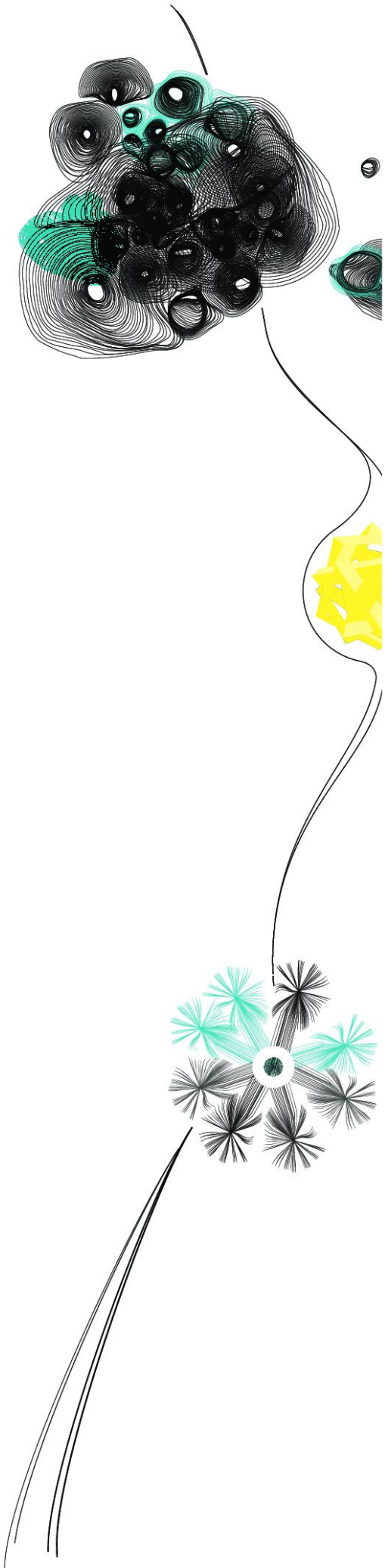
MASTER THESIS



Pro-environmental behavior: Identifying determinants that could predict different types of pro-environmental behavior

J. M. A. Derckx
S1378066

COMMUNICATION STUDIES
FACULTY OF BEHAVIORAL SCIENCES

EXIMINATION COMMITTEE
Primary supervisor, *Prof. Dr. M.D.T. de Jong*
Secondary supervisor, *MSC S.J. Pothof*

Document date
August 2015

UNIVERSITY OF TWENTE.

Abstract

This study aims to integrate internal and external determinants in an understanding framework and to investigate whether there is a difference in predicting behavior between different types of pro-environmental behavior (PEB). Gaining a detailed understanding of which determinants could predict PEB is important for strategy makers and researchers seeking solutions to environmental problems that require behavioral change.

To realize this objective, an in-depth literature review is conducted where determinants and specific types of PEB are identified. Based on this literature review a new model is concluded. This model expands the theory of planned behavior and also takes into account attitudinal beliefs, the influence of the Dutch government and habitual behavior. Such a comprehensive model has not been developed before and can offer a systematic approach for explaining different types of PEB. At the end a questionnaire is conducted to test the validity of this model and to compare the predictive power of the determinants between the specific types of PEB.

The results showed that each type of PEB is explained by multiple determinants which indicate that the most effective behavior change strategies involve combinations of determinants. Furthermore, the results demonstrate that the determinants attitude and biospheric values are the main predictors of the intention to act pro-environmentally and the specific types of PEB. In addition, the determinants responsibility, defeatism and perceived costs & benefits are attitudinal beliefs and can predict an individual's attitude.

To conclude, this study has identified seven types of PEB and proved that the determinants between these different types of PEB can differ. Furthermore, the present study has proved that the determinant attitude has underlying beliefs and that a general attitude could be seen as an evaluation of these beliefs. Finally, the model of determinants of PEB and the specific types of PEB provide a standard for further research.

Key words: pro-environmental behavior; determinants; theory of planned behavior; intentional behavior; attitudinal beliefs; specific types of pro-environmental behavior.

Table of Contents

List of Figures

List of tables

1 Introduction

1.1 Background

Over the past few decades, sustainability has increased in importance. A concern that exploitation of natural resources, economic development, and violation of environmental resources are not sustainable is expressed more and more frequently in policy debates, conferences, and analytical studies (Toman, 1992). Sustainability refers to addressing the needs of the present without undermining the needs of the future (Blackburn, 2007). The foundation of the concept sustainability starts in the Brundtland Report of 1987 (Kuhlman & Farrington, 2010). Within that report the tension between the ambitions of mankind towards a better life on the one hand and the limitations imposed by nature on the other hand is emphasized. The report proclaims to express the urgency of sustainability to the people and that awareness and responsibility regarding sustainability need to be increased.

Nowadays, sustainability is almost always seen in terms of three dimensions: social, economic and environmental (Strange & Bayley, 2008). The environmental dimension includes all of the environmental resources and ecological processes that sustain life on earth (Costanza et al., 2000). Economic growth and human capital are concepts mentioned within the economic dimension (Hopwood, Mellor, & O'Brien, 2005). The social dimension includes topics like poverty, peace, and the role of women and native people (Blackburn, 2007).

The present study primarily focuses on the environmental dimension of sustainability to prevent unreliable results as, for instance, one's feeling for responsibility could differ between the three dimensions. The interaction between humans and the environment has resulted in the problems of today, such as climate change, rising sea levels, extinction of species and depletion of the ozone layer. These problems could result in a growing culture of distrust and fear of political and business leaders, of media, of large organizations and, ultimately, of life itself (Ehrenfeld, 2008).

1.2 Problem statement

Today, more and more people realize that we cannot continue on our present path (Ehrenfeld, 2008). Furthermore, governments and organizations also recognize all the environmental problems and are searching for solutions to these numerous issues caused by today's industrial, economic and human practices (Stegall, 2006). Organizations design products which can contribute to environmental promotion. Furthermore, governmental regulations limit emissions and the use of toxic materials. However, it is becoming clear that the current views of creating behavior that intentionally seeks to minimize the negative impact of one's actions on the natural and built world (pro-environmental behavior) cannot fully solve the problems of

today (Kollmuss & Agyeman, 2002, Stegall, 2006). An organization could design and manufacture a product that gave no toxins, could be one-hundred per cent recycled at the end of its useful life, and used only solar energy. Nevertheless, it would still not be sustainable unless every person who used the product did so in a responsible manner and returned it for recycling (Stegall, 2006). According to Downing and Ballantyne (2007), the majority of the public were taking only tokenistic actions at present and were not tending to question other behaviors such as car-driving, flying on holiday, meat consumption and so on. Furthermore, Vermeir and Verbeke (2006) argues that everyday consumption practices are still heavily driven by convenience, habit, value for money, personal health concerns, self-satisfaction, and individual responses to social and institutional norms. The problem of today is more than simply an issue of product and regulation design, it has emerged as a dreadfully complex sociological dilemma, where the lifestyle that we have adopted is eroding our ability to survive (Stegall, 2006).

To influence the current lifestyles, organizations and governments have the implication that changes in attitudes would influence behavior (Ajzen & Fishbein, 2005). However, within numerous studies, attitudes were usually found to be very poor predictors of actual behavior (Ajzen & Fishbein, 2005). In addition, organizations and governments have the assumption that more knowledge will lead to more pro-environmental behavior (PEB) (Kollmuss & Agyeman, 2002). However, research showed that in most cases increases in awareness and knowledge did not lead to PEB (e.g., Kollmuss & Agyeman, 2002; Thompson, 2008). Therefore, these strategies and approaches need to be questioned and an increasing need for new strategies and interventions to encourage PEB has arisen and is one of the important challenges on the path to sustainability (Turaga, Howarth, & Borsuk, 2010).

As a result, studying the determinants that could have some influence, positive or negative, on PEB is a topic of interest for much research. Gaining a detailed understanding of which determinants could predict PEB is important for strategy makers and researchers seeking solutions to environmental problems that require behavioral change (Clark, Kotchen, & Moore, 2003). However, according to Clark et al. (2003), much of the previous research has mainly focused on linking internal determinants and fails to adequately consider external determinants. In addition, previous research has showed that determinants could differ substantially between different types of PEB. However, relatively little research has been conducted to classify PEBs into coherent subtypes (Stern, 2000). Thus, there is also a need to dig deeper and identify classes of sub behavior and to develop scales which allow for the measurement of different types of PEB (Blackburn, 2007).

1.3 Research question

To conclude, this study aims to integrate internal and external determinants in an understanding framework and to investigate whether there is a difference in predicting behavior between different types of PEB. In line with this objective, the next research question is formulated;

- *"What are the internal and external determinants of pro-environmental behavior and do these determinants differ in predicting different types of pro-environmental behavior?*

To realize this research question, first an in-depth literature review is conducted. The aim of this literature review is to find knowledge that could help to answer this research question. The literature review is divided into two chapters and begins with identifying different types of PEB. Next, some of most influential and commonly used theoretical frameworks and research are presented for analyzing internal and external determinants of PEB. Based on this literature review a new model is presented. This model expands the theory of planned behavior and also takes into account attitudinal beliefs, the influence of the Dutch government and habitual behavior. Such a comprehensive model has not been developed before and can offer a systematic approach for explaining different types of PEB. In addition to its practical value, such a comprehensive model provides essential insights for further research. To test the validity of this model and to compare the predictive power of these determinants in the context of the specific types of PEB, a questionnaire is conducted. Finally, via statistical techniques, correlations and conclusions are distinguished.

2 Types of pro-environmental behavior

In order to investigate whether there is a difference in predicting behavior between different types of PEB, first, identification of specific types of PEB is essential. This is important for research purposes as, for instance, the determinants of purchasing a product are likely to be different from those of transport use (Stern, 2000). However, to identify and target specific types of behaviors that can make a large difference to the environment, it is critical to focus (Stern, 2000). With this in mind, this study primarily focuses on those behaviors performed by individuals within the private-sphere: the purchase, use, and disposal of personal and household products that have an environmental impact (Stern, 2000). This cluster of behavior is inclined to have a direct environmental consequence and tend to have a much greater impact on the environment than others, such as the public-sphere (Stern, 2000). Furthermore, it was decided to omit behaviors common only to individuals with particular philosophies of sustainable living as this study focus on behavior everybody generally can perform.

In line with the focus of this study and with the inspiration of several pieces of research (e.g., Williams & Dair, 2007; McKenzie-Mohr, 2000; Stern, 2000), a diverse range of multiple PEBs are identified in Table 1.

Table 1 - *Examples of pro-environmental behaviors*

Waste segregation	Planting trees and flowers
Using the bicycle when doing groceries instead of the car	Use less packaging
Use of car-pooling when possible	Avoiding use of paper (too much printing)
Avoid flying as much as possible	Having car-free days
Reusing leftovers	Avoiding use of pesticides
Turning off the light in rooms that are not in use	Using public transport instead of the car
Buying clothes of a pro-environmental brand	Using less light in rooms
Turning off the laptop when not needed	Using lamps with low energy use
Taking a short shower	Avoiding use of 'throw away' materials
Closing the tap during tooth brushing	Avoiding light pollution
Repairing materials	Eating less meat
Buying organic meat, fruit and/or vegetables	Feeding birds in the winter
Bringing your own plastic bag when doing groceries	Avoid buying meat or fish of rare species
Lowering the heating when leaving the house	Good insulation
Putting on a sweater instead of turning on the heating	Refilling water bottles
Flushing the toilet with rain water	Watering the garden only when it has not rained in days
Washing the car by hand instead of using a water hose	Electric cars
Recycling	Buying secondhand products

The specific behaviors in Table 1 provide an overview of all sorts of behaviors in line with the focus of this study. After analyzing and linking these behaviors, seven types of PEB that could be enabled by design features are identified. These are Water, Transportation, Electricity, Food, Materials, Waste and Biodiversity. These seven types of PEB cover the diverse range of behaviors presented in Table 1.

Next, for each type of PEB, details are given of the content of the type of behavior and how PEB within the type of behavior contributes to the environment.

2.1 Water

This type of behavior include behaviors where water is used in a single-family home such as toilets, showers, faucets, lawn watering, and clothes washers (Opitz, Kiefer, Davis, Dziegielewski, & Nelson, 1999). PEB within this type of behavior has the aim to reduce the use of water.

Reducing the amount of water consumed realizes several environmental goals (Williams & Dair, 2007). First of all, reducing the amount of water used by the public means less waste water that is discharged to water sources and sewers (Williams & Dair, 2007). This helps to prevent flooding. Furthermore, reducing the amount of water used conserves limited water resources (Williams & Dair, 2007).

2.2 Transportation

An element of a pro-environmental lifestyle is travel behavior (Williams & Dair, 2007). In other words, mobilizing by the use of transportation such as cars, public transport, bicycles, etc. Pro-environmental travel behavior mainly include reducing travel demand, particularly by car (Williams & Dair, 2007).

The impact of transport is felt in towns and cities through environmental damage, such as acid rain (Williams & Dair, 2007). Furthermore, the air is polluted by the gases from the cars and airplanes which has an impact on the health of individuals and animals. Reducing these emissions caused by use of transport could contribute to reducing environmental damage and increasing the health of both people and animals.

2.3 Electricity

This type of behavior includes energy use in households, such as heating, cooking and lighting. Households constitute an important target group, because they are major contributors to the emission of greenhouse gases and, consequently, global warming (Abrahamse, Steg, Vlek, & Rothengatter, 2005).

Unnecessary use of energy could result in more need for energy, which leads to more use of resources which are not infinite. Furthermore, environmental problems such as global warming and threats to biodiversity are the main reasons for studying energy conservation (Abrahamse et al., 2005). Therefore, behaviors that reduce the use of energy in households contribute to the environment.

2.4 Food

This type of behavior includes food consumption which covers a wide variety of topics, including animal welfare, fair trade, and possibly throwing food away (Verain et al., 2012).

With every passing year, pro-environmental food consumption is becoming more urgent as global food production and consumption has a negative effect on the ecological, carbon and water footprint (Verain et al., 2012). Furthermore, it is estimated that Dutch households throw away fourteen per cent of their food (Milieu Centraal, 2005). The production, manufacturing and supply of this non-eaten food had a negative impact on the environment as it contributes to 4.6 million tons of CO_2 emissions (Bernstad & la Cour Jansen, 2012).

2.5 Materials

Resources such as oil, plastic and aluminum and the consumption of these resources are included within this type of behavior.

Overconsumption of natural resources is represented as a major threat to the environment (Brown & Cameron, 2000). According to Princen (1999), people are consuming more resources than the planet can regenerate. Humans are using materials at unprecedented levels threatening biodiversity, global climate, and the environment in general (Princen, 1999). Reducing the consumption of materials or replacing materials for 'green' materials would contribute to our habitat.

2.6 Waste

Waste is rubbish and basically a flawed product of our society (Stelzer, 2006). Before human civilization there was no such thing as waste in the biosphere.

There are many environmental benefits from waste minimization and recycling. For instance, reducing the amount of raw materials can result in a decrease of the depletion of finite resources (Williams & Dair, 2007). Furthermore, it can reduce environmental damage which is caused when waste is dumped in landfill sites or incinerated (Williams & Dair, 2007). In addition, burning waste reduces the amount of waste and allows the recovery of some of the resources in the waste as energy (Thogersen & Grunert-Beckmann, 1997). However, burning waste leads at the same time to air pollution. Therefore it is also important to reduce the amount of waste which can be accomplished by recycling the waste.

2.7 Biodiversity

Biodiversity provides a wide range of ecosystem services to human well-being (Martín-López, Montes, & Benayas, 2007). All ecosystems and human societies depend on a productive and healthy natural environment that contains diverse plant and animal species (Martín-López

et al., 2007). PEB within this type of behavior contributes to diverse and thriving ecosystems of plants and species.

For the sustainable functioning of the forest, agricultural, and natural ecosystems which humans are dependent on, biodiversity is essential (Pimentel et al., 1997). Unfortunately, the increased human activity and the growing population threaten the environment and many species (Martín-López et al., 2007).

2.8 Conclusion

The different types of PEB are subdivided based on environmental consequences and its impact. Each type of PEB could have direct environmental consequences. Unfortunately, the impact of any individual's personal behavior is small (Stern, 2000). Though, when many people independently perform the same behaviors, it could have significant impact on the environment (Stern, 2000). Within the next chapter determinants that could predict the different types of PEB are discussed and analyzed.

3 Predicting and explaining pro-environmental behavior

Within this chapter, it is researched which determinants could influence the different types of PEB. Many studies (e.g., Ajzen, 1991; Ehrenfeld, 2008; Kollmuss & Agyeman 2002; Leiserowitz, Kates, & Parris 2006; Stern, 2000) have identified internal and external determinants which predict and explain behavior. Some of most influential and commonly used theoretical frameworks and research studies for analyzing PEB are presented within this paper to get some feeling for the complexity of this behavior. These are, the theory of planned behavior, determiners of specific behavior and possibilities to influence the behavior and the value-belief-norm theory. After integrating and analyzing the insights, models and determinants from these frameworks, a new model that could improve the understanding of the different types of PEB is presented.

3.1 Theory of planned behavior (TPB)

One of the most influential theoretical frameworks is the theory of planned behavior. This theory is designed to predict and explain human behavior in specific contexts (Ajzen, 1991). A main determinant within this theory is the individual's intention to perform a certain behavior. Intentions indicate the motivational variables that influence a behavior (Conner & Abraham, 2001). The TPB suggest that the person's behavioral intention is the most immediately relevant predictor of an action (Ajzen & Fishbein, 1973). In Figure 1, the model of the TPB is presented.

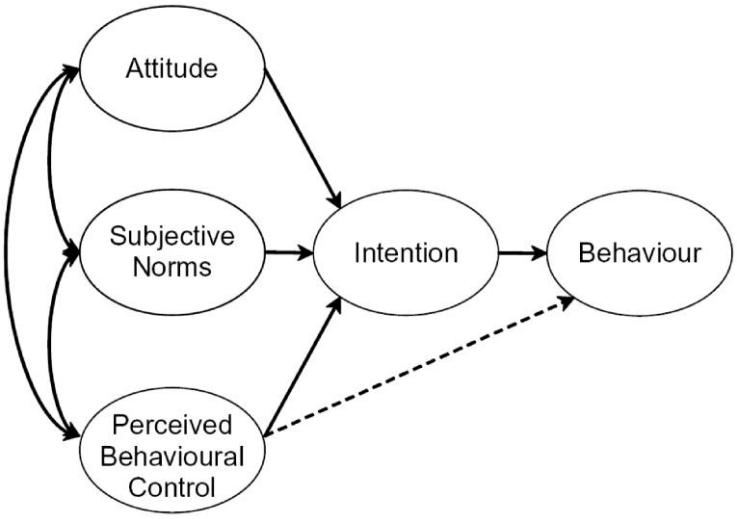


Figure 1- Theory of planned behavior (Ajzen, 1991)

As represented within the model, intentions are shaped by three determinants: attitudes, subjective norms, and perceived behavioral control (PBC) (Conner & Abraham, 2001). Attitude refers to the degree to which a person has a favorable or unfavorable evaluation of the particular

behavior (Ajzen, 1991). According to Bamberg (2003), general attitudes are important indirect determinants of specific behaviors. This is because general attitudes give an indication of how to frame the decisional problem, the relevant behavioral alternatives and the personally relevant consequences associated with these alternatives.

Subjective norms are beliefs regarding whether significant others think an individual should engage in the behavior (Conner & Abraham, 2001). Chawla (1998) found proof that the values of others have an important influence on a person's values. This social influence could induce negative moral emotions such as embarrassment, shame, and guilt (Nugier, Niedenthal, Brauer, & Chekroun, 2007). These emotions are considered functional in that they could discourage similar behavior in the future (Nugier et al., 2007). As PEB is relatively uncommon, individuals are likely to express intense moral emotions and adopt a more appropriate behavior when faced with social influence.

Mainly a person's internal variable (motivation) is important within TPB and is situated within the perceived behavioral control. This determinant refers to the perception of the easiness or difficulty of performing the particular behavior (Ajzen, 1991). The PBC has shown that people's behavior is strongly influenced by their confidence and belief to perform it (Ajzen, 1991). PBC has an influence on the intention to act as effort expended to successfully perform an intention is likely to increase with greater PBC. Furthermore, PBC may reflect the actual control of an individual (Conner & Abraham, 2001).

In a study of Kaiser, Hübner, and Bogner (2005), results have shown that the determinants attitude, subjective norms, and perceived behavioral control account for 76 per cent of an individual's intentions, which in turn explain 95 per cent of the variance. Furthermore, the three determinants of intention represent clearly distinguishable concepts (Kaiser et al., 2005). Based on these results, the theory of planned behavior receives a central role and provides the basis of the new model.

However, several authors (e.g., Ajzen & Fishbein, 1973; stern, 2000; Kollmuss & Agyeman, 2002) have commented that the TPB is not complete and fails to adequately consider other determinants. In addition, the TPB model identifies beliefs underlying attitudes (the behavioral beliefs) and argues that attitudes can be seen as an evaluative summary based upon these beliefs (White, Terry, Troup, & Rempel, 2007, Petty & Krosnick, 2014). As a result, single attitude scores cannot sufficiently represent all of these beliefs and thus cannot predict behavior accurately (Ajzen & Fishbein, 1973). For these reasons, belief based determinants and other determinants that could influence the intention to act also need to be taken into consideration and are discussed in the next sections.

3.2 "Determiners of specific behavior and possibilities to influence the behavior"

The framework of "determiners of specific behavior and possibilities to influence the behavior" uses a general guideline to explain the consideration of individuals whether to purchase a particular behavior or not. This guideline include *necessity, intent and possibility* (Kirkels, 2012). Based on this guideline a model is presented in Figure 2.

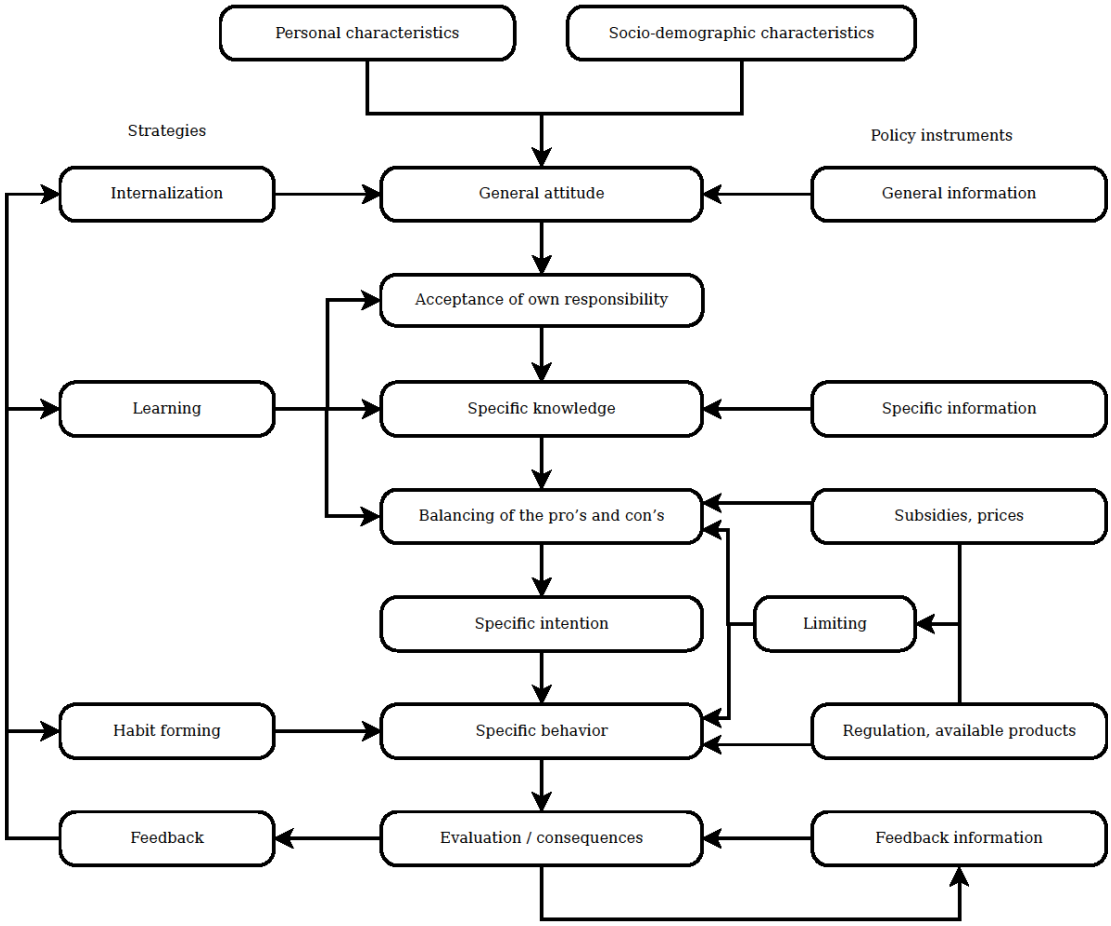


Figure 2. - Determiners of specific behavior and possibilities to influence the behavior. (in: Kirkels, 2012, pag. 100).

The determiners of specific behavior are shown in the central column of the model and represent '*Intent, necessity and possibility*' (Kirkels, 2012). Accoring to Kirkels (2012), individuals with high necessity regarding a behavior, are more likely to adopt a particular behavior. The need of adapting PEB is relative, because environmental problems hardly ever present an immediate life threatening problem and individuals could therefore wonder why it is necessary to adopt PEB. This sense of urgency could be seen as a general intention and could therefore indirectly influence the intention to act specific behavior.

The model also claims that individuals who take their responsibility might have the drive to adapt PEB (Kirkels, 2012). Responsibility refers to the responsibility to improve the world; but also the responsibility for the environmental impact caused by one's behavior (Kirkels, 2012). Individuals with a greater sense of personal responsibility are more likely to have the intention to engage in PEB.

In addition, within the model, the determinant knowledge is mentioned. According to Stern (2000), PEB can be influenced by information that shapes beliefs. Furthermore, Kollmuss & Agyeman (2002) also state that knowledge shapes attitudes and beliefs. It could therefore be stated that the position of knowledge within this model could be a predictor of an individual's attitude regarding PEB.

Balancing pros and cons, as presented in the model, can directly influence the intention to act. This determinant has the assumption that individuals make reasoned choices and choose alternatives with highest benefits against lowest costs (Steg & Vlek, 2009). Here, cost does not refer to an economic sense, but in a broader psychological sense that, for instance, includes the time and effort needed to undertake the PEB (Kollmuss & Agyeman, 2002). Thus, if the perceived costs are higher than the benefits the particular behavior is unlikely to occur.

Finally, within the model, socio-demographics are presented as an indicator for the general attitude and therefore indirectly the intention to act. Socio-demographics include a wide range of social variables such as age, gender, wealth, employment status, having children and education (Barr, 2003). These determinants have been linked to PEB. For instance, Hines, Hungerford, and Tomera (1987) have found evidence for higher levels of PEB amongst wealthy, female, younger, and well-educated individuals. However, there are research studies which question these findings. For instance, De Oliver (1999) examined water conservation in San Antoni and found opposite results of all the above-mentioned trends. Equivocal By comparing the results between the socio-demographic variables and the several types of PEB an explanation of this contradiction could occur.

The theoretical framework of "determiners of specific behaviors and possibilities to influence the behavior" has showed a causal chain which indicates a relationship between the determinants. However, this is weak at best. Furthermore, there seem to be many more factors that could influence the intention to act (Kollmuss & Agyeman, 2002). Finally, this model does not account for social factors such as social influence (Kollmuss & Agyeman, 2002).

Nevertheless, this model has shown some interesting determinants that could have influence on whether or not to act pro-environmentally. Sense of urgency, responsibility, knowledge of issues and perceived costs & benefits emphasize beliefs that could predict an individual's attitude regarding PEB and therefore indirectly influence the intentional behavior.

Furthermore, this model has showed that socio-demographics has an influence on attitudes and PEB in general.

3.3 The value-belief-norm (VBN) theory

Another frequently used framework to predict behavior is the VBN theory. This theory links Norm-activation theory, Value theory, and the New Environmental Paradigm (NEP) perspective through a causal chain of five determinants leading to behavior: personal values, ecological worldview (NEP), adverse consequences for valued objects (AC), the perceived ability to reduce threats (AR), and personal norms for pro-environmental action (Stern, 2000). Stern, Dietz, Abel, Guagnano, and Kalof (1999) have found that the VBN cluster of determinants was a far stronger predictor of behavior than the other theories that VBN theory has combined. In Figure 3 the VBN theory is presented.

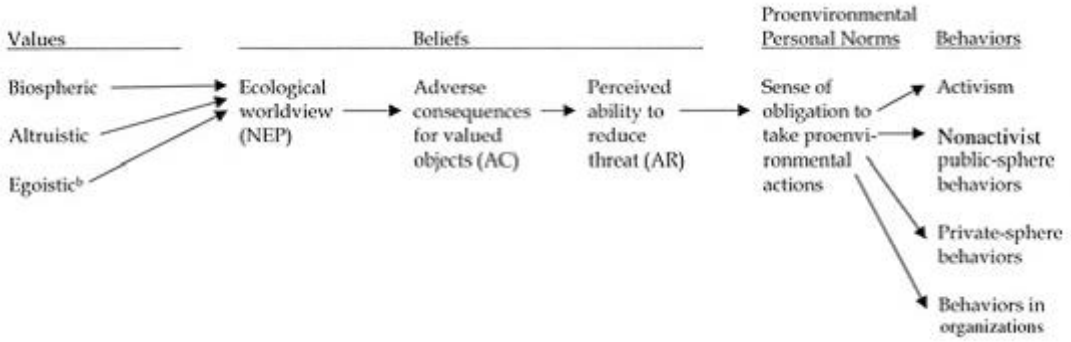


Figure 3. - Value-belief-norm (VBN) theory (Stern, 2000).

The VBN theory suggests that personal norms are activated when an individual believes that violating them would have adverse effects on things they value (Stern et al., 1999). Values are beliefs in, or expressions of, the worth of objects, qualities, or behaviors (Leiserowitz et al., 2006). Values frame attitudes and provide standards against which the behaviors of individuals and societies can be judged (Leiserowith et al., 2006). Within the VBN Theory three kinds of values are identified. These are biospheric, altruistic and egoistic. Especially altruistic and biospheric values are important in relation to this study, because they represent values that focus concern beyond a person´s immediate social circle and on the environment. These values are proved to be the most strongly implicated in activating pro-environmental personal values (Stern, 2000). However, having altruism or biospheric values is not enough to ensure PEB as individuals have different intensity or priority of different values themselves (Leiserowitz et al., 2006).

An important element of the VBN theory is that the link from values to PEB is mediated by particular beliefs. For instance, beliefs that are associated with PEB. PEB is a widely used idea

and has many different meanings and therefore provokes many different responses (Hopwood et al., 2005). According to Uzzell (2008), most of the role models associated with recycling were negative. A typical recycler was identified by young people as an "woman in a tie-dyed t-shirt and dungarees or a old man in his fifties with a beard" (Uzzell, 2008). Although these stereotypes slightly changed, the old stereotypes still remain (Uzzell, 2008). When trying to make people adopt PEB, it is important to be aware of the self-presentational associations (Uzzell, 2008). The image of PEB is therefore seen as a significant belief on the outcome of PEB.

Another particular belief within the VBN theory is whether there are individual actions that could illuminate threats to valued persons or things (AR) (Stern, 2000). Unfortunately, today, many are so overwhelmed by the amount of environmental issues which result in the feeling we cannot do anything about the situation (Wackernagel & Galli, 2007). We are now faced with more defeatism, that we can't do anything about the situation. It could be stated that people who believe that their behavior has no influence in bringing change as the problems are too big, are unlikely to act pro-environmentally (Hines et al., 1987).

Depending on the type of behavior, evidence has shown that the VBN model explains 19 per cent to 35 per cent of its variance (Stern et al., 1999). The VBN model has shown that values frame attitudes and provide standards and could therefore be seen as an overall influence on intentional behavior. Furthermore, the VBN theory has illustrated that the determinant defeatism and the image of PEB are significant beliefs and could shape the evaluative summary (attitude) of a particular behavior.

However, the model seems to be underspecified, especially a person's ecological worldview (Kaiser et al., 2005). Furthermore, another criticism of this model is that all of the determinants remain at the level of the individual (Oreg & Katz-Gerro, 2006). This perception could be limited and the context within which the individuals behave should be conceptualized at a level higher than the individual (Oreg & Katz-Gerro, 2006). To balance the social-psychological determinants such as values and attitude, external variables should be considered (Oreg & Katz-Gerro, 2006).

3.4 External influence

To consider external influences, it is needed to return to the framework "determiners of specific behavior and possibilities to influence the behavior". This framework states that even when individuals have the need and the intention to act, they also need to have the possibility to act pro-environmentally. The right column within the model demonstrates the policy instruments that attempt to influence behavior and this represents the perspective that, next to internal variables, the government could also have an influence on the (intentional) behavior (Kirkels, 2012). The government composes laws and sets rules for environmental protection,

economics in the fields of use of resources, and nature conservation (Kirkels, 2012). Unfortunately, according to the model, the government's only influence is through providing information, products, subsidies, and feedback. According to Kirkels (2012), the government is a very important determinant in achieving a more pro-environmental society and, next to providing information and feedback, could play more different roles.

Eppel, Sharp, and Davies (2013), focused on the Defra's approach on changing behavior and provided an overview of four approaches or roles that are likely to be the most effective with different population groups to change behavior. These approaches are: encourage, enable, engage and exemplify. These four approaches are helpful for identifying gaps which might need to be filled if behavioral change is to occur. For instance, by making it easy for people to act through providing facilities and the infrastructure, the government enables society to change their behavior into PEB (Eppel, Sharp, & Davies, 2013).

No research has been found that investigated the predictive value of these different roles of the government on PEB. Therefore, including the four approaches within this study is significant, as it could have additional value within the scientific world.

3.5 Habit

Already many determinants are mentioned that could influence or predict PEB. However, even when people act pro-environmentally, it seems like these behaviors decline over time and people return to their old habits as they require little mental effort to execute (Verplanken & Aarts, 1999).

Strong habits make an individual less attentive to information, not only information regarding alternative behavioral options, but also basic information that defines the context in which the behavior takes place (Verplanken & Aarts, 1999). Thus, when strong habits are present, processes that, implicitly or explicitly, are assumed to take place according to rational choice models, occur less, or less extensively (Verplanken & Aarts, 1999). Furthermore, old habits block information on taking initiative to learn how to act in an environmentally friendly manner. Quellette and Wood (1998) found that both intention and habit were significant predictors of future behavior.

3.6 Conclusion

Only a few of the many different models and theories that have been developed to predict behavior and explore the barriers to PEB are discussed. Yet, it is shown that there are weaknesses to be found in the different models and frameworks (Kaiser et al., 2005, Kollmuss & Agyeman, 2002, Oreg & Katz-Gerro, 2006). Developing a new model, avoiding these weakness, could provide new links between PEB and determinants that directly or indirectly influence

behavior. To present these links in an understandable and accessible figure, the mentioned determinants could be divided into four groups.

First of all, the theory of planned behavior, including attitude, subjective norms, perceived behavioral control, and intentions is one group and receives a central role within the new model. Furthermore, according to Kollmuss & Agyeman (2002), old habits form a very strong barrier that is often overlooked in the literature. Therefore this determinant is included as a central role, next to the perceived behavioral control, subjective norms, attitude and intentions.

A second group is the attitudinal determinants, including responsibility, sense of urgency, image of PEB, knowledge of issues, defeatism and perceived costs & benefits. Adding belief based determinants to the new model allows identification of the underlying beliefs that distinguish between individuals who do not perform (or do not intend to perform) and individuals who perform (or intend to perform) PEB and could increase our understanding of PEB (White et al, 2007). In addition, by combining the beliefs, we obtain an estimate of the attitude itself, an estimate that represents the individual's evaluation of PEB (Petty & Krosnick, 2014). Combining these multiple determinants all within the same model has not been examined before. Furthermore, no studies have investigated whether these determinants can predict an individual's attitude regarding PEB.

The external determinant, the Dutch government, is the third group. According to Kirkels (2012), the government is a very important determinant in achieving a more pro-environmental society. To balance the social-psychological variables such as values and attitude, the Dutch government, with its four approaches, is included within the new model (Oreg & Katz-Gerro, 2006).

Finally, the fourth group represents the background influences, including socio-demographics and personal values. These determinants can frame attitudes and provide standards against which the behaviors of individuals and societies can be judged (Leiserowith et al., 2006).

The present study has merged together the four groups of determinants specific to predicting PEB within a new model. The model is influenced by many different authors and includes both internal and external determinants. Additionally, this new model includes the different types of PEB, identified in Chapter two, which indicates the assumption that each type of behavior could be determined by different combinations of determinants. The new model of determinants of PEB and the specific types of PEB is presented in Figure 4.

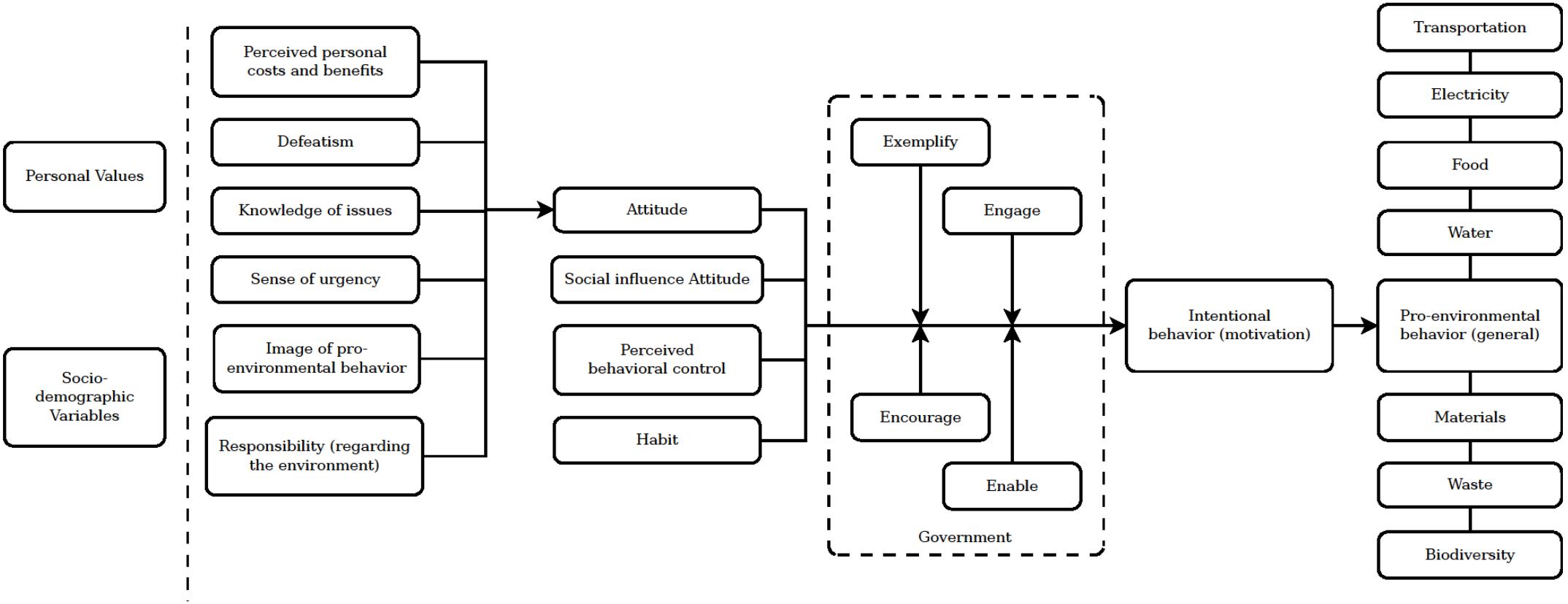


Figure 4. - Determinants of pro-environmental behavior and the specific types of pro-environmental behavior

4 Method

To test the new model and to gain a better insight into which pattern of determinants predict each type of PEB, an online survey was conducted. The survey used for this research can be found in appendix A.

4.1 Measurement

The survey was designed and distributed using Qualtrics. The first section of the survey measured the determinants discussed in Chapter three with several multi-items on a seven-point Likert-scale ranging from 'strongly disagree' (one) to 'strongly agree' (seven). The items within the survey were taken from or inspired by previous research. Most of the determinants have been studied elsewhere, however not combined within one survey. Appendix B provides a table with an overview of the sources used for each construct. Construct refers to the used items to measure the determinant.

Next, each of the constructs is briefly presented with the content, the amount of items and various examples are presented.

Attitude. Within this construct the attitude (evaluation) regarding PEB in general was measured. This construct was measured with six items. An example of an item is: "I am positive regarding PEB".

Image of PEB. This construct measured how individuals evaluate people who act PEB. For instance, are people who act pro-environmentally, poor or wealthy, happy or unhappy, etc. This construct was measured with nine items. Each item represented two opposite characters.

Knowledge of issues. This construct contained ten items that measured whether individuals are aware of environmental problems and whether humanity has an influence on these environmental problems. Respondents were asked to answer questions such as "global warming is a threat to humanity" or "the depletion in the ozone layer is caused by humans".

Sense of urgency. Sense of urgency measured whether individuals believe it is urgent to reduce the environmental problems. For instance, "environmental problems currently have priority compared to other problems". This construct was measured with six items.

Responsibility. This construct measured whether individuals feel responsible for their own behavior regarding (non) environmental behavior. Respondents were, for instance, asked "I do not feel responsible for the environmental problems". This construct was also measured with six items.

Defeatism. With five items, this construct measured whether individuals have the feeling their behavior or intentions have a positive influence on the environment and the problems are not too big. An example of an item is "the environmental problems are too big to handle".

Perceived costs & benefits. This construct measured whether individuals experience PEB as costs or benefits and was measured with five items. Individuals could choose between two opposite characters. For instance, individuals could choose between "PEB is pleasant" or "PEB is not pleasant" and range their answer between these two characters.

Perceived behavioral control. This construct measured whether individuals have the feeling they are able to act PEB. For instance, individuals were asked to answer the next item: "I know how to act PEB". Another example was "I found it difficult to act PEB every day". This construct was measured with ten items.

Habit. Habit measured whether PEB is an automatic response for respondents. With six items this construct was measured. An example of an item is "I act PEB without thinking about it".

Social influence. With six items, this construct measured whether individuals are influenced by their social network. An example of an item was: "my friends and family find PEB important".

Dutch government. Within this construct, individuals reviewed the behavior of the Dutch government. This construct was divided into four smaller constructs: Enable, Encourage, Exemplify and Engage. These represented the four approaches to influence PEB. Each of the four constructs was measured with five items, except for Encourage which was measured with six items. An example of an item within the construct Enable was "the Dutch government offers facilities to act PEB". Another example within the construct Encourage is "the Dutch government rewards PEB by individuals".

Intentional behavior. This construct measured whether individuals have the intention to act PEB. This construct was measured with eight items. Each item represented one of the seven specific types of PEB. For instance "I have the intention to act pro-environmentally regarding my water use" and "I have the intention to act pro-environmentally regarding my transport use". The specific type Food was divided into two items as a distinction could be made between buying pro-environmentally produced food and the use of food within households.

Actual behavior. This construct measured pro-environmental behavior in general and also contains eight items that represent the seven specific types of PEB. An example of an item is: "I act PEB regarding my energy use".

Specific types of PEB. The second section of the survey was focused on the seven types of PEB which are explained in Chapter two (*Water, Transportation, Electricity, Food, Materials,*

Waste, and *Biodiversity*). Each type of behavior was measured with ten items on a five-point scale ranging from 'never' (one) to 'always' (five). Every item represents a behavior specific to that type of PEB. For instance, within Water, behaviors that can be performed by individuals that include water use within households were asked. Sometimes, a particular behavior could not be applied to a respondent. Therefore the value 'not applicable' was added on the scale. Examples of items within this second section are "taking short showers", "using public transport instead of the car" and "shutting down my laptop or computer when not using it".

Socio-demographic variables. Additionally, the survey contained measures of demographic determinants. Age, gender, marital status, whether the respondent has paid work or not, education level and wealth are listed within the survey and were measured with multiple choice questions.

Personal values. Respondents were asked to range thirteen values from unimportant to important. These values represent the egoistic, biospheric and altruistic values mentioned within the theoretical framework. For instance, 'ambition' represent an egoistic value and 'a peaceful world' represent an altruistic value.

4.2 Pre-test survey

Before the online survey was conducted, it was useful to understand how respondents could perceive and interpret questions and identify potential problems that may arise in the survey items. Cognitive interviewing was used to identify items that may evoke response error (Drennan, 2003). This methodology was applied on five respondents.

This pre-test resulted in changing the formulation, adding or removing some items within a construct as these evoke response error with the five respondents. For instance, within the construct 'attitude' the first item was reformulated and changed place. Furthermore, within the construct 'social influence', it was decided to delete the item "The majority of people I know, find PEB the right thing to do" as the word "right" was difficult to interpret. Also, within the four constructs of the Dutch government the word 'enough' created doubts in the mind of the respondents. For instance, 'the Dutch government provides enough information to act pro-environmentally' was confusing as 'enough information' could be interpreted in different ways. Therefore it was decided to delete the word 'enough' in each item. Finally, the separation of specific type Food into two items within the intentional and actual behavior construct was based on the pre-test.

4.3 Sample

A sample of 203 individuals within the Netherlands completed an anonymous online survey. The respondents of this study were convenience sampled from the Dutch population with an age of 18 years and older. All individuals who have access to the Internet were included as this study investigate PEB at an individual level. Furthermore, no distinction was made in socio-demographic determinants as these determinants were included in the survey.

4.4 Procedure

To reach as many Dutch citizens as possible, the hyperlink to the online survey was spread via email and social media. Via a distributed hyperlink, individuals were directed to the Qualtrics online survey. The introduction of the survey explained that the study was interested in the opinion of the respondent regarding PEB. Furthermore, within the introduction it was stated what the respondent can expect during the survey and some terms were explained to ensure that respondents understand the context. Finally, the respondents had the chance to ask questions by sending an email and anonymity was ensured.

Within the survey, each specific type of PEB is included. However, due to the length of the survey it was decided to distribute two different types of PEB randomly to each respondent.

5 Results

This chapter presents the results of the survey derived from 203 respondents within the Netherlands. To process the data from the completed surveys and analyze the results, the statistical software IBM SPSS Statistics was used.

Before presenting the results, a Principal Component analysis was conducted to identify if the constructs, mentioned within the method chapter, were also measured by the survey. The first section of this chapter presents the results of the Principal Component analysis.

Within the second section of this chapter, the socio-demographic variables and the personal values of the respondents were outlined. The aim of this section is to give more background information regarding the respondents.

Third, the descriptive statistics of each construct were presented. The aim of this section is to underline the perspective of the respondents regarding PEB.

Finally, correlations and multiple regression analyses were conducted to test the new model. These analyses investigate to what extent the several determinants predict and correlate with the intention to act pro-environmental and with the specific types of PEB.

5.1 Scale construction

A Principal Component analysis (PCA) with a Varimax with Kaiser Normalization rotation method, on the 106 items within the survey, was conducted. This analysis uses correlations among all the items of the survey to recognize constructs of items that correlate more highly among themselves than with items outside the group (Dooley, 2001). After seven PCA and when loadings less than 0.40 were excluded, the analysis gave an outcome of 16 new constructs. Some items needed to be excluded as they did not load on any construct. The Kaiser-Meyer Olkin measure of sampling adequacy implies that for all the Principal Component analysis the sample was reliable. The KMO even increased after each analysis. The results of Principal Component analysis one, three and seven are presented in appendix C.

In Table 2, the old and the new constructs are presented to give an overview of what has changed based on the results of the seven PCA. For instance, as shown in Table 2, some old constructs are divided or merged together. For instance, the old construct ‘knowledge of issues’ is divided into two new constructs. Furthermore, the construct ‘sense of urgency’ needed to be excluded as none of the items loaded together as one construct. The new constructs are used for further statistical analysis.

Table 2 - Constructs before and after the Principal Component Analysis

Old Construct	Items old construct	New construct	Items new construct	α
Attitude	1, 2, 3, 4 ,5 & 6	Attitude	1, 2, 3, 4 & 5	.91
Image	healthy, happy, perfectionist, social, ambitious, active, modern, wealthy, spiritual	Image healthy, happy & perfectionist traits	healthy, happy & perfectionist	.64
		Image social, ambitious, active & modern traits	social, ambitious, active & modern	.75
Knowledge of issues	1, 2, 3, 4 ,5, 6, 7, 8, 9 & 10	Knowledge of issues	2, 3, 4 & 5	.74
		Influence of humanity	7, 8, 9 & 10	.83
Sense of urgency	1, 2, 3, 4, 5 & 6			
Responsibility	1, 2, 3, 4, 5 & 6	Responsibility	1, 5, 6 & sense of urgency 5	.69
Defeatism	1, 2, 3, 4 & 5	Defeatism	1, 2, 3 & 5	.79
Perceived costs & benefits	effort, cheap, advantage, good feeling & pleasant	Perceived costs & benefits	effort, cheap, advantage & Items PBC 1 & 4	.81
Perceived behavioral control	1, 2, 3, 4, 5, 6, 7, 8, 9 & 10	Perceived behavioral control	6, 7, 8, 9 & 10	.87
Habit	1, 2, 3, 4, 5 & 6	Habit	3, 4 & 6	.82
Social influence	1, 2, 3, 4, 5 & 6	Social influence	2, 3, 4, 5 & 6	.85
Dutch government Enable	1, 2, 3, 4 & 5	Dutch government	enable 2, 3, 4 & encourage 1, 2, 3, 5, 6 & exemplify 1, 2, 3, 5 & engage 1, 2, 3, 4, 5	.93
Dutch government Encourage	1, 2, 3, 4, 5 & 6			
Dutch government Exemplify	1, 2, 3, 4 & 5			
Dutch government Engage	1, 2, 3, 4 & 5			
Intentional behavior	water, transportation, electricity, food waste, buying food, materials, waste, biodiversity	Intentional & actual behavior Finite resources	Intentional & actual behavior water, energy & materials	.91
Actual behavior	water, transportation, electricity, food waste, buying food, materials, waste, biodiversity	Intentional & actual behavior Waste	Intentional & actual behavior food waste & waste	.85
		Intentional & actual behavior Travel and food behavior	Intentional & actual behavior transportation & buying food	.88
		Intentional & actual behavior Biodiversity	Intentional & actual behavior biodiversity	.91

Note. α = Cronbach's alpha of the new constructs.

5.2 Demographics research respondents

Within this section, the demographics of the respondents are presented. The respondents' gender, age, educational level, work and student status, financial situation and marital status are outlined in Table 3.

The respondents were also asked to rank thirteen values. Five values represent the egoistic values. The biospheric and altruistic values were each represented with four values. In Table 4, the top five is presented with the frequency of egoistic, biospheric and altruistic values.

Table 3 - *Demographics of the research respondents*

		Percentages
Gender	Male	34,7
	Female	65,3
Age*	18 - 21	14,6
	22 - 25	30,7
	26 - 45	22,6
	46 - 65	27,6
	66 - 100	4,5
Education level	Primary school	0,0
	High school	6,4
	Intermediate vocational education	4,4
	Higher vocational education	45,3
	University	43,8
Student (or not)	Yes	41,9
	No	58,1
Paid work (or not)	Yes	70,0
	No	30,0
Financial situation	I have trouble making ends meet	14,3
	Equal expenses and income	44,3
	More income than expenses	35,5
	I'd rather not answer this question	5,9
Marital status	Single	48,0
	Single, with children	1,0
	Married or cohabitant	22,3
	Married or cohabitant, with children	23,3
	Other**	5,4

Note. N = 203
* mean age = 36,03 with SD = 16,28.
** For instance, living with parents, having a relationship but not living together, living in a student house.

Table 4 - *Top five values*

	Egoistic Values	Biospheric values	Altruistic values
	Percentages	Percentages	Percentages
0	57,6	20,7	2,5
1	27,1	28,6	8,9
2	7,9	27,1	27,6
3	4,9	20,7	33,0
4	2,0	3,0	28,1
5	0,5		
Total	100,0	100,0	100,0

Note. N = 203.

As shown within Table 4, altruistic values are valued important most frequently. Biospheric values are valued as important second most frequently.

5.3 Descriptive statistics

In this section descriptive statistics are presented for each construct. The results of the constructs representing the determinants are presented in Table 5 and the results of the constructs representing the specific types of PEB are presented in Table 6.

Table 5 - *Descriptive statistics determinants*

	N	M	SD
Attitude	203	6,1	0,86
Image Demographic Characteristics	203	5,2	0,76
Image Personal Characteristics	203	5,4	0,89
Knowledge of issues	203	5,1	1,04
Influence of humans	203	5,5	1,07
Responsibility	203	5,2	1,04
Defeatism	203	5,4	0,98
Perceived Costs & Benefits	203	4,5	1,09
Perceived behavioral control	203	5,7	0,73
Habit	203	5,0	1,05
Dutch government	203	4,0	0,83
Intentional & actual behavior Finite resources	202	5,2	1,31
Intentional & actual behavior Waste	202	5,8	1,07
Intentional & actual behavior Travel & food behavior	202	4,6	1,47
Intentional & actual behavior Biodiversity	164	5,1	1,77

Note. N = Sample. M = Mean. SD = Standard deviation. Each construct is measured on a seven-point Likert scale. A mean closer to one is negative for pro-environmental behavior and a mean closer to seven is positive for pro-environmental behavior.

Table 6 - *Descriptive statistics specific types of PEB*

	N	M	SD
Specific type Water	58	3,8	0,55
Specific type Transport	57	3,2	0,76
Specific type Energy	61	3,9	0,64
Specific type Food	59	3,3	0,74
Specific type Materials	57	3,4	0,61
Specific type Waste	54	3,5	0,72
Specific type Biodiversity	57	3,9	0,61

Note. N = Sample. M = Mean. SD = Standard deviation. Each construct is measured on a five-point Likert scale. A mean closer to one is negative for pro-environmental behavior and a mean closer to five is positive for pro-environmental behavior.

In general, the results showed positive results for PEB. This is based on the fact that the mean of each construct measured within the survey, is closer to seven than to one. This means that the respondents evaluated the items within the survey more positively than negatively. In addition, with each mean closer to five than to one, the results for each specific type of PEB are also positive for PEB. These results indicate that the respondents regularly perform the PEBs that are measured within the survey.

Unfortunately, the results are not very confident as most means are closer to the middle of the seven-point scale and the five-point scale than towards the ends. An in-depth and complete overview of all the answers of each item can be found in appendix D.

5.4 Correlations

Within this section, correlations between the constructs are briefly presented. The extensive results for the Spearman correlation can be found in appendix E.

Overall, the results show that almost all constructs have a significant ($p < 0,05$) positive relationship with the four constructs of intentional & actual behavior. With the exception of the construct defeatism and the Dutch government which show a negative correlation.

Furthermore, differences in correlations are found between the seven constructs that represent the specific types of PEB and the constructs that represent the determinants. For instance, attitude has a significant strong correlation with the specific type Waste ($r= .53$, $n= 54$, $p < 0,01$) and a moderate correlation with the specific type Food ($r= .39$, $n = 59$, $p < 0,01$).

Between the five constructs habit, perceived behavioral control, attitude, social influence and the Dutch government, significant low and moderate correlations were found ($r < .39$.)

5.5 Multiple regression

To distinguish whether the determinants could predict the intentional and actual behavior and each specific type of PEB, multiple regressions were conducted.

5.5.1 Attitude

First of all, it is researched to what extent the attitudinal determinants image health, happy & perfectionist traits, image social, ambitious, active & modern traits, knowledge of issues, influence of humanity, responsibility, defeatism and perceived costs & benefits can predict the determinant attitude. In Table 7, an overview of the beta values for the sample, together with its level of significance and the t-test are given. Furthermore, the level of variance explained by the whole model (ΔR^2) is presented in Table 7.

Table 7 - *Multiple regression attitude*

Model	ΔR^2	β	*t*	P
(Constant)			6.92	.00
Image health, happy & perfectionist traits		.01	.12	.90
Image social, ambitious, active & modern traits		.04	.57	.57
Knowledge of issues		.07	.96	.34
Influence of humanity		.04	.49	.63
Responsibility		**.21**	**2.76**	.01
Defeatism		**-.18**	**-2.35**	.02
Perceived Costs & Benefits		**.20**	**2.65**	.01
ΔR^2	.26			

Note. N = 203. β = Standardised beta. *t* = Obtained t-value. P = Significance level. ΔR^2 = Level of variance. The significant results are marked in bold and are underlined.

First of all, the overall model can significantly predict the determinant attitude. This indicates that the null hypothesis, there is no relationship between the predictor determinants and the outcome determinant, can be rejected. In other words, there is at least one determinant in the model that predicts an individual's attitude regarding PEB.

The analysis shows that the determinants responsibility, defeatism and perceived costs & benefits explain a significant amount of an individual's attitude regarding PEB. In more detail, if, for instance, responsibility rises by one unit, an individual's attitude regarding PEB will rise by .21 units. With regard to defeatism, a negative relationship exists which indicates that an individual's attitude regarding PEB will decline if defeatism rises.

Unfortunately, the analysis also shows that the remaining determinants did not significantly predict the dependent outcome and there is not enough evidence to reject the null hypothesis for these determinants.

5.5.2 Intentional & actual behavior

Next, a multiple regression was conducted to predict the four determinants of intentional & actual behavior. As biosperic values were left out when all three values were entered within SPSS, it was decided to exclude egoistic values from the multiple regression. In Table 8, an overview of the beta values for the sample, together with its level of significance and the t-test for each model are given. Furthermore, the level of variance explained by the whole model (ΔR^2) is presented in Table 8.

The first model predicts the intentional & actual behavior Finite resources. As a reminder, this determinant includes intentional and actual behavior regarding water, electricity and materials. The analysis shows that the determinants age, paid work (or not), biospheric values, attitude and habit can explain a significant amount of the dependent variable. In more detail, if, for instance, age rises by one unit, intentional & actual behavior related to Finite resources will rise by .33 units. Interestingly, a negative relationship exists between the determinant paid work (or not) and the dependent variable. The remaining determinants did not significantly predict the dependent outcome.

The second model predicts the intentional & actual behavior Waste. This determinant includes food waste and waste in general. The determinants gender, age, biospheric values, attitude and perceived behavioral control can explain a significant amount of the dependent outcome.

The third model predicts the intentional & actual behavior Travel & food behavior. This determinant includes buying food and transportation. The determinants paid work (or not), biospheric values, attitude and habit can explain a significant amount of the dependent outcome.

Finally, the last model predicts the intentional & actual behavior Biodiversity. Here, only the determinant attitude can explain a significant amount of the dependent outcome.

Table 8 - *Multiple regression intentional & actual behavior*

	Intentional & actual behavior Finite resources				Intentional & actual behavior Waste				Intentional & actual behavior Travel & food behavior				Intentional & actual behavior Biodiversity			
	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P
(Constant)			-1.18	.24			.14	.89			-1.85	.07			-2.18	.03
Gender		.04	.73	.46		**.20**	**3.24**	.00		.11	1.66	.10		.13	1.80	.07
Age		**.33**	**4.47**	.00		**.26**	**3.14**	.00		.07	.82	.41		.11	1.08	.28
Lower vs higher education		.07	1.47	.14		-.05	-.92	.36		-.01	-.08	.94		.11	1.52	.13
Student (or not)		-.14	-1.87	.06		-.10	-1.18	.24		.10	1.13	.26		.10	.91	.37
Paid work (or not)		**-.16**	**-2.91**	.00		.09	1.39	.17		**.14**	**2.08**	.04		-.01	-.11	.91
Lower vs higher income		.02	.39	.70		.09	1.68	.10		-.06	-.96	.34		.04	.56	.58
Single vs not single		-.04	-.54	.59		.06	.69	.49		.06	.68	.50		.08	.81	.42
Children vs no children		.09	1.47	.14		.02	.28	.78		.06	.85	.39		.12	1.39	.17
Top 5 biospheric values		**.19**	**2.80**	.01		**.22**	**2.80**	.01		**.19**	**2.30**	.02		.11	1.11	.27
Top 5 altruistic values		.04	.58	.57		.08	1.20	.23		.05	.67	.50		-.00	-.03	.98
Attitude		**.33**	**5.79**	.00		**.23**	**3.48**	.00		**.21**	**3.11**	.00		**.23**	**2.85**	.01
Social influence		.01	.09	.93		.12	1.75	.08		.08	1.11	.27		.04	.44	.66
Perceived behavioral control		.02	.34	.73		**.16**	**2.57**	.01		.06	.10	.32		.12	1.60	.11
Habit		**.38**	**6.72**	.00		.11	1.64	.10		**.22**	**3.21**	.00		.09	1.10	.27
Dutch government		-.09	-1.64	.10		-.07	-1.15	.25		-.10	-1.63	.11		-.14	-1.91	.06
ΔR^2	.56				.44				.40				.33			

Note. N= 203. β = Standardised beta. *t* = Obtained t-value. P = Significance level. ΔR^2 = Level of variance. The significant results are marked in bold and are underlined.

5.5.3 Specific types of pro-environmental behavior

Finally, to investigate which determinants predict the specific constructs of PEB another multiple regression was conducted. In Table 9, an overview of the beta values for the sample, together with its level of significance and the t-test for each model are given. Furthermore, the level of variance explained by the whole model (ΔR^2) is presented in Table 9.

The first model has as dependent variable the specific type Water. The determinant habit can explain a significant amount of the sub behaviors related to water. Unfortunately, for the other determinants, the null hypothesis cannot be rejected.

The second model has as dependent variable the specific type Transportation. According to the analysis, the determinants paid work (or not) and biospheric values can explain a significant amount of the sub behaviors related to transportation.

The third model has as dependent variable the specific type Electricity. The determinants biospheric values and attitude can explain a significant amount of the sub behaviors related to electricity.

The fourth model has as dependent variable the specific type Food. Here, only the variable biospheric values can explain a significant amount of the sub behaviors related to food.

The fifth model has as dependent variable the specific type Materials. The determinants age, attitude and the Dutch government can explain a significant amount of the sub behaviors related to materials. Interestingly, if the Dutch government rises by one unit, PEB related to materials will decline by .29 units. This indicates that if pro-environmental behavior regarding materials increases, the review of the behavior of the Dutch government become more negative.

The sixth model has as dependent variable the specific type Waste. Again, the determinants biospheric values and attitude can explain a significant amount of the sub behaviors related to waste.

Finally, the seventh model has as dependent determinant the specific type Biodiversity. The analysis shows that for all the determinants, the null hypothesis cannot be rejected.

Table 9 - *Multiple regression specific types of pro-environmental behavior*

	Specific construct Water				**Specific construct Transportation**				**Specific construct Electricity**				**Specific construct Food**				**Specific construct Materials**				**Specific construct Waste**				**Specific construct Biodiversity**			
	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	*t*	P	ΔR^2	β	t	P
(Constant)			3.54	.00			.81	.42			-.09	.93			.33	.74			.54	.59			.21	.83			1.64	.11
Gender		-.27	-1.83	.08		.01	.09	.93		-.04	-.28	.78		.22	1.91	.06		.04	.33	.74		.02	.17	.87		.12	.80	.43
Age		.22	1.15	.26		.11	.52	.61		.12	.68	.50		-.05	-.23	.82		**.35**	**2.29**	.03		.07	.33	.74		.12	.54	.60
Lower vs higher education		.00	.01	.99		-.17	-1.35	.19		.07	.55	.58		-.08	-.59	.56		-.14	-1.16	.25		-.11	-.89	.38		.08	.58	.57
Student (or not)		-.06	-.26	.79		-.11	-.51	.61		.27	1.40	.17		.09	.56	.58		.09	.64	.53		-.16	-.98	.33		.17	.84	.41
Paid work (or not)		.11	.71	.48		**.34**	**2.47**	.02		.03	.22	.83		.22	1.70	.10		.14	.98	.34		.05	.30	.77		-.10	-.56	.58
Lower vs higher income		-.13	-.99	.33		-.13	-1.11	.27		-.02	-.16	.88		-.05	-.45	.65		.09	87	.39		.18	1.44	.16		-.09	-.66	.52
Single vs not single		.10	.45	.65		.02	.12	.91		-.31	-1.88	.07		.32	1.82	.08		.08	.62	.54		-.09	-.61	.55		-.02	-.11	.92
Children vs no children		.04	.28	.78		-.21	-1.55	.13		.19	1.24	.22		-.05	-.33	.74		.05	.35	.73		.03	.15	.88		-.25	-1.37	.18
Top 5 biospheric values		.03	.12	.91		**.40**	**2.38**	.02		**.30**	**2.03**	.05		**.53**	**3.06**	.00		-.06	-.43	.67		**.38**	**2.15**	.04		.31	1.64	.11
Top 5 altruistic values		.01	.03	.97		-.04	-.28	.78		-.06	-.46	.65		.04	.22	.83		.13	.92	.36		.00	.03	.98		.05	.32	.75
Attitude		.11	.56	.58		.26	1.55	.13		**.39**	**2.90**	.01		-.05	-.41	.69		**.30**	**2.22**	.03		**.28**	**2.11**	.04		.18	1.08	.29
Social influence		.16	1.01	.32		.12	.60	.55		-.06	-.34	.73		.09	.73	.47		.10	.70	.49		.18	1.42	.16		-.21	-1.23	.23
Perceived behavioral control		-.18	-1.13	.27		.15	1.01	.32		.08	.62	.54		.17	1.49	.15		.09	.69	.49		.25	1.83	.08		.20	1.47	.15
Habit		**.40**	**2.68**	.01		-.04	-.25	.81		.22	1.54	.13		-.00	-.03	.98		.18	1.37	.18		.17	1.19	.24		.30	1.90	.07
Dutch government		-.26	-2.02	.05		-.02	-.14	.89		.05	.40	.69		-.06	-.55	.59		**-.29**	**-2.65**	.01		-.10	-.76	.45		-.16	-1.09	.28
ΔR^2	.35				.40				.37				.48				.50				.47				.36			

Note. N = 54 – 61. β = Standardised beta. *t* = Obtained t-value. P = Significance level. ΔR^2 = Level of variance. The significant results are marked in bold and are underlined.

6 Discussion

Within this chapter, the results are interpreted, possible limitations of this study are discussed and further research is presented.

6.1 Conclusions

The main finding of this research is that each of the seven types of PEB was predicted by a different set of predictors. The results showed that the determinants attitude and biospheric values are the main predictors of the intention to act pro-environmentally and the specific types of PEB. These two determinants had the most frequent, and mostly the highest, significant results with the dependent variables. Additionally, the socio-demographic determinants age and paid work (or not) also frequently showed significant results. Finally, the results showed that responsibility, defeatism and perceived costs & benefits explain a significant amount of an individual's attitude regarding PEB.

Unfortunately, the Dutch government showed disappointing results as the literature assumed that this external determinant is a valued addition to the model. The determinant had no more than one significant relationship with a dependent variable.

In addition, habit showed moderate results. Allthough previous research assumed it to have a big influence on the actual behavior, no more than three significant relationships with a dependent variable are found.

To conclude, the results have shown which determinants could predict each type of PEB which answers the research question of this study. Within the next sections, the theoretical and practical implications of these results are discussed.

6.1.1 Theoretical implications

With the results of this study, enough is known to present a framework that can increase theoretical consistency. This framework includes PEB in general and the specific types of pro-environmental behavior and their significant predictors (see Table 8 and 9). Furthermore, consistent with the TPB, this study shows that an individual's attitude has underlying beliefs that explain the overall evaluation of a particular behavior. This is an interesting result as previous research stated that there is a gap between attitude and behavior and attitudes were usually found to be very poor predictors of actual behavior (Ajzen & Fishbein, 1973, Ajzen & Fishbein, 2005). This contradiction could be explained by the finding that an individual's attitude has underlying beliefs. In summary, an attitude is more likely to be positive when individuals personally feel they are responsible for the particular behavior, have the feeling the

behavior has a positive effect on the environment, and lastly if the behavior has low costs and high personal or environmental benefits.

Unfortunately, the determinants social influence, PBC, habit and the Dutch government showed disappointing results. According to the literature review (e.g., Ajzen, 1991; Chawla, 1998; Kaiser et al., 2005; Kirkels, 2012), these determinants should be very important in achieving a more pro-environmental society. However, the results of this study do not confirm this statement. Before rejecting these determinants as a valuable influence on PEB, it should be mentioned that the measurement of these determinants could be questioned. They are measured with a scale designed to estimate general response regarding PEB. These general responses may not be compatible with the specific types of PEB.

To conclude, the model of this study (see Figure 4) offers a good account to encourage PEB systematically. A general theory of environmentalism is not realistic as PEB depends on a different set of predictors, both general and type-specific. Therefore, each type of PEB should be approached separately.

6.1.2 Practical implications

At the beginning of this paper it is stated that organizations and governments have some implications to change behavior and that the need for new strategies and approaches to encourage PEB has arisen. This study indicate that PEB is not a unitary, undifferentiated concept and that different combinations of determinants determine the different types of PEB. Therefore, it is important to first identify the behavior to change and then find what determinants could explain that particular behavior. Strategy makers should keep this in mind when creating strategies and interventions for encouraging PEBs. For instance, when constructing a strategy to encourage pro-environmental water use behaviors, interventions to break old (non-environmental) habits and learn new pro-environmental habits could be applied.

In addition, the results showed that each type of PEB are explained by multiple determinants which indicate that the most effective behavior change strategies involve combinations of determinants. For instance, when composing a strategy to encourage pro-environmental energy use behaviors, strategies that implement both increasing environmental value and creating a positive attitude toward the behavior could be applied.

6.2 Limitations

Despite the stimulating results and the focus on one dimension, this study still has its limitations.

First of all, the length and the name of the conducted survey are unsatisfactory points. The survey was titled ‘Pro-environmental behavior’. As a consequence, sampling bias or self-

selecting bias could occur as there is the possibility that a selecting group that is interested in the environment and PEB are more likely to fill in the survey. Also, due to the length of the survey individuals who are less interested might not have finished the survey. Furthermore, a survey has an absence of a time restriction which could result in different answers than in a real environment. This could result in biased results and difficulties in generalization of the results. Further research could prevent this by using experimental methods and observe behavior in a real environment.

Another bias could be that people are reluctant to state their real answers when filling in the survey although the survey is anonymous. The reason for this could be that people feel the need to be in favor with PEB or respondents could have been bored due to the length of the survey. Furthermore, the survey questions could be interpreted wrongly by the respondents. To prevent this bias as much as possible, terms are explained within the survey, a careful selection of wording is used, questions measuring socially desirable behavior are added and five pre-tests are conducted to test the validity of the survey. Nevertheless, it can never fully be ensured that all respondents interpreted the questions as the researcher wanted them to. This interpretation may possibly weaken the internal validity of the study.

Furthermore, the method of distribution of the survey can be argued. The survey was spread via social media and e-mail. This means that people who do not have Internet or social media are not reached. This could be prevented by also distributing the survey on paper to people. However, this method is time and resource intense. In addition, the sampling method can also be argued. The respondents were convenience sampled and, allthough this sample technique is fast and easy, it may result in sampling bias as the sample could not be representative of the entire population.

Finally, as in all correlation studies, the causality of the found relationships remains open (Bamberg, 2003). The correlations between the determinants and the specific types of PEB could reflect more the tendency for consistent answers than causality. In addition, the determinants are measured with a scale designed to estimate general response regarding PEB. These general responses may not be compatible with the specific types of PEB. Furthermore, the seven types of PEB are identified based on interpretation. More research is needed to provide stronger evidence for these types of behavior and further research should make a distinction between general and behavior-specific meausurements to ensure compatibility.

6.3 Further research

Several theories and frameworks have been analyzed within this study which resulted in a new model, implementing the theories and researches together. However, the presented model needs further research to increase the internal and external validity.

First of all, within this study the determinants are measured with a general scale and tested on the specific types of PEB. However, as mentioned within the previous section, these general responses may not be compatible with the specific types of PEB. To ensure more valid results when investigating which determinants can predict specific types of PEB, further research should use more behavior-specific meausurements.

In addition, this study has indicated seven types of behavior. These seven types of PEB are based on interpretation. Further research is necessary to investigate whether these seven types of behavior capture all PEB within the private-sphere. The pre-test already showed that it was difficult to answer whether individuals have the intention to act pro-environmentally regarding food. It was necessary to divide this item into two items, making a difference between purchasing food and using food at home. The seven types of PEB offer a good starting point for further research, however, to understand specific environmental behaviors more evidence is needed for these seven types of PEB.

An interesting finding within this study is the underlying beliefs of an individual's attitude. It would be interesting to further investigate whether there are more underlying beliefs that could predict an individual's evaluation regarding a behavior. This insight could provide more knowledge to explain the attitude-behavior gap.

Additionally, the present study shows that there is a small difference in determinants predicting intentional & actual behavior and the specific types of PEB. This intention-behavior gap needs further research in order to draw conclusions regarding determinants that predict actual PEB.

Finally, the determinants used within this research could be argued to be not complete. There are far more determinants that could influence or predict behavior. For instance, personal traits, past experience, perception of risk and the influence of organizations. Especially the influence of organizations could be relevant as organizations provide most of the services and products that people consume. Furthermore, they shape market demand and the environmental impacts of consumption by designing, marketing, inventing, and developing those services and products. (Michaelis, 2003). It would be interesting to further investigate the relationship between these determinants and the specific types of PEB.

6.4 In sum

To conclude, this study has identified seven specific types of PEB and proved the assumption that the determinants between these different types of PEB can differ. Furthermore, the present study has proved that the determinant attitude has underlying beliefs and that a general attitude could be seen as an evaluation of these beliefs. Finally, the model of determinants of PEB and the specific types of PEB provide a standard for further research.

Acknowledgements

I am very proud of the end result of this Master Thesis. This would not have been successful without the valuable feedback, professional guidance and engagement of Prof. Dr. M.D.T. de Jong and MSC S.J. Pothof. Thank you for your time and effort. Also, I really appreciated the opportunity to engage within an organization. Thank you Henk Steetsel for this chance and for sharing your knowledge. Finally, I would like to thank everyone who helped with improving the survey and engaged within the study.

References

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of environmental psychology, 25*(3), 273-291.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.

Ajzen, I. (2002). Constructing a TPB questionnaire: Conceptual and methodological considerations. Retrieved from http://www.uni-bielefeld.de/ikg/zick/ajzen%20construction%20a%20tpb%20questionnaire.pdf

Ajzen, I., & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behavior. *Journal of personality and social psychology,27*(1), 41-57.

Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. *The handbook of attitudes, 173*, 221.

Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviors? A new answer to an old question. *Journal of environmental psychology, 23*(1), 21-32.

Barr, S. (2003). Strategies for sustainability: Citizens and responsible environmental behavior. *Area, 35*(3), 227-240.

Bernstad, A., & la Cour Jansen, J. (2012). Separate collection of household food waste for anaerobic degradation: Comparison of different techniques from a systems perspective. *Waste management, 32*(5), 806-815.

Blackburn, W. R. (2007). *The sustainability handbook: The complete management guide to achieving social, economic and environmental responsibility.* Washington DC: Earthscan.

Brown, P. M., & Cameron, L. D. (2000). What can be done to reduce overconsumption?. *Ecological Economics, 32*(1), 27-41.

Chawla, L. (1998). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *The Journal of Environmental Education, 29*(3), 11-21.

Clark, C. F., Kotchen, M. J., & Moore, M. R. (2003). Internal and external influences on pro-environmental behavior: participation in a green electricity program. *Journal of environmental psychology, 23*(3), 237-246.

Conner, M., & Abraham, C. (2001). Conscientiousness and the theory of planned behavior: Toward a more complete model of the antecedents of intentions and behavior. *Personality and Social Psychology Bulletin, 27*(11), 1547-1561.

Costanza, R., Daly, H., Folke, C., Hawken, P., Holling, C. S., McMichael, A. J., & Rapport, D. (2000). Managing our environmental portfolio. *BioScience, 50*(2), 149-155.

Creech, H., McDonald, C., & Kahlke, P. M. H. (2009). *Measuring knowledge, attitudes and behaviors towards sustainable development: Two exploratory studies.* Winnipeg, Canada: International Institute for Sustainable Development.

De Groot, J. I., & Steg, L. (2007). Value orientations and environmental beliefs in five countries validity of an instrument to measure egoistic, altruistic and biospheric value orientations. Journal *of Cross-Cultural Psychology, 38*(3), 318-332.

De Oliver, M. (1999). Attitudes and Inaction: A case study of the manifest demographics of urban water conservation. *Environment and Behavior, 31*(3), 372-394.

Dooley, K. (2001). *Social research methods.* NJ: Prentice-Hall.

Downing, P., & Ballantyne, P. (2007). *Tipping point or turning point? Social marketing and climate change.* London: Ipsos MORI.

Drennan, J. (2003). Cognitive interviewing: Verbal data in the design and pretesting of questionnaires. *Journal of advanced nursing, 42*(1), 57-63.

Ehrenfeld, J. (2008). *Sustainability by design. A subversive strategy for transforming our consumer culture.* New Haven, London: Yalebooks.

Eppel, S., Sharp, V., & Davies, L. (2013). A review of Defra's approach to building an evidence base for influencing sustainable behavior. *Resources, Conservation and Recycling, 79*, 30-42.

Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research onresponsible environmental behavior: A meta-analysis. *Journal of Environmental Education, 18*, 1-8.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable development, 13*(1), 38-52.

Kaiser, F. G., Hübner, G., & Bogner, F. X. (2005). Contrasting the theory of planned Behavior with the value-belief-norm model in explaining conservation behavior. *Journal of Applied Social Psychology, 35*(10), 2150-2170.

Kenis, A., & Mathijs, E. (2012). Beyond individual behavior change: The role of power, knowledge and strategy in tackling climate change. *Environmental Education Research, 18*(1), 45-65.

Kirkels, A. (2012). *Technology and sustainability*. Eindhoven: Technische Universiteit.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239-260.

Kuhlman, T., & Farrington, J. (2010). What is sustainability? *Sustainability, 2*(11), 3436-3448.

Leiserowitz, A. A., Kates, R. W., & Parris, T. M. (2006). Sustainability values, attitudes, and behaviors: A review of multinational and global trends. *Annu. Rev. Environ. Resour., 31*, 413-444.

Martín-López, B., Montes, C., & Benayas, J. (2007). The non-economic motives behind the willingness to pay for biodiversity conservation. *Biological conservation, 139*(1), 67-82.

McKenzie-Mohr, D. (2000). New ways to promote pro-environmental behavior: Promoting sustainable behavior: An introduction to community-based social marketing. *Journal of social issues, 56*(3), 543-554.

Michaelis, L. (2003). The role of business in sustainable consumption. *Journal of Cleaner Production, 11*(8), 915-921.

Milieu Centraal. (2005). Voorkom voedselverspilling. Retrieved from http://www.milieucentraal.nl/voeding/voorkom-voedselverspilling/

Nugier, A., Niedenthal, P., Brauer, M., & Chekroun, P. (2007). Moral and angry emotions provoked by informal social control. *Cognition & Emotion, 2*, 1699–1720.

Opitz, E. M., Kiefer, J. C., Davis, W. Y., Dziegielewski, B., & Nelson, J. O. (1999). *Residential end uses of water.* Denver: AWWA Research Foundation and American Water Works Association.

Oreg, S., & Katz-Gerro, T. (2006). Predicting pro-environmental behavior cross-nationally values, the theory of planned behavior, and value-belief-norm theory. *Environment and Behavior, 38*(4), 462-483.

Petty, R. E., & Krosnick, J. A. (2014). *Attitude strength: Antecedents and consequences.* Retrieved from https://books.google.nl/books?hl=en&lr=&id=taWYAgAAQBAJ&oi=fnd&pg=PP1&ots=wzDroogbBW&sig=piBol6okcvxli4_wRQfibXj3GyU#v=onepage&q&f=false

Pimentel, D., Wilson, C., McCullum, C., Huang, R., Dwen, P., Flack, J., & Cliff, B. (1997). Economic and environmental benefits of biodiversity. *BioScience, 47*, 747-757.

Princen, T. (1999). Consumption and environment: Some conceptual issues. *Ecological Economics, 31*(3), 347-363.

Quellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological bulletin, 124*(1), 54.

Rogerson, R., Bellingham, R., & Shevtsova, Y. (n.d.). Changing behavior and attitudes to sustainability: A report for the department of enterprise, trade and investment. Retrieved from http://www.detini.gov.uk/changing_behaviour_and_attitudes_to_sustainability__a_report_for_the_department_of_enterprise__trade_and_investment.pdf

Salkovskis, P. M., Wroe, A. L., Gledhill, A., Morrison, N., Forrester, E., Richards, C., & Thorpe, S. (2000). Responsibility, attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behavior Research and Therapy, 38*(4), 347-372.

Schouten, M. (2013). Duurzaamheid: *Een sociaal process* (Master's thesis). Available from Repository Home database.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behavior: An integrative review and research agenda. *Journal of Environmental Psychology,29*(3), 309-317.

Stegall, N. (2006). Designing for sustainability: A philosophy for ecologically intentional design. *Design Issues, 22*(2), 56-63.

Stelzer, K. (2006). Sustainability = good design. *Cruem, 1*(2), 27-40

Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407-424.

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review, 6*(2), 81-98.

Strange, T. & Bayley, A. (2008). *Sustainable development: Linking economy, society, environment*. Paris, France: Organization for Economic Co-operation and Development.

Thogersen, J., & Grunert-Beckmann, S. C. (1997). Values and attitude formation towards emerging attitude objects: From recycling to general, waste minimizing behavior. *Advances in Consumer Research, 24*(1), 182-189.

Thompson, M. H. (2008). Fostering sustainable behaviors in community-based co-managed fisheries. *Marine Policy, 32*(3), 413-420.

Toman, M.A. (1992) The difficulty of defining sustainability. *Resources, 106*, 3–6.

Turaga, R. M. R., Howarth, R. B., & Borsuk, M. E. (2010). Pro-environmental behavior. *Annals of the New York Academy of Sciences, 1185*(1), 211-224.

Uzzell, D. (2008). Challenging assumptions in the psychology of climate change. *InPsych: The Bulletin of the Australian Psychological Society 30*(4), 10-13.

Verain, M. C., Bartels, J., Dagevos, H., Sijtsema, S. J., Onwezen, M. C., & Antonides, G. (2012). Segments of sustainable food consumers: A literature review. *International Journal of Consumer Studies, 36*(2), 123-132.

Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer attitude–behavioral intention gap. *Journal of Agricultural and Environmental Ethics, 19*(2), 169-194.

Verplanken, B., & Aarts, H. (1999). Habit, attitude, and planned behavior: Is habit an empty construct or an interesting case of goal-directed automaticity? *European Review of Social Psychology, 10*(1), 101-134.

Verstraete, D. (2008). *Interuniversitaire manama-opleiding jeugdgezondheidszorg. Het sociaal wenselijk antwoorden bij adolescentenenquêtes.* University of Keulen. VU Brussel. University of Antwerpen. University of Gent. KU Leuven. Retrieved from http://opleiding-jgz.be/eindwerken/bestanden/eindwerk%20B%20Verstraete.pdf

Wackernagel, M., & Galli, A. (2007). An overview on ecological footprint and sustainable development: A chat with Mathis Wackernagel. *International Journal of Ecodynamics, 2*(1), 1-9.

White, K. M., Terry, D. J., Troup, C., & Rempel, L. A. (2007). Behavioral, normative and control beliefs underlying low-fat dietary and regular physical activity behaviors for adults diagnosed with type 2 diabetes and/or cardiovascular disease. *Psychology, Health & Medicine, 12*(4), 485-494.

Williams, K., & Dair, C. (2007). A framework of sustainable behaviors that can be enabled through the design of neighborhood-scale developments. *Sustainable Development, 15*(3), 160-173.

Appendix A - Survey

Pro-environmental behavior survey

Geachte respondent,

Hartelijk bedankt voor uw deelname aan mijn onderzoek. Ik voer dit onderzoek uit in het kader van mijn masterstudie Communicatiewetenschap aan de Universiteit Twente. Met deze vragenlijst probeer ik na te gaan hoe mensen denken over milieuvriendelijk gedrag en waarom ze wel of niet milieuvriendelijk gedrag vertonen. Het invullen van de vragenlijst neemt ongeveer 20 minuten in beslag. Ik verzoek u om bij elke vraag het antwoord te kiezen dat het best bij uw mening/gevoel past. Er zijn geen goede of foute antwoorden. Uiteraard zullen alle gegevens vertrouwelijk en anoniem worden behandeld.

Als u vooraf of naar aanleiding van de vragenlijst vragen heeft, kunt u contact met mij opnemen via j.m.a.derckx@student.utwente.nl.

Nogmaals hartelijk dank voor uw medewerking!

Met vriendelijke groet,

Janneke Derckx

Het onderzoek bestaat uit drie delen. In het eerste deel krijgt u vragen over milieuproblemen en milieuvriendelijk gedrag in het algemeen.

> Bij milieuproblemen kunt u denken aan problemen die te maken hebben met de aantasting, de verontreiniging en/of de uitputting van het milieu en de natuurlijke hulpbronnen.
>
> Bij milieuvriendelijk gedrag kunt u denken aan alle acties en handelingen waarmee u probeert zo min mogelijk belasting uit te oefenen op het milieu. Denk bijvoorbeeld aan het beperken van water- en energieverbruik, het kopen van milieuvriendelijke producten, afvalscheiding, en hergebruik van materialen. Probeer tijdens het invullen van de vragen aan al deze verschillende milieuvriendelijke handelingen te denken.

In het tweede deel krijgt u nog een paar vragen over specifiek milieuvriendelijk gedrag. Ten slotte, het laatste onderdeel betreft een aantal demografische vragen.

Wilt u iedere vraag zorgvuldig lezen voordat u uw antwoord kiest?

Hartelijk dank, en veel succes met het invullen.

Attitude

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Ik sta positief tegenover milieuvriendelijk gedrag	0	0	0	0	0	0	0
Als ik milieuvriendelijk gedrag vertoon, draag ik bij aan een betere wereld	0	0	0	0	0	0	0
Ik vind het belangrijk om rekening te houden met het milieu	0	0	0	0	0	0	0
Ik vind dat iedereen zich milieuvriendelijk moet gedragen	0	0	0	0	0	0	0
Ik wil graag een bijdrage leveren aan een beter milieu	0	0	0	0	0	0	0
Nederland blijft een van de beste landen om in te wonen, als iedereen milieuvriendelijk gedrag vertoont	0	0	0	0	0	0	0

Image

	1	2	3	4	5	6	7	
Saai	0	0	0	0	0	0	0	levendig
Ouderwets	0	0	0	0	0	0	0	modern
nuchter	0	0	0	0	0	0	0	zweverig
niet ambitieus	0	0	0	0	0	0	0	ambitieus
behoeftig/arm	0	0	0	0	0	0	0	welgesteld/rijk
slordig	0	0	0	0	0	0	0	perfectionistisch
ongezond	0	0	0	0	0	0	0	gezond
ongelukkig	0	0	0	0	0	0	0	gelukkig
asociaal	0	0	0	0	0	0	0	sociaal

Knowledge of issues

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De crisis rondom grondstoffen, energie en klimaat is sterk overdreven	0	0	0	0	0	0	0
Het gat in de ozonlaag is een bedreiging voor de mensheid	0	0	0	0	0	0	0
De uitputting van grondstoffen, zoals olie en gas, is een groot probleem	0	0	0	0	0	0	0
De huidige luchtkwaliteit binnen Nederland is een gevaar voor de volksgezondheid	0	0	0	0	0	0	0
De opwarming van de aarde is een bedreiging voor de mensheid	0	0	0	0	0	0	0

De mens speelt geen enkele rol bij de opwarming van de aarde	0	0	0	0	0	0	0
De klimaatverandering wordt versneld door de mensheid	0	0	0	0	0	0	0
De meeste milieuproblemen worden veroorzaakt door de mensheid	0	0	0	0	0	0	0
De mensheid zorgt ervoor dat de aarde straks zonder natuurlijke hulpbronnen zit	0	0	0	0	0	0	0
Het gat in de ozonlaag is veroorzaakt door de mens	0	0	0	0	0	0	0

Sense of urgency

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Milieuproblemen hebben op dit moment voorrang boven andere problemen	0	0	0	0	0	0	0
De natuur is sterk genoeg om te kunnen omgaan met de invloeden van de mens	0	0	0	0	0	0	0
Als de mensheid doorgaat op de huidige koers, zullen we snel een grote milieuramp ervaren	0	0	0	0	0	0	0
Het huidige gebruik van de hulpbronnen vormt een bedreiging voor de gezondheid van toekomstige generaties	0	0	0	0	0	0	0
De volgende generatie moet in een beter milieu dan nu terecht komen	0	0	0	0	0	0	0
De schade door de huidige milieuproblemen zal niet merkbaar zijn in de komende 10 jaar	0	0	0	0	0	0	0

Responsibility

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Je kunt als eenling geen echte bijdrage leveren aan het verminderen van milieuproblemen	0	0	0	0	0	0	0
Ik voel me niet verantwoordelijk voor de milieuproblemen	0	0	0	0	0	0	0
De grote milieuproblemen worden veroorzaakt door bedrijven; de oplossing ligt bij bedrijven en niet bij individuele mensen	0	0	0	0	0	0	0
De grote milieuproblemen worden veroorzaakt buiten Nederland; de oplossing ligt in die landen en niet in Nederland	0	0	0	0	0	0	0
Ik kan een positief effect hebben op het milieu	0	0	0	0	0	0	0
Niet handelen om een milieuramp te voorkomen is even erg als de milieuramp veroorzaken	0	0	0	0	0	0	0

Defeatism

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Het heeft weinig zin wat ik doe, anderen gaan toch gewoon door met het aantasten van het milieu	0	0	0	0	0	0	0
Wat er ook gedaan wordt om de leefomgeving te verbeteren, het heeft geen zin meer	0	0	0	0	0	0	0
Ik kan weinig tot niks bedenken wat de klimaatverandering kan tegenhouden	0	0	0	0	0	0	0
Er zijn genoeg bewijzen die aantonen dat milieuvriendelijk gedrag een verschil kan maken voor een betere wereld	0	0	0	0	0	0	0
De milieuproblemen zijn te groot om aan te pakken	0	0	0	0	0	0	0

Perceived costs and benefits

	1	2	3	4	5	6	7	
is onaangenaam	0	0	0	0	0	0	0	is aangenaam
geeft me geen goed gevoel	0	0	0	0	0	0	0	geeft me een goed gevoel
is duur	0	0	0	0	0	0	0	is goedkoop
kost me veel moeite	0	0	0	0	0	0	0	kost me weinig moeite
is nadelig voor mij	0	0	0	0	0	0	0	is voordelig voor mij

Perceived behavioral control

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Ik vind het moeilijk om milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Milieuvriendelijk gedrag past niet in mijn huidige woon- en leefsituatie	0	0	0	0	0	0	0
Ik heb de keuze om milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Ik vind het moeilijk om elke dag milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Mijn levensstijl laat milieuvriendelijk gedrag niet toe	0	0	0	0	0	0	0
Ik heb de benodigde kennis en vaardigheden om milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Ik weet welke stappen ik moet ondernemen om milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Ik ben in staat om informatie te vinden die me helpt (meer) milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Ik ben in staat om beslissingen te nemen die bijdragen aan het milieu	0	0	0	0	0	0	0
Ik weet hoe ik milieuvriendelijk gedrag kan vertonen	0	0	0	0	0	0	0

Habit

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Als ik gedrag vertoon dat NIET milieuvriendelijk is, dan doe ik dat onbewust	0	0	0	0	0	0	0
Nadat ik een tijdje milieuvriendelijk gedrag heb vertoond, val ik weer terug in mijn oude gewoontes	0	0	0	0	0	0	0
Ik vertoon milieuvriendelijk gedrag zonder erbij na te denken	0	0	0	0	0	0	0
Ik vertoon milieuvriendelijk gedrag al een geruime tijd	0	0	0	0	0	0	0
Ik vind het moeilijk om GEEN milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
Ik vertoon milieuvriendelijk gedrag zonder mezelf er bewust aan te herinneren	0	0	0	0	0	0	0

Social influence

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De meeste mensen die belangrijk voor mij zijn, vinden dat ik milieuvriendelijk gedrag zou moeten vertonen	0	0	0	0	0	0	0
Mijn vrienden en familie zullen mijn milieuvriendelijk gedrag positief ontvangen	0	0	0	0	0	0	0
Mijn vrienden en familie vinden milieuvriendelijk gedrag belangrijk	0	0	0	0	0	0	0
De meeste mensen in mijn omgeving vertonen milieuvriendelijk gedrag	0	0	0	0	0	0	0
De mensen in mijn omgeving verwachten dat ik milieuvriendelijk gedrag vertoon	0	0	0	0	0	0	0
Ik word door de mensen in mijn omgeving aangemoedigd om milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0

Nederlandse overheid

De volgende vragen zijn gericht op de taken die de Nederlandse overheid (landelijke overheid, provincies, gemeenten) kan hebben met betrekking tot milieuvriendelijk gedrag.

Nederlandse overheid Enable

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid biedt voorzieningen aan die milieuvriendelijk gedrag mogelijk maken	0	0	0	0	0	0	0
De Nederlandse overheid biedt informatie aan om (meer) milieuvriendelijk gedrag te vertonen	0	0	0	0	0	0	0
De Nederlandse overheid biedt milieuvriendelijke alternatieven aan om milieuvriendelijk gedrag aantrekkelijker te maken	0	0	0	0	0	0	0
De Nederlandse overheid maakt het de Nederlandse bevolking moeilijk om voor milieuvriendelijk te gaan	0	0	0	0	0	0	0
De Nederlandse overheid biedt mensen vrijheid aan om voor milieuvriendelijk te kunnen kiezen	0	0	0	0	0	0	0

Nederlandse overheid Encourage

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid beloont milieuvriendelijk gedrag van mensen	0	0	0	0	0	0	0
De regels en wetten van de Nederlandse overheid maakt het makkelijk om voor milieuvriendelijk te kiezen	0	0	0	0	0	0	0
De Nederlandse overheid wilt oprecht dat de Nederlandse bevolking milieuvriendelijk gedrag vertoont	0	0	0	0	0	0	0
De Nederlandse overheid deelt strenge straffen uit aan mensen	0	0	0	0	0	0	0

die de milieuregels en wetten overtreden							
De Nederlandse overheid heeft waardering voor mensen die milieuvriendelijk gedrag vertonen	0	0	0	0	0	0	0
De Nederlandse overheid maakt het aantrekkelijk om voor milieuvriendelijk gedrag te kiezen door middel van subsidies	0	0	0	0	0	0	0

Nederlandse overheid Exemplify

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid geeft steeds meer het goede voorbeeld met betrekking tot milieuvriendelijk gedrag	0	0	0	0	0	0	0
De Nederlandse overheid let er goed op dat ze de schade aan het milieu zoveel mogelijk beperken	0	0	0	0	0	0	0
De Nederlandse overheid kan binnen Nederland gezien worden als leider in milieuvriendelijk gedrag	0	0	0	0	0	0	0
De milieuproblemen in Nederland worden vooral veroorzaakt doordat de Nederlandse overheid zich te veel richt op de economische groei	0	0	0	0	0	0	0
De Nederlandse overheid laat zien dat ze geeft om de natuur en de leefomgeving van mensen	0	0	0	0	0	0	0

Nederlandse overheid Engage

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid is betrokken bij milieuvriendelijke initiatieven	0	0	0	0	0	0	0
De Nederlandse overheid brengt milieuvriendelijk gedrag op een positieve manier over op de Nederlandse bevolking	0	0	0	0	0	0	0
De Nederlandse overheid werkt samen met bedrijven en lokale overheden met het doel om Nederland milieuvriendelijker te maken	0	0	0	0	0	0	0
De Nederlandse overheid laat de Nederlandse bevolking mee denken aan oplossingen voor het verbeteren van het milieu	0	0	0	0	0	0	0
De Nederlandse overheid probeert haar milieuvriendelijke normen en waarden over te brengen op de Nederlandse samenleving	0	0	0	0	0	0	0

Intention of behavior

Kunt u hieronder aangeven in hoeverre u het eens of oneens bent met onderstaande uitspraken?

Let op: er wordt hier gevraagd naar uw voornemens om een bepaalde handeling uit te voeren! Dus of u van plan bent om het te doen. Ook als u de handeling al uitvoert kunt u aangeven of u steeds weer het voornemen hebt om de handeling uit te voeren.

Als het voornemen niet van toepassing kan zijn (u heeft bijvoorbeeld geen tuin), kunt u N.V.T. invullen.

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens	N.V.T
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn aankopen van bijvoorbeeld elektrische of huishoudelijke apparaten	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om milieuvriendelijk met mijn afval om te gaan	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om voedselverspilling zo veel mogelijk te vermijden	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om milieuvriendelijk geproduceerd voedsel te kopen	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn watergebruik	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn energiegebruik	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om diverse bomen en planten te plaatsen en dieren zo veel mogelijk toe te laten in mijn tuin of omgeving	0	0	0	0	0	0	0	0
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn reisgedrag en vervoergebruik	0	0	0	0	0	0	0	0

Actual behavior

Kunt u hieronder aangeven in hoeverre u het eens of oneens bent met onderstaande uitspraken?

Let op: er wordt hier gevraagd naar uw werkelijke gedrag! Dus of u de handeling daadwerkelijk uitvoert.

Als de handeling niet van toepassing kan zijn (u heeft bijvoorbeeld geen tuin), kunt u N.V.T. invullen.

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens	N.V.T
Ik let op milieuvriendelijkheid bij mijn aankopen van bijvoorbeeld elektrische of huishoudelijke apparaten	0	0	0	0	0	0	0	0
Ik ga milieuvriendelijk om met mijn afval	0	0	0	0	0	0	0	0
Ik vermijd voedselverspilling zo veel mogelijk	0	0	0	0	0	0	0	0
Ik koop milieuvriendelijk geproduceerd voedsel	0	0	0	0	0	0	0	0
Ik let op milieuvriendelijkheid bij mijn watergebruik	0	0	0	0	0	0	0	0
Ik let op milieuvriendelijkheid bij mijn energiegebruik	0	0	0	0	0	0	0	0
Ik plaats diverse bomen en planten en laat dieren zo veel mogelijk toe in mijn tuin of omgeving	0	0	0	0	0	0	0	0
Ik let op milieuvriendelijkheid bij mijn reisgedrag en vervoergebruik	0	0	0	0	0	0	0	0

Het vorige onderdeel ging in op uw mening met betrekking tot milieuvriendelijk gedrag in het algemeen. Het volgende onderdeel van het onderzoek richt zich op specifiek milieuvriendelijk gedrag.

Water

Deze vraag richt zich op uw gedrag met betrekking tot het gebruik van water in een huishouden.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot het watergebruik. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn (u heeft bijvoorbeeld geen tuin of bad), kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Zo kort mogelijk douchen	0	0	0	0	0	0
Een douche nemen in plaats van een bad	0	0	0	0	0	0
De kraan dichtdoen tijdens het tandenpoetsen	0	0	0	0	0	0
Regenwater hergebruiken voor verschillende doeleinden	0	0	0	0	0	0
De vaatwasser pas aanzetten als deze helemaal vol zit	0	0	0	0	0	0
De auto met de hand wassen als het nodig is, in plaats van bijvoorbeeld de tuinslang of de wasstraat	0	0	0	0	0	0
De tuin/planten alleen water geven wanneer het een tijdje niet heeft geregend	0	0	0	0	0	0
Gebruikt water, bijvoorbeeld van het afwassen of schoonmaken, zo veel mogelijk hergebruiken	0	0	0	0	0	0
Het gebruiken van waterbesparende apparaten, zoals zuinige douchekoppen of wasmachines	0	0	0	0	0	0
Vermijden dat afval, zoals maandverband, frietvet en wattenstaafjes in het toilet wordt gegooid	0	0	0	0	0	0

Transport

Deze vraag richt zich op uw reisgedrag en vervoergebruik.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot uw reisgedrag en vervoersgebruik. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn (u heeft bijvoorbeeld geen auto), kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Bewust niet met het vliegtuig op vakantie gaan	0	0	0	0	0	0
Lopend of met de fiets ergens naartoe gaan in plaats van met de auto	0	0	0	0	0	0
Gebruik maken van het openbaar vervoer in plaats van de auto	0	0	0	0	0	0
Gebruik maken van alternatieve reis mogelijkheden zoals car-pooling* of greenwheels**	0	0	0	0	0	0
Onderweg naar mijn eindbestemming zo min mogelijk omrijden	0	0	0	0	0	0
Het hebben van autoloze dagen	0	0	0	0	0	0
Minder benzine verbruiken door mijn rijstijl aan te passen	0	0	0	0	0	0
Tijdens het wachten, voor bijvoorbeeld een stoplicht, bewust de motor uitzetten	0	0	0	0	0	0
Regelmatig de bandenspanning controleren van mijn auto	0	0	0	0	0	0
Met slecht weer toch voor de fiets kiezen	0	0	0	0	0	0

* Carpoolen of autopoolen is het deelgebruik van de auto, voornamelijk voor het woon-werkverkeer. Het verdelen van de autokosten over de inzittenden is een belangrijk kostenvoordeel

** Greenwheels is een bedrijf dat auto's verhuurt aan mensen die samen met andere mensen een auto willen delen

Energie

Deze vraag richt zich op uw gedrag met betrekking tot uw energiegebruik.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot het energiegebruik. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn, kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Het licht uitdoen in kamers die langere tijd niet worden gebruikt	0	0	0	0	0	0
Gebruik maken van lampen met een zo zuinig mogelijk energieverbruik. "Denk bijvoorbeeld aan een LED lamp in plaats van een gloeilamp"	0	0	0	0	0	0
De laptop of computer geheel afsluiten als ik hem niet meer gebruik	0	0	0	0	0	0
De stekker van apparaten er uit halen of uitschakelen als ze niet worden gebruikt	0	0	0	0	0	0
Gebruik maken van dekens of warmere kleding aantrekken in plaats van de verwarming hoger zetten	0	0	0	0	0	0
Kleren laten drogen aan een wasrek in plaats van gebruik te maken van een droger	0	0	0	0	0	0
De verwarming lager zetten bij het verlaten van mijn huis	0	0	0	0	0	0
Bij het kopen of huren van een huis/kamer, waarde hechten aan het energielabel*.	0	0	0	0	0	0
Tijdens het aanschaffen van apparaten aandacht schenken aan het energielabel*	0	0	0	0	0	0
Overwegen om gebruik te maken van groene energie, bijvoorbeeld via zonnepanelen of een organisatie die wind energie levert (als u al gebruik maakt van groene energie of dit is niet mogelijk dan vult u 'N.V.T. ' in)	0	0	0	0	0	0

* Met een energielabel kunnen kopers en huurders in één oogopslag zien of een woning zuinig of onzuinig is

Voedsel

Deze vraag richt zich op uw gedrag met betrekking tot voedsel.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot voedsel. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn (u bent bijvoorbeeld vegetariër), kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Groente en/of fruit kopen uit het seizoen	0	0	0	0	0	0
Voor het boodschappen doen, eerst de voedselvoorraad controleren	0	0	0	0	0	0
In de winkel, bewust de dichtstbijzijnde houdbaarheidsdatum kiezen, als ik vandaag een bepaald voedsel wil gebruiken	0	0	0	0	0	0
Biologisch groente en/of fruit kopen	0	0	0	0	0	0
Biologisch vlees en/of vis kopen	0	0	0	0	0	0
Minder dan 5x per week vlees eten	0	0	0	0	0	0
Vermijden van het gebruik van bestrijdingsmiddelen op mijn eigen planten, kruiden, fruit of groenten	0	0	0	0	0	0
Voedseletiketten lezen voor meer informatie over het product	0	0	0	0	0	0
Ingrediënten wegen voordat ik ga koken om te voorkomen dat ik te veel kook	0	0	0	0	0	0
Restjes van eten hergebruiken	0	0	0	0	0	0

Materialen

Deze vraag richt zich op uw gedrag met betrekking tot materialen. Denk bijvoorbeeld aan uw consumptiegedrag en het gebruik van materialen zoals stoelen, kasten en wasmachines.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot materialen. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn, kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Eerst erbij stilstaan of ik iets nog kan hergebruiken voordat ik het weggooi	0	0	0	0	0	0
Eerst iets proberen te repareren voor ik het weggooi	0	0	0	0	0	0
Zo milieuvriendelijk mogelijke producten kopen, als ik de keuze heb	0	0	0	0	0	0
2e-handsproducten kopen	0	0	0	0	0	0
Merken kopen die bekend staan om hun goede kwaliteit	0	0	0	0	0	0
Producten kopen die goed zijn voor het milieu, denk bijvoorbeeld aan een zuinige wasmachine of een regenwateropvangsysteem	0	0	0	0	0	0
Spullen die ik weggooi afgeven aan de kringloop, een soortgelijke winkel of via het Internet.	0	0	0	0	0	0
Materialen kopen die lokaal zijn geproduceerd	0	0	0	0	0	0
Bewust gebruik maken van bio-cosmetica*	0	0	0	0	0	0
Producten kopen die gemaakt zijn van gerecycled afval (bijvoorbeeld afvalhout)	0	0	0	0	0	0

*Onder bio-cosmetica wordt verstaan cosmetische producten die niet zijn getest op dieren en bestaan uit natuurlijke, biologische ingrediënten

Afval

Deze vraag richt zich op uw gedrag met betrekking tot afval.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot het afvalgebruik. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn, kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
Mijn lunch naar school/werk meenemen in herbruikbare verpakkingen	0	0	0	0	0	0
Zwerfafval oppakken als ik het zie en in een prullenbak gooien	0	0	0	0	0	0
Elektrische producten, zoals computers, recyclen* of laten recyclen	0	0	0	0	0	0
Mijn eigen (plastic) tas meenemen als ik boodschappen ga doen	0	0	0	0	0	0
Producten kopen die herbruikbaar zijn, in plaats van producten die je 1 keer kan gebruiken	0	0	0	0	0	0
Afval scheiden	0	0	0	0	0	0
Kranten, tijdschriften en karton hergebruiken**	0	0	0	0	0	0
Glas en plastic recyclen	0	0	0	0	0	0
Producten kopen met zo min mogelijk verpakkingsmateriaal	0	0	0	0	0	0
Gebruik maken van composteerinstallaties*** in mijn tuin of in een openbare ruimte	0	0	0	0	0	0

* Recyclen is het in een productieproces opnieuw verwerken van afvalmaterialen voor het oorspronkelijke doel of voor andere doeleinden. Recyclen is iets anders dan hergebruik.
** Bij hergebruiken wordt een product (of delen daarvan) opnieuw gebruikt zonder het daarbij in grondstoffen te scheiden.
*** De installatie maakt het mogelijk ter plekke compost en groene stroom te maken van groente- fruit- en tuinafval (GFT)

Biodiversiteit

Deze vraag richt zich op uw gedrag met betrekking tot biodiversiteit. Denk bijvoorbeeld aan het behandelen van dieren (zoogdieren, insecten, vogels, enz.) met respect en bijdragen aan een divers en bloeiende biodiversiteit door het planten van bomen en bloemen.

Hieronder staat een lijstje van specifieke handelingen die milieuvriendelijk zijn met betrekking tot biodiversiteit. Kunt u van elke handeling aangeven in hoeverre u deze in het dagelijks leven vertoont? U kunt kiezen tussen nooit, zelden, soms, meestal en altijd.

Als de handeling niet van toepassing kan zijn (u heeft bijvoorbeeld geen tuin), kunt u N.V.T. invullen.

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T.
De dieren in de winter van eten voorzien	0	0	0	0	0	0
Vermijden van het kopen van vlees of vis van bedreigde diersoorten	0	0	0	0	0	0
Natuurlijke bestrijdingsmiddelen gebruiken voor het onderhoud van mijn tuin, dakterras of balkon	0	0	0	0	0	0
Bewust leefplekken creëren voor dieren in mijn tuin of rondom mijn huis	0	0	0	0	0	0
Vermijden van vervuiling van de natuur met mijn eigen afval	0	0	0	0	0	0
Tijdens een wandeling de dieren, planten, mossen en zwammen met rust laten	0	0	0	0	0	0
Kiezen voor (streekeigen) bomen en planten die passen bij de natuurlijk omstandigheden van mijn tuin	0	0	0	0	0	0
Iets spontaan laten groeien in de tuin of rondom mijn huis	0	0	0	0	0	0
Bewust afgevallen bladeren laten liggen	0	0	0	0	0	0
Vermijden van lichtvervuiling* rondom mijn huis	0	0	0	0	0	0

* Met lichtvervuiling wordt de grote hoeveelheid, vaak overbodig, kunstlicht bedoeld die wordt uitgestraald door bijvoorbeeld straatlantaarns, broeikassen, gevelverlichting, huishoudens, et cetera.

Dat waren alle vragen met betrekking tot milieuvriendelijk gedrag. Het laatste onderdeel van deze enquête betreft een aantal demografische vragen.

Socio-demographic variables

Wat is uw geslacht?

- ❍ Man
- ❍ Vrouw

Wat is uw leeftijd?

_____ Jaar

Wat is uw hoogst genoten onderwijsniveau?

- ❍ Basisschool
- ❍ Middelbare school
- ❍ Middelbaar beroepsonderwijs MBO
- ❍ Hoger beroepsonderwijs (HBO)
- ❍ Universitair

Bent u een momenteel student?

- ❍ Ja
- ❍ Nee

Heeft u op dit moment betaald werk?

- ❍ Ja
- ❍ Nee

Wat is op dit moment uw financiële situatie?

- ❍ Ik heb meestal moeite om elke maand rond te komen
- ❍ Mijn inkomsten en uitgaven zijn meestal elke maand ongeveer gelijk
- ❍ Ik houd meestal elke maand geld over
- ❍ Ik vul deze vraag liever niet in

Wat is uw burgerlijke staat?

- ❍ Alleenstaand
- ❍ Alleenstaand, met kind(eren)
- ❍ Samenwonend of getrouwd
- ❍ Samenwonend of getrouwd, met kind(eren)
- ❍ Anders, namelijk _____

Personal values

Hieronder staan 13 uiteenlopende persoonlijk waarden en motieven gedefinieerd. Zet de waarden in de voor u juiste volgorde van belangrijkheid (1 is het meest belangrijk en 13 is het minst belangrijk).

_____ Macht
_____ Een vreedzame wereld
_____ Rijkdom
_____ Voorkomen van vervuiling
_____ Behulpzaamheid
_____ Sociale rechtvaardigheid
_____ Respect voor de aarde
_____ Invloed
_____ Eenheid met de natuur
_____ Autoriteit
_____ Milieu - bescherming
_____ Ambitie
_____ Gelijkheid

Social desirable scale

Wilt u iedere vraag beantwoorden door ‘Ja’ of ‘Nee’ in te vullen. Het is niet nodig dat u erg lang over de vragen nadenkt

	Ja	Nee
Doet u altijd gelijk wat u gezegd wordt?	O	O
Zijn AL uw gewoonten goed en wenselijk?	O	O
Houdt u zich altijd aan uw belofte, ook als het u slecht uitkomt?	O	O
Heeft u weleens vals gespeeld?	O	O
Stelt u soms dingen uit tot morgen terwijl u ze vandaag eigenlijk zou moeten doen?	O	O

Appendix B - Summary of question items per construct

Table B1 - *Summary of question items per construct*

Construct	Number of items	Source
Attitude	6	Ajzen, 2002, Rogerson, Bellingham, and Shevtsova, n.d., Salkovskis, Wroe, Gledhill, Morrison, Forrester, Richards, and Thorpe, S., 2000, Schouten, M., 2013
Image of pro-environmental behavior	10	Uzzell, 2008, Creech, McDonald, and Kahlke, 2009
Knowledge of issues	10	Schouten, 2013
Sense of urgency	6	Schouten, 2013
Responsibility	6	Salkovskis, Wroe, Gledhill, Morrison, Forrester, Richards and Thorpe, 2000 and Schouten, 2013
Defeatism	5	Kenis and Mathijs, 2012
Perceived costs & benefits	5	Ajzen, 2002
Perceived behavioral control	10	Creech, McDonald and Kahlke, 2009, Schouten, 2013
Habit	6	Schouten, 2013
Social influence	6	Schouten, 2013, Ajzen, 2002
Dutch Government Enable	5	Eppel, Sharp, and Davies, 2013, Rogerson, Bellingham, and Shevtsova, n.d.
Dutch government Encourage	6	Eppel, Sharp, and Davies, 2013, Rogerson, Bellingham, and Shevtsova, n.d.
Dutch government Exemplify	5	Eppel, Sharp, and Davies, 2013, Rogerson, Bellingham, and Shevtsova, n.d.
Dutch government Engage	5	Eppel, Sharp, and Davies, 2013, Rogerson, Bellingham, and Shevtsova, n.d.
Intentional behavior	8	Schouten, 2013, Ajzen, 2002
Actual behavior	8	Schouten, 2013
Specific type Water	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Transportation	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Electricity	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Water Food	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Materials	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Water Waste	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Specific type Biodiversity	10	Creech, McDonald, and Kahlke, 2009, Schouten, 2013
Socio-demographics	7	Schouten, 2013
Personal values	5	Verstraete, 2008
Social desirability	13	De Groot and Steg, 2007

Appendix C - Principal Component Analysis

Table C1- *Results of the first, middle and last Principal Component Analysis*

Items	PCA 1				PCA 3				PCA 7			
	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 3	Group 4	Group 1	Group 2	Group 3	Group 4
Attitude (1)	.86				.86				.86			
Attitude (5)	.84				.83				.83			
Attitude (3)	.77				.78				.80			
Attitude (2)	.77				.78				.78			
Attitude (4)	.68				.69				.72			
Attitude (6)	.68				Deleted				Deleted			
Unhappy:Happy	.78				.83				.74			
Asocial:social	.72				.59					.55		
Not ambitious: ambitious	.63					.56				.64		
Old-fashioned: modern	.55					.65				.73		
Unhealthy:healthy	.49				.65				.77			
Boring:active	.46					.71				.66		
Sloppy:perfectionistic	.64				.62				.69			
Poor:wealthy	.83				.77				Deleted			
Down to earth:spiritual	No construct				No contruct				Deleted			
Knowledge of issues (5)	.68				.68				.70			
Knowledge of issues (4)	.64				.64				.60			
Knowledge of issues (2)	.62				.62				.62			
Knowledge of issues (3)	.55				.55				.68			
Sense of urgency (6)					.43				Deleted			
Knowledge of issues (1)	No construct				Deleted				Deleted			
Influence humanity (8)	.79				.76					.78		
Influence humanity (10)	.75				.75					.75		
Influence humanity (7)	.72				.68				.44	.58		
Influence humanity (9)	.68				.71					.75		
Sense of urgency (4)	.47				.44				Deleted			
Influence humanity (6)	No construct				Deleted				Deleted			
Sense of urgency (6)	No construct								Deleted			
Sense of urgency (1)	No construct				No construct				Deleted			
Sense of urgency (2)	.70				.72				Deleted			
Sense of urgency (5)	.67				.54				.57			
Responsibility (6)	.48				.63				.71			
Responsibility (5)	No construct				.51				.53			
Responsibility (1)	.60				.44	.47			.52			
Responsibility (2)	.42					.45			Deleted			
Responsibility (3)	.78				.71				Deleted			
Responsibility (4)	.52				.41				Deleted			
Defeatism (2)	-.66				-.75				-.72			
Defeatism (5)	-.71				-.72				-.73			
Defeatism (3)	-.68				-.67				-.72			
Defeatism (1)	-.51				-.59				-.63			
Defeatism (4)	No construct				Deleted				Deleted			
Lot of effort:little	.79				.77				.70			

effort								
Is expensive: is cheap	.61				.59			.70
Disadvantage:Advantage	.44				.47			.54
PBC (4)	.68				.68			Deleted
PBC (1)	.59				.60			Deleted
Habit (2)	.45				.48			Deleted
No good feeling:Good feeling	.66				.64			.64
Is unpleasant:is pleasant	.61				.67			.70
PBC (2)	No construct				No construct			Deleted
PBC (5)	No construct				No construct			Deleted
PBC (3)	.68				.65			Deleted
PBC (10)	.84				.84			.83
PBC (6)	.81				.77			.76
PBC (7)	.81				.78			.79
PBC (8)	.66				.72			.74
PBC (9)	.64				.68			.70
Habit (3)	.83				.83			.84
Habit (6)	.73				.75			.77
Habit (4)	.60				.62			.62
Habit (1)	-.67				Deleted			Deleted
Habit (5)	.46				No construct			Deleted
Social Influence (6)	.77				.81			.79
Social Influence (4)	.77				.79			.77
Social Influence (5)	.72				.72			.69
Social Influence (3)	.57	.56			.69			.78
Social Influence (2)		.74			.66			.65
Social Influence (1)		.56			Deleted			Deleted
Dutch government engage (5)	.83				.84			.82
Dutch government engage (2)	.80				.79			.79
Dutch government engage (4)	.77				.77			.74
Dutch government exemplify (5)	.77				.77			.79
Dutch government exemplify (2)	.77				.78			.77
Dutch government exemplify (1)	.76				.78			.79
Dutch government engage (3)	.72				.72			.70
Dutch government engage (1)	.68				.66			.66
Dutch government encourage (3)	.64				.70			.69
Dutch government exemplify (3)	.64				.66			.67
Dutch government encourage (5)	.61		.43		.60			.65
Dutch government enable (3)	.61	.52			.57		.58	.65
Dutch government encourage (1)	.55		.49		.54			.61
Dutch government enable (2)	.53				.49		.53	.53
Dutch government enable (4)	.52				.49			.54
Dutch government enable (1)	.47	.57			.44		.63	Deleted
Dutch government encourage (6)	.47		.63		.48	.67		.49
Dutch government	.48		.56		.47	.56		.53

encourage (2)												
Dutch government enable (5)		.49				.47			Deleted			
Dutch government encourage (4)			-.70	Deleted					Deleted			
Dutch government exemplify (4)	No construct			Deleted					Deleted			
Actual behavior water	.82			.82					.79			
Actual behavior electricity	.78			.78					.75			
Intentional behavior electricity	.77			.77					.76			
Intentional behavior water	.76			.75					.72			
Actual behavior materials	.71			.69					.71			
Intentional behavior materials	.69			.65					.68			
Actual behavior transportation		.70			.72					.72		
Intentional behavior transportation	.47	.61		.42	.66					.68		
Actual behavior buying food	.43	.56		.41	.50					.56		
Intentional behavior buying food		.55			.47					.53		
Actual behavior waste	.41		.63			.63					.66	
Intentional behavior waste	.41		.61			.60					.62	
Actual behavior food waste	.44		.60	.41		.65					.68	
Intentional behavior food waste			.60			.66					.69	
Intentional behavior biodiversity				.89				.89				.89
Actual behavior biodiversity				.86				.88				.88
Sense of urgency (3)						.41			Deleted			
KMO			**,78**				**,79**				**,82**	

Appendix D - Distribution of answers

Table D1 - *Distribution of answers Attitude*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Ik sta positief tegenover milieuvriendelijk gedrag	1,5	0	0	0,5	6,4	39,9	51,7
Als ik milieuvriendelijk gedrag vertoon, draag ik bij aan een betere wereld	1	0,5	0,5	1,5	11,8	45,3	39,4
Ik vind het belangrijk om rekening te houden met het milieu	1	0	1	1,5	11,8	45,8	38,9
Ik vind dat iedereen zich milieuvriendelijk moet gedragen	1,5	1,5	1	4,9	14,8	45,3	31
Ik wil graag een bijdrage leveren aan een beter milieu	1,5	0	1,5	2,5	13,8	45,3	35,5
Nederland blijft een van de beste landen om in te wonen, als iedereen milieuvriendelijk gedrag vertoont	1	3,9	3,9	15,8	26,6	37,4	11,3

Table D2 - *Distribution of answers Image*

	1	2	3	4	5	6	7	
Saai	1	3,4	4,9	23.6	30	24,1	12,8	levendig
ouderwets	0	1	1	17,2	25,1	32,5	23,2	Modern
Nuchter	7,9	16,3	14,8	36	12,8	11,3	1	zweverig
niet ambitieus	0	1	2,5	23,6	31,5	27,1	14,3	ambitieus
behoeftig/arm	0	1,5	6,4	46,3	25,1	17,2	3,4	Welgesteld/rijk
Slordig	0	2	2	37,4	29,6	24,6	4,4	perfectionistisch
Ongezond	0	0,5	1	15,3	26,6	42,4	14,3	gezond
ongelukkig	0	1	1	30	33,5	27,1	7,4	gelukkig
Asocial	0,5	2	0,5	10,8	21,2	33,5	31,5	sociaal

Table D3 - Distribution of answers Knowledge of issues

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De crisis rondom grondstoffen, energie en klimaat is sterk overdreven	24,6	41,9	16,3	6,4	8,4	2	0,5
Het gat in de ozonlaag is een bedreiging voor de mensheid	1,5	3,9	6,4	12,8	29,6	36	9,9
De uitputting van grondstoffen, zoals olie en gas, is een groot probleem	1,5	3	8,4	6,4	16,7	38,7	25,1
De huidige luchtkwaliteit binnen Nederland is een gevaar voor de volksgezondheid	3	8,9	10,3	19,7	31	21,2	5,9
De opwarming van de aarde is een bedreiging voor de mensheid	1,5	3	4,9	8,9	27,6	35	19,2
De mens speelt geen enkele rol bij de opwarming van de aarde	44,8	34	12,8	3,9	3,9	0,5	0

De klimaatverandering wordt versneld door de mensheid	3	0,5	3	4,9	13,3	39,9	35,5
De meeste milieuproblemen worden veroorzaakt door de mensheid	1,5	1,5	3	6,4	18,2	41,9	27,6
De mensheid zorgt ervoor dat de aarde straks zonder natuurlijke hulpbronnen zit	1	3,9	4,9	10,3	28,6	31,5	19,7
Het gat in de ozonlaag is veroorzaakt door de mens	2	3,4	3,4	24,1	25,1	26,6	15,3

Table D4 - *Distribution of answers Sense of urgency*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Milieuproblemen hebben op dit moment voorrang boven andere problemen	2	17,2	12,8	22,7	29,1	11,3	4,9
De natuur is sterk genoeg om te kunnen omgaan met de invloeden van de mens	9,4	30	22,7	15,3	14,3	6,9	1,5
Als de mensheid doorgaat op de huidige koers, zullen we snel een grote milieuramp ervaren	1	5,4	6,4	14,3	35	26,6	11,3
Het huidige gebruik van de hulpbronnen vormt een bedreiging voor de gezondheid van toekomstige generaties	1,5	0,5	3	12,8	26,1	37,4	18,7
De volgende generatie moet in een beter milieu dan nu terecht komen	1	3	2,5	11,8	21,2	41,9	18,7
De schade door de huidige milieuproblemen zal niet merkbaar zijn in de komende 10 jaar	16,3	29,6	19,7	17,7	9,9	6,9	0

Table D5 - *Distribution of answers Responsibility*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Je kunt als eenling geen echte bijdrage leveren aan het verminderen van milieuproblemen	14,3	32	22,7	3	13,8	8,9	5,4
Ik voel me niet verantwoordelijk voor de milieuproblemen	20,7	35,5	16,7	9,4	12,3	4,4	1
De grote milieuproblemen worden veroorzaakt door bedrijven; de oplossing ligt bij bedrijven en niet bij individuele mensen	8,9	27,1	20,2	15,3	21,7	5,4	1,5
De grote milieuproblemen worden veroorzaakt buiten Nederland; de oplossing ligt in die landen en niet in Nederland	13,8	35	19,7	14,3	15,3	1,5	0,5
Ik kan een positief effect hebben op het milieu	0,5	0,5	3	7,9	31,5	37,4	19,2

Niet handelen om een milieuramp te voorkomen is even erg als de milieuramp veroorzaken	2,5	8,4	7,4	16,7	22,7	28,1	14,3

Table D6 - Contribution of answers Defeatism

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Het heeft weinig zin wat ik doe, anderen gaan toch gewoon door met het aantasten van het milieu	13,3	32	20,2	5,9	21,7	5,4	1,5
Wat er ook gedaan wordt om de leefomgeving te verbeteren, het heeft geen zin meer	28,1	46,8	15,3	4,4	3,9	1,5	0
Ik kan weinig tot niks bedenken wat de klimaatverandering kan tegenhouden	16,7	42,9	20,2	9,4	4,9	5,4	0,5
Er zijn genoeg bewijzen die aantonen dat milieuvriendelijk gedrag een verschil kan maken voor een betere wereld	2	2	3	20,2	19,2	42,4	11,3
De milieuproblemen zijn te groot om aan te pakken	14,3	44,8	19,7	10,8	6,9	2,5	1

Table D7 - *Contribution of answers Peceived costs & benefits*

	1	2	3	4	5	6	7	
is onaangenaam	0	0	1	10,3	19,7	32,5	36,5	is aangenaam
geeft me geen goed gevoel	1	3	1	7,4	17,2	36,5	34	geeft me een goed gevoel
is duur	6,9	15,8	20,7	32,5	13,8	5,4	4,9	is goedkoop
kost me veel moeite	2	8,4	20,2	20,2	22,7	17,7	8,9	kost me weinig moeite
is nadelig voor mij	1	1	3,4	25,1	23,6	29,6	16,3	is voordelig voor mij

Table D8 - *Distribution of answers Perceived behavioral control*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Ik vind het moeilijk om milieuvriendelijk gedrag te vertonen	7,9	32,5	20,7	14,3	20,7	3,4	0,5
Milieuvriendelijk gedrag past niet in mijn huidige woon- en leefsituatie	12,8	44,3	15,8	7,4	13,3	4,9	1,5
Ik heb de keuze om milieuvriendelijk gedrag te vertonen	1	1	5,4	1,5	16,7	50,7	23,6
Ik vind het moeilijk om elke dag milieuvriendelijk gedrag te vertonen	7,9	21,7	17,2	14,8	23,6	12,3	2,5
Mijn levensstijl laat milieuvriendelijk gedrag niet toe	20,2	48,8	13,8	10,3	4,4	1,5	1

Ik heb de benodigde kennis en vaardigheden om milieuvriendelijk gedrag te vertonen	0,5	0	6,4	5,9	25,6	48,8	12,8
Ik weet welke stappen ik moet ondernemen om milieuvriendelijk gedrag te vertonen	0,5	1	4,9	5,9	32	46,3	9,4
Ik ben in staat om informatie te vinden die me helpt (meer) milieuvriendelijk gedrag te vertonen	0	0	2	2,5	18,2	56,2	21,2
Ik ben in staat om beslissingen te nemen die bijdragen aan het milieu	0	0	1	3	19,2	61,6	15,3
Ik weet hoe ik milieuvriendelijk gedrag kan vertonen	0,5	0	1,5	3,4	25,6	57,6	11,3

Table D9 - *Distribution of answers Habit*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
Als ik gedrag vertoon dat NIET milieuvriendelijk is, dan doe ik dat onbewust	0,5	12,8	20,7	15,3	30,5	17,2	3
Nadat ik een tijdje milieuvriendelijk gedrag heb vertoond, val ik weer terug in mijn oude gewoontes	3,4	36,9	19,7	18,7	16,7	4,4	0
Ik vertoon milieuvriendelijk gedrag zonder erbij na te denken	0	7,4	11,3	12,8	39,9	25,1	3,4
Ik vertoon milieuvriendelijk gedrag al een geruime tijd	0,5	5,4	3,4	12,8	28,1	39,4	10,3
Ik vind het moeilijk om GEEN milieuvriendelijk gedrag te vertonen	1	15,3	21,7	16,7	20,7	19,7	4,9
Ik vertoon milieuvriendelijk gedrag zonder mezelf er bewust aan te herinneren	0,5	3	9,9	14,8	37,4	29,6	4,9

Table D10 - *Distribution of answers Social influence*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De meeste mensen die belangrijk voor mij zijn, vinden dat ik milieuvriendelijk gedrag zou moeten vertonen	2,5	16,3	11,8	29,6	19,7	17,7	2,5
Mijn vrienden en familie zullen mijn milieuvriendelijk gedrag positief ontvangen	0	2	3,9	16,7	28,1	39,9	9,4
Mijn vrienden en familie vinden milieuvriendelijk gedrag belangrijk	0	3,4	9,9	18,2	35,5	27,6	5,4
De meeste mensen in mijn omgeving vertonen milieuvriendelijk gedrag	0	6,4	13,8	25,6	33,5	19,7	1
De mensen in mijn	3,4	8,4	14,3	32	25,1	13,8	3

omgeving verwachten dat ik milieuvriendelijk gedrag vertoon							
Ik word door de mensen in mijn omgeving aangemoedigd om milieuvriendelijk gedrag te vertonen	2,5	15,3	19,7	25,1	22,2	13,3	2

Table D11 - *Distribution of answers The Dutch government Enable*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid biedt voorzieningen aan die milieuvriendelijk gedrag mogelijk maken	0,5	6,4	4,4	16,3	44,8	27,6	0
De Nederlandse overheid biedt informatie aan om (meer) milieuvriendelijk gedrag te vertonen	0	3,9	5,9	17,2	41,9	29,6	1,5
De Nederlandse overheid biedt milieuvriendelijke alternatieven aan om milieuvriendelijk gedrag aantrekkelijker te maken	2	9,9	13,3	19,7	34,5	20,2	0,5
De Nederlandse overheid maakt het de Nederlandse bevolking moeilijk om voor milieuvriendelijk te gaan	0,5	18,2	27,6	22,2	18,7	9,9	3
De Nederlandse overheid biedt mensen vrijheid aan om voor milieuvriendelijk te kunnen kiezen	1,5	1	5,9	21,7	34	32	3,9

Table D12 - *Distribution of answers The Dutch government Encourage*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid beloont milieuvriendelijk gedrag van mensen	3,4	22,7	24,1	27,1	18,2	4,4	0
De regels en wetten van de Nederlandse overheid maakt het makkelijk om voor milieuvriendelijk te kiezen	2,5	14,3	19,2	35,5	23,2	5,4	0
De Nederlandse overheid wilt oprecht dat de Nederlandse bevolking milieuvriendelijk gedrag vertoont	3,9	11,3	20,7	25,1	30	8,9	0
De Nederlandse overheid deelt strenge straffen uit aan mensen die de milieuregels en wetten overtreden	7,9	30,5	17,7	20,7	15,3	7,4	0,5
De Nederlandse overheid heeft waardering voor mensen die milieuvriendelijk gedrag vertonen	2,5	14,8	14,3	33,5	27,6	6,9	0,5

De Nederlandse overheid maakt het aantrekkelijk om voor milieuvriendelijk gedrag te kiezen door middel van subsidies	1,5	11,8	18,2	33	28,6	6,4	0,5

Table D13 - *Distribution of answers The Dutch government Exemplify*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid geeft steeds meer het goede voorbeeld met betrekking tot milieuvriendelijk gedrag	3,9	16,3	18,2	32	25,6	3,9	0
De Nederlandse overheid let er goed op dat ze de schade aan het milieu zoveel mogelijk beperken	3	19,2	21,7	37,4	15,8	3	0
De Nederlandse overheid kan binnen Nederland gezien worden als leider in milieuvriendelijk gedrag	12,3	21,7	28,1	27,6	6,9	3,4	0
De milieuproblemen in Nederland worden vooral veroorzaakt doordat de Nederlandse overheid zich te veel richt op de economische groei	1,5	6,9	11,3	27,1	28,6	15,8	8,9
De Nederlandse overheid laat zien dat ze geeft om de natuur en de leefomgeving van mensen	4,9	11,8	13,3	29,6	32,5	7,9	0

Table D14 - *Distribution of answers The Dutch government Engage*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens
De Nederlandse overheid is betrokken bij milieuvriendelijke initiatieven	1	4,9	6,9	23,2	44,8	18,2	1
De Nederlandse overheid brengt milieuvriendelijk gedrag op een positieve manier over op de Nederlandse bevolking	2,5	4,9	12,3	33,5	32	14,3	0,5
De Nederlandse overheid werkt samen met bedrijven en lokale overheden met het doel om Nederland milieuvriendelijker te maken	2	3	10,3	31	42,4	10,3	1
De Nederlandse overheid laat de Nederlandse bevolking mee denken aan oplossingen voor het verbeteren van het milieu	3,4	9,4	19,7	35	25,1	7,4	0
De Nederlandse overheid probeert haar milieuvriendelijke normen en waarden over te brengen op de Nederlandse samenleving	3,4	8,9	15,3	33	32	7,4	0

Table D15 - *Distribution of answers Intention of behavior*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens	Niet van toepassing
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn aankopen van bijvoorbeeld elektrische of huishoudelijke apparaten	3	7,9	10,8	3,9	22,2	28,6	20,7	3
Ik heb steeds het voornemen om milieuvriendelijk met mijn afval om te gaan	1	2	3,9	2,5	8,9	47,3	32,5	2
Ik heb steeds het voornemen om voedselverspilling zo veel mogelijk te vermijden	1,5	0,5	3,4	1	12,8	45,3	34,5	1
Ik heb steeds het voornemen om milieuvriendelijk geproduceerd voedsel te kopen	3	9,4	13,3	8,4	24,1	25,6	15,3	1
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn watergebruik	1,5	3,4	8,9	7,9	25,6	33	18,7	1
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn energiegebruik	2	3	4,9	5,4	19,7	38,9	25,1	1
Ik heb steeds het voornemen om diverse bomen en planten te plaatsen en dieren zo veel mogelijk toe te laten in mijn tuin of omgeving	3	5,9	4,9	6,9	14,8	18,2	23,2	23,2
Ik heb steeds het voornemen om op milieuvriendelijkheid te letten bij mijn reisgedrag en vervoergebruik	3,4	9,4	12,3	11,8	24,6	18,7	17,2	2,5

Table D16 - *Distribution of answers Actual behavior*

	Volledig oneens	Oneens	Enigszins oneens	Noch eens, noch oneens	Enigszins eens	Eens	Volledig eens	Niet van toepassing
Ik let op milieuvriendelijkheid bij mijn aankopen van bijvoorbeeld elektrische of huishoudelijke apparaten	3,9	12,8	7,4	6,9	27,1	23,6	16,3	2
Ik ga milieuvriendelijk om met mijn afval	1,5	4,9	6,4	3	14,3	41,4	27,6	1
Ik vermijd voedselverspilling zo veel mogelijk	1	1,5	8,4	1,5	19,7	36,5	31	0,5
Ik koop milieuvriendelijk geproduceerd voedsel	4,4	16,3	14,3	8,9	30,5	16,7	7,9	1

Ik let op milieuvriendelijkheid bij mijn watergebruik	2,5	6,9	11,8	4,4	24,6	33	16,3	0,5
Ik let op milieuvriendelijkheid bij mijn energiegebruik	3	4,9	6,4	3,4	24,6	37,9	18,7	1
Ik plaats diverse bomen en planten en laat dieren zo veel mogelijk toe in mijn tuin of omgeving	5,9	4,4	6,9	6,4	16,7	17,2	19,2	23,2
Ik let op milieuvriendelijkheid bij mijn reisgedrag en vervoergebruik	5,9	10,3	14,8	8,4	25,1	21,2	12,8	1,5

Table D17 - *Distribution of answers Water*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Zo kort mogelijk douchen	6,9	8,6	36,2	36,2	10,3	1,7
Een douche nemen in plaats van een bad	1,7	1,7	10,3	22,4	31	32,8
De kraan dichtdoen tijdens het tandenpoetsen	0	1,7	6,9	15,5	75,9	0
Regenwater hergebruiken voor verschillende doeleinden	34,5	10,3	5,2	12,1	10,3	27,6
De vaatwasser pas aanzetten als deze helemaal vol zit	0	1,7	10,3	48,3	39,7	0
De auto met de hand wassen als het nodig is, in plaats van bijvoorbeeld de tuinslang of de wasstraat	10,3	10,3	6,9	10,3	10,3	51,7
De tuin/planten alleen water geven wanneer het een tijdje niet heeft geregend	1,7	0	0	15,5	50	32,8
Gebruikt water, bijvoorbeeld van het afwassen of schoonmaken, zo veel mogelijk hergebruiken	22,4	36,2	15,5	12,1	8,6	5,2
Het gebruiken van waterbesparende apparaten, zoals zuinige douchekoppen of wasmachines	10,3	13,8	19	34,5	12,1	10,3
Vermijden dat afval, zoals maandverband, frietvet en wattenstaafjes in het toilet wordt gegooid	0	0	0	10,3	89,7	0

Table D18 - *Distribution of answers Transportation*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Bewust niet met het vliegtuig op vakantie gaan	33,9	15,3	20,3	13,6	8,5	8,5
Lopend of met de fiets ergens naartoe gaan in plaats van met de auto	0	5,1	16,9	45,8	25,4	6,8
Gebruik maken van het openbaar vervoer in plaats van de auto	6,8	16,9	25,4	35,6	10,2	5,1
Gebruik maken van alternatieve reis mogelijkheden zoals car-	39	16,9	8,5	5,1	0	30,5

pooling* of greenwheels**						
Onderweg naar mijn eindbestemming zo min mogelijk omrijden	0	1,7	6,8	37,3	35,6	18,6
Het hebben van autoloze dagen	23,7	5,1	16,9	13,6	8,5	32,2
Minder benzine verbruiken door mijn rijstijl aan te passen	5,1	1,7	10,2	28,8	27,1	27,1
Tijdens het wachten, voor bijvoorbeeld een stoplicht, bewust de motor uitzetten	33,9	6,8	20,3	6,8	5,1	27,1
Regelmatig de bandenspanning controleren van mijn auto	11,9	10,2	27,1	15,3	6,8	28,8
Met slecht weer toch voor de fiets kiezen	10,2	11,9	20,3	27,1	18,6	11,9

Table D19 - *Distribution of answers Electricity*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Het licht uitdoen in kamers die langere tijd niet worden gebruikt	0	0	3,3	16,4	80,3	0
Gebruik maken van lampen met een zo zuinig mogelijk energieverbruik. "Denk bijvoorbeeld aan een LED lamp in plaats van een gloeilamp"	0	4,9	18	45,9	29,5	1,6
De laptop of computer geheel afsluiten als ik hem niet meer gebruik	8,2	8,2	18	29,5	36,1	0
De stekker van apparaten er uit halen of uitschakelen als ze niet worden gebruikt	18	11,5	18	27,9	24,6	0
Gebruik maken van dekens of warmere kleding aantrekken in plaats van de verwarming hoger zetten	0	8,2	19,7	47,5	24,6	0
Kleren laten drogen aan een wasrek in plaats van gebruik te maken van een droger	1,6	6,6	18	29,5	42,6	1,6
De verwarming lager zetten bij het verlaten van mijn huis	1,6	3,3	11,5	24,6	57,4	1,6
Bij het kopen of huren van een huis/kamer, waarde hechten aan het energielabel*.	14,8	8,2	4,9	16,4	13,1	42,6
Tijdens het aanschaffen van apparaten aandacht schenken aan het energielabel*	8,2	11,5	14,8	23	32,8	9,8
Overwegen om gebruik te maken van groene energie, bijvoorbeeld via zonnepanelen of een organisatie die wind energie levert (als u al gebruik maakt van groene energie of dit is niet mogelijk dan vult u 'N.V.T. ' in)	8,2	6,6	16,4	13,1	13,1	42,6

Table D20 - *Distribution of answers Food*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Groente en/of fruit kopen uit het seizoen	3,4	5,1	32,2	49,2	10,2	0
Voor het boodschappen doen, eerst de voedselvoorraad controleren	0	3,4	11,9	39	45,8	0
In de winkel, bewust de dichtstbijzijnde houdbaarheidsdatum kiezen, als ik vandaag een bepaald voedsel wil gebruiken	23,7	23,7	16,9	33,9	1,7	0
Biologisch groente en/of fruit kopen	18,6	16,9	40,7	18,6	5,1	0
Biologisch vlees en/of vis kopen	20,3	16,9	27,1	18,6	8,5	8,5
Minder dan 5x per week vlees eten	11,9	18,6	18,6	20,3	28,8	1,7
Vermijden van het gebruik van bestrijdingsmiddelen op mijn eigen planten, kruiden, fruit of groenten	13,6	5,1	6,8	18,6	32,2	23,7
Voedseletiketten lezen voor meer informatie over het product	10,2	11,9	32,2	30,5	15,3	0
Ingrediënten wegen voordat ik ga koken om te voorkomen dat ik te veel kook	23,7	13,6	22	22	16,9	1,7
Restjes van eten hergebruiken	3,4	1,7	16,9	52,5	23,7	1,7

Table D21 - *Distribution of answers Materials*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Eerst erbij stilstaan of ik iets nog kan hergebruiken voordat ik het weggooi	0	12,3	17,5	40,4	29,8	0
Eerst iets proberen te repareren voor ik het weggooi	0	3,5	19,3	54,4	22,8	0
Zo milieuvriendelijk mogelijke producten kopen, als ik de keuze heb	1,8	12,3	24,6	40,4	21,1	0
2e-handsproducten kopen	7	22,8	52,6	12,3	3,5	1,8
Merken kopen die bekend staan om hun goede kwaliteit	0	3,5	22,8	59,6	14	0
Producten kopen die goed zijn voor het milieu, denk bijvoorbeeld aan een zuinige wasmachine of een regenwateropvangsysteem	1,8	19,3	14	42,1	19,3	3,5
Spullen die ik weggooi afgeven aan de kringloop, een soortgelijke winkel of via het Internet.	5,3	7	17,5	42,1	26,3	1,8
Materialen kopen die lokaal zijn geproduceerd	12,3	24,6	36,8	21,1	0	5,3
Bewust gebruik maken van bio-cosmetica*	15,8	17,5	21,1	14	8,8	22,8
Producten kopen die gemaakt zijn van gerecycled afval (bijvoorbeeld afvalhout)	12,3	22,8	43,9	17,5	1,8	1,8

Table D22 - *Distribution of answers Waste*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
Mijn lunch naar school/werk meenemen in herbruikbare verpakkingen	14,5	16,4	12,7	23,6	23,6	9,1
Zwerfafval oppakken als ik het zie en in een prullenbak gooien	18,2	25,5	34,5	18,2	1,8	1,8
Elektrische producten, zoals computers, recyclen* of laten recyclen	7,3	10,9	14,5	32,7	27,3	7,3
Mijn eigen (plastic) tas meenemen als ik boodschappen ga doen	0	3,6	9,1	38,2	47,3	1,8
Producten kopen die herbruikbaar zijn, in plaats van producten die je 1 keer kan gebruiken	0	7,3	21,8	56,4	9,1	5,5
Afval scheiden	3,6	5,5	10,9	21,8	54,5	3,6
Kranten, tijdschriften en karton hergebruiken**	9,1	16,4	25,5	10,9	32,7	5,5
Glas en plastic recyclen	3,6	3,6	14,5	16,4	58,2	3,6
Producten kopen met zo min mogelijk verpakkingsmateriaal	9,1	23,6	40	18,2	3,6	5,5
Gebruik maken van composteerinstallaties*** in mijn tuin of in een openbare ruimte	29,1	0	3,6	1,8	12,7	52,7

Table D23 - *Distribution of answers Biodiversity*

	Nooit	Zelden	Soms	Meestal	Altijd	N.V.T
De dieren in de winter van eten voorzien	10,5	26,3	19,3	21,1	17,5	5,3
Vermijden van het kopen van vlees of vis van bedreigde diersoorten	3,5	10,5	14	28,1	38,6	5,3
Natuurlijke bestrijdingsmiddelen gebruiken voor het onderhoud van mijn tuin, dakterras of balkon	7	5,3	7	19,3	22,8	38,6
Bewust leefplekken creëren voor dieren in mijn tuin of rondom mijn huis	7	14	19,3	17,5	12,3	29,8
Vermijden van vervuiling van de natuur met mijn eigen afval	1,8	1,8	5,3	19,3	70,2	1,8
Tijdens een wandeling de dieren, planten, mossen en zwammen met rust laten	0	0	1,8	24,6	73,7	0
Kiezen voor (streekeigen) bomen en planten die passen bij de natuurlijk omstandigheden van mijn tuin	1,8	1,8	10,5	17,5	22,8	45,6
Iets spontaan laten groeien in de tuin of rondom mijn huis	0	8,8	15,8	29,8	19,3	26,3
Bewust afgevallen bladeren laten liggen	0	12,3	17,5	33,3	17,5	19,3
Vermijden van lichtvervuiling* rondom mijn huis	3,5	3,5	15,8	24,6	28,1	24,6

Appendix E – Correlations

Table E1 - *Summary of correlations between the determinants and Intentional & actual behavior*

	Intentional & actual behavior Finite resources	Intentional & actual behavior Waste	Intentional & actual behavior Travel & food behavior	Intentional & actual behavior Biodiversity
Intentional & actual behavior Finite resources	1.00 202			
Intentional & actual behavior Waste	.62** 202	1.00 202		
Intentional & actual behavior Travel & food behavior	.67** 202	.62** 202	1.00 202	
Intentional & actual behavior Biodiversity	.56** 164	.51** 164	.58** 164	1.00 164
Attitude	.57** 202	.54** 202	.54** 202	.41** 164
Image healthy, happy & perfectionist traits	.10 202	.12 202	.06 202	.03 164
Image social, ambitious, active & modern traits	.31** 202	.34** 202	.34** 202	.30** 164
Knowledge of issues	.29** 202	.33** 202	.40** 202	.25** 164
Influence of humanity	.33** 202	.36** 202	.37** 202	.28** 164
Responsibility	.49** 202	.43** 202	.44** 202	.45** 164
Defeatism	-.41** 202	-.37** 202	-.32** 202	-.24** 164
Perceived behavioral control	.32** 202	.32** 202	.29** 202	.25** 164
Social influence	.30** 202	.27** 202	.25** 202	.290** 164
Perceived costs & benefits	.47** 202	.50** 202	.44** 202	.31** 164
Habit	.44** 202	.43** 202	.38** 202	.32** 164
Dutch government	-.08 202	-.09 202	-.16* 202	-.14 164
Egoistic values	.39** 202	.36** 202	.43** 202	.33** 164
Biospheric values	-.42** 202	-.38** 202	-.40** 202	-.28** 164
Altruistic values	.11 202	.08 202	.08 202	.03 164
Gender	.06 202	.20** 202	.16* 202	.15* 164
Age	.45** 199	.35** 199	.31** 199	.33** 199
Educational level	-.08 202	-.04 202	-.14 202	.06 16
Student (or not)	.39** 202	.25** 202	.34** 202	.34** 16
Paid work (or not)	-.08 202	.13 202	.10 202	-.08 16
Financial situation	.28** 202	.14* 202	.14 202	.09 17
Marital status	.28** 202	.24** 202	.24** 202	.24** 164

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table E2 - *Summary of correlations between underlying beliefs and attitude*

	Attitude	Image healthy, happy & perfectionist traits	Image social, ambitious, active & modern traits	Knowledge of issues	Influence of humanity	Responsibility	Defeatism	Perceived costs & benefits
Attitude	___							
Image healthy, happy & perfectionist traits	.11* 203	___						
Image social, ambitious, active & modern traits	.40** 203	.41** 203	___					
Knowledge of issues	.40** 203	.21** 203	.38** 203	___				
Influence of humanity	.46** 203	.15* 203	.28** 203	.60** 203	___			
Responsibility	.52** 203	.11 203	.33** 203	.37** 203	.43** 203	___		
Defeatism	-.48** 203	-.05 203	-.30** 203	-.24** 203	-.36** 203	-.47** 203	___	
Perceived costs & benefits	.46** 203	.07 203	.27** 203	.21** 203	.28** 203	.430** 203	-.50** 203	___

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table E3 - *Summary of correlations independent determinants*

	Attitude	Perceived behavioral control	Social influence	Habit	Dutch government
Attitude	___				
Perceived behavioral control	.38** 203	___			
Social influence	.37** 203	.29** 203	___		
Habit	.39** 203	.31** 203	.31** 203	___	
Dutch government	-.03 203	.01 203	.16* 203	-.05 203	___

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table E4 - *Summary of correlations between determinants*

	Attitude	Image healthy, happy & perfectionist traits	Image social, ambitious, active & modern traits	Knowledge of issues	Influence of humanity	Responsibility	Defeatism	Perceived behavioral control	Social influence	Perceived costs & benefits	Habit	Dutch government	Egoistic values	Biospheric values	Altruistic values	Gender	Age	Educational level	Student (or not)	Paid work (or not)	Financial situation	Marital status
Perceived behavioral control	.38**	.10	.30**	.16*	.29**	.28**	-.41**	—														
	203	203	203	203	203	203	203															
Social influence	.37**	.03	.22**	.14*	.09	.24**	-.24**	.29**	—													
	203	203	203	203	203	203	203	203														
Perceived costs & benefits	.46**	.07	.27**	.21**	.28**	.43**	-.50**	.35**	.36**	—												
	203	203	203	203	203	203	203	203	203													
Habit	.39**	.14	.26**	.12	.20*	.30**	-.29**	.31**	.31**	.47**	—											
	203	203	203	203	203	203	203	203	203	203												
Dutch government	-.03	-.09	-.05	-.04	-.12	-.07	.05	.01	.16*	-.01	-.05	—										
	203	203	203	203	203	203	203	203	203	203	203											
Egoistic values	.42**	.10	.24**	.27**	.27**	.45**	-.30**	.01	.17*	.42**	.27**	-.08	—									
	203	203	203	203	203	203	203	203	203	203	203	203										
Biospheric values	-.39**	-.09	-.27**	-.27*	-.32**	-.41**	.25**	-.04	-.07	-.34**	-.24**	.19**	-.68**	—								
	203	203	203	203	203	203	203	203	203	203	203	203	203									
Altruistic values	.09	-.03	.09	.06	.06	.09	-.06	.06	-.11	.01	-.00	-.17*	-.19**	-.48**	—							
	203	203	203	203	203	203	203	203	203	203	203	203	203	203								
Gender	.15*	.13	.16*	.17*	.16*	.18**	.01	-.11	.04	.04	.07	-.09	.21**	-.10	-20**	—						
	203	202	202	202	202	202	202	202	202	202	202	202	202	202	202							
Age	.19**	-.16	.04	.08	.04	.26**	-.29**	.08	.18*	.37**	.19**	.04	.43**	-.36**	.04	-.18*	—					
	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199						
Educational level	.01	.01	.01	-.06	-.00	-.11	.02	.18**	.20**	-.05	.00	.17*	-.21**	.12	.06	-.07	-.21**	—				
	203	203	203	203	203	203	203	203	203	2032	203	203	203	203	203	202	199					
Student (or not)	.17*	-.07	.08	.10	.04	.18**	-.26**	.11	.20**	.27**	.21**	-.05	.39**	-.32**	.06	-.13	.74**	-.23**	—			
	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	202	199	203				
Paid work (or not)	.05	.06	.07	-.07	-.09	-.07	-.06	.04	-.11	-.02	.15*	-.16*	-.06	.10	-.03	.05	-.10	.00	-.21**	—		
	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	202	199	203	203			
Financial situation	.07	-.04	-.04	-.01	.02	.02	-.08	.09	.07	.20**	.11	.01	.04	-.15*	.10	-.09	.21**	.08	.35**	-.29**	—	
	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	202	199	203	203	203		
Marital status	.10	.04	.04	.03	-.01	.11	-.12	.02	.15*	.23**	.09	-.00	.36**	-.32**	.06	-.01	.47**	-.18**	.50**	-.20**	.26**	—
	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202	199	202	202	202	202	

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table E5 - *Summary of correlations between the determinants and the specific types of pro-environmental behavior*

	Water	Transportation	Electricity	Food	Materials	Waste	Biodiversity
Intentional & actual behavior Finite resources	.59**	.49**	.60**	.44**	.76**	.58**	.41**
	58	57	61	59	57	54	57
Intentional & actual behavior Waste	.48**	.33*	.55**	.54**	.59**	.68**	.43**
	58	57	61	59	57	54	57
Intentional & actual behavior Travel & food behavior	.48**	.44**	.54**	.72**	.76**	.47**	.49**
	58	57	61	59	57	54	57
Intentional & actual behavior Biodiversity	.46**	.19	.29*	.43**	.63**	.48**	.66**
	45	48	51	51	48	40	45
Attitude	.40**	.50**	.40**	.39**	.41**	.53**	.44**
	58	57	61	59	57	54	57
Image healthy, happy & perfectionist traits	.34**	.15	.24	-.06	.05	.37**	.05
	58	57	61	59	57	54	57
Image social, ambitious, active & modern traits	.37**	.30*	.40**	.35**	.41**	.27*	.02
	58	57	61	59	57	54	57
Knowledge of issues	.25	.14	.35**	.32*	.29*	.17	.13
	58	57	61	59	57	54	57
Influence of humanity	.09	.40**	.15	.26	.27*	.28*	.27*
	58	57	61	59	57	54	57
Responsibility	.34**	.39**	.36**	.14	.46**	.18	.41**
	58	57	61	59	57	54	57
Defeatism	-.49**	-.30*	-.24	-.25	-.41**	-.14	-.20
	58	57	61	59	57	54	57
Perceived behavioral control	.19	.17	.09	.10	.28*	.39**	.39**
	58	57	61	59	57	54	57
Social influence	.36**	-.05	.16	.19	.29*	.32*	.07
	58	57	61	59	57	54	57
Perceived costs & benefits	.43**	.36**	.38**	.30*	.55**	.52**	.37**
	58	57	61	59	57	54	57
Habit	.47**	.24	.26*	.15	.50**	.44**	.37**
	58	57	61	59	57	54	57
Dutch government	-.14	-.28*	-.11	-.25	-.27*	-.16	-.26
	58	57	61	59	57	54	57
Egoistic values	.46**	.37**	.45**	.34**	.35**	.36**	.34*
	58	57	61	59	57	54	57
Biospheric values	-.41**	-.43**	-.45**	-.56**	-.29*	-.46**	-.42**
	58	57	61	59	57	54	57
Altruistic values	.05	.15	.14	.36**	-.08	.30*	.17
	58	57	61	59	57	54	57
Gender	-.12	.19	.20	.11	.20	.12	.07
	58	57	61	59	57	54	57
Age	.42**	.15	.33*	.49**	.45**	.29*	.24
	58	55	60	57	56	54	57
Educational level	-.28*	-.15	-.06	-.16	-.12	.06	-.01
	58	57	61	59	57	54	57
Student (or not)	.40**	.07	.35**	.50**	.37**	.22	.31*
	58	57	61	59	57	54	57
Paid work (or not)	.06	.25	.00	.16	.07	.06	-.12
	58	57	61	59	57	54	57
Financial situation	.14	.15	.11	.37**	.28*	.07	.06
	58	57	61	59	57	54	57
Marital status	.23	-.10	.16	.39**	.19	.22	.07
	58	57	61	59	57	54	57

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)