lorenzen, 2012; Metag et al., 2017). In my research, inactions due to structural, sociodemographic and psychological factors, between others, have been studied.

Regarding sustainable or environmental behaviours, I chose to focus the research on the direct behaviour of sustainable living: those household actions with a direct impact to the environment (Stern, 2000). My motivation is that I still acknowledged a lack of awareness and comprehension of the consequences of our lifestyle in the population. It may be due to the uncertainty about how to behave environmentally friendly or because of the lack of access to certain low environmental impact products and services, etc. These ideas got concretized in two main topics, the attractiveness and accessibility to such environmental-friendly behaviours. The factor that determined the attractiveness of the behaviours were psychological ones and the ones for accessibility were sociodemographic factors. Therefore, the factors studied in this research were the ones that inhibit pro-environmental behaviours in individual citizens in their daily life.

The aim of this empirical research is to deepen the understanding about the following phenomenon: the causes of inhibition of environmental and sustainable actions when contributing to mitigate climate change. The intention was to facilitate people's comprehension of their lives' impacts and of the engagement on a sustainable living. Because I am convinced that individual change and awareness happen previous to a societal one. I pretended with this research to answer questions as: Why are people not adopting a more sustainable and environmental friendly lifestyle in order to mitigate CC? Which barriers do they have to overcome? And who has actually the chance to adopt such a lifestyle?

## 2.2. Research questions

Knowing the seriousness of Climate Change, I mean to deepen the psychological and socio-cultural barriers that prevent citizens to contribute into the mitigation of the climate change through an environmental, and therefore sustainable, lifestyle. The main question of the research is the following:

*How accessible and attractive is a sustainable lifestyle for Dutch citizens in order to mitigate Climate Change?*

- What is the influence of psychological factors when adopting a sustainable lifestyle?
- What is the influence of sociodemographic factors when adopting a sustainable lifestyle?
- How do the barriers retain people's engagement in a sustainable lifestyle?

## 2.3. Scientific relevance

The phenomenon of inaction towards sustainability and mitigation of CC, has been reported by many academics (Poortinga et al., 2004; Lorenzoni et al., 2007; Whitmarsh & O'Neill, 2010; Gifford, 2011; Engels et al., 2013; Westhoek et al., 2013; Oteman et al., 2014; Metag et al., 2017, etc.). Many causes and explanatory factors have been hypothesized -psychological, sociodemographic, identity, etc.- and proved to be relevant as inhibitors of pro-environmental behaviours. Few of those studies have been conducted in the Netherlands. However, there have been few research in the Netherlands that holistically investigated the causes of these inhibitions. By holistically I mean adopting a broader perspective on the phenomenon, all the factors together. Thus, an holistic research on the main deterrent factors of engaging in a more sustainable lifestyle would provide explanatory approaches for people to comprehend the phenomenon they are experiencing.

Several studies inspired the research's focus, since the interesting and relevant outcomes that these provided appeared to have a significant explanatory logic of the phenomenon (Whitmarsh & O'Neill, 2010; Gifford, 2011; Metag et al., 2017). Thus in this research several outcomes of these works - psychological, sociodemographic and identity factors- were used, combined and tested in the Netherlands. These factors are not an innovation of this study, but more the combination of those in a single study in the Netherlands is the empirical newness provided by the research. Additionally, the mixed methodology contributed in the comprehension and triangulation of the information and empirical results. Based on the findings reported in this research I have the ambition that these will promote more scientific studies regarding the phenomena. Which will enhance the comprehension of it and also the likelihood that the desired societal change will happen.

## 2.4. Societal relevance

The abstractness of CC and Earth's boundaries are indeed difficult to conceive as a near threat, although Earth's boundaries are honest limits. We are and have been driven by a stream of unlimited and irresponsible growth, where the acquisition of 'more' is the main core of the system and our lifestyles (Klein, 2014; Raworth, 2017). The comprehension of such assimilations in our lives is vital in order to preserve life on Earth. Undoubtedly, conceiving that our daily actions are causes of such large and complex issue is not an effortless thought. The responsible authorities have been contributing to the procrastination of this urgent matter. However, Nature's symptoms must be listened to, as we have no other planet Earth (Ward & Dubos, 1972; Klein, 2014). Moderated and also too ambitious actions have been proven to be inefficient for the societal change needed (Adger, 2016).

Without the comprehension of CC and the inhibition of sustainable living issues, societies will keep exploiting Earth's resources with the priceless loss of Nature's virtues and the destabilization of the liveable conditions. Findings reported in this research may stimulate the understanding into the obstacles encountered and the engagement of a more sustainable lifestyle. All humans are included

in this task, as the creation of CC is everyone's responsibility. Procrastination and fraudulent attempts have proved that only a real and holistic change will establish a healthy and respectful relationship with the beings of the planet.

## 2.5. Research framework

The research structure is divided in several phases following the tradition of empirical research, which provided guidance on the development of this study. Figure 1 presents a visual representation of the research framework. The first phase is the *literature review* and *research conceptualisation*. The aim of this phase is to deepen the phenomenon chosen by the review of literature and existing studies. Through the identification of theories and socio-political movements the contextualization, purpose and the theoretical framework of the research emerged. Also the clear picture of the problem or phenomenon in this case is framed. The second phase is grounding into reality. The *field and empirical research* are taking place in this phase, so the collection of qualitative and quantitative data from the several fonts. After the data is collected, it is ordered, examined and encountered with the theoretical framework, what is known as *analysis of the data*. The final phase is the elaboration of the *conclusions and the research review*. In this phase the significant statements of the research findings are described in order to portray the dialogue between theoretical framework and the data. Besides, in the conclusions there is a critical review of the research, leading to identification of flaws and recommendations for further investigations.

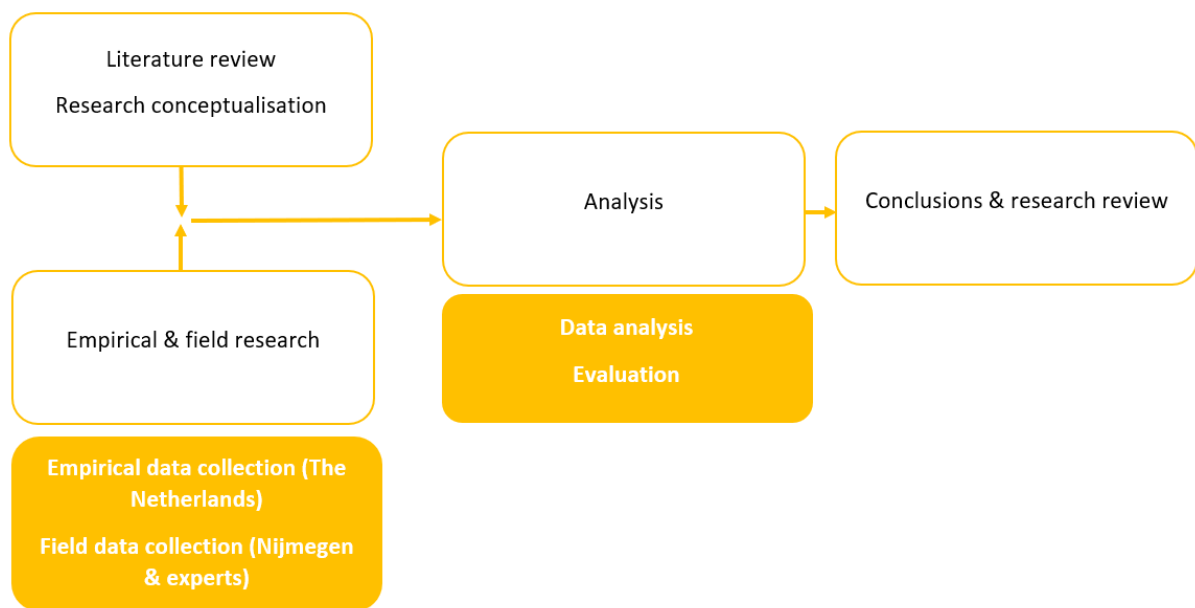


Figure 1: Research Framework (Source: author).

## 3. Theoretical framework

### 3.1. Climate Change mitigation

Scientific warnings have not been few about climate change (CC) and the uncertain future upon us. The International Panel on Climate Change (IPCC) has been reporting the work of numerous scientists and piles of observations that warn us about the dangerous consequences of our current lifestyle (IPCC, 2014). One of issues reported by IPCC is the increase of the global temperature, which has increased on an average of 0.6°C over the 20<sup>th</sup> century (IPCC, 2014). Experts alert that with the increase of the global temperature several tragic consequences may occur. The list of direct and indirect consequences is inevitably shocking: the loss of flora and fauna's diversity, the melting of the poles and the consequently rise of the sea level, extreme weather and climate events -as hurricanes-, changes on the precipitation and atmospheric moisture, changes on the temperature and circulation patterns on the oceans, etc. (IPCC, 2014).

This scenario is not only a plausible future projection, it is also currently happening (Grassl, 2011). The recent signs are evident as the most vulnerable species and communities are in peril: in risk of extinction, suffering changes and destruction of their habitat or dealing with extreme conditions (heat waves, melting of Antarctica ice, strong storms, hurricanes and tornados, etc.) (Grassl, 2011; Pedersen, 2015). In the end, however, everyone is going to be vulnerable to CC effects if we overcome the limit that the policy community has established as the limits of nature's resilience; 2°C increase of average temperature relative to the pre-industrial level (Thøgersen & Crompton, 2009; IPCC, 2014). The predictions for 2100 are of an increase between 3,7 and 4,8°C relative to these levels, which would require a rough adaptation of all beings in the planet to extreme climate conditions, causing the extinction of several of them (Grassl, 2011; IPCC, 2014). Therefore, governments around the world have adopted the goal of below 2°C increase of global temperature relative to pre-industrial levels. Although, lately a draft version of the IPCC Report 2018, suggests the urgency to maintain the global temperature below 1.5°C of increase (UNFCCC, 2015; IPCC, 2018).

This statement is induced by the numerous scientific research that conclude that this increase of temperature is preliminary human-made: Anthropological Global Warming (AGW) (IPCC, 2014; Grassl, 2011; Klein, 2014; IPCC, 2014). Since the industrial revolution, additional greenhouse gases have been released to the atmosphere, particularly CO<sub>2</sub> (Berliner, 2003; Gassl, 2011). Our planet's atmosphere is composed by such gases, but the extra gases freed to the atmosphere have destabilized the harmony of such. Global Warming the result of this phenomenon and the core one to all the problematics mentioned previously (Berliner, 2003; Gassl, 2011). Klein (2014) states that 97% of the scientists worldwide agree that the Global Warming is caused by human activity. Thus, the way humankind is living since the Industrial Revolution, fossil based, is destructing the harmony and balance of our planet (Berliner, 2003; Gassl, 2011; Dunlap, 2013; Klein, 2014).

The anthropogenic gas emissions have raised for the last four decades: 78% of those produced by the combustion of fossil fuels only -oil and coal- (IPCC, 2014). Since the Industrial Revolution many technological, societal and economic advantages have happened, and created the present fuel dependent society (Klein, 2014). Such advances were mainly geographically based in the Western societies or Global North (Grassl, 2011; Klein, 2014; Pedersen, 2015). The combustion of such fuels is primarily used for the creation of energy supply (47%) and is used for the industry sector for its functioning (30%). The overall take of transportation worldwide results with the 11% of the fossil fuel combustion and the 3% for the building sector (IPCC, 2014).

The economic growth is also extremely correlated with the increase of CO<sub>2</sub> emissions to the atmosphere. As higher the wealth of a society more its dependency on energy is, therefore

dependency on fossil fuels and the higher the contribution to CC (IPCC, 2014). The resources needed to fulfil everyone's necessities are growing exponentially. In particular, when considering the increase of fossil fuel combustion that is required for the demands to provide energy, food and utilities, transport and accommodations in the modern life (IPCC, 2014). It is a major challenge.

However, this involves two important matters: humankind needs to mitigate CC and further live without major ecological and social catastrophes, and the requirement for a deep transformation of current humankind's lifestyle (Thøgersen & Crompton, 2009; Klein, 2014). The IPCC's report *Climate Change 2014. Mitigation of Climate Change* (IPCC, 2014) conceptualized diverse scenarios that project the success of the CC mitigation. One of the key scenarios is to break free from the fossil fuel dependency by decarbonizing the energy generation. The cut of anthropogenic GHG (greenhouse gases) emissions by a large-scale radical changes in, as a forehead mentioned, energy supply and land use (IPCC, 2014). The use of renewable energies is however, a sustainable alternative. However, green energy provided in the Netherlands only 5,9% of the energy supply in 2016 (CBS, 2018). The European Union has the goal to have the 20% of the energy supply generated by renewable energies by 2020 (CBS, 2018). The way to go for renewable energy in order to take over from the fossil fuel supply is still long. In order to make this cut on fossil fuels supply significant it has to be drastic (Thøgersen & Crompton, 2009; Klein, 2014). The extraction of them has to be reduced, because in the restrain of fossil fuels availability, the consumption will be restricted (IPCC, 2014).

The strength of our dependency on fossil fuels is definitely a challenge. But to pursue the mitigation of CC, substantial socio-economic and political changes need to happen (Thøgersen & Crompton, 2009; Klein, 2014). Many interests and streams are an obstacle for mitigation policies. One of them is the fossil fuel industry and its power and monopoly around the world. Due to our dependency on fossil fuels, this industry's power has grown and it is playing an essential role in not facilitating these policies (Klein, 2014; Pedersen, 2015). A second challenge is the economic costs that such policies require. It means stopping the machine, investing in another machine and satisfying the demand that citizens are used to. It is a big step for any business man. The amount of mitigation efforts and costs for this step are not attractive for any politician and for few enterprises (IPCC, 2014). Moreover, there are different mitigation model designs proposed by the scientific community, which vary broadly regarding economic costs and efforts (IPCC, 2014).

Lastly, most of the mitigation policies mentioned would convulse society, which is a major step for politicians and Governments to lead into. Until now policies have mainly focussed on voluntary action with few information campaigns and economic incentives (Lorenzoni et al., 2007), differing substantially from the deep structural and economic changes needed (Thøgersen & Crompton, 2009; Klein, 2014). Notwithstanding, as Lorenzoni et al. mention *'this reticence stems from fear of electoral protest, close relationship with industry, a focus on economic growth, and the short-term priorities of government which are linked to its limited period in office'* (Lorenzoni, 2017: 446).

Government's approach may presently not be the most efficient or adequate formulation of the actions to be taken for a real change in society (Lorenzoni et al., 2007). People's lifestyle and actions are a vital key in the mitigation and adaptation to CC, supposing one-third of the GHG emissions (Whitmarsh & O'Neill, 2010; Gifford, 2014; Metag et al., 2015). How people conceive CC and its risks, their political participation, their expenses and demands, between others, shape the problematic (Whitmarsh & O'Neill, 2010). Nonetheless, structural barriers as for example tax free fossil fuels for airplanes or the lack of economic incentives for biological food production, play a crucial role in the matter. Policy makers have already realized the role of citizens in the matter and intend to encourage them to embrace pro-environmental behaviours and lifestyles (Whitmarsh & O'Neill, 2010).

### 3.2. Sustainable living

Sustainable lifestyles are an holistic alternative to the current highly carbonized lives (Whitmarsh & O'Neill, 2010). Worldwide there is people working to minimize their environmental and social impact, individually or in a community or alliance, living then more in harmony with nature. Following Lorenzen we would agree that lifestyle is a concept in which small practices and bigger ones are conceived in how the person organizes and lives hir<sup>1</sup> life, where the practices involved in the person's life and hir self-identity play a key role (Lorenzen, 2012). Many scholars have been interested in the influence and retroactivity between environmental behaviours and environmental self-identity (Sparks & Sheperd, 1992; Fekadu & Kraft, 2001; Winge, 2008; Whitmarsh & O'Neill, 2010; Lorenzen, 2012). Concluding a positive and strong influence between them, specially if the person identifies her/himself as a green person hir possibilities to engage in pro-environmental behaviours are substantial (Sparks & Sheperd, 1992; Fekadu & Kraft, 2001; Winge, 2008; Whitmarsh & O'Neill, 2010; Lorenzen, 2012). Due to the research focus and goals, in this academic research sustainable lifestyle has been centred in pro-environmental behaviours, obviating the self-identity component from Lorenzen's definition.

#### 3.2.1. Environmental behaviours

Pro-environmental behaviours are those actions and decisions that have a lower (negative) environmental impact on the Earth. Due to the fact that there is not a global tendency to engage on pro-environmental behaviours, several theories have been stated as explanatory for the appearance of this neglect: habits, sociodemographic factors, context, values, etc. (Whitmarsh & O'Neill, 2010). In the following sections several of these theories are explored in the attempt to gain insight in the causes of the appearance or lack of green behaviours.

Stern (2000) classified environmental behaviours in two categories, depending on their perspective: *intent-oriented behaviours* and *impact-oriented behaviours* (Stern, 2000). Intent-oriented behaviours are those behaviours '*defined by the motivation of the actor*' with the intention '*to benefit from the environment*' (Poortinga et al., 2004: 75). Impact-oriented behaviours are on the other hand, defined by the impact that the behaviour has on the environment (Poortinga et al., 2004). There are definitely different consequences when engaging in behaviours from the different categories: intent-oriented behaviours may result in a negative impact or to fail in providing a positive environmental impact (Stern, 2000; Poortinga et al., 2004). However, impact-oriented behaviours' focus is the impact, thus the consideration of it is larger and the chances to fail in having a positive environmental impact may be less. Finally, Poortinga et al., classified also behaviours whether they have a direct or indirect impact (Poortinga et al., 2004). Direct behaviours are those which have a direct impact in the environment and they are executed in private spheres -household- (Poortinga et al., 2004). On the other hand, indirect behaviours are those as for example activism and political action that don't effect directly the environment, but rather the political framework (Poortinga et al., 2004).

Whitmarsh and O'Neill (2010) classified pro-environmental behaviours in four big categories, based on the list made by the DEFRA (Department of Environment, Food and Rural Area in UK) -whom identified 12 main pro-environmental behaviours (DEFRA, 2008)-: *domestic energy and water use, waste behaviours, transportation and shopping choices* (Whitmarsh & O'Neill, 2010). In the list<sup>2</sup> we

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<sup>1</sup> *Hir* is the gender-neutral possessive replacing her or his.

<sup>2</sup> *Pro-environmental behaviours: installation of insulation products, better energy management and usage, installation of domestic micro-generation of renewable energy, responsible usage of water, increase of recycling and segregation actions, less food waste, buy/use of energy efficient vehicles, less car use, reduction of non-*

find daily actions as recycling waste -plastic, food, paper, etc- to bigger processes as insulating the house in order to make the heat system more efficient. All characterized as direct impact-oriented behaviours, low-carbon habits and awareness of the ecological and social impact. In this classification I incorporated an specific political behaviour: activism.

The classification of the environmental behaviours in this project results into the following: domestic consumption, waste behaviour, transport and political behaviour. *Sustainable domestic consumption* includes all those actions related to the household management and supply usage: use of renewable energy, responsible usage of water and energy, green consumption (food, clothes, cleaning products and other products) and reduced environmental impact diet (such as veganism and vegetarian). *Waste behaviour* is composed by less food waste and recycling habits. The indicators in *transport* are reducing non-essential flying, buy/use of energy efficient vehicles and less car use. And finally in *political behaviour* the actions included activism.

#### *Sustainable domestic consumption*

The key role that *renewable energies* play in decarbonizing society is previously mentioned. Energy generated from wind and solar power have been the more adequate and adaptable of the renewable energies in the Netherlands, specially solar for private households (Oteman et al., 2014). However, its value is not equivalent with the attention given by the authorities. Regarding renewable energy the Dutch policies have a rather strong business-oriented approach with few concerns been considered in respect to sustainability and CC (Lenning, 2014). The policies offered are based on economic incentives -subsidies-, usually not attractive to the public that promote rather passive voluntary actions (Lorenzoni et al., 2007; Oteman et al., 2014). Notwithstanding, some energy cooperatives and communities with their own renewable energy generation system have been emerging last decades (Oteman et al, 2014), as well as private households.

Another key point for sustainable lifestyle are the four R's (reduce, reuse, recycle, repair) (Greenpeace, 2018). The *reduction of energy and water usage* will decrease the demand of energy supply, especially from fossil fuels if renewable energy generation systems replace them. This indicator takes into consideration habits as shorter showers, using energy efficient appliances and light bulbs for example.

The *biologic and ecologic market* has its challenges in fitting the demander's trends of consumption: with more expensive costs than regular ones (Griskevicius et al., 2010). However, the ecological and social positive impact that this market offers (green and responsible manufacturing, environmental-friendly technology, etc) is essential to increase the proximity between sustainable lifestyle and citizens (Mishal et al., 2016).

Finally, a *reduced environmental impact diet* is claimed as a very accessible behaviour to engage in with substantial consequences if massively conducted (Westhoek et al., 2013; Tilman & Clark, 2014). Ordinary diets that include dairy and meat generate high quantities of GHG and require large amount of land to be produced (Westhoek et al., 2013; Tilman & Clark, 2014). With the increase of population and of GHG emissions, the reduction on dairy and meat allows to reduce the emissions of GHG of the agriculture sector, avoids the destruction of nature of the production of food and accommodation for the livestock and would guarantee enough food for the growing population (Westhoek et al., 2013).

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*essential flights, buying energy efficient products, consuming of local and seasonal food and adopting a diet with low environmental impacts* (Whitmarsh & O'Neill, 2010: 13).

### *Waste behaviour*

The best known and popular pro-environmental behaviour is to *recycle* (Whitmarsh & O'Neill, 2010). The most known recycling habits are those related to plastic, paper and glass recycle. The Dutch Government has been facilitating this behaviour as well. However, other types of recycling and reusing as furniture, clothes, etc. have a longer way to go. Recycling is one of the key pillars of sustainable living together with circular economy and other environmentally friendly alternatives. The study of Whitmarsh and O'Neill indicates that those citizens that identify themselves as recyclers have a higher tendency to engage with other pro-environmental behaviours (Whitmarsh & O'Neill, 2010).

*Food waste* refers to all discharged, ruined and unused eatable food that is ultimately not consumed by humans (Lipinski et al., 2013). This can happen in every step of the food chain: production, manipulation, processing, storage, distribution and in the household. The food waste represents a larger amount of water, energy and land needed to grow extra food, together with larger emissions of GHG. In this research the food waste measured is the one in the households: loss of uglier or worst quality food and cooked or bought food but not consumed (Lipinski et al., 2013).

### *Transport*

Transportation and the way how society uses its vehicles to move is again a key point in which citizens' actions are relevant (Whitmarsh, 2008; Whitmarsh & O'Neill, 2010; Metag et al., 2017). Environmental-friendly alternatives to fossil fuel dependend vehicles already exist -electric cars for example-. Together with renewable energies, this vehicles become an efficient and reliably sustainable substituted to fossil fuel dependencies (Kasser, 2009; Whitmarsh & O'Neill, 2010). However, the financial investment for *use or consumption of energy efficient vehicles* is rather high and challenging for a big cluster of society (Gifford, 2011). Besides, the decreased impact that the reduction of car usage has, shouldn't go unnoticed. As mentioned before, transportation is responsible for 11% of the GHG emissions (IPCC, 2014) and increasing, as the population raises.

Moreover efficiency improvements and transportation alternatives lack behind, diminishing the chances to mitigate through the reduction of emissions before overcoming the 2°C (Cafaro, 2012). Therefore, the implementation of reduction policies are required, as the assignment to substitute all transportation to fossil fuel free will not be on time. Cafaro states that it should be a direct and imposed policy to *reduce the use of flight and cars* (Cafaro, 2012: 1). Since they are the principal contributors of the GHG emissions reported from transport.

Regarding the *car use*, the usage purpose is a key matter. The literature distinct between the use of car to attend to work when no alternative is possible for example, for the everyday life actions -as shopping e.g.- or for leisure activities (Metag et al., 2017). This distinction is relevant for reduction purposes: usually it is behaviour that reduces car use is not essential to live. Indeed it is a controversial topic as each individual has different priorities (CITA). However we could agree that in leisure activities or for shopping e.g., it is easier to reduce the use of cars; especially for those living in an urban sphere. Nonetheless, public transportation and the chance to go walking or cycling is vital (Metag et al., 2017). E.g. if there is a weak public transportation system people will tend to rely on their own car. Or population living in rural areas have less opportunities to walk, cycle long distances or have a reliable public transportation (Whitmarsh & O'Neill, 2010). Nonetheless, the transportation system is vital to engage into a more sustainable living. Some public transportations are using energy for their functioning, although the ones based on fossil fuels allow to reduce the amount of it used per person, since the share is divided between a higher amount of people than private car e.g.

### *Political behaviour*

As Metag, Fuchslin and Schäfer state that public perceptions ‘*shape how individuals react to climate change and, ultimately, influence political decision-making since the implementation of mitigation and adaptation policies such as carbon taxes or subsidies for renewable energies relies on public legitimation*’ (Metag et al., 2017: 434). Hereby the importance of the political orientation and participation is underlined. For example decarbonizing mitigation policies gets retained by the populations’ denial and scepticism of CC, because they lead to strong political and cultural barriers (Engels et al., 2013). Therefore the constitution of Governments, their policies and positioning in the CC issue are vital, as it is driven by pro-environmental or pro-capitalized policies, with different consequences (Metag et al., 2017).

In the same line, environmental *activism* is strongly associated to others pro-environmental behaviours and values (Poortinga et al., 2004; Mishal et al., 2016; Metag et al., 2017). Poortinga, Steg and Vlek state that environmental activism has an alive influence on the population opinion and on the policy system (Poortinga et al., 2004). Thus this type of activism is also vital for the shift and changes required in society for bursting fossil fuel dependency (Poortinga et al., 2004).

### 3.2.2. Environmental values

The majority of academic research done in environmental behaviours focusses the predictor variables as sociodemographic and/or psychological (Lindenberg & Steg, 2007). Due to the works of Poortinga et al. (2004), Lindenberg and Steg (2007) and Steg and Vlek (2008) values and identity are incorporated into the environmental behaviour literature in the Netherlands. Although values are not the main research subject of this project, they play an important role which should not be omitted. Values and the goal frame theory from Lindenberg and Steg, offer arguments and insights to these very complex matter of behaviours and intentions. Regarding the rest of causal factors -habits, context and sociodemographic factors- (Whitmarsh & O’Neill, 2010), they are further discussed in the section *Accessibility and attractiveness of sustainable living*.

There is a relevant amount of scientific evidence that peoples’ values can be essential to peoples’ motivations to engage in pro-environmental behaviours (Lindenberg & Steg, 2007; Steg & Vlek, 2008; Whitmarsh & O’Neill, 2010). Poortinga et al. define values as essential to life standards, to decide what is important in life and which principles guide it (Poortinga et al., 2004). Values shape the world’s conception, and this last one is determinant for beliefs and attitudes; that in the end will establish the behaviours (Poortinga et al., 2004). Therefore values are vital in framing lifestyles and in life-making decisions. Acknowledging this chain, academics can better council policy-makers to make behaviour-changing policies successful.

Environmental-related values are described as those values that go beyond the own interests of the person as altruistic, biospheric, self-transcendent and prosocial values (Steg & Vlek, 2008). These values are basically related with the willingness to ‘do good’ and together with the awareness of CC, these people are more likely to engage into pro-environmental behaviours (Lindenberg & Steg, 2007; Steg & Vlek, 2008). Steg and Vlek affirm that these values are associated with normative frameworks as well. In environmental psychology these frames are named goal frames, which are the lenses in which people process information and afterwards decide to act upon it (Lindenberg & Steg, 2007). They are also called multiple motives.

There are in general three distinctive goal frames that are being considered: *hedonic*, *gain* and *normative* (Lindenberg & Steg, 2007). Hedonic goal frame is related to ‘*feel better right now*’ (Lindenberg & Steg, 2007: 119). People who act in this goal frame are really sensitive to fluctuances in their pleasure level and they tend to avoid making effort, negatives events, uncertainty, etc.

(Lindenberg & Steg, 2007; Steg & Vlek, 2008). The gain goal frame is the materialistic one: in this case the *'people are sensitive to changes in their personal resources'* (Lindenberg & Steg, 2007: 120) and the focus is to increase their resources. Finally the normative goal frame is the one more associated with pro-environmental behaviours because it focusses in *'doing things in a proper manner'* (Lindenberg & Steg, 2007). People with this frame feel driven by willingness to *'do good'* and are very sensitive to how they should behave -defined by intrinsic and extrinsic norms (Lindenberg & Steg, 2007).

The theory of Lindenberg and Steg goes further and they highlight that, even if normative goal frames are associated with pro-environmental behaviours, they may not be the cause of them (Lindenberg & Steg, 2007). Specially gain goal frames can be the cause of many environmental friendly behaviours as for example the reduction of water and energy usage. These can be easily motivated by the intention to make these resources more efficient. Moreover, environmental morality is definitely a relevant factor when dominant, but the background goal frames<sup>3</sup> do not lack influence in people's behaviours (Lindenberg & Steg, 2007). Several scenarios can derive from this situation: the reinforcement of the normative goal frame, a decreased empowerment of it or the inner conflict of the person, which in the end can resolve in a not so environmentally friendly behaviour, but primarily as an easy one (Lindenberg & Steg, 2007; Steg & Vlek, 2008).

### 3.3. Accessibility and attractiveness of sustainable living

Sustainable living has undeniably challenges and many academic works have tried to identify the obstacles or barriers that people face when engaging in pro-environmental behaviours and lifestyles (Engels et al., 2013; Metag et al., 2017). In the consequent sections we will explore these limitations and obstacles that Western societies face. Firstly, we will deepen the sociodemographic factors that determine the accessibility of sustainable living, thus age, gender, education level, employment, income, composition of the household and area density. Following the attractiveness of sustainable living is explored, so the psychological factors based on the study from Gifford (2011).

#### 3.3.1. Accessibility to sustainable living

The association between sociodemographic factors and environmental friendly behaviours has been stated by a fairly relevant amount of academic work (Poortinga et al., 2004; Gilg et al., 2005; Whitmarsh & O'Neill, 2010; Engels et al., 2013; Metag et al., 2017; Mishal et al., 2017). Each sociodemographic factor has a spectrum of variable influence to pro-environmental behaviours, from positive to negative influence in the same factor. For example, someone with a high income level may be able to purchase biologic food and products (Kasser, 2009; Metag et al., 2017). Also, (s)he may have a higher fossil fuel dependency due to his priorities and lifestyle (Kasser, 2009; IPCC, 2014; Metag et al., 2017). On the other hand, someone with a lower income and CO2 impact, may not be able to purchase environmental friendly products or renewable energy generation systems, but may have a reduced usage of energy and water due to economic reasons (Kasser, 2009). Therefore, I named this factor variance *'spectrum'* of the factor.

Another aspect to take into consideration with sociodemographic factors is the association and interdependence that these demonstrate, especially regarding explanation of the results. Most of the research referenced in this project that focused on sociodemographic factors detail these associations between multiple factors (Poortinga et al., 2004; Gilg et al., 2005; Whitmarsh & O'Neill, 2010; Engels et al., 2013; Metag et al., 2017; Mishal et al., 2017). For example, older age, high education level,

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<sup>3</sup> Lindenberg and Steg state that in the daily life these motivations are rather mixed, it is a more complex phenomena that it is just described by theory. However, in some people there can be a dominant and a background goal frame that can work together harmoniously or not (Lindenberg & Steg, 2007).

female gender, wealthy and politically liberal have larger probabilities to engage with pro-environmental behaviours (Gilg et al., 2005). In this section I will try to conceptually define each of the factors independently.

The selection of sociodemographic factors is inspired on the work of Metag, Füchslin and Schäfer (2017), who researched the German attitudes towards Global Warming together with daily life behaviours -they made special referral to media use and communicative behaviour- (Metag et al., 2017). Therefore the factors selected were: gender, age, education level, employment, income, composition of the household and area density.

### Gender

Metag, Füchslin and Schäfer (2017) together with other academic works, as e.g. Wang (2016), describe that sustainable behaviours are gendered. There is a female gender tendency to engage more into environmental friendly behaviours and express greater environmental concern (Bord & O'Connor, 1997; Gilg et al., 2005; Engels, 2013; Metag et al., 2017). This phenomena is named gender gap (Bord and O'Connor, 1997). The gender gap has consistently appeared in environmental research and created a sort of stereotypical agreement in academia that female gender are more likely to engage into green behaviours (Gilg et al., 2005). Gilg, Barr and Nord would specify, that female '*young, well educated, liberal and wealthy*' as well as '*older age groups, well educated, good income and [...] liberal are more likely to engage in green consumption*' (Gilg et al., 2005: 484) as well as other pro-environmental behaviours (Engels, 2013; Metag et al., 2017). Thus in the gender spectrum to be male -together with other factors- is acting as a barrier to engage into environmental friendly behaviours, as sustainable lifestyles.

### Age

Age is a determinant factor for other important sociodemographic factors. Due to the diverse lifestyle in each life stage, age shapes opportunities and characteristics in the different stages. For example, there is a cultural tendency to pursuit an educational curriculum during the early adulthood. When for example in the research of Metag, Füchslin and Schäfer the *concerned activists* cluster -where the average age is 48 years- is associated with environmental friendly actions, it is also mentioned that due to their rates of employment and average income, they are a cluster which can afford green energy (Metag et al., 2017: 444). So because in this life stage, middle adulthood (46-65), there are higher employment rates, due to higher income they have the opportunity to engage with some behaviours that maybe other ages, with other demographic characteristic cannot. For that reason, I expected high variance in the spectrum of this variable.

### Education level

There is the assumption that a lack of knowledge about CC and our behaviours' impact explained scepticism about CC (Engels, 2013) as well as the lack of engagement into environmental behaviours. This idea is supported by Engels: '*people who feel well informed are less likely to be sceptical about climate change*' (Gilg et al., 2005: 491). Likewise in Gilg, Barr and Ford's work higher education levels relate into *committed environmentalists* -population that engaged with environmental friendly behaviours- (Gilg et al., 2005). However, in the work of Whitmarsh education level results not as a predicting factor onto CC scepticism (Whitmarsh, 2011; Engels, 2013). Due to literature review and my background knowledge, I hypothesize in this project that indeed a higher educational level is associated with pro-environmental behaviours.

### Income

As aforehand mentioned, income is highly influenced by the life stage, length of the career class, among other factors. Besides, the spectrum of this factor is highly variable depending on which

behaviour is being considered. For example, higher and average incomes are more likely to be in *alarmed or concerned activists* in Metag et al.'s work (Metag et al., 2017). There is undoubtedly a bigger facility for higher incomes to purchase green products -food, energy, cosmetics, etc.- for example, considering the higher prices (Metag et al., 2017). However, higher incomes are also more likely to be sceptics (Whitmarsh, 2011), which could be explained by the higher dependency on fossil fuels that their lifestyles demand (IPCC, 2014). Moreover, Gilg et al. found evidences that low incomes were significantly related to non-environmentalists -what they define as individuals with strong tendency to not engage with pro-environmental behaviours- (Gilg et al., 2005).

Due to the comprehension of the antagonistic relationship between capitalistic and consumeristic values with ecological and sustainable ones, I hypothesize that higher incomes have the tendency to relate less with sustainable lifestyles. However they have the greater chances to do so (Whitmarsh, 2011; Klein, 2014). Also I comprehend the influence and reliance that this factor has with other sociodemographic ones.

#### *Level of employment*

In this factor I hypothesized -together in the line of thinking of age, income and biologic food- that students, unemployed and volunteers had less access to purchase biologic products as well as to engage in other behaviours -e.g. using green energy-. In Metag et al.'s study, the *disengaged* group -not interested in CC-, are the ones with higher percentage of unemployment (53.9%) from all the clusters (Metag et al., 2017). On the other hand, altruistic values (volunteers) are associated to enhance the chances to pursue green behaviours (Poortinga et al., 2004; Whitmars & O'Neill, 2010), but maybe they don't have the means to do so. Moreover, students studying in high educational levels should have tendency to engage more easily to pro-environmental behaviours -as hypothesized in *educational level* subsection (Gilg et al., 2005). However, again, they might be the ones with lower materialistic access to engage in some of the sustainable behaviours: due to low income for example. Nonetheless, being employed may not directly predict green behaviours as a result of other variables as environmental values, priorities and fossil fuel dependency which might have a stronger prediction.

#### *Composition of the household*

The components of a household are determinant for the household decisions, as for example recycling the waste or using green energy. Some studies indicate the association of *larger households* and/or the *number of children* in it with the appearance of pro-environmental behaviours (Vicente & Reis, 2007; Whitmarsh & O'Neill, 2010). In Whitmarsh and O'Neill's work the presence of children in the household was associated with *one-off energy conservation* and *eco-driving* (Whitmarsh & O'Neill, 2010: 16). It could derive from a cautious or awareness of the use of materials and resources of the family or household (Vicente & Reis, 2007; Whitmarsh & O'Neill, 2010). On the other hand, for some people it could relate to their reference model for their children, as trespassing their environmental friendly values to them (Lindenberg & Steg, 2007)

#### *Area density*

Each typology of location has diverse characteristics that can facilitate or retain sustainable lifestyle and behaviours (Whitmarsh & O'Neill, 2010; Gifford, 2011). For example, public transport is primarily developed in and between urban areas where the demand is bigger. Therefore I expected rural respondents to have a higher usage of private transportation -car or motorcycle- than urban ones, e.g.. Yet, the connection of rural citizens with nature can be higher as well as their concern (CITA). Whitmarsh and O'Neill found that rural location was a significant predictor of eco-driving and waste behaviours (Whitmarsh & O'Neill, 2010). Moreover, Whitmarsh found that rural location is associated with conservative affiliation which could lead to think that rural habitants are less kin to engage in

pro-environmental behaviours (Whitmarsh, 2011; Metag et al., 2017). Again thus, the diversity of the spectrum brings various scenarios in the game.

### 3.3.2. Attractiveness of sustainable living

The keys for CC mitigation not only depend on the accessibility to do so, but also how attractive people feel it is to do. Social status, risk perception, reticence to change, between others, are psychological factors that play a relevant role in the comprehension of CC and the further mitigation through sustainable living (Gifford, 2011). This section explores unwillingness to comprehend CC in its full extend as well as the acceptance of our responsibilities.

Hence in this following section the psychological factors are examined. Those were mainly selected from Gifford’s work<sup>4</sup>, in which he detailed a list of ‘seven psychological barriers that limit environmental behaviour change’ (Gifford, 2011: 290). Each of these barriers is composed by 29 indicators, which at the same time are also barriers.

	General psychological barrier	Specific manifestation
Ignorance →	Limited cognition	Ancient brain Ignorance Environmental numbness Uncertainty Judgmental discounting Optimism bias Perceived behavioral control/ self-efficacy
Psychological barriers {	Ideologies	Worldviews Suprahuman powers Technosalvation System justification
	Comparisons with others	Social comparison Social norms and networks Perceived inequity
	Sunk costs	Financial investments Behavioral momentum Conflicting values, goals, and aspirations
	Discredence	Mistrust Perceived program inadequacy Denial Reactance
	Perceived risks	Functional Physical Financial Social Psychological Temporal
Inadequate behaviours →	Limited behavior	Tokenism Rebound effect

Table 1. Gifford’s list of psychological barriers to Climate Change Mitigation and Adaptation (Gifford, 2010: 292; author, 2018).

Gifford defines three stages that retain pro-environmental behaviours: *ignorance*, *psychological barriers* and *inadequate behaviours* (Gifford, 2011). He states that in the first stage if people are unaware of CC and its consequences, there is an inhibition of environmental-related actions. However, if they are aware of it -second stage-, they might face psychological barriers as reticence to change, social status and identity that would retain their further involvement in CC mitigation (Gifford, 2011). Lastly, in case people engage in pro-environmental behaviours those might not be adequate -e.g. lack of efficiency (Gifford, 2011). The main hypothesis that emerged from the examination of Gifford’s

<sup>4</sup> See Table 1

work was that the second and third stages are the ones with a more decisive role in the Netherlands. Because of the comprehension and acknowledgment of CC existence is primarily present in European countries (Metag et al., 2017), thus the ignorance argumentation loses strength.

In the following paragraphs the psychological barriers from Gifford's work that I hypothesized to be the main deterrents of pro-environmental behaviour are described. The barriers that seemed to overlap in meaning I didn't develop in this theoretical framework; those interested in Gifford's work I welcome them to review his work. So the following list show the overlapped concepts with the correspondent barriers where are conceptualized in :

- *Ignorance*: included in environmental numbness and uncertainty.
- *Optimist bias*: included in judgemental discount.
- *System justification*: included in capitalistic worldviews and social norms and networks.
- *Social comparison*: included in social norms and networks.
- *Perceived inequity*: included in perceived behavioural control and self-efficacy.
- *Financial investments*: included in conflicting values, goals and aspirations.
- *Perceived risks*: included in conflicting values, goals and aspirations.

Furthermore, there were several barriers from Gifford's list which were not included in the conceptualization of this research: *ancient brain*, *suprahuman powers* and *rebound effect*. I have decided to not include them, due to the perceived lack of presence in Western culture like the Dutch one.

### *Ignorance*

#### Environmental numbness

Environmental numbness could be described as the level of environmental apathy people feel for their surroundings. Gifford details two scenarios (Gifford, 2011). The first one, environmental numbness acts as an unawareness role about the impact that people's actions do in their surroundings. This is a strong barrier regarding CC phenomena, because CC has no perceived immediate consequences in our daily lives in Europe and therefore there is no need for urgent attention (Gifford, 2011). In the other scenario, due to the repeated attention given to CC by the media, people normalize the situation or problem and react with apathy (Gifford, 2011). Apathy could be considered antagonist to motivation and, as mentioned in the section on *Pro-environmental behaviours* and *Environmental values*, a strong motivation is necessary to engage in environmental friendly behaviours (Gifford, 2011; Brügger et al., 2015).

#### Uncertainty

Communication on CC issues is essential and there is a gap between society's and scientists' language: science works based on predicted forecasts, hypothesized relationship and uncertainty, however society works with imperatives. Therefore, people perceive uncertainty from official documents, which reduces their motivations and expectations to engage in behavioural changes friendlier for the planet (Gifford, 2011). This language bias has been used by denial and sceptics movements to undervalue scientists' voices and CC as a urgent issue (Klein, 2014). On the other hand, uncertainty can also be that the person does belief in CC but does not know how to act (Lindenberg & Steg, 2007). Lindenberg and Steg state that this happens '*it is likely that either the gain goal or the hedonic goal displaces the normative goal frame. They give up and go with the more selfish motives*' (Lindenberg & Steg, 2007: 121).

#### Judgemental discounting

Another of the barriers caused by limited cognition is the undermining the future consequences of CC, even if those are going to be suffered by all inhabitants of the Earth (Thøgersen & Crompton, 2009;

Gifford, 2011; IPCC, 2014). Thus, in judgemental discounting people undermine future consequences and seriousness of the matter, due to the abstract feature of CC (Gifford, 2011). This is what Gifford mentioned as *environmental* discounting (Gifford, 2011). Moreover he mentions another type of discounting: spatial. *Spatial* discounting has to do with the idea that in others' geographies the consequences may be outrageous but this is not where people live. Which again considers the issue not urgent and inhibits possible actions.

#### Perceived behavioural control or self-efficiency

Why should I change if everything will be the same? Many citizens ask themselves this question when behavioural changes are proposed. The perceived lack of impact on CC in peoples' actions increases the feeling that they are not self-efficacious enough (Gifford, 2011; Antimova et al., 2018)). CC is a large, global and abstract phenomena in which people little recognize themselves. Moreover due to CC scale, people can feel that '*they have little behavioural control over the outcome*' (Gifford, 2011: 293). On the other hand, due to the system's structure and the difficulties to take part in pro-environmental behaviours, self-efficacy refers to the person's ability to be part of sustainable living (Gilg et al., 2005; Gifford, 2011).

#### Psychological barriers

##### Capitalistic worldview

As mentioned previously, values define the ways people conceive reality and the world (Lindenberg & Steg, 2007). Gifford defines the dominant worldview as the belief in the capitalistic system, as it is the dominant ideology of the Western societies (Gifford, 2011). If we recapitulate, one of the hypothesis of this work is that capitalistic ideologies are counterproductive for the environment. The structure given by the free-liberal market ideology mainly facilitates those behaviours and actions dependent on fossil fuels, because of the monetary gain that those offer them -at least in the short run- (Gifford, 2011; Klein, 2014; Pedersen, 2015). And thus, sustainable and environmental friendly actions receive less cherish (Whitmarsh, 2009). Several academics associated scepticism and denial together with limited environmental behaviour with capitalistic values (Gifford, 2011; Whitmarsh, 2011; Klein, 2014; Pedersen, 2015).

##### Technosalvation

The presence of this ideology, is pretty dominant in the Western world. Technosalvation is basically the idea that technological innovations and solutions will safe us from the disasters CC will bring (Gifford, 2011). Either there is the belief that technology will mitigate CC consequences or that will come up with an holistic solution (Gifford, 2011). There is definitely founded evidences that technology can help us in the future, as it has helped us in the past, however this can be used as a justification for people's passiveness and lack of commitment with the issue.

##### Social norms and networks

Following the line of thought of normative goal frames, Gifford defines social norms to have a '*double-edged power*' (Gifford, 2011: 294). What is considered appropriate and moral in a society, community or group can have a positive or negative environmental impact (Antimova et al., 2018). For example in the Netherlands travelling by bicycle is considered appropriate and has a positive environmental impact. However hypothetically speaking, it could be also considered appropriate to have two per household, which have not such a positive impact.

Besides, some groups' norms have strong influences in our lives and capitalistic worldviews (Gifford, 2011). The sense of identity and community are essential to human being (Gifford, 2008). People can hold on them strongly enough to not embrace change even when it becomes a moral/ethical conflict. From circle of friends, work environment to communities, all can have their own social norms and

'appropriateness' behaviours. Moreover, it is a human tendency to compare with others and the desire to behave within the framework of appropriateness of the group (Lindenberg & Steg, 2007). Those dominant 'appropriate' behaviours in a social sphere can have a negative impact on the environment, leading people massively to engage them and have catastrophic consequences as everyone considers themselves doing the appropriate thing (Gifford, 2011). For example, veganism/vegetarianism are diets with reduced environmental impact and maybe in an eco-community it is appropriate to be vegan/vegetarian. However in the rest of the society a diet rich in dairy and meat is appropriate, regardless of the environmental impact.

#### Behavioural momentum

Behavioural momentum expresses the situation of behavioural reticence fluctuation (Gifford, 2011). People's life is an ocean of fluctuations and specially changes tend to be embraced when the person is ready for it. Specially for large and important changes as a behavioural change, there is a need for the right timing: when the persons' resistance to that change is low (Gifford, 2011). Gifford emphasizes that, in particular habitual behaviours, '*are extremely resistant to permanent change (e.g. eating habits) and others change slowly [...] (e.g. the rates of smoking and the use of safety belts)*' (Gifford, 2011: 294).

#### Conflicting goals, values and aspirations

As previously mentioned in section *Environmental values*, some values can lead to an inner conflict with the pro-environmental behaviours (Gilg et al., 2004; Lindenberg & Setg, 2007; Gifford, 2011). In these cases people find CC a distant threat which in their daily basis is quite irrelevant (Gifford, 2011). They may have invested in large investments, not facilitating enthusiasm on large changes: for example, they may have invested in a house and in order to live more sustainably they might have to isolate the house better or adopt a passive heat system, requiring a huge hustle on their investment. This argumentation, together with capitalistic values that can be found in hedonistic and gain goal frames, perfectly justify the lack of involvement in reducing their environmental impact (Lindenberg & Steg, 2007). On the other hand, those with environmental values and normative goal frames, may experience less reticence and welcome mitigation policies and radical changes (Gifford, 2011).

#### Discredence

The sceptics movement has taken advantage of the scientific uncertainty and language bias, creating brakes of trust into scientists and Governments words (Gifford, 2011). Sustainable living as mentioned, requires from a huge behavioural change and this mistrust is an important point of reticence to do so (Gifford, 2008; Gifford, 2011). Mistrust can be specially fed by inadequate programs: what is offer may not be interesting enough or too challenging as well as voluntary. The population is very sensitive to the adequacy of the policies and people tend to decline the offer to engage in pro-environmental behaviours through the program (Gifford, 2011). Therefore, the importance of the comprehension and true interest of institutions to create programs that are adequate, realistic and motivational.

I will use scepticism and denial as synonyms; however I would like to inform the reader that I do perceive the difference between them. Denial is the complete rejection of CC existence, forecasted consequences and further solutions (Klein, 2014). On the other hand, scepticism are persons who are doubting about CC, but they don't position themselves in such a extreme manner. In any case, both attitudes are significant strong barriers for CC mitigation actions, particularly if this ideology is part of the person's identity (Gifford, 2011).

#### Political orientation

There is a significant amount of references about the relation between conservative political affiliations and CC denial or reticence (Gilg et al., 2005; Whitmarsh, 2011; Engels, 2013; Klein, 2014;

Metag et al., 2017). Conservative perspective tends to embrace the use of fossil fuels and to deny CC or is sceptical about it (Whitmarsh, 2011; Engels, 2013; Klein, 2014), as well as does not easily engage into pro-environmental behaviours (Gilg et al., 2005; Whitmarsh & O'Neill, 2010; Metag et al., 2017). Thus the political orientation of the person can determine the attractiveness to engage in pro-environmental behaviours. Contrarily, the correlation between left political parties with environmental and altruistic values is significantly positive, as well as to give credence to CC concerns and environmental practices (Gilg et al., 2005; Whitmarsh & O'Neill, 2010; Whitmarsh, 2011; Engels, 2013; Klein, 2014; Metag et al., 2017). Together with this agreement in the academic world, I expect the data of this project to reflect on it.

### *Inadequate behaviours*

#### Tokenism

Tokenism is one of the inadequate behaviours that Gifford mentions in his list. Tokenism refers to the tendency to engage the easier environmental behaviours -with little positive impact-, than the life changing ones (Gifford, 2011). Stern states that the intention to do environmentally good affects behaviour and the predisposition to change, however the behaviours affected are going to be this not so important or easier behaviours that Gifford refers to (Stern, 2000; Lindenberg & Steg, 2007; Gifford, 2011). Therefore and due to the need for radical changes that break our fossil fuel dependency, not only the easier behaviours have to be exhibited, but especially those with higher positive environmental impact (Thøgersen & Crompton, 2009; Gifford, 2011).

### 3.4. Conceptual model

In order to provide a representative conceptualization from sections 3.1., 3.2. and 3.3., the following figure is presented. The conceptual model presents the hypothesized relations between the concepts presented previously (Verschuren et al., 2010). In other words, presents a scheme of the theoretical assumptions that the author has in mind during the investigation.

As a summary of this conceptual model, the relationship is *sustainable living with CC Mitigation*. One of the key path to mitigate CC is through sustainable living, thus within the planetary boundaries. Sustainable living is determined by several behaviours, *pro-environmental behaviours*, that provide guidance into this lifestyle. Moreover there are factors that influence the *attractiveness* and *accessibility* to the mentioned lifestyle. Since not everyone may feel attracted to it and/or be able to engage in the sustainability path. Regarding attractiveness, several factors are listed and categorized in the *ignorance*, *psychological barrier* and *inadequate behaviour* group. On the other hand, accessibility includes sociodemographic factors.

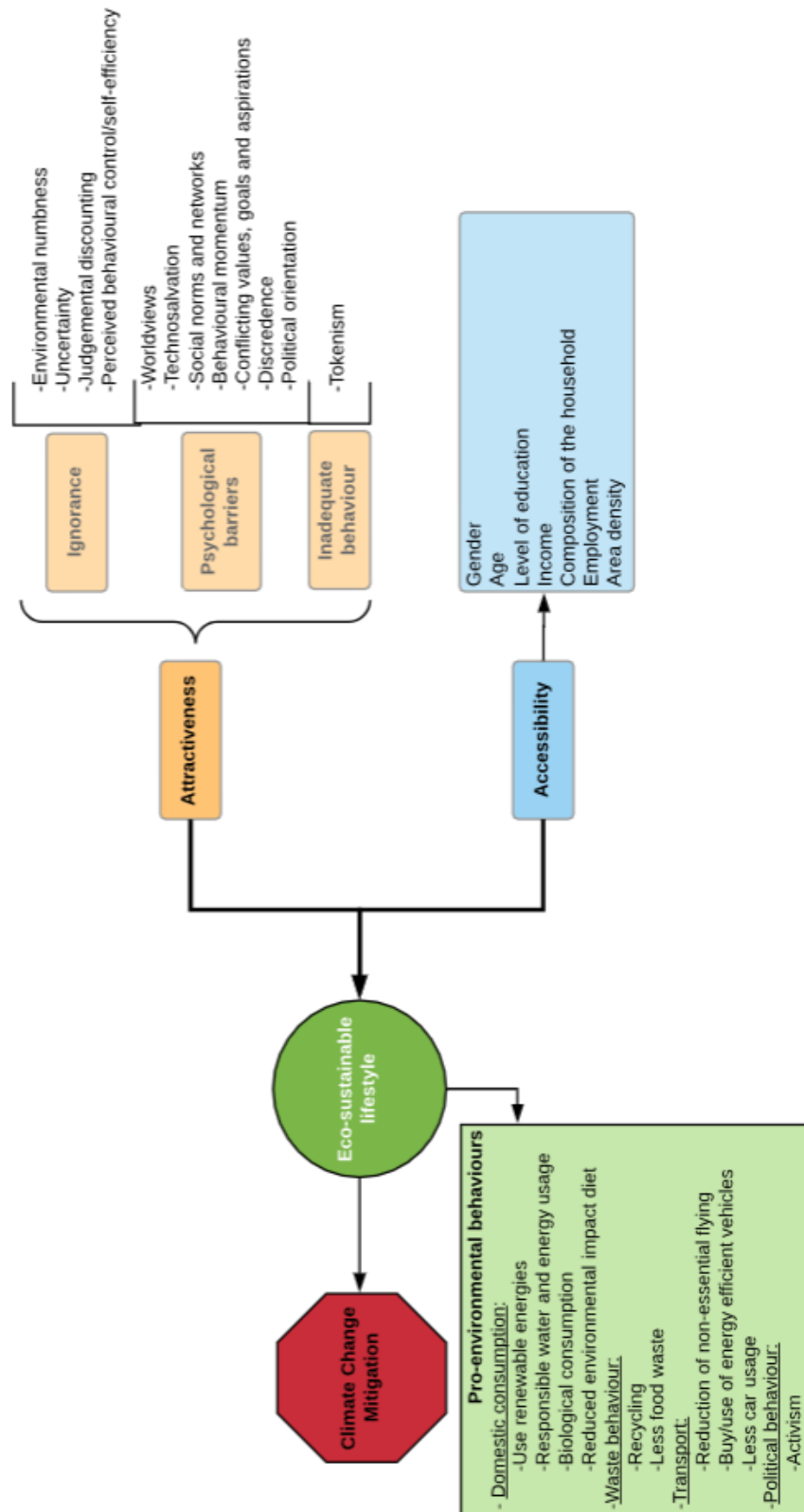


Figure 2. Conceptual model of the research (Source: author)

### 3.5. Operationalisation

In order to be able to work with the concepts described previously, a ‘workable formulation of the key concepts’ is required (Verschuren et al., 2010: 138). Therefore I elaborated *Table 2* to clearly list the manner that the concepts were operationalised. This is specially important regarding quantitative methodologies. For qualitative methodology only the first three columns -variables, factors and indicators- were used.

The majority of the *pro-environmental behaviours* (dependent variable) were ordinal variables, so the quantitative measurement used was based on the Likert scale. The scale was from value 1 that meant the absence of behaviours to 5 which indicated the presence of behaviour. The only exceptions are *reduced environmental impact diet* which was a nominal variable and *energy efficient vehicles, less car usage* and *activism* presented some variations of the Likert scale. Regarding *psychological factors* (one of the independent variables), these were operationalised in a different manner. In the survey, questions concerning these factors had several choices which were various factors<sup>5</sup>. For example:

Question: *Scientists say that climate change will destabilize the climate, making it impossible or really hard for humankind and other species to survive. What do you think about it?*

Eligible answers:

	Interpretation
<i>It is not going to be as bad as they say!</i>	<i>Optimist bias</i>
<i>It is possible, but it will happen in the far-off future</i>	<i>Judgemental discount</i>
<i>I think it will happen, but they are exaggerating to scare us</i>	<i>Optimist bias</i>
<i>I think it will happen and it scares me that is going to be soon</i>	<i>Awareness</i>
<i>I think it will happen, but I can't imagine the consequences for my life</i>	<i>Ignorance</i>
<i>God is not going to forsake us like this!</i>	<i>Suprahuman powers</i>

So the psychological factors were hidden on the different answers of the questions<sup>6</sup>. In this manner I created an ordinal approach into the wideness of these concepts. The second independent variable, *sociodemographic factors*, had the advantage that the factors were already ordinal or scale, which eases the quantitative analysis. Each of the factors has different operationalization, as each approaches divergent perceptions. However, I did try to create as many ordinal variables as possible, in order to make the data more suitable for ordinal regression.

DEPENDENT VARIABLE	FACTORS	INDICATORS	QUANTITATIVE MEASUREMENT
<b>PRO-ENVIRONMENTAL BEHAVIOURS</b>	Sustainable domestic consumption	Use of renewable energies	1=absence behaviour to 4=presence behaviour
		Responsible usage of water and energy	1=absence behaviour to 5=presence behaviour
		Biological consumption	1=absence behaviour to 5=presence behaviour
		Reduced environmental impact diet	Ordinary, others, vegetarian, vegan
	Waste behaviour	Recycling	1=absence behaviour to 4=presence behaviour
		Less food waste	1=absence behaviour to 5=presence behaviour

<sup>5</sup> See Appendix 1: Questionnaire.

<sup>6</sup> See Appendix 3: Questionnaire operationalisation.

INDEPENDENT VARIABLES	FACTORS	INDICATORS	QUANTITATIVE MEASUREMENT	
	Transport	Reduction non-essential flying	1=absence behaviour to 5=presence behaviour	
		Buy/use energy efficient vehicles	1=absence behaviour to 5=presence behaviour, 6= I don't have a car, 7=I share a car	
		Less car usage	1=absence behaviour to 5=presence behaviour, 6= I don't have a car	
	Political behaviour	Activism	1=absence behaviour to 4=presence behaviour	
<b>PSYCHOLOGICAL FACTORS</b>	Ignorance	Environmental numbness		
		Uncertainty		
	Psychological barriers	Judgemental discounting		
		Perceived behavioural control/self-efficacy		
		capitalistic worldviews		
		Technosalvation		
		Social norms and networks		
		Behavioural momentum		
		Conflicting values, goals and aspirations		
		Discredence		
Inadequate behaviour	Political orientation			
	Tokenism			
<b>SOCIODEMOGRAPHIC FACTORS</b>	Gender		Female, male, others	
	Age		<18 to >75	
	Level of education achieved		Primary school, High school, MBO, HAVO, HBO, >HBO	
	Income		<12000€/year to >55000€/year	
	Composition household	Adults in the household		Numeric
		Children household		Numeric
	Employment		Working, studying, unemployed, volunteer, others*	
Area density		City, town, rural area		

Table 2. Operationalization of the variables (Source: author)

## 4. Methodology

### 4.1. Research strategy

Many strategies and methods have been described by a bundle of academics and each strategy has its own advantages and disadvantages (Yin, 1994; Amaratunga et al., 2001; Verschuren et al., 2010). Verschuren and Doorewaard define three main keys to be determined in the research strategy: quantitative versus qualitative, breadth versus depth approach and empirical versus desk research (Verschuren et al., 2010). The distinction between quantitative and qualitative research is in general antagonistic but possible to blend. In order to be truthful to the data, while its collection and analysis, together with the theoretical framework, I chose for a mixed research strategy approach. A mixed research strategy consists in involving both methodologies, mingling the positivist and natural science basis of quantitative research with the interpretivist and constructivist essence of the qualitative one (Amaratunga et al., 2001). In the following section both approaches are developed.

The largest advantage of the usage of mixed research strategy is the reliability and validity that offers. The research's reliability increases when using different instruments and approaches the results are consistent, in other words, the quantitative and qualitative results are correlated or similar (Verschuren et al., 2010). On the other hand, the chances to measure accurately the reality -validity- increase when applying a more holistic model such as the mixed one (Theen, 1996; Amaratunga et al., 2001). Therefore, because of the triangulation in the research -the combination of methodologies- the model gets strengthened (Yin, 1994; Amaratunga et al., 2001). And due to '*gaining insights and results, and for assisting in making inferences and in drawing conclusions*' (Amaratunga et al., 2001: 23), the weaknesses of single models are diminished. Moreover, mixed models not only provide corroboration through triangulation, but also the opportunity to develop deeper and richer analysis and contributing with new insights (Rossman & Wilson, 1994; Amaratunga et al., 2001).

The second key of the research strategy is the breadth versus depth. Verschuren and Doorewaard state that the survey methodology is wide, because it provides an abundance of data which can be generalized (Verschuren et al., 2010). However, by reason of the mixed strategy selected, there is also a depth approach through the interviews that provided complex and elaborated data is collected (Verschuren et al., 2010). Nonetheless I find it relevant to mention that even if it primarily incompatible approaches, in this research they work together: breadth as dominant approach and depth as the background one. Breadth is the dominant approach as the literature in which the project is based on -Gifford (2011) and Metag et al. (2017)- is quantitative as well, and seeks to generalize. However, without the insight and interpretative perspective from the qualitative methodology, the explanatory power of the research would be impoverished.

The last key element is the empirical versus desk research. I have decided to do an empirical research since I had the opportunity to use primary data in a coherent manner with my research objective. The intention was primarily to examine if the results obtained by Gifford and Metag et al. would provide an explanation for the inhibition of pro-environmental behaviours in the Netherlands.

Furthermore, another strategy distinction is the role of the theory research, which can be deductive or inductive (Verschuren et al., 2010). By reason of the research design and purpose, the deductive approach was the most adequate. Anew, due to the theoretical motivations were the works of Gifford and Metag et al., the hypothesis were theoretically driven, defining the research purpose: test the theoretical hypothesis in the Netherlands.

However, this approach is conflicting with the interpretative essence of the epistemological orientation of the research. Interpretivism is primarily based on inductive approaches, where the

phenomena is observed: there is the search for a pattern together with statement of tentative hypothesis and lastly a theory is generated (Creswell & Poth, 2018). Nonetheless, thanks to the mixed research strategy a phenomenological approach allows the research to be flexible enough to adjust to new issues and ideas, contribute to theory generation and the chance to deepen in people's meanings (Amaratunga et al., 2001). Besides, my theoretical beliefs and values are enhanced in the research, as the phenomenological tradition dictates (Creswell & Poth, 2017). Because acknowledging them provides a more accurate understanding of the meaning and interest of the project (Amaratunga et al., 2001; Creswell & Poth, 2017). Besides I do believe that reality is socially constructed and that decontextualizing a phenomena is biasing the heart of it. For this reason, there was the need to blend the hermeneutic assumptions with the research purpose into a mixed model.

#### 4.2. Mixed research

Both typologies merge in this study, allowing an interesting and fruitful mix where the data can be comprehended holistically, with meaningful insights and deeper comprehension of the phenomena being studied. Due to the goals and intentions of the research, I have decided to embrace several main ideas of phenomenological research. Which are introduced and explained in this subsection, highlighting the valuable diversity at play.

On one hand, quantitative research gives the opportunity to comprehend the data in ciphers, as well as to make generalizations over the population (Verschuren et al., 2010). It intends to identify characteristics in the data and patterns (Amaratunga et al., 2001). Amaratunga et al., listed some of the strength or benefits of the usage of quantitative data in the research, some of them are: the possibility to compare and replicate, objectivity of the data collection, reliability and validity and leads to causal explanations (Amaratunga et al., 2001: 22). In mixed research models *'quantitative data can help [...] during the design by finding representative sample and locating deviant samples'* (Amaratunga et al., 2001: 23).

On the other hand, qualitative research is an interpretative, rich and holistic method (Amaratunga et al., 2001; Creswell & Poth, 2018). This research approach allows to collect contextualized and rich descriptions that help to understand the complexity of reality (Creswell & Poth, 2018). It is especially suited to deepen *'lived experience(s), [...] perceptions, assumptions, prejudices and presuppositions'* (Amaratunga et al., 2001: 22). In mixed models as the present one, qualitative research provides validation, support and explanations of quantitative data, providing deeper understanding and triangulation (Amaratunga et al., 2001).

##### *Phenomenological research*

Phenomenological research is the art of absorption of individual experienced essences of a phenomenon and draw a more general trend (Creswell & Poth, 2018). The inaction in pro-environmental behaviours in order to mitigate CC has been a phenomena studied by several academics. However in the Netherlands fewer have taken such an holistic approach into the matter. Indeed the goal of the research was to identify a phenomenon, *'an object of human experience'* (Creswell & Poth, 2018: 75), the barriers that citizens experience when embracing a sustainable lifestyle. Phenomenological study seeks to identify and *'describe a common meaning for several individuals of their lived experiences of a [...] phenomenon'* (Creswell & Poth, 2018: 75). This sort of study allows to determine a what and how of the participants experiences, thus what barriers are they experiencing and how do they experience it.

Moustakas defined a type of phenomenological research, the transcendental phenomenology (Moustakas, 1994; Creswell & Poth, 2018). One of the main aspects of this methodology is the *bracketing*, setting aside the researcher's interpretations. However it is mentioned that this is an

intention as it cannot be done entirely, particularly when working with interpretative research (Creswell & Poth, 2018). I do reclaim this matter in this study, as I understand my bias and interpretations as a strength rather than a disadvantage<sup>7</sup>. Another relevant aspect of transcendental phenomenology is the *horizontalization* or the generation of clusters of meanings (Creswell & Poth, 2018). Through the data analysis the researcher establishes significant statements that generate patterns and themes of relevant information for the in-depth comprehension of the phenomenon (Creswell & Poth, 2018). However, due to the mixed model research, the phenomenological structure to report the analysis is not fully adopted. Phenomenological studies present the following analytical structure: textural description (identification of what participants experienced), structural description (how) and the fusion of both analyses (Creswell & Poth, 2018). In this study the textural and structural description were not differentiated, but merged and flowed in one. The reason of this is because the phenomenon and *what* was already identified by the literature, and the textural description was based on the examination of this barriers presence in the data. In this study thus, bracketing, generalization and horizontalization are the main phenomenological traits used.

### 4.3. Sample and data collection

The sample required for the study was the most general and divers sample as possible, in order to represent adequately the reality. For each of the methodologies different samples and data collection methods were used. For the quantitative part the random sampling technique was used. Random sample involves the arbitrary, in this case, participation of people in the study. The advantages are that through aimless selection of the participants, prompts the likelihood to have sociodemographic diversity and be able to generalize back to the population (Verschuren et al., 2010). However, I intended to do an empirical research on the Netherlands' reality, therefore I established the restriction that participants had to be Dutch nationals or were at least living in the Netherlands for 2 years. Moreover, the sample size was conceived to be between 100-150, which finally became 102 participants on the quantitative research.

On the other hand, in order to profound in qualitative data, another sampling strategy was required. Due to the goal and orientation of the study, the main purpose of this sample was to examine a theory, or in this case a phenomenon, so I operated with theory-based sampling (Creswell & Poth, 2018). Thus, the participants were selected due to the following criteria:

- (Academic) knowledge on sustainable living in the Netherlands
- (Academic) knowledge on sustainable living in order to mitigate CC
- Experience on the phenomena
- Adequacy of the area of expertise

During the sampling process, two sorts of samples were distinguished: academical experts and field experts. Academical experts were those participants who are professionally involve with the phenomenon and from whom more academic-based data could be obtained. Likewise, the field experts were participants whose knowledge was found on their experiences and could offer first-hand deep data of the phenomenon. In total, the qualitative sample had three academical experts and two field ones.

Regarding the collection process, different instruments were used to collect the various sorts of data (see table 3). The quantitative instrument selected was the survey. First of all, the survey was the method that allowed me to collect an extensive amount of data without time, monetary and materialistic restrictions (Verschuren et al., 2010). I have decided to use an online survey in order to

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<sup>7</sup> I further develop my personal experience with the phenomena in the subsection of *Data analysis*.

overcome spatial limitations and create an efficient and private environment for the participants to answer. Besides, the data generation was remote and closed, facilitating the reduction of reality into variables which were further analysed and correlated (Verschuren et al., 2010). Another characteristic of the survey is that the participants are selected randomly (Verschuren et al., 2010). This trait did definitely benefit the research, as provided enough diversity of participants, avoiding the overrepresentation of a cluster of society and allowing the generalization to the population.

Moreover, the qualitative instrument selected was the interview. I have used semi-structured interviews in order to collect in-depth data from the various sources. Interviews benefit the research with open and flexible structure, providing the chance to profound into information as well as to gather unplanned information. In addition, interviews offer more opportunities to comprehend the information given by the participant and even to be able to discuss over complicated matters (Verschuren et al., 2010). Each sort of expert participant had a slightly different interview structure, based on their area of expertise. Additionally, the interviewees have been mentioned in this study in the following manner:

- D. Sloot: interviewee I
- M. van Huizen: interviewee II
- J. Juffermans: interviewee III
- M. Zijlstra: interviewee IV
- H. Broekema: interviewee V

INSTRUMENT	SOURCE	DATA
QUALITATIVE METHODS		
<b>INTERVIEW</b>	- Academical experts	- Specific theoretical information - Specific information on the phenomenon in the Netherlands
	- Field experts	- Information on the phenomenon in the Netherlands - Experiences on the phenomenon
QUANTITATIVE METHODS		
<b>SURVEY</b>	- Sample citizens	- Experiences on the phenomenon

Table 3. *Quantitative and qualitative instruments for the data collection* (Source: author).

#### 4.4. Data analysis

The data analysis was executed in two separate stages: first the primary analysis by the different research methods and then the analysis merged. Thus in the first stage, quantitative and qualitative analysis was carried out separately. The methods used are described further in this subsection. It seemed pertinent and adequate to do so, as both research methods are so diverse from each other and with such antagonistic requirements. Once analysed and reported the results, the data was merged together with the theoretical background in order to report holistic and comprehensive results of all the information.

##### 4.4.1. Ordinal logistic regression

Ordinal logistic regression or ordinal regression was the statistical method used to order and analyse the quantitative data. Regressions are based on the prediction of an dependent variable -sustainable lifestyle- by (several) independent variable(s) – psychological and sociodemographic factors- (Laerd Statistics, 2018). The main assumption and trait of ordinal regression is that the dependent variable is

an ordinal one. Ordinal variables are those variables that present ranking categories as for example gender -male, female or others- or education level -primary school, high school, employment formation, university, etc.-, but also categories based on the Likert scale -7 or 5 point scales from 'I agree' to 'I disagree' (Laerd statistics, 2018). In this study 81.8% of the dependent variables were ordinal<sup>8</sup>. Other assumptions are that '*one or more independent variable(s) are continuous, ordinal or categorical*' (Laerd statistics, 2018), the lack of multicollinearity<sup>9</sup> in the data and the presence of proportional odds<sup>10</sup>. From these assumptions only the first one was not violated, I was aware of the risks of invalid results. However, this violations came because the research goal was to test theoretical grounds in the Dutch reality. Thus neither the model and the model assets were relevant for this study. The main role of the quantitative method was then, to generate statistical evidence of positive and negative relationships between the dependent and independent variables -correlations, R. In the case that the research goal was another, other statistical methods could have been more adequate for this data, e.g. SEM (Structural Equation Modeling)-.

Accordingly, correlations are the main statistical asset analysed and considered in the study. The main values from the correlations used in the analysis of the data are the significance and relevance of the correlations. Significant correlations were determined by the rule of thumb of maximal .05 of significance -*p-value*- (Laerd statistics, 2018). However, I established a categorisation for the different levels of significance:  $p < .05$  is a *fair significance*,  $p < .01$  is a *good significance* and  $p < .005$  is an *excellent* one. Likewise, I differ between levels of relevance: if the R value resides between .5-.3 the correlation strength is moderate and  $R = .3-.1$  it is weak. There are no significant correlations with higher strength, therefore only the mentioned categories has been specified. Through these categorizations the correlations were analysed by importance and strength and only the significant correlations were reported.

#### 4.4.2. Phenomenological analysis

It is previously mentioned that qualitative analysis was based on the *horizontalization* of Moustakas -transcendental phenomenology-. This technique is similar to other qualitative analytical methods, as pattern matching, which seek for significant statements and patterns in the data. This analysis relies on the highlighted statements from the participants experiences with the phenomena, that provide the comprehension and understanding wanted (Creswell & Poth, 2018). Furthermore, I established themes and patterns of data, what Moustakas called *clusters of meaning* (Moustakas, 1994; Creswell & Poth, 2018). By themes or clusters of meaning, I meant the principal topics that were pivotal in the respondents speech as well as the most mentioned. Likewise, patterns meant the interconnections and flows between data and themes. Commonly in phenomenological research the consequent step are the textural and structural descriptions, which should be differentiated (Creswell & Poth, 1994). However it has been earlier explained that those descriptions merge into one and in this description the significant themes and patterns are reported.

The succeeding step was to merge, analyse and report the 'essence' of the phenomenon -see subsection *Discussion of the results*- (Creswell & Poth, 2018). In order to do so, two different

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<sup>8</sup> With those two non-ordinal variables multiple linear regression was applied. As it is posteriorly mentioned, the statistical values relevant for this research are the significance (*p-value*) and relevance (R value) of the correlations between dependent and independent indicators.

<sup>9</sup> The presence of multicollinearity appears when two or more independent variables are correlated with each other, which makes difficult the comprehension of the variables influence to the dependent one (Laerd statistics, 2018).

<sup>10</sup> '*The assumption of proportional odds means that each independent variable has an identical effect at each cumulative split of the ordinal dependent variable*' (Laerd statistics, 2018).

techniques were combined: explanatory building strategy and composite description. Phenomenological composite description is a report of the 'essence' of the phenomenon, thus a description of the core or 'essence' of the data is generated (Creswell & Poth, 2018). Additionally, to further analyse the data together with the theoretical background, I employed explanatory building strategy. This strategy seeks '*to analyse qualitative data by building an explanation about the situation*' or phenomenon (Amaratunga et al., 2001: 28). Thus, it allowed to distinguish '*a set of causal links*' (Amaratunga et al, 2001: 28) that gave explanation to the phenomenon, complementing the composite description and assisting the practical limitations of quantitative research (Amaratunga et al., 2001).

## 5. Analysis and results

In this following section the data is presented. Through the different techniques previously mentioned in section 3 -*Methodology*-, the data has been collected, ordered, analysed and interpreted. First of all, following the transcendental phenomenology tradition I describe my personal experience with the phenomenon. Secondly, the significant quantitative and qualitative findings are introduced. Following there is a seek for alliances and connections between the data, ending in an interpretation of those links with the support of the theoretical framework.

### 5.1. Epoché

Following the phenomenological research tradition, the researcher writes an epoché or bracketing technique in order to question the objectiveness of the reality and to embrace the own interpretations and biases. Thus in this following lines I will describe my theoretical and personal knowledge of the phenomenon, in this case the sustainability inaction to mitigate CC.

First of all, I recapped the hypothesis as they are the base of my perspectives about the matter. I understand that the lack of involvement to sustainable living and preoccupation regarding the CC are due to sociodemographic and psychological factors that act as barriers. The most relevant factor I hypothesized was capitalism and its structure. Capitalism is today our economical but also social and ideological system -I generalize to emphasize the dominant trend-. However, I deeply conceive that capitalism is purely an economical system, however its roots expanded to the ideological and social systems. As a consequence purely economic-based and economic efficacy values have been spread and have replaced the systems of belief in people. By system of belief I meant the values, ideas, beliefs, perspectives of reality, etc., which in past times were primary (and still today for some citizens) given by religion. Religion provided/(s) a dogma, a normative framework to people, which guides the person in their actions and provides essential guidance on matters as what is good and what is bad. Normative frameworks thus, provide structure and guidance. However, my perspective in the matter is that religions e.g. are systems of beliefs 'designed' already for this role, but not capitalism. Therefore, I conceive as an issue that the normative frameworks on Western societies -again I generalize to emphasize the dominant trend- are based on hedonistic, egoistic, consumeristic, individualistic and competitive values rather than more living being-respectful ones as cooperation, respect for Nature and human rhythms, altruism, freedom based on responsibility, etc.

However, I also conceive capitalism as an economical system an issue. The main pillar of success for capitalism is based on growth, the more the better. But Mother Earth, the resources given by her, the boundaries of humankind's and other beings' existence cannot blend in such manners without extinguishing or sickening. Being driven by such impulses, humankind has forgotten the balanced and harmonious rhythm of Nature, and the consequences of such are terrific. Due to the awareness of this matter, the loss and negative impacts on Nature, the impulses of competitiveness and never-fulfilled feeling, I grieved, otherwise called eco-grief. I feel imbalanced because of the massive impulses and inputs that a capitalistic system of belief and living offered me. Thus I took action into a more sustainable lifestyle.

My path thus, had and has still plenty of social and structural, but also psychological obstacles. Some behaviours I have embraced so deeply that the reactance of some people towards them was surprising, thus I understood every person has a different path and the complexity of such. Yet, I still conceived social and especially structural factors to be, sometimes, strongly deterrents. Factors that were promoted by companies or polices, thus that were consciously leading people to engage on high environmental impacts. E.g. the prices and lack on subventions for biological products -food, clothing, cosmetics, etc.- and tax-free fossil fuel for planes, which facilitates the consumption of non-biological

products and the over-usage of planes. Hence, my motivation for this research was based on the awareness and involvement in this important matter, but also to deepen the understanding of people’s inaction and obstacles.

## 5.2. Presentation of the quantitative data

Firstly, I would like to highlight that the data contained over- and under-representations. Some of the indicators, e.g. age have slightly under-representation in the following ages: <18 years old (3,9%), 65-75 years (3,9%) and >75 (1%), when in the Netherlands they represented 16.41% (0-14 years) and 18.73% (>65 years) (Index Mundi, 2017)-. Moreover, several sociodemographic indicators showed over representations: 76.5% of the respondents have no descendance, 52% live in an urban area, 58.8% are working and 36.3% of them vote(d) GroenLinks or the green-left party at their countries.

There was a numerous amount of correlations to be analysed. The ones presented in this subsection are the significant and more relevant ones between sustainable living’s indicators and the psychological and sociodemographic ones (Table 4).

<b>Sustainable living</b>	<b>Accessibility and attractiveness to sustainable living</b>	<b>Sustainable living</b>	<b>Accessibility and attractiveness to sustainable living</b>
<i>Diet</i>	Ideologies about human-made CC	<i>Green energy</i>	CC existence
	Acceptance responsibility of CC		Ideologies about human-made CC
	Surrounding		Age
	Kids household		Place
	Political		Political
<i>Flying</i>	Ideologies about human-made CC	Less car	Limited cognition
	Acceptance responsibility of CC		Ideologies about human-made CC
	Age		Acceptance responsibility of CC
	Education		Place
	Income		Education
<i>Food waste</i>	Acceptance responsibility of CC	Recycle	Income
<i>Buy green cars</i>	Age		Ideologies about human-made CC
	Place		Acceptance responsibility of CC
	Income		Reluctance to change
<i>Usage water and energy</i>	Ideologies about human-made CC		Activism
	Acceptance responsibility of CC	Education	
	Age	Political	
	Employment	Ideologies about human-made CC	
<i>Buy green</i>	Income		Acceptance responsibility of CC
	Limited cognition		Surrounding
	Ideologies about human-made CC		
	Age		
	Education		
	Political		

Table 4. Significant correlations between sustainable living indicators and psychological and sociodemographic indicators (Source: author).

Moreover, Table 4 shows the dominant presence of some indicators in the correlations with sustainable behaviours. *Ideologies about human-made CC*, *age* and *acceptance responsibility of CC* are

found in 80% of the significant correlations<sup>11</sup>. It has to be noted that there were relevant over-representations regarding some of the indicators shown in *Table 4*: 95% believes that CC exists (*CC existence*), 53.9% agree on AGW<sup>12</sup> (*ideologies about human-made CC*) and 85.3% think that they could do more to mitigate CC (*acceptance responsibilities of CC*). This shows that these indicators show a substantial tendency in the data which can decrease the relevance of the correlation.

Nonetheless, in order to create an elaborated and understandable analysis, I will define the correlations shown in *Table 4*<sup>13</sup> per every sustainable living indicator.

### Domestic consumption

- **Renewable energies:** from the 31 indicators *Renewable energies* had significant correlations with 5 indicators: *CC existence*, *ideologies about human-made CC*, *age*, *place* and *political orientation*. Age and political orientation show a moderate correlation (.352 and -.302 respectively) with excellent significance (.000 and .002), indicating that the older the participant and the more involved in green-left party more likely he is to engage in this behaviour. As beforehand mentioned *CC existence* has a 95% of redundant answer, as a result, even if the significance level is good, the relevance level loses substantiality. Nonetheless, the data shows that awareness about the CC existence increases the likelihood to engage in the usage of renewables. Besides, *ideologies about human-made CC* show excellent significance

Sustainable living	A&A to sustainable living	Correlation value (R)	Significance (p)
Use of renewable energies	CC existence	.214	.031
	Ideologies about human-made CC	.290	.003
	Age	.352	.000
	Place	.263	.008
	Political	-.302	.002

in the correlation. Thus, as more aware is the person about the AGW, the higher the likelihood to use green energies. Finally participants from rural and smaller locations show more tendency to engage as well.

- **Responsible usage of energy and water:** three correlations turned to have an excellent significant link with the reduction of energy and water habit. *Ideologies about human-made CC* has a moderate relevant correlation, meaning that the acceptance of anthropogenic causes of CC increases the likelihood to embrace the habit of reduction. Moreover, the older the population the more chances has this behaviour to appear in their daily basis as well as with the awareness that their actions can mitigate CC -

Responsible usage of water and energy	Ideologies about human-made CC	.370	.000
	Acceptance responsibility of CC	-.295	.003
	Age	.284	.004
	Employment	-.262	.008
	Income	.208	.036

*acceptance responsibility of CC*-. Finally, the ordinal logistic output shows that single and active employment levels (e.g. only working or studying) and higher incomes have higher probability to engage in the reduction of energy and water usage.

- **Biological consumption:** The most meaningful correlation with biologic consumption is *political orientation*. With an excellent significant and moderate strength correlation, the more green-left orientated people are the more likely they are to engage in biological consumption. Moreover, *education*, *age* and *ideologies about human-made CC* are determinant for this behaviour as well. The highest the education, the age and the

<sup>11</sup> *Ideologies about human-made CC* and *age* are found in 80% of the significant correlations and *acceptance responsibility of CC* in the 70% of them.

<sup>12</sup> Anthropological Global Warming or that the cause of CC are humankind's actions.

<sup>13</sup> See Appendix 4: List of significant correlations

acceptance that CC is human-made the higher the probabilities that people will buy

Biological consumption	Ideologies about human-made CC	.285	.004
	CC exists	.236	.017
	Age	.292	.003
	Education	.306	.002
	Political	-.378	.000

green products. Besides, the belief of CC existence does correlate with this behaviour as well, however this is weaker regarding significance and strength.

- Low environmental impact diet: *Political orientation* is the most relevant correlation as it has an excellent significance (.005) and a moderate relevance (-.321). The reading of this correlation is that as more green and left orientated the person is politically, the more likely is going to adopt a low environmental impact diet -veganism/vegetarianism.

Low environmental impact diet	Ideologies about human-made CC	.290	.003
	Acceptance responsibility of CC	-.243	.014
	Surrounding	-.203	.041
	Kids household	-.270	.006
	Political	-.321	.001

The further readings of the other indicators are: the more the respondents assimilate their surrounding's impact has on them, the more likely they are to engage in low environmental impact diet, as well as the less children living in the household<sup>14</sup>.

### Waste behaviour

- Recycle: Older ages and participants which showed larger the belief that their mitigation actions are useful, have larger probabilities to embrace recycling as a daily habit. Besides with lower significance levels *ideologies about human-made CC*, *reluctance to change* and *income* correlated with recycle behaviour as well. The resumé of these correlations is that

Recycle	Ideologies about human-made CC	.226	.022
	Acceptance responsibility of CC	-.393	.000
	Reluctance to change	-.233	.019
	Age	.306	.002
	Income	.241	.015

respondants with larger incomes and awareness of the humankind's actions causing CC are more likely to recycle. However the more risk they perceive -reluctance to change<sup>15</sup>- the less likelihood to recycle.

- Food waste: The most significant correlation of food waste behaviour is with *age*. In this case the older the participants the higher chances to engage in food waste reduction behaviours.

Food waste	Acceptance responsibility of CC	-.211	.033
	Age	.270	.006

Moreover, it appears to be that the more aware about the AGW, the less probabilities to get involved in reducing or care about the food waste that they produce.

### Transportation

- Buy/use of energy efficient vehicles: Regarding the prospect to acquire and/or use energy efficient and therefore, sustainable private transportation, only sociodemographic indicators

<sup>14</sup> Ideologies about human-made CC and acceptance responsibilities of CC's correlation meanings are not explained, because the nominal dependent variables and the method used was linear regression. Which didn't allow to see the different correlations between categories of the indicator and therefore the analysis of them without it is inaccurate and inconsequential.

<sup>15</sup> The most significant correlation of this indicator is the dummy 4 related to perceived risks- *I don't know if it would work out, if I could afford the costs or if my life/person would be in danger*- which it was meant to express awareness but also tokenism. This correlation shows a negative estimate ( $\beta=-3.669$ ) and a good significance ( $p=.012$ ).

appeared as facilitators of the behaviour. *Not having a car* and *sharing one* were dummies 6 and 7 after a Likert scale from 1-5 (*No I don't – Yes I do*). Therefore younger age, lower incomes and urban habitation appear to have more chances to engage in the behaviour, the significant

Buy/use energy efficient vehicles	Age	-.276	.005
	Place	-.335	.001
	Income	-.397	.000

dummy correlations are between *Not having a car* and *sharing one*. Thus, the interpretations that can be extracted from

this output are inconclusive, as I cannot assure that younger, urban and lower incomes have more likelihood to buy/use an energy efficient car or to not own one.

- **Reduction usage of planes:** For this behaviour two main substantial correlations appeared. Regarding the correlation with *ideologies about human-made CC* the third dummy *-capitalistic worldviews-* as an excellent significance, however a negative relation. Therefore, for people that answered *I agree, but this is a free world and we can't control what other people do* they are less likely to engage in this behaviour. Secondly, the correlation with *acceptance responsibility of CC* the more aware they were of their responsibility the more likely to reduce

Reduction of non-essential flying	Ideologies about human-made CC	.363	.000
	Acceptance responsibility of CC	-.373	.000
	Age	.253	.01
	Education	.197	.048
	Income	.205	.038

the use of planes was. Moreover, *age* shows a significant relationship with the use of planes as well: older ages are more likely to engage with this behaviour<sup>16</sup>. Finally, the higher the income and the education level achieved, the higher the possibilities to engage in the reduction of planes use.

- **Reduction use of cars:** This behaviour together with activism is the behaviour with a higher number of correlations (6 of 31). The most relevant correlations in this case are with *ideologies about human-made CC* and *place*. The correspondent reading would be that participants answering *God made the world as it is*<sup>17</sup> and *I agree and I think it is terrible* have a significant likelihood to reduce their use of cars; as well as they live in the urban area. However, people responding in *ideologies about human-made CC* the answer regarding capitalistic worldviews<sup>18</sup> is less likely to reduce their car usage. Moreover, a weak correlation but highly significant is the correlation with education: the higher the education level achieved the larger

the chances to engage in this behaviour. *CC existence*, *acceptance responsibility of CC* and *income* correlated weakly and with good or fair significance: people with a higher awareness degree on CC existence and their responsibility on CC together with a lower income, are more likely to reduce their use of cars in order to mobilize.

Less car usage	CC existence	.235	.018
	Ideologies about human-made CC	.310	.002
	Acceptance responsibility of CC	-.213	.032
	Place	-.307	.002
	Education	.271	.001
	Income	-.269	.006

<sup>16</sup> Please note in the output from the variables flying (see *OUTPUT SPSS\_living within the boundaries\_JBK* in attached materials), the table *Parameter estimates* appears rather different from a normal output and the reason is that age is a scale variable in an ordinal logistic regression, which creates this rather unlogic output.

<sup>17</sup> In this study only one person answered the question with this answer, therefore the generalization from this result is rather inadequate.

<sup>18</sup> Question: *Almost 90% of the scientists agree that climate change is made by human's activity. What do you think about it?* Answer regarding capitalistic worldviews: *I agree, but this is a free world and we can't control what other people do.*

## Political behaviour

- **Activism:** Activism is one of the behaviours with respectively larger amount of correlations with the psychological and sociodemographic data. Five of these correlations have an excellent correlation and variate in relevance. *Ideologies about human-made CC* has the

Activism	Ideologies about human-made CC	.419	.000
	Acceptance responsibility of CC	.282	.004
	Surroundings	-.293	.003
	Age	.257	.009
	Education	.310	.002
	Political	-.307	.002

highest R-value from all the significant correlations presented in this section. Again, a larger acceptance of the human's actions as the cause of CC is leading to higher chances to engage in pro-environmental behaviours as activism.

Furthermore, the more green-left the person votes, the highest the education level achieved, the older and, surprisingly, the more limited cognition issues<sup>19</sup> the person experiences, the more likely is the person going to get involved in some sort of environmental activist behaviour.

The overview of the quantitative results is that all pro-environmental factors/behaviours correlated significantly with at least more than two of the attractiveness and accessibility factors. The most relevant and significant correlations are: the higher the belief that their mitigation actions are useful the more likely to be have an active recycling behaviour and a higher acceptance of human responsibility on CC a higher involvement on environmental activism. It can be concluded that attractiveness factors primarily correlated -ideologies about human-made CC and belief in mitigation actions- show rather a high coherence, since the awareness of both factors tends to increase the likelihood of behavioural engagement. However, for the factors regarding accessibility the results are more divergent, although not incoherent.

### 5.3. Presentation of the qualitative data

Qualitative data needs from a more interpretative approach to be analysed. Therefore, *themes* and *patterns* of data were highlighted through *horizontalization*. By themes I mean the principal topics that are more pivotal in the respondents speech as well as the most mentioned. The ones I identified in the data are the following: *social norms*, *psychological restrains* and *structural restrains*. Likewise, with patterns I mean the connections and flows between data and themes, the interconnections. In order to provide visual help to the reader, I developed a representation of the themes and patterns from the qualitative data that are identified and described in this subsection (Figure 3).

<sup>19</sup> One of the questions regarding limited cognition is *Do you think that your actions can help to mitigate (make less hard) climate change?*, which answers related to *awareness*, *perceived inequity*, *perceived behavioural control/self-efficacy*, *environmental numbness* and *financial investments*.

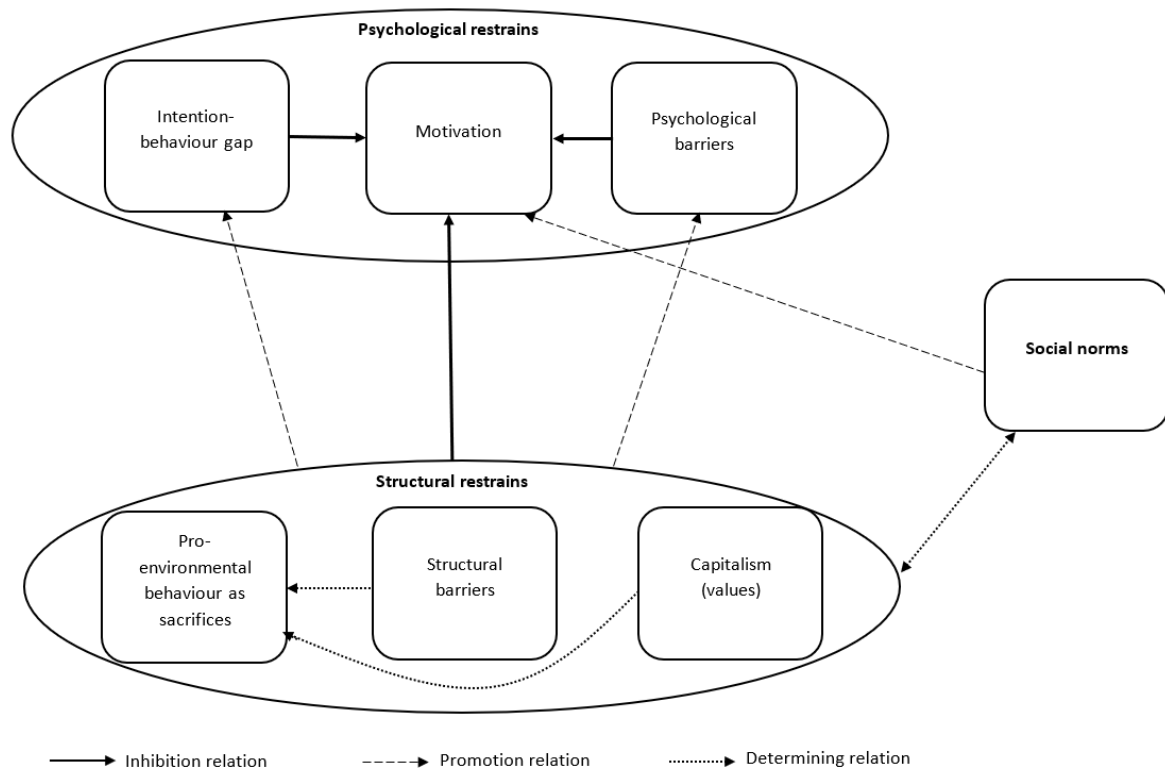


Figure 3. Graphic representation of qualitative data analysis (Source: author)

### Social norms

The majority of the interviewees seemed to agree that social factors are a barrier, specifically social norms (I, II, III and IV). It is defined previously in the *Literature framework* that social norms are those normative frameworks that structure the values and cognition of groups of people. Therefore, a person belongs to several groups, in several levels (e.g. group of friends, group of colleagues, being member of a group, national citizen, local citizen, etc), in which each has specific norms and stereotypes attached to them (I). These norms determine what behaviours are appropriate and people who feel identified with the group tend to behave within this moral framework, also named culture (I, II and III). I distinguish between two types of social norms: the descriptive and injunctive. The first one refers to what within this morality is accepted: for example drinking alcohol is accepted by Western societies. On the other hand, injunctive social norms refer to what is appropriate to do: e.g. people accept and find appropriate to own a car (I). However, someone with stronger environmental values -also called biospheric values- than the normative morality may find it inappropriate that everyone owns a car, even if it is accepted and appropriated by the rest of the society. Hereby the complexity of social norms is underlined.

Today's normative morality leads people to behaviours they find acceptable and appropriate, but are mostly detrimental for the Earth. The dominant normative morality of the majority of Western societies, which most of the society members feel identified with, is founded on capitalistic values (I, III and IV). The identification with the group's normativity leads to the perception that these social norms are essential to the persons' life(style), creating reticence to change (I, II, III and IV). Even if these behaviours are antagonistically to create a healthy and sustainable relationship with Nature and humanity.

Social norms have a double-edged complex role on environmental friendly behaviours (I, II, III and IV). Interviewees I and II clearly specify the relevance of this characteristic for environmental behaviours: the surroundings and group belonging of the person determine his identity together with the values

that shape his perception and ethics. Thus if the surrounding norms are promoting large environmental impact behaviours, the person not only will embrace them but think that his actions are appropriate as well. On the other hand, if the normative framework is in an environmental friendly approach the person will easily engage in sustainability and green life. Notwithstanding, interviewee I has mentioned also the complexity of the matter, as people's identities are not so often straightforward and inner debates are constantly on play.

The last point mentioned about social norms is the connection with the perception that pro-environmental behaviours are sacrifices (I). For several reasons that are going to be described in the other themes, pro-environmental behaviours are conceived or involve some sacrifices. As mentioned, the dominant norm in society is rather an opposite dimension to sustainability, and together with other reasons, enhances the feeling that engaging in green behaviours the person has to sacrifice something valuable for them. However, if everyone would behave sustainably (social norm), environmental friendly behaviours would not be conceived as a sacrifice or hustle (I).

### Structural restraints

The theme of structural restraints contains three main topics: *pro-environmental behaviours as sacrifices*, *structural barriers* and *capitalism (values)*. The first one has been already introduced in social norms: today to engage into pro-environmental behaviours implies incorporating additional hustle in people's stressed and full-minded lives (I, II, III and IV). It may be for example, that in order to behave environmentally friendly you take the bicycle or the public transport instead of the car or motorcycle. However this green option might be less convenient (e.g. takes more time). People are specially sensitive to the feeling of being efficacious, therefore if the green behaviour conveys more hustle they would not feel realized neither efficacious (I). This comes due to the current framework of appropriateness, but when the social norms ruling in the group or society are based on environmental friendly values then instead of sacrifices it would be considered the appropriate thing to do (I).

The majority of the interviewees mentioned their concerns about the current capitalistic society and the structural barriers that it creates (II, III, IV and V). Both phenomena are causes of the perception of pro-environmental behaviours as sacrifices -together with social norms- as well. II, III, IV and V indicate that the capitalistic values based on excessiveness and consumerism, prioritize material growth, competitiveness and hedonism above sustainability and fairness (hierarchy of priorities). This is contradictory to what interviewees III and IV identified as sustainable living: less use of car and planes, efficacious investments, environmental activism, processing critically information, moderation, recycling and reusing, establishing community and sharing networks, openness and awareness (III, IV and V). This data pattern stresses the incompatibility of sustainability and the liberal market system and values: living within the boundaries of the Earth versus borderless growth (I, II, III, IV and V).

Capitalistic values, as other values, determine the capitalistic worldview of the person -perceptions and normative framework-, which are the base of behaviour. Interviewees I and III do an especial reference to the political behaviour. Political behaviour is decisive for CC as the diverse political orientations and parties have different interests regarding CC (I and III). Therefore, the engagement into individualistic, hedonistic and consumeristic values of capitalism have alerted the interviewees of the central point that capitalistic worldviews and values have in the matter (I, II, III, IV and V). Pro-environmental behaviours can also be inhibited by capitalistic worldviews through the discredence towards governments (I, II and IV). Due to the lack of importance on CC and the sustainability matter that capitalistic values give to, together with the inadequate policies, people show reluctance to engage (I, II and IV). Thus a society based on capitalistic values faces great deal of challenges when embracing a more sustainable lifestyle.

Furthermore, the structure of society reproduces the influences of the dominant normative framework as well; what the interviewees III and IV identify as structural barriers. Structural barriers are those structural-based obstacles that reduce the accessibility to engage in environmental behaviours. Interviewees III and IV specifically mentioned price, economy and media. They expressed their concerns over prices of biological and fair products for example, which get less subvention from the system (III, IV, II and Brokeman). Moreover, they stated that the system -or structure or liberal free-market- is subsidising and prioritizing the most polluting things. For example the tax-free fossil fuels for planes or the meat market. Diet and economy appear from the interviewees' view as an explanation of inhibited green behaviours, that could be associated to sociodemographic factors. For example, the fact that income can determine the capability to afford biological products, is from the interviewees' point of view a structural obstacle from the system (III, IV, II and V). They further mentioned the effect of media in the constitution of the dominant social norms and in the transmission of (capitalistic) values (III, IV, II and Brokeman).

### Psychological restrains

The main themes in psychological terms that seemed relevant from the qualitative analysis are: *environmental motivations, intention-behaviour gap theory, and psychological barriers.*

The first one exposes the complexity of the psychological arena. Motivations appear to be related to the social norms and the values of the person (I and IV). Thus, motivations are driven by personal norms, what the person considers to be appropriate, ethic and fair (I and II). The engagement into environmental behaviours is facilitated by a motivation based on environmental friendly values (I, II and IV). However, a strong motivation is required in order to overcome the diverse obstacles mentioned previously (I and II). Especially when the dominant trend are capitalistic structures, values and behaviours which discount the value of embracing pro-environmental actions. Particularly, motivational strength is required in order to change habits (I, III and IV), e.g. the habit of eating meat (III and IV). Habits are habituated behaviours, which are rather permanent actions in our life, which consequently are difficult to modify (I). Besides, II states that 95% of these behaviours and habits are driven by the subconsciousness, leaving 5% to motivations and other psychological factors. Thus, motivations have to be strong enough to change habits in a margin of 5% of consciousness of the behaviour (I and II).

In general, people experience the desire to improve their lifestyles and (environmental) actions, however the intention of this motivation may not be translated into action. This phenomena is what interviewees II and I identified as intention-behaviour gap theory. Intention-behaviour gap explains the circumstances in which the person has the intention but does not engage in green behaviours (I and II). People may even self-identify with pro-environmental values and care for Nature, but the translation to behaviour gets inhibited (I). Thus, this is a clear psychological restrain when embracing new habits or behaviours. Besides II states that each behaviour and circumstances are diverse, making the momentum to introduce the behavioural change crucial (II and V). According to the issue may not only be the lack of willingness but the 95% of subconsciousness stimulated by influences and inputs that lead to 'unintended' behaviours (II). Hence the importance of the values and influences generated by the system and which behaviours are reinforced (III, IV and V).

The last theme of psychological restrains is the several psychological barriers from Gifford's list specified by the interviewees as essential inhibitors of pro-environmental behaviours (I, II, III, IV and V). *Capitalistic worldviews, Environmental numbness, Conflicting values, goals and aspirations and tokenism* were the barriers frequently mentioned. Capitalistic worldviews and conflicting values, goals and aspirations as being describe in the previous subsections. I and II introduce the Construal Level Theory, which refers to the abstract and distant features of phenomena as CC, which tend to be

neglected by people due to the lack of presence in their daily life -Gifford's environmental numbness- (I, II, IV and V). The lack of presence and comprehension of the phenomena provides fewer probabilities to change. Moreover, the tendency of people to feel self-realized in their CC mitigation role with small pro-environmental actions -tokenism- is stated (I, II, IV and V). They mention the lack of comprehension of the phenomena when conceiving recycling as enough to mitigate CC for example (IV and V). Furthermore, V examines this lack of commitment in supermarkets, which seem to improve the variety of biological products but in an intermittent manner based on profit motives. Thus, tokenism appears as superficial or less efficient actions embraced by citizens and other social structures -as the supermarket-, that inhibit meaningful changes to be made.

Furthermore, discredence and self-efficacy were also relevant in the interviewees' narratives (I, II, III and IV). Previously expressed by the interviewees is the system's work to delegitimize the voice of the scientific community regarding CC warnings, which forms discredence as a capitalistic worldview issue. Regarding the psychological issue of discredence, interviewee II expresses that behavioural changes are highly difficult to be engaged without sharp certainty about it. If the person goes through all the hustle of psychological, social and structural obstacles doubtless hir needs a firm trust and certainty about the motives, consequences and risks of hirs new actions. Furthermore, self-efficacy was another highlighted barrier, however not all interviewees agree on the same terms. I considered the feeling of being efficacious with the personal and material 'resources' vital to the perception of pro-environmental behaviours. Efficacy could explain the reluctance to engage these behaviours, as any efficacious person would resist to make sacrifices due to a low-priority matter as CC (I and II).

Conclusively, the qualitative data shows the relevance of values and social norms, as well as the importance of the system, surroundings and the psychology of behaviours. There is a specific mention of policy-makers. Interviewees I and II highlight the inadequacy of policy-makers perspective in the matter. For policy-makers to be able to induce behavioural change money would be an easy and efficient method. However there is scientific evidence that money is not the larger explanatory factor (I and II). Interviewees III, IV and V agree that the behavioural change came primarily from their own normativity -IV mentions hir 'sense of duty'- and motivations. They state the obstacles that the system imposes, specially to people with less facilitator factors, e.g. surroundings, goal frames, etc. (III, IV and V).

#### 5.4. Discussion of the results

In order to report holistically the data of this mixed methodology research, was merged and together with the literature, explanatory patterns are described in this subsection. This subsection's intention was to explain the results from both methodologies and the patterns between them. This provided validation and triangulation of the data as well as clarity and comparison of the diverse sources (Creswell, 2006). Therefore, several patterns were explored and examined.

The first explanatory data pattern I wanted to explore was the **psychological disincentive system**, related to environmental values and other psychological factors. Environmental values had a significant role in the qualitative results, they are determinant for *motivations*, *the conception of pro-environmental behaviours as sacrifices* and *social norms*. Evidently the association between social norms and environmental values are relevant as norms are based on values. However the insistence either from the interviewees and the literature about the double-edged role of norms and values was definitely a solid result to take into account. If the environmental values are dominant in the normative framework of the person, this person is more likely to behave environmentally friendly. Likewise, if these values are the ruling the societal normative framework, structural barriers and social obstacles would smoothen and the social tendency would be to be environmentally friendly. The social norms

and values were also associated with the *surroundings and the social network* of the person. Qualitatively speaking social networks operate as social norms -double-edged influence-. However quantitatively speaking the awareness of the surrounding's influence on the person is a facilitator factor when engaging in *low environmental impact diets*. Although the strength and significance of this correlation was not exceptional ( $R=-.203, p=.041$ ) I find it worth it to mention.

Furthermore, in both sets of data *ideologies* play an essential role. Ideologies were fairly present in the qualitative data, particularly the indicator of *capitalistic worldviews*. This one seemed to have a central association with social norms and environmental values. The set of capitalistic values appeared antagonistic to environmental values, an aspect that had already been conceptualized by the theory. The relationship between the normative goal-frame from Lindenberg and Steg date and pro-environmental values and behaviours seemed to be validated by the qualitative data. On the other hand, hedonistic and egoistic goal frames were associated with capitalistic values, which indicate into respect-, sense- and careless behaviours towards Nature. Moreover, these capitalistic values were the main core of the current societal dominant normative framework -societal norms- that guide the perceptions of appropriateness and normality. Through this framework of 'appropriateness' people found their behaviours, as a result large environmental impact behaviours, converge in the general societal tendency. Quantitative data validated the influence and significance of this indicator on pro-environmental behaviours (72,7% of significant correlations with green behaviours). The factor ideologies showed a 87.5% of the correlations with an excellent significance and with the 50% of moderate and 50% of weak relevance, befalling the most relevant indicator associated to pro-environmental behaviours from the study. Capitalistic worldviews represented category 3 of this indicator and correlated negatively and interestingly significance with 5 of the 8<sup>20</sup> correlations (62.5%). Thus, capitalistic worldviews could be considered empirically the most relevant psychological barrier of this study, which retains sustainable and pro-environmental behaviour.

Lastly regarding the environmental values, these appear to have interaction with motivations and perception as well. Qualitative data demonstrate, along with the theoretical framework, the correlation of values with motivations: as values are the core of the intentions, thus from *motivations*. Together with social norms, values have a double-edged impact to motivations and consequently to behaviours, they can operate as facilitators or inhibitors of environmental friendly actions. However, qualitative data clearly stated the constraining role of societal norms and capitalistic worldviews in environmental sense- and careful motivations. One of the deterrent factors determined by the interviewees was the perception that pro-environmental behaviours demand sacrifices from the comforts of our lifestyle, '*what is psychologically not a very nice thing to do of course*' (IV: 3). Structurally and socially the prioritization of rather more hedonistic or egoistic values are enhanced, establishing a loss perception when embracing pro-environmental behaviours. Another deterrent factor when embracing a new behaviour was the *perception of risks*. Together with other psychological factors as motivations and the sacrificing feeling, risk perception had a strong inhibition power the environmental friendly behaviours. Even though this quantitative result was only significant and relevant regarding the recycling behaviour<sup>21</sup>, qualitatively it was clearly stated. The perception of lack

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<sup>20</sup> Capitalistic worldviews relevant correlations are with reduction of flying, reduction of car use, responsible water and energy usage, activism and green consumption, in all with a negative R and mostly with an excellent significance.

<sup>21</sup> Quantitative results showed that the correlation between recycling and reluctance to change was significant ( $R=1.233, p=.019$ ). The category from reluctance to change that presented a larger significant correlation with recycling was perceived risks ( $\beta=-3.669, p=.012$ ), thus '*I don't know if it would work out, if I could afford the costs or if my life/person would be in danger*'.

of financial security, physical security and future uncertainty take part in this complex psychological disincentive system.

Additionally, qualitatively the *Construal Level Theory* and the *Intention-Behaviour Gap Theory* appear to be relevant psychological disincentives. The Construal Level Theory was corresponding with the *environmental numbness* described by Gifford (2011), where due to the abstract feature of the CC the person feels unattached and not responsible for the phenomena (Brügger et al., 2015). This conceptual distance that the person experiences decreases the likelihood of behavioural change. Quantitative data provided meaningful results as well: environmental numbness appeared as the second more relevant and significant inhibitor in the study. Environmental numbness was comprehended in the *Acceptance responsibility of CC* as the 4th category and from the 7 significant correlations (63.3% from the total of green behaviours<sup>22</sup>) environmental numbness had 57.1% of excellent significant correlations (4/7) and 28.6% had a moderate relevance (2/7). Therefore, environmental numbness was, in this study, empirically considered a disincentive factor or barrier to behave sustainable in order to mitigate CC. Moreover, the Intention-Behaviour Gap Theory appears to be engaging to deeper comprehension of people's actionless intentions (Antimova et al., 2018). The influences and input that our mind processes are countless and thus, only the 5% of our behaviour is determined voluntarily (Interviewee II). With such a short action frame to work with, behavioural change appears as an impossible journey. However, qualitative data had made the importance of a strong motivation that allows the change, together with several factors which were facilitators in the appearance of this change explicitly relevant.

Moreover, the belief in *CC existence*, *perceived self-inequity* and *perceived behavioural control/self-efficacy* appeared relevant. Either were factors of Gifford's list of psychological barriers and quantitatively 'the belief in CC'<sup>23</sup> was a facilitating psychological factor for behavioural change towards a sustainable one. Qualitative data demonstrate however that self-perceived inequity and perceived behavioural control/self-efficacy had an important role in the psyche of people. Perceived self-inequity's importance was associated to social norms and networks, as the perception of inequity is contextual and its function is to lead the person to perform according to the contextualized 'normality'. Self-efficacy was also related to perceived self-inequity, however this factor operated rather with greater extend in the personal norms, as it operated within the frame of appropriateness and efficaciousness of the person. Self-efficacy relates qualitatively to capitalistic worldviews - capitalistic values- and structural barriers' consequences, as they establish a hierarchy of societal priorities. Providing 'sacrificing feelings' and additional difficulties regarding pro-environmental behaviours, as result the person feels non-efficacious when embracing environmental friendly behaviours.

The other explanatory data pattern protagonist in the data were the **structural barriers**. The association between these barriers and capitalistic values had been explicitly mentioned by the interviewees. However, regarding the quantitative data those significant factors determining pro-environmental behaviours were: *income*, *place*, *political orientation*, *employment*, *educational level achieved* and the *composition of the household*. The indicators that conceptually related primarily with structural barriers were income, place, employment, educational level achieved and political orientation. Income would be the factor with a stronger relation with the structure, as money is the base of capitalism. Income thus determines the purchasing power of the person, vital for his daily

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<sup>22</sup> Acceptance responsibility of CC correlated significantly with diet, reduction of food waste, reduction of flights, reduction of use of cars, recycle, responsible usage of water and energy and activism.

<sup>23</sup> However, this result was not relevant as 95% of the respondents answered so and the literature framework as well, mentions that in European countries such barrier is almost inexistent.

basis' goods and services. The theoretical hypothesis regarding the income factor was that *higher incomes have the tendency to relate less with sustainable lifestyles*. However, quantitative data had demonstrated that in several behaviours -e.g. responsible usage of water and energy, recycling and the reduction of flights- high incomes were more likely to engage into pro-environmental behaviours. I assume it is due to other sociodemographic influences as the education level achieved, occupational status -*employment*- or the political orientation. Although this is an assumption that cannot be confirmed empirically in this study. Despite, it can be empirically confirmed that higher incomes<sup>24</sup> had less tendency to reduce the use of cars and to buy/use energy efficient cars. One plausible explanation given by the qualitative data would be that the use of cars and the capability to afford an energy efficient one: they require from higher purchasing power. Which would be in the line of the hypothesis regarding employment, in which I expected students, unemployed and volunteers had less purchasing power (qualitative affirmation). Therefore, the people with less purchasing power may not be able to purchase energy efficient vehicles.

Furthermore, the remaining structural factors played an interconnected and interdependent role with income and the structure. Qualitatively and theoretically speaking employment, educational level achieved and political orientation were covariances of income, as e.g. a higher educational level increases the chances of a higher occupational status, providing a higher income. My hypothesis in this regard was that the higher the educational level and the left-green political association the larger the likelihood to engage in a sustainable living. Indeed, there is quantitative argumentation to support these hypothesis: green-left political orientations and higher education level correlated significantly and mostly with moderate relevance with several pro-environmental behaviours<sup>25</sup>. I would like to highlight that political orientation's significant correlations were with activism, biologic consumption and green energies, as they are the most visualized sustainable behaviours happening in society. Political orientation's relevance relies on the change-power of the system, thus political participation and the orientation of the Government occur to be essential to overcome the structural barriers and facilitate sustainable living for their citizens.

Finally, the most important sociodemographic factor in this research was *age* with a 72.2% of presence in the significant correlations. It had been mentioned in the literature framework that age is a factor which may be determined directly to other sociodemographic factors as e.g. income, but it may have no direct influence with the pro-environmental behaviours. However, quantitative data showed that age was indeed a determinant factor for these behaviours. The general tendency that age demonstrated was that the higher the age of the person the more likely to get involved in pro-environmental behaviours<sup>26</sup>. Notwithstanding these results could not be validated through triangulation because the literature framework and qualitative results did not have enough explanatory power to interpreted them.

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<sup>24</sup> Precisely all incomes except category 1 (<12.000€/year).

<sup>25</sup> Education correlated significantly with 36.4%, however only 25% of the correlations had moderated relevance and 75% of them were excellent significant. On the other hand, political orientation correlated with 27.3% behaviours with a 100% excellent significance and moderate relevance.

<sup>26</sup> 62.5% of the significant correlations presented excellent significance, yet only the 25% had a moderated relevance. Moreover the only negative correlation was with buy/use of energy efficient cars, and this could relate to the issue previously mentioned that the higher categories of this sustainable behaviour are *don't have a car* and *I share a car*. The assumption to explain this result is that younger people tend to have less purchasing power, thus less chances to engage in this behaviour or even to own a car.

## 6. Conclusions

In order to conclude this research, in this subsection a resumé is presented with the main statements resulted, several critical notes and recommendations for further research on the phenomenon.

The main research question was ‘How accessible and attractive is a sustainable lifestyle for Dutch citizens in order to mitigate Climate Change?’. In the following paragraphs a rather clear picture of the deterrent and facilitator factors to mitigate CC through a sustainable lifestyle in the Netherlands are described. In order to do so I have answered the research subquestions, building an argumentative description of several results that have been reported as significant inhibitors and some facilitators regarding the attractiveness and accessibility of sustainable living. The following figure is a visual representation of the outcomes of the research.

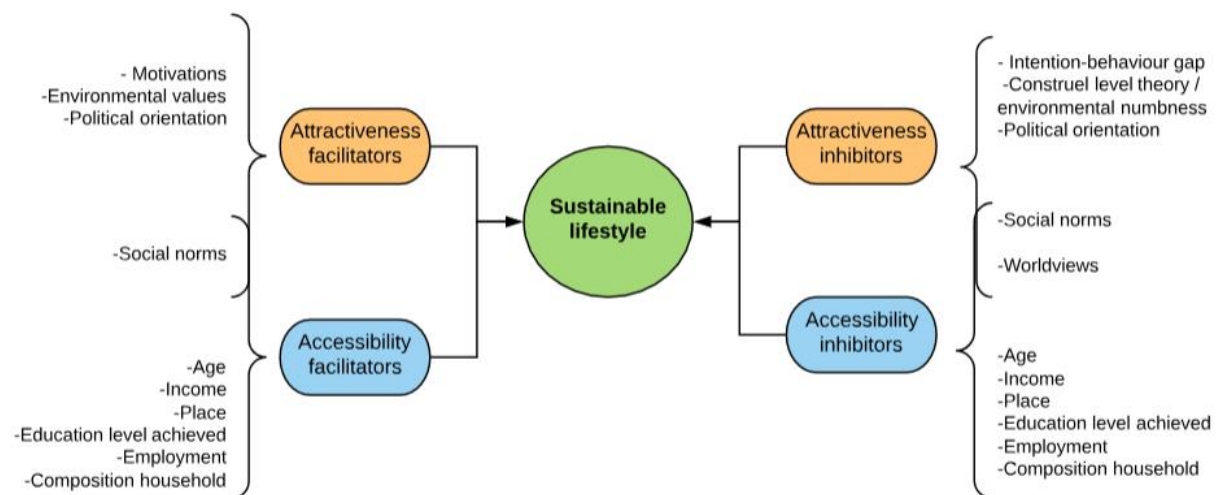


Figure 4. Representations of the conclusions and outcomes of the research (Source: author).

The research began with three essential themes: sustainable living, attractiveness and accessibility to mitigate CC, with pro-environmental behaviours, psychological factors and sociodemographic ones as their indicators respectively. The main investigation and empirical focus were the two hypothetical explanatory factors (attractiveness and accessibility) of inaction towards CC and sustainability. As a consequence of the mixed model of ordinal regression and phenomenological research, several results regarding the relevance and influence of the psychological and sociodemographic factors were reported. New patterns and factors emerged and the explanatory factors were modified slightly. Regarding attractiveness, psychological disincentive factors were the dominant relevant results: *Intention-Behaviour Gap*, *Construal Level Theory*, *capitalistic worldviews* and *social norms*. On the other hand, accessibility's significant factors became *structural restrains*, as the sociodemographic factors appeared to be symptoms of a deterrent structure. Moreover, *social norms* and *capitalistic worldviews* also formed part of accessibility's relevant results.

Regarding the attractiveness to engage in sustainable living, diverse factors were reported to play an inhibitor or facilitator role. One of the most relevant findings was that a strong motivation can overcome the psychological, social and structural inhibitors of pro-environmental behaviours. Thus, if the person has an intrinsic motivation based on living harmoniously with Nature as first concern, hir may embrace a sustainable lifestyle. Motivations are determined by intentions and the core of these last ones are the values of the person. The values and ideology of the person are a relevant result of this study, as they work either as facilitators or inhibitors. Environmental values appeared to be essential for the establishment of a pro-environmental ideology. When environmental or biospheric values are the dominant ones in the framework or goal frame of the person, the likelihood to be

motivated and engage into pro-environmental behaviours is higher. However, the framework varies, as not only normative framework -appropriateness- have influence on the person's decisions, but also hedonistic -pleasure- and egoistic -gain- frameworks coexist. These last two are generally associated with capitalistic values, which may generate non-sustainable behaviours when dominant. The dominance of capitalistic values had especial relevance, as it determines the political orientation of the person and the perceived attractiveness of the person to politically support non-sustainable policies as well.

Even if the dominant framework is the normative one, there are other psychological inhibitors at play. The Intention-Behaviour Gap Theory explains the absence of behaviour even if the person has intentions driven by environmental values. Therefore intentionality may not be enough for the behavioural change, as the motivation has to be stronger than other psychological and structural inhibiting influences. Lindenberg and Steg stated that: the influence of uncertainty makes the person's hedonistic or egoistic frameworks could overrule the first intentions if the person does not know how to behave 'appropriately' environmentally friendly; with might result in not so sustainable behaviours (Lindenberg & Steg, 2007). Moreover, another relevant psychological disincentive is the abstractness and absence of CC effects in Western lives, named environmental numbness or Construal Level Theory. The perception of CC as a distant threat establishes a rather large psychological obstacle, as the person does not feel the emergency to act in respect to it. Thus, the person may feel that there is not an actual need neither emergency to engage into a more sustainable lifestyle to mitigate CC. Environmental numbness is aggravated if the person perceives uncertainty and discredence regarding the issue itself. Discredence and misunderstanding of the phenomenon interact as disincentive of pro-environmental behaviours also. Since a strong motivation is difficultly founded on uncertain and mistrusting feelings regarding the goal to accomplish. Especially because it would make the person feel non-efficacious, which is the last relevant psychological inhibitor reported in the study: self-efficacy. The need to feel that the effects of our actions are meaningful, efficient and with satisfactory results has a relevant influence to the motivations of the person to behave in a certain manner. Thus pro-environmental intentions and motivations face a complex mixture of disincentive psychological factors, that may lead to the inhibition of the pro-environmental behaviours.

Moreover, the attractiveness of pro-environmental behaviours was not only influenced by the personal frameworks, but also by social ones. The social norms of the social networks and group belonging appeared to be a significant factor, regarding sustainable lifestyle standards. However, this factor has a double-edged impact: depending on the sort of group values, different sort of behaviours will be promoted by the group. Therefore, if e.g. in IEWAN<sup>27</sup> the group norm is to recycle -behaviour based on biospheric values- the members of the group will tend to recycle according to the group norm. However it has been stated in the outcomes of this study that the consequences of social norms based on non-biospheric values promote the engagement of large environmental impact behaviours. Thus the current Western societal norm is leading people to understand 'appropriateness' and normality within the capitalistic ideology or framework. The consequences, as it is the societal norm, is a general tendency of Western population to embrace as normal behaviours non-sustainable ones. This is the main core of the CC mitigation problem, since those values have been rooted in the culture and sense of normality of the population.

These non-sustainable behaviours are founded on hedonistic and egoistic values -capitalistic ideology-, which induce a lens of unattractiveness towards sustainability, which in the study was named *capitalistic worldviews*. This unattractiveness is founded on the perceived sacrifices on comforts and

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<sup>27</sup> IEWAN is a ecological community in Nijmegen, The Netherlands.

properties of people that sustainability requires. Psychologically speaking it is not interesting to engage in such behaviours if the feeling of loss is involved. However, if the values and the dominant capitalistic worldview were more environmental friendly, the social norms would engage people to live within Nature's and Earth's boundaries. Thus it is concluded that it is a matter of prioritization. Socially and culturally it is prioritized several behaviours and ideas, which are in the end the ones more attractive and accessible to engage in. In the sense of attractiveness, these behaviours tend to be more appealing to people as they are the ones socially determined as 'appropriate' and do not suppose sacrifices or any of the psychological disincentives mentioned previously. On the other hand, the accessibility of these behaviours is also determined by social norms, but also by the structure.

The structure was understood in this research as the creator of accessibility obstacles to live within the sustainable boundaries, result of the prioritized values and behaviours by the societal norms. The structure or system is a reflection of the values and ideology of the dominant societal norms. Since the structure's influence has the tendency to facilitate the accessibility of those behaviours associated with the dominant social norm. This was a relevant outcome of the study, as it gave explanatory power to the interconnection between capitalistic worldviews, social norms and sociodemographic factors. In the beginning of the research the sociodemographic factors were conceptualized as possible barriers, although in the analysis they took the shape of symptoms of the structure, the structural obstacles. Thus the conceptualization of these factors changed during the development of the research, deepening the comprehension of their role. Moreover, the relevant sociodemographic outcomes reported a double-edged power, since the influence was not unidirectional. Similar than with social norms and values, they play the role of facilitators or inhibitors of different pro-environmental behaviours. The most relevant sociodemographic factors of this study were: *age, income, place, employment, educational level achieved and composition of the household*. Age and income had a particular role: age was theoretically speaking determinant for other sociodemographic factors, as every life stage has a different tendency and characteristics.

I would like to highlight particularly income as a thought-provoking factor of accessibility and political orientation for attractiveness. This factor had an essential role because the accessibility to certain services and resources of the system are based on the purchasing power determined by the income. Theoretically higher incomes offer the possibility for people to engage in those behaviours that require a higher purchasing power and investments, e.g. buy an energy efficient vehicle. Although higher incomes presented in this study a higher tendency of involvement with easier and lower impact on GHG emissions -e.g. recycling, responsible usage of water and energy and reduction of cars usage-, few assumptions are made regarding this discrepancy -as tokenism or other factor's influences-, but none can be proved empirically in this study. Therefore, in further studies the covariance between indicators could be taken into consideration, as in this study just the correlations were analysed, reducing the explanatory power of the data. On the other hand, political orientation is a focal point for structural change, as it reflects the orientation and values that rule in the government and policies, thus the structure. Therefore a more green and left orientated governance will produce policies in the same direction, with a concluding structure that facilitates the pro-environmental behaviours and a sustainable living. It is a game-changer. I would like to conclude this research with stimulating controversy about the ignorance regarding the impact of our actions and the power that we have as citizens in this game. As it has clearly been mentioned that the change required goes further than recycling.

I conclude that the attractiveness and accessibility to mitigate CC through sustainable living is an ambiguous phenomenon, as it highly depends on the person. However, the attractiveness to this lifestyle is definitely promoted by a strong motivation, environmental values and a green-left political

orientation. On the other hand, it is inhibited by several psychological barriers as Intention-Behaviour Gap, environmental numbness and not green-left political orientations. Regarding the accessibility to sustainable living the current structure and dominant worldview, capitalism, has a significant inhibitor role. Capitalism is portrayed as an antagonism to sustainability. The sociodemographic factors are revealed to be symptoms of this system, with a double-edged power primarily dependent on the context. Finally social norms are also a remarkable outcome of the study with a double-edged power in the embracement of environmentally friendly lifestyles. For the conclusion of this study, the reminder that:

*'you have to do it step by step, you have to inform yourself, get help [...] and show how you can live, how people do live already in their own way. Makes it easier [...] to get a good point of view. And I think you only can get it when you visit and talk to people, you have to share' (V: 1);*

since behavioural change and the engagement in a more sustainable lifestyle are slow processes (III, IV, V),.

### 6.1. Critical reflection and recommendations

I would like to dedicate the following paragraphs to review my research. There have been several challenges, especially regarding the adequacy of the quantitative data analysis. Although I consider ordinal regression the most adequate methodology to analyse the various data, I would like to make some inferences. First of all, in a larger research the methodology would have been used in a complete and holistic manner: a model would have been designed and analysed, including the covariances, multicollinearity relations and the proportional odds. Doing so, a more full and complete data analysis would have been originated, more likely increasing the explanatory power of the data. For example, it would most probably contribute to a more adequate explanation for the *age* outcomes. Secondly, if the researchers would execute a full statistical model I would recommend to use SEM, as the number of indicators to be analysed was rather large and SEM would provide the estimates per factors, easing the bundle. However, due to that the statistical interest was focussed on the correlations between indicators, I still consider that ordinal logistic regression was the most appropriate for the study, even though two assumptions were violated<sup>28</sup>.

Moreover I recognize that the generalization power would be larger if the study was larger as well, providing more accurate and complete information about the phenomena. Thus one of the limitations of the outcomes of the research was the generalization power. Especially because the (quantitative) data has not been completely explained, which may generate difficulties in the comprehension of the results. It might be as well, that for the size of this study the bundle of indicators that I wanted to analyse was too broad, lightening the deepness of the investigation. However, I consider the results and conclusions valid for the application on the general population. I considered to have answered my research questions, yet again I would remark that the deepness could be improved. Finally, I would like to state that the questionnaire could be improved, as I would like to have collected more data. However, due to the back-and-forth rhythm of research, during the collection of data I realized an improvement for the questionnaire that could not be included. So I would include in the questionnaire more developed questions regarding each of the indicators, which would provide the deepness and explanatory power that I consider to be improved in this research. Particularly with the psychological factors. The generation of a question per each of the factors would have been more appropriate, gaining possible significant quantitative information.

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<sup>28</sup> The assumptions of multicollinearity and proportional odds, see subsection 4.4.1.

Furthermore, I would like to encourage other researchers to go further in the investigation of the challenges that the Dutch society faces when turning sustainable. Scientific evidence is needed for the comprehension of the phenomena and the further improvement of current policies and lifestyles. For an small-scale project as this one, I would recommend to diminish the amount of factors and focus on the deepness of the data. Finally I would like to suggest that a motivational but thoughtful approach should be taken in the matter, since it is an urgent and complex phenomenon that we -humans- need to deal with.

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# Appendixes

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## Appendix 1: Questionnaire

### Empirical research on the accessibility to mitigate Climate Change through sustainable living

Welcome and thank you very much for participating! :)

In this questionnaire you will answer questions regarding your opinion on climate change as well as your lifestyle. First you will find questions about you and your lifestyle, afterwards your opinion on climate change. Please answer freely, there is no wrong answers, all are good for my research!

Answering it will take you around 10 to 15 minutes. I would like to let you know that the questionnaire is anonym and the purpose of it is purely academic.

Your participation is vital for the understanding the results of the research, so my sincere thanks! If you have any questions, suggestions or you would like to follow the research outcome please contact me via:

[j.batllokooijmans@student.ru.nl](mailto:j.batllokooijmans@student.ru.nl)

**\*Obligatorio**

#### 1. What is your gender? \*

*Mark just one circle.*

- Female  
 Male  
 Others

#### 2. How old are you? \*

*Mark just one circle.*

- <18  
 18-25  
 25-35  
 35-45  
 45-55  
 55-65  
 65-75  
 >75

#### 3. What is your profession? \*

*Select all that correspond.*

- I am working  
 I am studying  
 I am unemployed  
 I am a volunteering  
 Others: \_\_\_\_\_

**4. Where do you live? \***

Mark just one circle.

- City
- Town
- Rural area

**5. Are you a Dutch national living in the Netherlands or a non-Dutch national that has been living in the Netherlands for at least 2 years? \***

Mark just one circle.

- Yes
- No

**6. What is your highest achieved education level? \***

Mark just one circle.

- Primary school
- High school
- MBO
- HAVO
- HBO
- >HBO

**7. What is your income per year? \***

Mark just one circle.

- <12000€/year 12000-
- 18000€/year 18000-
- 23000€/year 23000-
- 28000€/year 28000-
- 35000€/year 35000-
- 50000€/year
- >50000€/year

**8. How many adults live in your house? \***

Mark just one circle.

- 1
- 2
- 3
- 4
- 5
- >5

**9. How many kids live in your house? \***

Mark just one circle.

- 0
- 1
- 2
- 3
- >3

**10. Which political party do usually you vote for?**

\*

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**11. Concerning your lifestyle, do you buy organic, eco-friendly or sustainable products? (Food, clothes, etc) \***

Mark just one circle.

- No, I don't
- Sporadically
- Sometimes
- As often as I can
- Yes I do, but only groceries

**12. Do you recycle? \***

Mark just one circle.

- No, I don't
- Yes I do
- Only plastic trash
- Sometimes

**13. Do you actively work on reducing your food waste? \***

Mark just one circle.

- Yes I do
- Usually
- Sometimes
- Sporadically
- No I don't

**14. Which is your diet? \***

Mark just one circle.

- Ordinary (incl. meat, products milk, etc)
- Vegetarian
- Vegan
- Others: \_\_\_\_\_

**15. Do you power your house through renewable energy? (solar, wind, etc) \***

Mark just one circle.

- Yes I do (I own or buy green energy)
- No I don't
- I don't know
- Others: \_\_\_\_\_

**16. Do you do use energy and water responsibly? (Examples of responsible usage are: saving water while cleaning the dishes, abstaining from long showers and turning off the lights when they are not needed) \***

Mark just one circle.

- Yes I do
- Usually
- Sometimes
- Sporadically
- No i don't

**17. If it is your choice, do you try to avoid non-essential flying? \***

Mark just one circle.

- Yes I do
- Usually
- Sometimes
- Sporadically
- No i don't

**18. Do you buy/use energy efficient vehicles? (car, van, etc) \***

Mark just one circle.

- Yes I do
- Usually
- Sometimes
- Sporadically
- No i don't
- I don't have a car
- I share a car

**19. Do you try to use cars as little possible? \***

Mark just one circle.

- Yes I do
- Usually
- Sometimes
- Sporadically
- No i don't
- I don't have a car

**20. Are you involved in climate actions or other forms of activism? \***

Mark just one circle.

- Yes I am
- Sometimes
- No I am not
- Others: \_\_\_\_\_

**What do you think about climate change?**

The following questions are focused on climate change, please feel welcome to answer with sincerity! :)

**21. Do you think that climate change exists? \***

Mark just one circle.

- No, I don't think it exists or that it will happen
- I don't know
- Yes, I think it exists
- I am not sure about it

**22. Scientists say that climate change will destabilize the climate, making it impossible or incredibly difficult for humankind and other species to survive. What do you think about that? \***

Mark just one circle.

- It is not going to be as bad as they say!
- It is possible, but it will happen in the far-off future
- I think it will happen, but they are exaggerating to scare us
- I think it will happen and it scares me that is going to happen soon
- I think it will happen, but I can't imagine the consequences for my life
- God is not going to forsake us like this!

**23. Almost 90% of the scientists agree that climate change is caused by human activities. What do you think about it? \***

Mark just one circle.

- I do not agree, because climate change doesn't exist or it is caused by nature itself
- I agree, but this is how our society works and I can't do anything about it
- I agree, but this is a free world and we can't control what other people do
- I agree, but technology is going to find a solution in a few years
- God made the world as it is
- I agree and I think it is terrible

**24. Do you think that your actions can help to mitigate (lessen the consequences of) climate change? \***

Mark just one circle.

- Yes I do
- Why should I change if the rest will not?
- I don't think that we can do anything about it
- There are much more important problems in the present to worry about

**25. I think that living sustainably or green is... \***

Select all that correspond.

- Too expensive
- Doesn't fit my habits
- A waste of time, because the rest of the society doesn't care
- Challenging

**26. Do you think that you could do more to live green? \***

Mark just one circle.

- Yes I could
- Yes, but I am already recycling and taking other small climate-friendly actions (like having a responsible usage of water or energy)
- Maybe
- I don't know if it would work out, if I could afford the costs or if my life/person would be in danger
- I think I'm doing my best already (diet, renewable energy, buying green products activism, etc.)
- No, I don't think so

**27. How much impact does your surroundings (family, friends, household, work, etc.) have in your green actions? (recycling, diet, etc.) \***

Mark just one circle.

- A lot
- Quite much
- Regular
- Minimal
- None

**28. Do you think that scientists and governments can help you live more green? \***

Mark just one circle.

- No, I don't think so I don't trust them
- I am not sure
- I don't think their programs are helpful
- I don't think I should change anything
- I think that would be a way to control us, not to help us
- Yes I think so

## Appendix 2: interview guides

### 1. Interview guide: M. van Huizen

Specialist in influencing behaviour; Co-owner SHIFT Behaviour change; Nudging

SHIFT, Nijmegen

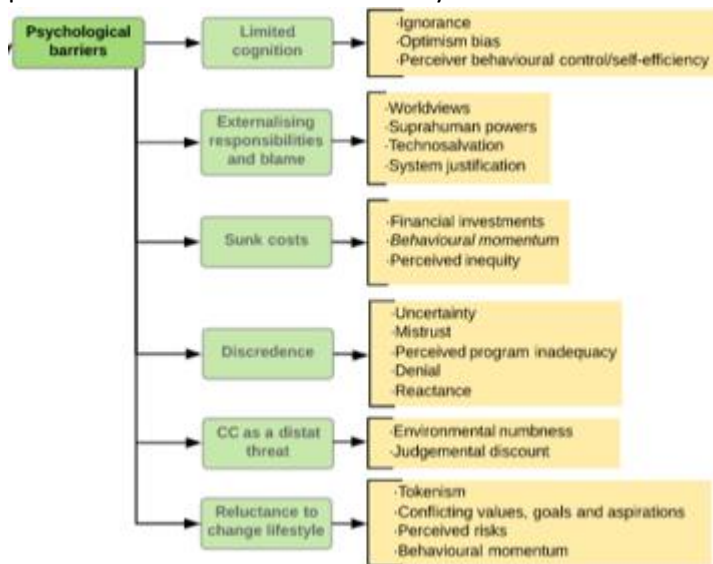
19 March 2018

Ms. van Huizen is one of the experts participating in the research *Empirical research on the accessibility and attractive to mitigate climate change through eco-sustainable lifestyle*. Due to her field of expertise and experience she is being interviewed about psychological and cultural barriers on Dutch citizens when adopting an eco-sustainable lifestyle.

This is semi-structured an interview with a duration of 45 minutes. The interview reminds open and flexible, thus to the appearance of other questions, the possibility to not willing to answer questions or to skip them. The interviewee has the right to choose the level of anonymity that wants to keep in the research and the further publication.

#### Guiding questions

1. What do you think is retaining people to behave more green or sustainable?
2. Several studies state that the majority of the citizens are aware and even concerned about climate change. If indeed, citizens are aware and concerned about climate change, why there is not a translation into personal engagement through behaviour?
3. From your professional experience, which are the aspects that retain the most the change to a pro-environmental behaviour?
4. To which extend would you agree with the following psychological barriers when adopting pro-environmental behaviours? Why?



5. Could you think in any cultural assumption in the Dutch society that works as barriers when behaving green? (For example: Living green is too expensive.) Which and why?

## 2. Interview guide: M.N. Zijlstra

Co-promoters in IEWAN. Self-employed entrepreneur for Bureau Viertel and Mare Redactie

20 March 2018

Mare Nynke is one of the citizens living an eco-sustainable lifestyle participating in the research *Empirical research on the accessibility and attractiveness to mitigate climate change through eco-sustainable lifestyle*. Due to her experience and knowledge she is being interviewed about psychological, socio-economic and cultural barriers on Dutch citizens when adopting an eco-sustainable lifestyle.

This is semi-structured an interview with a duration of about 45 minutes. The interview remains open and flexible to the appearance of other questions, the possibility to skip or add any questions. In order to make the transcript and following analysis of the data easier, the interview is going to be recorded. The interviewee has the right to choose the level of anonymity to keep in the research and the further publication. Also the interviewee can ask for a transcript copy and the final report of the research.

### Guiding questions

1. What means for you living sustainable?
2. Was the climate change one of your motivations to go green? Which other motivations you had?
3. Do you think you had something that was facilitating you to live sustainably?
4. Which were the major difficulties you faced when going sustainable? (psychological, socio-economic and cultural)
  - a. Which of this ones where the most challenging?
5. Several studies state that the majority of the citizens are aware and even concerned about climate change. If indeed, citizens are aware and concerned about climate change, why do you think there's no personal engagement and more people go green?
6. Could you think of any cultural assumption in the Dutch society that works as barriers when behaving green? (*For example: Living green is too expensive.*) Which and why?
7. Suggestions and further questions?

### 3. Interview guide: J. Juffermans

Co-starter of de Kleine Aarde; leader of Platform Duurzame en Solidaire Economie ; leader of Werkgroep Voetafdruk Nederlands; leader Transitie Boxtel

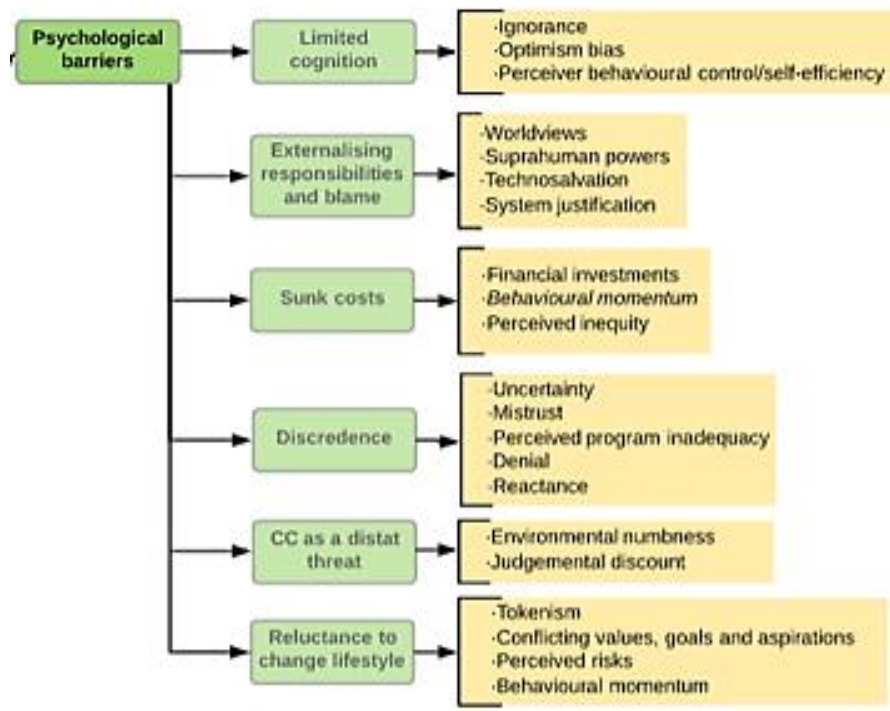
22 March 2018

Jan is one of the experts participating in the research *Empirical research on the accessibility and attractiveness to mitigate climate change through eco-sustainable lifestyle*. Due to his experience and knowledge he is being interviewed about psychological, socio-economic and cultural barriers on Dutch citizens when adopting an eco-sustainable lifestyle.

This is semi-structured an interview with a duration of about 45 minutes. The interview remains open and flexible to the appearance of other questions, the possibility to skip or add any questions. In order to make the transcript and following analysis of the data easier, the interview is going to be recorded. The interviewee has the right to choose the level of anonymity to keep in the research and the further publication. Also the interviewee can ask for a transcript copy and the final report of the research.

#### Guiding questions

1. What means for you living sustainable?
2. Do you think you had something that was facilitating you to live sustainably? Do you think those are share with the rest of Dutch citizens?
3. What do you think is enabling people to behave more green or sustainable?
4. Several studies state that the majority of the citizens are aware and even concerned about climate change. If indeed, citizens are aware and concerned about climate change, why there is not a translation into personal engagement through behaviour?
5. From your professional experience, which are the aspects that retain the most the change to a pro-environmental behaviour?
6. To which extent would you agree with the following psychological barriers when adopting pro-environmental behaviours? Why?



a) Do you miss the social comparison and social norms of society as factors?

7. Could you think of any cultural assumption in the Dutch society that works as barriers when behaving green? (For example: *Living green is too expensive.*) Which and why?

8. Any suggestion for further reading or authors/experts that you think would be crucial to engage with?

#### 4. Interview guide: D. Sloot

PhD Student on Environmental Psychology, Faculty of Behavioural and Social Sciences, University of Groningen.

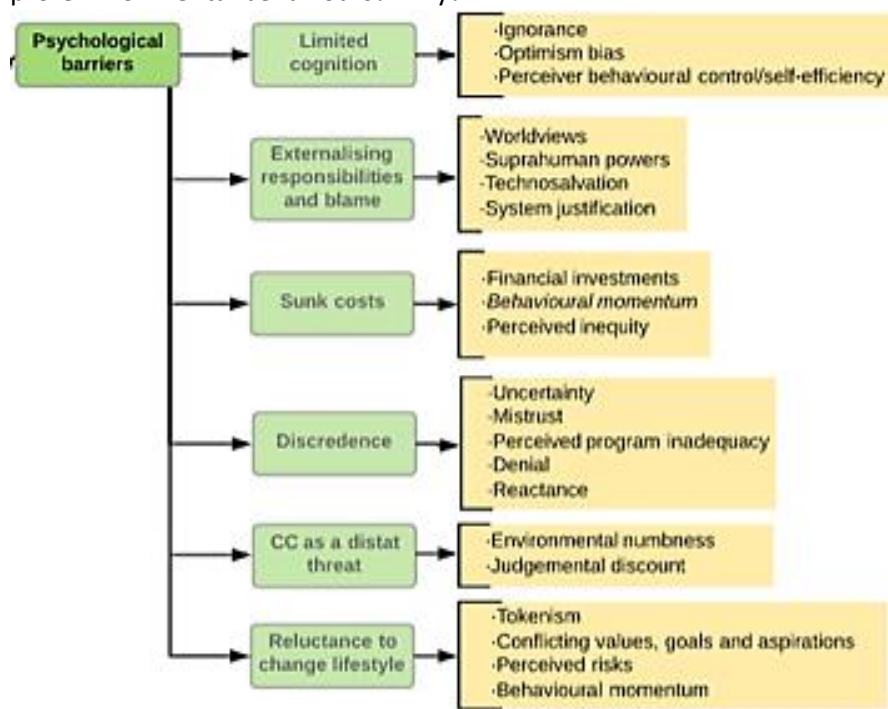
10<sup>th</sup> April 2018

Mr. Sloot is one of the experts participating in the research *Empirical research on the accessibility and attractive to mitigate climate change through eco-sustainable lifestyle*. Due to her field of expertise and experience she is being interviewed about psychological, socio-economic and cultural barriers on Dutch citizens when adopting an eco-sustainable lifestyle.

This is semi-structured an interview with a duration of about 45 minutes. The interview remains open and flexible to the appearance of other questions, the possibility to skip or add any questions. In order to make the transcript and following analysis of the data easier, the interview is going to be recorded -if interviewee agrees-. The interviewee has the right to choose the level of anonymity to keep in the research and the further publication. Also the interviewee can ask for a transcript copy and the final report of the research.

#### Guiding questions

7. Would you say that the Dutch society is a green one?
8. What do you think is enabling people to behave more green or sustainable?
9. Several studies state that the majority of the citizens are aware and even concerned about climate change. If indeed, citizens are aware and concerned about climate change, why there is not a translation into personal engagement through behaviour?
10. From your professional experience, which are the aspects that retain the most the change to a pro-environmental behaviour? (is intention-behaviour one of those?)
11. To which extent would you agree with the following psychological barriers when adopting pro-environmental behaviours? Why?



a) Do you miss the social comparison and social norms of society as factors?

7. Could you think of any cultural assumption in the Dutch society that works as barriers when behaving green? (*For example: Living green is too expensive.*) Which and why?

8. Any suggestion for further reading or authors/experts that you think would be crucial to engage with?

## 5. Interview guide: H. Broekema

Co-promoters of Eikpunt

17 April 2018

Heleen is one of the citizens living an eco-sustainable lifestyle participating in the research *Empirical research on the accessibility and attractiveness to mitigate climate change through eco-sustainable lifestyle*. Due to her experience and knowledge she is being interviewed about psychological, socio-economic and cultural barriers on Dutch citizens when adopting an eco-sustainable lifestyle.

This is semi-structured interview with a duration of about 45 minutes. The interview remains open and flexible to the appearance of other questions, the possibility to skip or add any questions. In order to make the transcript and following analysis of the data easier, the interview is going to be recorded. The interviewee has the right to choose the level of anonymity to keep in the research and the further publication. Also the interviewee can ask for a transcript copy and the final report of the research.

### Guiding questions

8. What means for you living sustainable?
9. Was the climate change one of your motivations to go green? Which other motivations you had?
10. Do you think you had something that was facilitating you to live sustainably?
11. Which were the major difficulties you faced when going sustainable? (psychological, socio-economic and cultural)
  - a. Which of this ones where the most challenging?
12. Several studies state that the majority of the citizens are aware and even concerned about climate change. If indeed, citizens are aware and concerned about climate change, why do you think there's no personal engagement and more people go green?
13. Could you think of any cultural assumption in the Dutch society that works as barriers when behaving green? (*For example: Living green is too expensive.*) Which and why?
6. Suggestions and further questions?

Appendix 3: Questionnaire operationalization

DEPENDENT VARIABLE	FACTORS	FACTORS	QUESTIONS	QUANTITATIVE MEASUREMENT	INDICATORS	
<b>PRO-ENVIRONMENTAL BEHAVIOURS</b>	Sustainable domestic consumption	Use of renewable energies	<i>About your lifestyle, do you buy biologic or sustainable?</i>	<ol style="list-style-type: none"> <li>1. No, I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Yes I do, but only food</li> <li>5. Always that I can</li> </ol>		
		Responsible usage of water and energy	<i>Do you recycle?</i>	<ol style="list-style-type: none"> <li>1. No, I don't</li> <li>2. Only plastic</li> <li>3. Sometimes</li> <li>4. Yes I do</li> </ol>		
		Biological consumption	<i>Do you try to do reduce your food waste?</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Usually</li> <li>5. Yes I do</li> </ol>		
	Waste behaviour	Reduced environmental impact diet		<i>Which is your diet?</i>	<ol style="list-style-type: none"> <li>1. Ordinary (meat, milk, etc)</li> <li>2. Others</li> <li>3. Vegetarian</li> <li>4. Vegan</li> </ol>	
		Recycling		<i>Do you power your house through renewable energy? (solar, wind, etc)</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. I don't know</li> <li>3. Others</li> <li>4. Yes I do (I own or buy green energy)</li> </ol>	
		Less food waste		<i>Do you do a responsible usage of energy and water? (Examples of responsible usage are: saving water cleaning the dishes, no long showers and turning out the lights when they are not need it)</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Usually</li> <li>5. Yes I do</li> </ol>	

PSYCHOLOGICAL FACTORS	Transport	Reduction non-essential flying	<i>Do you reduce non-essential flying?</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Usually</li> <li>5. Yes I do</li> </ol>	
		Buy/use energy efficient vehicles	<i>If you have a car, do you buy/use energy efficient vehicles?</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Usually</li> <li>5. Yes I do</li> <li>6. I don't have a car</li> <li>7. I share a car</li> </ol>	
		Less car usage	<i>Do you try to use the car as less possible?</i>	<ol style="list-style-type: none"> <li>1. No I don't</li> <li>2. Sporadically</li> <li>3. Sometimes</li> <li>4. Usually</li> <li>5. Yes I do</li> <li>6. I don't have a car</li> </ol>	
	Political behaviour	Activism	<i>Are you involved in climate actions or other forms of activism?</i>	<ol style="list-style-type: none"> <li>1. No I am not</li> <li>2. Others</li> <li>3. Sometimes</li> <li>4. Yes I am</li> </ol>	
	Ignorance	Belief in CC existence	<i>Do you think that climate change exists?</i>	<ol style="list-style-type: none"> <li>1. No I don't think it exists or will happen</li> <li>2. I don't know</li> <li>3. Yes, I think it exists</li> <li>4. I am not sure about it</li> </ol>	Denial Ignorance Awareness Uncertainty
		Abstractness of CC	<i>Scientists say that climate change will destabilize the climate, making it impossible or really hard for humankind and other species to survive. What do you think about it?</i>	<ol style="list-style-type: none"> <li>1. It is not going to be as bad as they say!</li> <li>2. It is possible, but it will happen in the far-off future</li> <li>3. I think it will happen, but they are exaggerating to scare us</li> </ol>	Optimist bias Judgemental discount Optimist bias

			4. I think it will happen and it scares me that is going to be soon	Awareness
			5. I think it will happen, but I can't imagine the consequences for my life	Ignorance
			6. God is not going to forsake us like this!	Suprahuman powers
Psychological barriers	Ideologies about human-made CC	<i>Almost 90% of the scientists agree that climate change is made by human's activity. What do you think about it?</i>	1. I do not agree, because climate change doesn't exist or it is caused by nature itself	Denial
			2. I agree, but this is how our society works and I can't do anything about it	System justification
			3. I agree, but this is a free world and we can't control what other people do	Worldviews
			4. I agree, but technology is going to find a solution in a few years	Technosalvation
			5. God made the world as it is	Suprahuman powers
			6. I agree and I think it is terrible	Awareness
			1. Yes I do	Awareness
			2. Why should I change if the rest will not?	Perceived inequity
			3. I don't think that we can do anything about it	Perceived behavioural control/self-efficacy
			4. There are much more important problems in	Environmental numbness

		the present to worry about	
Conflicting values, goals and aspirations	<i>I think that living sustainably or green is...</i>	<ol style="list-style-type: none"> <li>1. Too expensive</li> <li>2. Doesn't fit my habits</li> <li>3. A waste of time, because the rest of the society doesn't care</li> <li>4. Challenging</li> <li>5. Too expensive and doesn't fit my habits</li> <li>6. Doesn't fit my habits and challenging</li> <li>7. Too expensive and challenging</li> <li>8. A waste of time and challenging</li> <li>9. Too expensive, waste of time and challenging</li> </ol>	<p>Financial investments Behavioural momentum</p> <p>Perceived inequity</p> <p>Behavioural momentum Financial investments and behavioural momentum Behavioural momentum</p> <p>Financial investments and behavioural momentum Perceived inequity and behavioural momentum Financial investments, perceived inequity and behavioural momentum</p>
Social influence	<i>How much impact does your surroundings (family, friends, household, work, etc.) have in your green actions? (recycling, diet, etc.)</i>	<ol style="list-style-type: none"> <li>1. A lot</li> <li>2. Quite much</li> <li>3. Regular</li> <li>4. Minimal</li> <li>1. None</li> </ol>	
Discredence	<i>Do you think that scientists and governments can help you live green?</i>	<ol style="list-style-type: none"> <li>1. No, I don't think so I don't trust them</li> <li>2. I am not sure</li> <li>3. I don't think their programs are helpful</li> <li>4. I think that would be a way to control us, not to help us</li> <li>5. Yes I think so</li> </ol>	<p>Mistrust</p> <p>Uncertainty Perceived program inadequacy</p> <p>Reactance</p> <p>Aawareness</p>

SOCIODEMOGRAPHIC FACTORS		Political orientation	<i>Which party do you usually vote for?</i>	<ol style="list-style-type: none"> <li>1. Groenlinks</li> <li>2. D66</li> <li>3. PvdD</li> <li>4. SP</li> <li>5. VVD</li> <li>6. CDA</li> <li>7. PvdA</li> <li>8. General left</li> <li>9. No vote</li> <li>10. No answer</li> <li>11. No adult</li> <li>12. ABC</li> </ol>	
	Inadequate behaviour	Reluctance to change	<i>Do you think that you could do more to live green?</i>	<ol style="list-style-type: none"> <li>1. Yes I could</li> <li>2. Yes, but I am already recycling and taking other small climate-friendly actions (like having a responsible usage of water or energy)</li> <li>3. Maybe</li> <li>4. I don't know if it would work out, if I could afford the costs or if my life/person would be in danger</li> <li>5. I think I'm doing my best already (diet, renewable energy, buying green products activism, etc.)</li> <li>6. No I don't think so</li> </ol>	<p>Awareness Tokenism</p> <p>Conflicting values, goals and aspirations</p> <p>Perceived risks</p> <p>Conflicting values, goals and aspirations</p>
		Gender		<ol style="list-style-type: none"> <li>1. Female</li> <li>2. Male</li> <li>3. Others</li> </ol>	

Age		<ol style="list-style-type: none"> <li>1. &lt;18</li> <li>2. 18-25</li> <li>3. 25-35</li> <li>4. 35-45</li> <li>5. 45-55</li> <li>6. 55-65</li> <li>7. 65-75</li> <li>8. &gt;75</li> </ol>
Level of education achieved		<ol style="list-style-type: none"> <li>1. Primary school</li> <li>2. High school</li> <li>3. MBO</li> <li>4. HAVO</li> <li>5. HBO</li> <li>6. &gt;HBO</li> </ol>
Income		<ol style="list-style-type: none"> <li>1. &lt;12000€/year</li> <li>2. 12000-18000€/year</li> <li>3. 18000-23000€/year</li> <li>4. 23000-28000€/year</li> <li>5. 28000-35000€/year</li> <li>6. 35000-55000€/year</li> <li>7. &gt;55000€/year</li> </ol>
Composition household	Adults in the household	Numeric
	Children household	Numeric
Employment		<ol style="list-style-type: none"> <li>1. Working</li> <li>2. Studying</li> <li>3. Unemployed</li> <li>4. Volunteer</li> <li>5. Others</li> <li>6. Working and studying</li> <li>7. Studying and volunteering</li> <li>8. Working and volunteering</li> </ol>
Area density		<ol style="list-style-type: none"> <li>1. City</li> <li>2. Town</li> <li>3. Rural area</li> </ol>

Appendix 4: List of significant correlations

Sustainable living	Accessibility and attractiveness to sustainable living	Sustainable living	Accessibility and attractiveness to sustainable living	
<i>Diet</i>	Ideologies about human-made CC	<i>Green energy</i>	CC existence	
	Acceptance responsibility of CC		Ideologies about human-made CC	
	Surrounding		Age	
	Kids household		Place	
	Political		Political	
<i>Flying</i>	Ideologies about human-made CC	Less car	CC existence	
	Acceptance responsibility of CC		Ideologies about human-made CC	
	Age		Acceptance responsibility of CC	
	Education		Place	
	Income		Education	
<i>Food waste</i>	Acceptance responsibility of CC	Recycle	Income	
	Age		Ideologies about human-made CC	
<i>Buy green cars</i>	Age		Acceptance responsibility of CC	
	Place		Reluctance to change	
	Income		Age	
			Income	
<i>Usage water and energy</i>	Ideologies about human-made CC		Activism	Age
	Acceptance responsibility of CC			Education
	Age			Political
	Employment			Ideologies about human-made CC
	Income	Acceptance responsibility of CC		
<i>Buy green</i>	CC existence		Surrounding	
	Ideologies about human-made CC			
	Age			
	Education			
	Political			

Sustainable living	A&A to sustainable living	Correlation value (R)	Significance (p)
Low environmental impact diet	Ideologies about human-made CC	.290	.003
	Acceptance responsibility of CC	-.243	.014
	Surrounding	-.203	.041
	Kids household	-.270	.006
	Political	-.321	.001
Reduction of non-essential flying	Ideologies about human-made CC	.363	.000
	Acceptance responsibility of CC	-.373	.000
	Age	.253	.01
	Education	.197	.048
	Income	.205	.038
Less food waste	Acceptance responsibility of CC	-.211	.033
	Age	.270	.006
Buy/use energy efficient vehicles	Age	-.276	.005
	Place	-.335	.001
	Income	-.397	.000
	CC existence	.214	.031

Use of renewable energies	Ideologies about human-made CC	.290	.003
	Age	.352	.000
	Place	.263	.008
	Political	-.302	.002
Less car usage	CC existence	.235	.018
	Ideologies about human-made CC	.310	.002
	Acceptance responsibility of CC	-.213	.032
	Place	-.307	.002
	Education	.271	.001
	Income	-.269	.006
Recycle	Ideologies about human-made CC	.226	.022
	Acceptance responsibility of CC	-.393	.000
	Reluctance to change	-.233	.019
	Age	.306	.002
	Income	.241	.015
Responsible usage of water and energy	Ideologies about human-made CC	.370	.000
	Acceptance responsibility of CC	-.295	.003
	Age	.284	.004
	Employment	-.262	.008
	Income	.208	.036
Activism	Ideologies about human-made CC	.419	.000
	Acceptance responsibility of CC	.282	.004
	Surroundings	-.293	.003
	Age	.257	.009
	Education	.310	.002
	Political	-.307	.002
Biological consumption	Ideologies about human-made CC	.285	.004
	CC exists	.236	.017
	Age	.292	.003
	Education	.306	.002
	Political	-.378	.000

## Appendix 5: Horizontalization

<i>Clusters of meaning</i>	<i>Interviewee</i>	<i>Related to</i>
<i>Intention-Behaviour Gap</i>	I, II	Biospheric values
	II	95% subconscious behaviour
	II	Habits
<i>Biospheric values</i>	I	Intention-Behaviour Gap
	I	Environmental behaviours engagement
<i>Values</i>	I	Intention
	I	Motivation
	I, II	Identity
	I	Egoistic values
	I	Altruistic values
	I	Idonic values
	I	Biospheric values
	I, II, III, IV, V	Capitalistic worldview
<i>Habits</i>	I	Psychological barriers
	III	Culture
	III	System justification
	II	95% subconscious behaviour
	II	Intention-Behaviour Gap
<i>Psychological barriers</i>	I	Habits
	I	Resistance to change behaviour
	I	Sacrifices perception
<i>Social norms</i>	I, II, III, IV	Barrier
	I	Intention-Behaviour Gap
	I, II, III, IV	Double-edged power
	I, II, III, IV	Surroundings
	I, II	Identity
	I	Sacrifices perception
	I, III	Capitalistic worldview
	II, IV	Perceived program inadequacy
<i>Surroundings</i>	I, II, III, IV	Social norms
	I, II	Identity
	I, IV	Environmental behaviours
<i>Descriptive social norms</i>	I	Social norms
	I, II	Culture
<i>Injunctive social norms</i>	I	Social norms
	I, II	Culture
<i>Environmental behaviours</i>	I, II, IV	Sacrifices perception
	I, II	Motivation
	I	Involvement in environmental initiatives
	I	(Change) not based on monetary gains
	I, II	Change based on money is policy-makers interest
	I, IV	Normative goal-frame
	I, IV	Surroundings
	III, IV	Reduction and moderation
	III, IV, V	Less car, less flying, efficacious investments, activism, diet, critical at information, recycle, reuse, community, sharing, openness, awareness

	II	Different behaviours influenced by different factors
	II	Divergent regarding place
	III, IV, V	(change) slow, step by step
<i>Sacrifices perception</i>	I, II, IV	Environmental behaviours
	I	Psychological barrier
	I	Social norms
<i>Personal norms</i>	I, IV	Facilitate environmental behaviours
	I, IV	Motivation
<i>Self-efficacy</i>	I	Sacrifices
	I, II, IV	CC abstract problem
	I, II	Construal Level theory
	I	Perceived inequity
	I	Sunk costs
	IV	Eco-community (realization feeling)
<i>Capitalistic worldview</i>	I, II, IV	Not sustainable
	I	Discredence
	I, III	Political behaviour
	I, III	Social norms
	I, III	Individualistic culture
	III, IV	Egoistic and hedonistic values
<i>Discredence of CC</i>	I	Capitalistic worldview
	I	Based on disparity fossil fuel investors and scientific community
	I	Science report with uncertainty levels
	II	Reactance versus policies and governments
<i>Construal Level Theory</i>	I, II	Self-efficacy
	I, II, IV, V	Spatial numbness
	II	Behavioural momentum
<i>Spatial numbness</i>	I, II, IV, V	Construal Level Theory
	I	CC as a distant threat
<i>Political behaviour</i>	I, III	Capitalistic worldview
	I, III	Interest in CC
<i>(Green-left)</i>	III	Environmental behaviours
<i>(Green)</i>	I, III	Structure
<i>Framing theory</i>	I	Egoistic goal-frame
	I	Hedonic goal-frame
	I	Normative goal-frame
	I	Values
<i>Normative goal-frame</i>	I, IV	Environmental behaviours
	IV	'Sense of duty'
	III, IV	Reduction and moderation
<i>Sustainable living</i>	III	<1.7 footprint
	III	Amount of population
	III	Within planetary boundaries
	III, IV	Motivations based on CC and ecology
	III, IV	Not expensive per se
<i>System justification</i>	III	Culture habits
<i>Structural barriers</i>	II, III, IV, V	Price

	III, IV	Capitalistic worldview
	III, IV	Accessibility
<i>Accessibility</i>	III, IV	Price
	III, IV	Structural barriers
<i>Perceived program inadequacy</i>	II, IV	Social norms
	II, IV	Psychological barrier
<i>Behavioural momentum</i>	II, V	Behavioural change/'the right moment'
	II	Construal Level Theory
<i>(Higher) incomes</i>	II, V	More sustainability apathy
<i>(Lower) incomes</i>	II	Limitations
<i>Sociodemographic factors</i>	II, IV	Double-edged impact
<i>Uncertainty</i>	II	Psychological barrier
<i>Tokenism</i>	I, II, IV, V	Psychological barrier
<i>Sunk costs</i>	V	Barrier
<i>Education</i>	III, V	Tool for personal and systemic change

