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The impact of scarce natural resources predictions and policies on consumer behaviour

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Preface and acknowledgement:

This master thesis concludes our Master of Science in Business major Marketing at BI Norwegian Business School. The topic addressed is very relevant in a world with more and more concerns about sustainability and aims at applying marketing consumer behaviour to environmental theories and stakes.
It is important for us to acknowledge all the people who helped us a lot for the completion of this master thesis.
First, we would like to thank our thesis supervisor, Professor Erik Olson, for his great help and support, and his more than useful suggestions. He is the first reason why we choose to work on this topic, and we thank him a lot for that it opened new horizons for us. His help allowed us to stay on the right track and to work in the most effective way thanks to his huge experience in marketing research.
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Thank you,

Axel Besse & Chris Mugnier
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Abstract:

Purpose: The main purpose of this study is to evaluate consumers believability and their behaviour in two situations: first when they are exposed to a natural resource depletion prediction and secondly when they learn that a future government policy restricting their access to the resource is due to be implemented. While previous studies have only considered commodity as products that are transformed and manufactured such as classical products, luxury products, no past study examined the commodity as natural resources. This study also analyses the findings of environmental literature and the limitations of predictions and policies due to barriers such as psychological distance or emotions leading to denial for instance. Basically, as there are some discrepancies between the findings of marketing and green research, our goal is to understand if consumers would behave according to the scarcity marketing theories and behave in a competitive and selfish way or if they would not change their behaviour because of denying processes or a lack of trust.

Academic background:
Overall, the marketing literature states that when a consumer is exposed to a scarcity context, he is more likely to behave in a selfish and competitive way (Roux, Goldsmith, & Bonezzi, 2015). On the other side, many environmental studies highlighted the environmental messages limits: there are many barriers that would lessen the message effect on the consumer such as collapse porn (Stoknes, 2014), the psychological distance (Spence, Poortinga, & Pidgeon, 2012)... T'he point is to understand which of these two kinds of behaviours would eventually get the upper hand.

Methodology scope:
The study has been conducted through a long survey measuring the natural resources depletion prediction credibility, the consumer's reaction and changes in behaviour when facing depletion prediction and policies implementation. This questionnaire was also structured in four conditions randomly presented aiming at measuring both the impact of the source between a pro-environmental and pro-industry source and the effect of time as a psychological distance for the prediction. There has been a total amount of 186 participants to the study and the

sample was located in Europe, with most respondents coming from France. After cleaning the data, there were still 181 participations for the survey, which means that each of our four conditions consisted in more than 30 participants.

Findings:
Overall people tend to be quite neutral towards water depletion predictions and tend to believe oil depletion predictions a bit more. When natural resources depletion predictions' believability increases, then more sustainable behaviours are said to be adopted by people, especially when it comes to basic water related actions (flushing toilets, taking showers or baths, watering the garden).
Feeling an **emotion** toward a water depletion prediction has a more positive impact on the prediction's believability than feeling no emotion at all. When it comes to feeling an emotion towards an oil depletion prediction, more sustainable behaviours are adopted by the participants especially when those behaviours are linked with transportation modes or buying local products.
The influence of **time** on on people's believability towards predictions or change of behaviour in response to policies implementation forecast cannot be depicted.
The **source** of the prediction also has an influence. Overall, predictions implementation forecast about oil are more impactful when they come from NGOs than when they come from industry groups. NGOs predictions increase people's believability and make them adopt more sustainable behaviours.
Overall when it comes to policies and behaviours ahead of the policies implementations, we cannot depict any variable between time, emotion or source which is statistically significant and could explain the influence of a variable on the behaviours.

Contribution: This research, unlike prior studies, examines natural resources depletion predictions and futures policies implementation.
In order to make people adopt more sustainable behaviours, they should first believe in the natural resource depletion prediction they are facing. We cannot depict a change of behaviour between the time the people hear about a future policy implementation and the actual implementation.

Keywords: scarcity; natural resources; consumer behaviour; predictions; policies.

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A. Introduction :

Natural resources depletion predictions, such as water or oil, are sensitive topics. The natural resource scarcity and depletion predictions scope of influence is bigger than one could expect as they can alter economic predictions, personal consumption and it can also change businesses in the way they develop their products for instance. Even though our topic is mainly focused on the consumer behaviour, it is also a cross-field research topic as it is based on a various fields of research: marketing for the scarcity part, environmental for the natural resources and policies but also other studies from different fields such as sociology that allowed us to better understand what is at stake with this topic. In this research we consider natural scarce resource as a commodity as analysed in marketing research and study to what extent the scarcity theory about scarce commodity consumption might apply to natural scarce resources.

Within this paper, we focus on two kinds of scarcity. We analyse the natural scarcity resource predictions (i.e. natural depletion) as well as the artificial scarcity policies following these predictions (e.g. price increase through taxation or government rationing) in order to figure out to what extent, they actually influence consumer behaviours.

Prediction is a really surprising topic. For instance, Harari, in his book Homo Deus (2015), investigated the nature and limits of predictions. According to him, most of the predictions failed because people did not manage to anticipate what was really going to happen: in order to predict a future state, the prediction is based on the current trend and behaviour and does not - or not enough - take into account new and external factors. Another weakness is the gap between the reliability of the predictions and the unexpectedness of innovation and technological breakthroughs. One of the main interesting points highlighted by Harari which is particularly relevant for our research is the distinction between scientific predictions and self-fulfilling prophecies. Scientific predictions are based on scientific facts, insights and models and are mainly external to human influence, such as meteorological predictions for instance. Forecasting and communicating that it is going to rain tomorrow would not impact the prediction itself as a human being does not have the power to change it. On the other hand, self-

fulfilling prophecies are a different kind of prediction as a human being can actually influence it. When people predict that something is about to happen, they are likely to behave differently than usually and actually help the prediction to become true. Natural scarcity predictions seem to be closer to self-fulfilling prophecies than scientific predictions, because even though it is based on scientific facts, people have a huge role in the consumption of natural resources. This is one of the main points of this research: would a natural scarcity prediction lead to a quicker scarce situation resulting from a change of behaviour from people or not?

In order to curb scarce resource depletion, one cannot just ignore it and has to act and communicate about those issues. Yet, theories about consumption and predictions about scarce resources have been adding up and contradicting one another. Predictions have been changing a lot over time: Jeremy Leggett (2005) predicted that the peak of oil discovery would happen in 1965, Goodstein (2004) claimed that the oil demand would exceed the production capacity and that within ten years it would be the end of oil supplies, while Ehrlich stated in 1973 that « the world will run out of oil and other fossil fuels by 1990 », which he then corrected in 2002 by claiming that « the world will run out of oil in 2030, and other fossil fuels in 2050 ». It seems that predictions are constantly being overruled by new ones, and there is little doubt that these changes might affect people's beliefs and trust in these later. The numerous and contradicting predictions seems to limit the effectiveness of the predictions overall as they are all different.

Our key research question aims first at trying to depict a pattern in people's trust in public scarcity predictions and to understand how these predictions as well as the policies and regulations implementing artificial scarce situations DO influence people behaviours.

Current research about the consumer's perceptions about climate change and environmental issues pointed out some barriers such as psychological distance in the case of climate change for instance. Yet little research has been conducted about scarcity predictions and artificial scarcity (e.g., taxation).

The following research and discussion are of particular importance for several reasons. Indeed, it is relevant to understand how people react to

predictions and if they do still listen to them in order to find the best way to regulate natural resource consumption in the future. Overall, it is important to assess whether predictions would lead to counterintuitive behaviours and would push people to behave in a way that would impair even more the environment than their current behaviour and to evaluate the effectiveness of environmental policies creating artificial scarcity situation implementation.

B. Literature review

I) Predictions: channel, source and impact.

In this part, we focus on scarcity predictions and try to understand how people usually encounter them and who they usually trust. The aim of this part is to focus on a specific type of predictions: natural scarcity predictions. This section is structured in three parts: first highlighting the channel that usually conveys these predictions, then the source of the predictions and finally the known impact of predictions on people.

1.1 Media: an important channel source of environmental scientific information

Unsurprisingly many articles on environmental issues are conveyed through the media. As Haron (2005) pointed it out, mass and mainstream media are the main and almost only channel that conveys environmental information to people, which means that people depend on them to be informed about this. But this dependency also means that the media have a great influence on people as they can leverage awareness, public opinion and overall concerns about a particular environmental topic (Stamm, Clark, & Eblaca, 2000). Yet it still remains unknown to what extent media impact and shape consumer behaviour toward sustainability. According to Jackson and Michaelis' report (2003), media can actually help modelling different behaviours through narratives and symbols and are, in a way, directing people's consumption. Scientific communications to the public has been thoroughly studied by Bauer, Allum and Miller (2007): they analysed the past 25 years of scientific communications and highlighted the way people have been understanding scientific communication. During their research, they pointed out that there is a gap between scientists and average people

which leads to a lack of knowledge for people. Yet, this model is insufficient to explain the relationship between scientific messages and people's knowledge about this topic as the model suffers from limits such as the correlation between knowledge and beliefs or attitudes (Suldovsky, 2017).

Yet, even though the media are usually the channel conveying environmental information to the public, there can be other channels which are doing it as well, such as some industrial actors, NGOs or even governments. Trumbo et al. (2003) examined the credibility of the industry as the source of the communication toward health messages for suspected cancer clusters in comparison to governments and citizen groups at a national scale with about 700 participants. They found out that the government and the industry as the sources were perceived as more credible than the citizen groups as a source. Yet, they also found out that high credibility was related to heuristics, which means that people relied on mental shortcuts and did not really process the messages, and people relied on heuristics because they assessed the risk perception as low. In case of high-risk perception, the citizen groups as sources were evaluated as more credible and trustworthy than the two other sources.

1. 2. But, are the experts credible?

It goes without saying that scientific predictions are originally made by scientists or experts. Even though they are not the ones conveying the information to the public, their name is still used as a source when the predictions are communicated, to increase the legitimacy of the prediction. As Cialdini (2001) pointed it out in his work on principle of authority, predictions should be perceived as credible because they come from a thorough and methodological study led by experts. According to him, people tend to rely on experts and accept what they tell as an absolute truth. For instance, « Researchers writing in the American Political Science Review in 1987 found that when the expert's view was aired on national television, public opinion shifted as much as 4% » (p. 77). This way of thinking is consistent with Petty, Briñol & Tormala's study (2002) in which they found out that one of the factors having the biggest influence on

increasing the credibility of a message was the trustworthiness of the source of information.

However, when it comes to sustainability topics, this credibility and trustworthiness is being questioned. First, it comes from the inconsistency of the predictions which are change throughout time as underlined in the introduction. Some studies have shown that people were doubting and actually refusing to believe in global warming claims as soon as some disagreements among climate scientists appeared. Hence disagreement between experts and theories overruling one another are leading people to start doubting these scientific predictions (Lewandowsky, Gignac, & Vaughan, 2012). As explained by Graffy in her 2006 study, the credibility of the claims about urgency are being questioned by public and policymakers when it comes to water shortages as there are too many claims and there is no alignment between experts on the problem of defining water scarcity. She also highlighted that this lack of coordination leads to an uneven coverage in media. Indeed, even though the initial predictions are the same ones, the scope depends on the meaning conveyed: in the case of water issues, they are sometimes depicted as water shortages, sometimes as unsanitary water or even as bad water management which can create misunderstandings and decrease the credibility of the predictions.

Furthermore, cognitive biases should also be taken into account as they limit the credibility of the predictions. On top of this overflow of information and due to previous beliefs and attitudes, people are likely to choose the information they find relevant, trustworthy and all the more consistent with their original beliefs (Goidel, Shields, & Peffley, 1997): it is overall the cognitive dissonance. As Sutherland and Sylvester analysed in their book Advertising and the Mind of the Consumer: What Works, What Doesn't and Why (2000), people tend to evaluate a statement as true when they lack critical thinking: it is the so-called truth effect. It appears that accepting a message is the default behaviour, even when part of the message is not really understood. What is all the more paradoxical is that it is the first message that tends to last in consumer minds as the truth. It creates a thinking mechanism hard to cope with, as the new information would only reinforce the first one. It means that in case of a first and wrong statement accepted as true by people, claiming the opposite would mainly reinforce

the first message, even though the second claim is the truth. As a consequence, it is incredibly hard to change people's mind once they have already accepted an information as accurate. This is consistent with Skurnik, Yoon, Park & Schwarz's study (2005) in which they highlighted the concept of memory change resistance. In this study, they emphasized that claiming that an information is wrong would only make people recall it as true. This means that new predictions about natural resource scarcity should have little effect, even if the previous predictions are ackownledged to be wrong. This cognitive bias is also called backfire effect.

All of this explains why Leiserowitz, Maibach, Roser-Renouf, Smith, & Dawson found out that many surveys from 2008 to 2010 indicated an increase in climate change belief (2013).

1.3. Predictions immobilize people

Research on scientific communications have highlighted several barriers to effective environmental communication. For this point, it is both interesting and relevant to focus on Stoknes' studies (2014) on the limits and paradox of climate change communications. First, he underlines that studies about climate change are usually originally too complicated for the public, leading the media to change them by simplifying them. This process turns long and thorough studies into eye-catching headlines stressing out the incoming disasters. Nevertheless, media often promote and spread messages that convey fear and danger (Altheide, 1997) and this feeling of fear and danger calls people's action off. According to Ruiter, Abraham, & Kok (2001), media can change people's attitude toward a specific topic but are highly unlikely to change their actions and behaviours when fear arousal alone is involved: people would tend to disengage from coping behaviour and would then choose not to react to protect themselves from the fear. The same cognitive process applies in the context of predictions message that creates fear and anxiety as it leads to avoidance; indeed, O'Neill and Nicholson Cole's study (2009) on climate change representation in public domain demonstrated that claims triggering fear are effective to get people's attention but highly ineffective to get people to engage toward the cause. Moreover, it is interesting to focus on Stoknes' work (2014 & 2017) through the following five main barriers to climate communication explaining the

lack of trust toward predictions: Distance, Doom, Dissonance, Denial, iDentity. These findings are also relevant for natural scarce predictions as it is a linked topic.

The Distance barrier means that when climate change is seen as distant for people, they do not feel concerned. It has been proved that people felt more involved and more willing to act when the effects of climate change were impacting places they are familiar with (Raymond, Brown, & Robinson, 2011). It basically means that people are less prone to trust claims which are related to places to which people do not relate or feel close to.

Then, the Doom barrier means that climate change is too often framed as apocalypse, uncertainty and high cost/loss. It is also linked with the first point of this part about fear and media messages. People might reject the claim because it frightens them or because the solutions offered look too expensive. The first aspect of claims being framed as doom can be linked with the effect of "collapse porn" according to Stoknes words, which is said to be pushing people to a "climate fatigue" (Pidgeon et al., 2012) and have less and less effect because people are tired of hearing these claims.

Thirdly, dissonance barriers refer to the fact that the few opportunities for taking action are pushing to dissonance and weakening attitudes change. At this stage, people might think that they adopt good green behaviours in comparison to China or America about gas emissions for instance and then do not make more effort.

The Denial barrier, which is also related to the first point of this section and to the Doom barrier, means that fear and guilt are strengthening different sorts of denial: responsibility denial, blame rejection, ignorance….

Finally, the iDentity barrier simply means that one's cultural identity plays a huge role when it comes to climate message processing. Indeed, the perceived psychological distance between a climate change impact and an individual can be quite big and this gap creates an unconscious disregard toward the issue (Trope & Liberman, 2010). Which means that the environmental information is seen as too remote or less tangible as people do not feel any connection with the issue, they would doubt it and tend not to take any actions.

Based on McDonald, Chai, & Newell's study (2015), psychological distance is actually assessed through the following four factors:

hypotheticality (of the claim), temporality, social (identity) and spatial (location). People do not react when they consider the climate change as hypothetical and not a one hundred percent certainty because they would not be sure it would actually happen. They are less inclined to take action if they see the impact as far in the future (temporality) or in a geographically distant area (Spence, Poortinga, & Pidgeon, 2012). Finally, as the findings about climate change are highly likely to be true for all the environmental communications, it means that even though people do trust the environmental prediction, perceiving it as spatially and temporally close, they might still face a final hurdle: they can still see it as a socially distant phenomenon and would therefore not take action.

II) Scarcity & Consumer behaviours

In this section, the literature review focuses on the scarcity concept and explains how this concept can be applied to behaviours related to natural resource depletion predictions and policies.

2.1 Basic principles of scarcity

First, it is important to remember that according to the Oxford dictionary(1), scarcity is defined as a "state of being scarce or in short supply" (Oxford dictionary(1), 2019).

The scarcity analysed here will be the scarcity defined as the limited availability of a commodity which can be either natural or artificial. There are several kinds of limitation. First, it can be a scarcity linked to a natural resource if the availability of the commodity is considered as a function of unlimited desire, which means that a limitation of the resources will automatically create scarcity (Siddiqui, 2011). Then, it can also be an artificial scarcity in case of a regulation coming from an external stakeholder such as environmental policies (Friedman, Downing, & Gunn, 2005). For instance, Andrew, Kaidonis, & Andrews (2010) studied an Emissions Trading Scheme (ETS) as an artificial scarcity. In this scheme, the government is limiting carbon permits to be issued. Artificial scarcity highlights situations caused by government taxation or rationing which creates inequalities and limits the availability of the commodity.

2.2 Valuation of the resource in scarcity contexts

Overall, scarcity implies that the scarce commodity would be valued more positively or would be more desired. According to Brehm's reactance theory (1966), when people start to lose their freedom, they would automatically evaluate this freedom more positively and act in consequence in order to protect it. Verhallen and Robben (1994) applied this theory to scarcity marketing found out that scarcity limit people's freedom, because people no longer have access to the commodity they used to have access to. Therefore, people are likely to value the lost commodity even more positively and to desire it more.

Yet, there are some moderators that change this effect: the desirability is not an absolute mechanism which is triggered in all situations. In fact, some theories disprove the reactance theory: researchers studied the impact of the frustration theory in the context of scarcity. When people are used to have access to a commodity, the loss of it should create a frustration feeling and then a devaluation of this commodity (Worchel, 1992). Verhallen and Robben (1994) analysed people's behaviour when a commodity is suddenly limited or unavailable and found out that when the scarcity is natural (non-controlled such as a natural resource scarcity prediction), people value the commodity more positively whereas when it is artificial (controlled such as a government policy), they get frustrated and devalue the commodity.

2.3 Behaviours arousal following natural scarcities

Past researchers tried to study human behaviour in commodity scarcity context in order to find out if people are prone to selfish behaviours or, on the contrary, if they tend to demonstrate solidarity and altruistic behaviours.

Even though people are often confronted with reminders of scarcity, it remains still unknown what kind of behaviour these cues could trigger. Prior findings do not provide a clear answer to this question as the results are contradicting one another. For instance, Cropanzano, Goldman, & Folger (2005) tried to study human self-interest through a cross-field survey - economic, social, psychological…- and concludes that self-interest could not be explained through one factor as each disciplinary had its own

explanation about this behaviour. Sources of self-interest can arise from external and independent factors.

Furthermore, it seems that interesting behaviours arise in the event of natural scarcities. Studies around climate change communication have proved that people who experienced a natural disaster were were more inclined to engage in energy conservation and to mitigate climate change (Spence, Poortinga, & Pidgeon, 2012).

However, Booth (1984) also pointed out that in case of scarcity, people tend to lose their social norms and behaviours, and act more selfishly. Thus, Roux, Goldsmith, & Bonezzi (2015) tried to provide a clear answer to this question. They suggested that scarcity would mainly trigger a competitive orientation due to a cognitive association between scarcity and a competitive frame from one's life such as competition to get a job, to get into a university… or even from mass media messages that convey stories about product shortages which create violent competition between people (Goldberg, 2011). These recurrences of associations between scarcity and competitiveness are likely to create a strong inner association in people's minds leading to the activation of this competitive mind in a scarcity context (Bargh, 1989). Throughout five different experimentations, Roux, Goldsmith, & Bonezzi (2015) have proven that reminders or cues of resource scarcity would trigger a competitive mind, which actually means that people would favour their own welfare before taking care of others' welfare. The results leave almost no room to doubt as they proved that people are highly likely to behave in a self-oriented way in a context of resource scarcity. The only exception happens when a social cue plays a role. Indeed, in the context of charity, people can be primed to be more altruistic if helping others can also help their own welfare by enhancing their social status: it is the epitome of "impure altruism" creating a warm-glow effect (Andreoni, 1990). People are eventually solely looking to improve their own welfare in a context of resource scarcity. Another interesting finding of their study is that when people are exposed to resource scarcity cues, they are more focused on the present rather than on the future, which means that their preferences are more focused on the short-term benefits rather than the long-term ones.

2.4 Artificial scarcity and behaviours

It is then important to highlight what we know so far about consumer behaviour in case of artificial scarcity created by policies such as rationing. The policy impact on consumer behaviour seems to be limited. Policies trying to push people in adopting low carbon lifestyles, such as information campaigns or economic measures have been so far pretty much unsuccessful. Indeed, as Whitmarsh and O'Neill's (2010) study showed, a policy encouraging to recycle, may actually increase people's willingness to recycle, but they do not take further real actions. It does not trigger an environmental consciousness and no spillover effect seems to appear. A few studies have analysed consumers behaviours in response to artificial scarcity. Yet, Wiener and Sukhdial (1990), stressed out that one of the barriers that prevent people from behaving more ecologically is "their perceived level of self-involvement toward the protection of the environment". Even in case of high green sensitivity and consciousness, many people feel that the environment is the responsibility of governments. Therefore, it is just as important to assess the perceptions and behaviours of consumers towards the government's policies, as it is for a prediction. Economic incentives can be used as tools triggering artificial scarcities. Behaviours can be influenced by economic incentives, such as rewards for positive behaviours (e.g., the Norwegian "pants") or penalties for polluting. However, people take these incentives into account and change their behaviour only when the economic implications of the specific consumption decision is known and understood (Turrentine and Kurani, 2007). Hence, it is crucial to make consumers think beyond the consumption decision and make them understand the economic implications that are related.

Furthermore, the perception of artificial scarcity seems to limit the effectiveness of the expected impact of the policy. Li, Linn, & Muehlegger (2014) analysed the impact of gasoline taxes on consumer behaviour and and stressed out that the behaviours would be different depending on the origins of the price increase, whether it is the result of a tax or if it is due to market variations. They pointed out that taxation helps to influence people so that they buy more low-consuming vehicles as well as reduce their gasoline consumption.

Hirshman (1970) claims that people's initial response to scarcity and price increase is to take an economic action: they usually first stop consuming the product and look for a substitute if there is one. In case of a lasting scarcity, they would start taking some political actions. Moreover, Rudel's work (1980) on people's response to the gasoline shortage during the 70's crisis showed that opportunistic behaviours emerged.
Hence, it is worth digging deeper and analysing the type of situations in which selfish behaviours are rising.

2.5. A glance at some actions already implemented to nudge green behaviours

So far, some measures have been undertaken or discussed about in order to face this environmental challenge. The case of carbon gas emission related to domestic flight is an epitome of the limits of policy: previous global carbon taxes had no impact on domestic flight consumption as it was mainly absorbed by cheaper planes which were also more energy-efficient (Markham, Reis, Higham, & Young, 2018). Then measures should should be directly linked to consumers in order to influence their consumption behaviour: taxes and penalties for the people that are polluting. Another solution would be to implement a cap-and-trade system: giving to the polluter a right to pollute up to a certain amount ("crap") along with being allowed to trade those rights (Franklin, 2018). Studies stressed out that the more policies are seen to be potentially effective, the more people will opt and agree with this method (Witte, 1995). And their willingness to act will be more effective and efficient when some incentive-based approaches are used (Thaler & Sunstein, 2008).

C. Limitations of the literature review applied to this research:

There are several kinds of limitations of the literature review that justify our research study : first some studies are limited because their methodologies present some shortfalls or weaknesses, then some findings may not apply because the geographical research or the topic of research (usually global warming or climate change) differ and finally the discipline of research may also differs.

It would therefore be relevant to focus on two main kinds of research field limitations.

First, Roux, Goldsmith, & Bonezzi's 2015 study on the association between scarcity and self-oriented behaviour - one of the main studies on which our research is based - shows some pitfalls that justify checking if we can apply the findings to our study. Indeed, their experiments were only conducted on either undergraduate students who were incentivized through money or their experiments were conducted through Amazon Mechanical Turk. Focusing only on undergraduate students sampling is a limitation because it is reduced to a tiny category of the population. The money reward is also limitation because it can lead to more « omissions errors » (Rush, Phillips, & Panek, 1978). Moreover, Amazon Mechanical Turk has also been proved to have some limitations: first the sample diversity is reduced and then, as participants are doing a lot studies, it creates a « non-naivety » issue as the participant's previous exposure to experimental manipulations can lead to biased responses (Litman, 2017).

Then, the psychological distance - which is one of the main factors influencing the impact of predictions - can also be challenged and worth being verified as the studies on this topic present some weaknesses. For instance, Raymond, Brown, & Robinson's study (2011) was conducted in Australia which means that the findings on psychological distance may not apply to other populations or cultures. On the other hand, the notion of distance itself is tricky as some studies have shown that when the issue becomes too close to people, the latter might disengage too as concern increases (Van Boven, Kane, McGraw, & Dale, 2010).

Finally, as those researches are cross-field and focus on close topics such as climate change but not on natural resources predictions and policies, some of the findings might not apply to our research.

D. Research question and hypotheses :

Before introducing our research question, it is relevant to explain our hypotheses.

The first hypothesis is about the believability people grant to the predictions. The hypotheses from two to four are about the barrier to the believability of the predictions, the predictions and policies impact on

consumer behaviour. Finally, the fifth one is about the association between selfishness and scarcity in both natural and artificial scarcity contexts. In order to make our results easier to read, there are five hypotheses and hypotheses from two to four are actually divided in two parts. The first part is about the believability of the depletion predictions and the second part is about the natural scarce resources and the impact of policies on consumer behaviour. The fifth and last hypothesis is also divided into two parts, between natural and artificial scarcity contexts.

Our aim is therefore to find out to what extent environmental communications and policies about scarce resources have an impact on improving green consumer behaviour. Indeed, they could also have no effect on the consumers' behaviours or even create a boomerang effect which means that people would actually behave more selfishly.

There are many reasons to believe that the predictions would no longer influence the public. The first barrier to the effectiveness of natural resource scarcity communication is that there have been many discrepancies in experts' predictions (Lewandowsky, Gignac, & Vaughan, 2012). Even though experts are considered to be a reliable and trustworthy source of information that people would not put into question (Cialdini, 2001), the number of pieces of information people can accept without doubting them is limited. For instance, the case of water depletion prediction demonstrates that too many claims and a lack of congruence between experts' speeches leads to doubting the predictions themselves.

Hence our first hypothesis is the following:

H1 : Natural scarcity predictions are no longer credible

Then, even if the prediction is perceived as credible, emotional reactions such as fear would actually increase the believability of the natural resources predictions. Indeed, people's attitude toward natural resource would be increased but they would not perform any change in their behaviour because they would deny the consequences (Ruiter, Abraham, & Kok, 2001). The anxiety triggered by negative emotional reaction would lead to an increase of people's attention and avoidance as they would not engage toward natural resource scarcity issue (O'Neill and Nicholson Cole, 2009; Stoknes, 2014).

Hence the two following hypotheses:

H2.1: Emotional reaction such as fear would limit the believability of the predictions

H2.2: Emotional reaction such as fear would limit the impact of the predictions on the consumer behaviour by leading to avoidance

Moreover, there are also some limitations that can explain why the predictions and policies would have little impact on offsetting better consumer behaviour toward the environment. Actually, Singh, Zwickle, Bruskotter, & Wilson (2017) demonstrated that there are four dimensions which can explain the psychological distance: the likelihood of the event, the cultural distance, the geographical distance and finally the temporality. What is really interesting here is the temporality, as a prediction or a policy that is supposed to happen in a long time from now is likely to decrease its impact on the consumer behaviour. In the same way, this distance may lead to less processing and to a rejection of the predictions because it is seen as negative (Lewis, Watson, & White, 2010).

Hence the two following hypotheses:

H3.1: Time is a psychological distance that would decrease the believability of predictions

H3.2 : Time is a psychological distance that would decrease the impact of predictions and policies on consumer behaviours

Besides, experts do not usually communicate directly to the public, but the environmental information go through some channels such as media but also other stakeholders such as NGOs or industry players. If media have already been studied, it is still unknown whether an NGO or a pro-industry player has the highest credibility and impact toward the public. Trumbo and McComas (2003) found out that government and industry would be perceived as less credible than citizen groups in case of high-risk perception. As there are many forms of psychological distance, it is hard to predict to what extent a prediction coming from a pro-industry actor would be actually more credible and have more impact in comparison to the same prediction coming from an NGO. CSR credibility is very low in all Europe, which means that a company in the industry sector would have many difficulties to

communicate about their role to improve environment (Lock and Seele, 2016). Yet, it is not about companies' CSR policies but about environmental communications: the goal of this kind of message is not to change the brand image by showing what the company does for the environment but to sensitize and and to appear selfless. Which means that the main factor determining the credibility of a pro-industrial source credibility is trust. In their 1997 study, Peters, Covello, & McCallum discovered that trust was not related to one factor but to three: perceptions of knowledge and expertise; perceptions of openness and honesty; and perceptions of concern and care.

On this scale, NGO would score high in honesty, concern and expertise. Indeed, the function of associations such as NGO as already been studied by researchers. For instance, Mormont and Dasnoy (1995) discussed credibility of Greenpeace NGO in climate change. As Greenpeace already published an accurate report on the issue and because Greenpeace is a credible and trustworthy source, even though it is not its primary role to do it, it still is a great and effective channel to convey environmental issues studied by scientists to the public.

Nevertheless, industrial sources also have experts and we believe that because they would communicate a message that would only harm their sales and income, they would score even higher than NGO in terms of honesty. Moreover, Wiener and Sukhdial (1990) found out that when people have a high ecological consciousness but engage little in green behaviours, they tend to rely on big corporations to act toward green actions. Overall, one last thing is that people are not used to being exposed to pro-industry communications about environment whereas the public is used to this kind of message coming from an NGO such as Greenpeace. It is likely to create a wear-out effect for NGO's communication leading to less impact of the prediction. In this case, a new piece of information about a topic suffering from a wear-out effect would draw less attention.

Hence the two following hypotheses:

H4.1 : A pro-industry source would increase the believability of the predictions

H4.2 : A pro-industry source would have more impact on consumer behaviour because it is unexpected

Finally, Cialdini (2008) pointed out two interesting things in his research. First, he showed that scarcity enhance a product's appealingness and secondly that people's desire towards the product increases when they have to compete for it. Which means that in case of perceived competitive context, people are more prone to buy the product. Based on the findings of Roux, Goldsmith, & Bonezzi (2015), a scarcity context would lead to a competitive and self-centred behaviour. If we take natural resources as a primary commodity, granting it as a scarce resource should make people more selfish and consume more of the natural scarce resources.

Nevertheless Li, Linn, & Muehlegger (2014) stressed out through the example of gasoline that the behaviour adopted in response to artificial scarcity (e.g., a government policy) or natural (e.g., a prediction) is not the same. They showed that taxes are helping to influence people so that they buy less consuming vehicles as well as reduce their gasoline consumption, which means that government policies are more likely to decrease consumption of the natural resources.

Hence the two following hypotheses:

H5.1: Natural scarcity context would lead to selfish behaviour

H5.2: Artificial scarcity context would lead to more rational behaviour

To sum up, our research question is: do natural resources depletion predictions and policies implementation lead to an increase consumption of those scarce resources?

E. Research Methodology

This section aims at providing a thorough explanation about the process through which we have gathered our data.

1. Research design

1.1 Quantitative study

To assess the relationship between natural scarce resources predictions' credibility and impact, policies effectiveness, psychological distance and environmental consciousness, we have conducted a quantitative study through a self-administered questionnaire (see appendix, part I.). This Qualtrics survey was shared to the participants through online tools such as email and social media. It was all the more relevant to perform a quantitative study in which we could rely on data and study correlation

and regression between the data. The benefit from the survey is that we can deduce implications and trends that are considered as authoritative and trustworthy by people (Thornhill, Saunders, & Lewis, 2009).

1.2 Participants and data collection

The study has been conducted and data have been collected from the 24th to the 31st of May 2019. In order to be GDPR-compliant, we made sure that no information could identify the participants which means that they first had to consent to willingly participate in the study and confirm to be old enough to do so, no specific question about them were asked and finally we deactivated the IP-address collection in Qualtrics. There has been a total amount of 186 participants to the study and the sample was located in Europe and mainly from France (68%) (Appendix, part 3.1.1). Nevertheless, we considered some participations as not reliable as the time spent to finish the survey was too short. In order to be sure to have only reliable responses, we filtered the survey responses to keep only those which lasted at least 220 seconds: three participants have been then removed from our study.

Moreover, because of a bug which still remains unexplained to date, two other participants also had to be removed because they did not put their psychographic information (see part 2.3 below). In the end, the survey finally consists of 181 participants, which is still enough to be both relevant and significant. Overall, we gathered answers from 79 females and 102 males (see appendix, part 3.2) and aged between 22 and 59 years old with an average age of about 25 years old (Mean = 24.68 and Std = 4.859, Appendix, part table 3).

2. Questionnaire

2.1 Overall structure

2.1.1 Parts and randomization

First, the questionnaire incorporates four conditions in order to measure the difference between a pro-industrial source and a pro-environmental source (see part 2.1.3 below) and between a prediction happening in five years in comparison to a prediction happening in twenty-five years. Within every condition the date remains the same for the water or the oil depletion predictions, only the sources change:

Water conditions are the following;
Condition 1: WWF and 2025, Condition 2: WWF and 2050, Condition 3: Mondelez and 2025, Condition 4: Mondelez and 2050.
Oil conditions are the following;
Condition 1: Greenpeace and 2025, Condition 2: Greenpeace and 2050, Condition 3: Total and 2025, Condition 4: Total and 2050.
In order to have enough participants for each condition, we randomized the conditions on Qualtrics to get more than 30 participants for every condition.

The questionnaire is structured in four main parts (see appendix, part I):
1. The first part is about the water depletion prediction and the policies following the prediction. In a short introduction, a source (WWF or Mondelez) stated that soon (in 2025 or 2050), « half of the population will live in water-stressed areas […] ».
The first question is a direct evaluation of the prediction credibility: it consists in a 9-point likert scale, ranking from very untrustworthy (1) to very trustworthy (9), which assess how credible the prediction appears for the participant.

The second question is about the emotion felt by the average people about this prediction, in order to study the impact of emotion on people's trust and behaviour. They can choose some emotions such as « angry », « scared », « sad », « surprised », state their own emotion or even choose « nothing ».

The third question is about the behaviour of the participants after having read the prediction and consisted of six situations in order to assess if the average people would consume more or less after seeing the prediction then before. The first situation is « the amount of water they drink » and is mainly here to be used as control, as drinking is a basic need which is hard to reduce. The following five ones were typical situations in which people would actually change their behaviour if they wanted to save the planet such as « the number of baths or showers they take », « the number of times they flush their toilet », « the amount of watering they do of their garden or house plants », « the number of times they wash their car» or « voting for the most pro-environmental political party ». The participants have to choose from

«much less than today (1) » to «much more than today (9) » for each situation.

The fourth question has pretty much the same structure than the third one but highlights an artificial scarcity context as a scenario in which a government policy is soon to be introduced in order to restrict the amount of water that households and businesses use. The participants have seven situations in which they have to assess how an average person would react if they had to choose between consuming less or more water in the time leading to the implementation of the policy. The situations are the following; Between now and the implementation of the restrictions, they are more likely to... «drink more water», «take longer/more frequent baths or showers», «buy/build a building without the expensive water efficiency equipment», «do more garden watering», «wash their car», «use generally more water» and «vote for political party that promises to enact such restrictions». The participants have to position their opinion on a scale going from «Strongly agree» (1) to «Strongly disagree» (9).

2. The second part is the same as the first part, but depletion prediction and policies implementation are linked with oil. The conditions are the following;

- Condition 1: Greenpeace and 2025
- Condition 2: Greenpeace and 2050
- Condition 3: Total and 2025
- Condition 4: Total and 2050

The first question is a direct evaluation of the prediction credibility: it consists in a 9-point likert scale, ranking from very untrustworthy (1) to very trustworthy (9), which assess how credible the prediction seems to be for the participant.

The second question is about the emotion felt by the average people about this prediction. They can choose some emotions such as « angry », « scared », « sad », « surprised », state their own emotion or even choose « nothing ».

The third question is about the behaviour of the participants after having read the prediction and consisted of seven situations in order to assess if the average people would consume more or less after seeing the prediction than before. The first situation is « the amount of driving they do

» the we get the six following ones ; « the amount of flying they do », « the energy efficiency of the cars they purchase », « the energy efficiency of appliances and TVs », « the size of the homes they live in», «the purchase of locally produced products» and «the likelihood of voting for the most pro environmental party». The participants have to choose from «much less than today (1) » to «much more than today (9) » for each situation.

The fourth question has pretty much the same structure than the third one but highlights an artificial scarcity context as a scenario in which a government policy is soon to be introduced in order to restrict the amount of water that households and businesses use. The participants have six situations in which they have to assess how an average person would react if they have to choose between consuming less or more water in the time leading to the implementation of the policy. The situations are the following; Between now and the implementation of the restrictions, they are more likely to...

«buy bigger/ more powerful cars», «fly as often as possible», «Buy bigger TVs/appliances», «buy bigger/more comfortable homes», «use generally more energy before» and «vote for political party that promises to enact such restrictions». The participants have to position their opinion on a scale going from «Strongly agree» (1) to «Strongly disagree» (9).

3. The third part is independent from any condition and consists in assessing the environmental consciousness of the participants to analyse this independent measure (see part 2.3 below)

4. The fourth part is also independent from any condition and merely consists in evaluating psychographic variables that have been proven to have a correlation with green behaviour (see part 2.4 below) such as gender, age, level of education, place of residence and income.

Part 3 and 4 are displayed at the end of the survey in order to have better answer rate. Indeed, it is also more efficient because asking psychographic questions in the beginning of the survey could influence the participants responses as it could generate a stereotype threat (Steele & Aronson, 1995). The participants could then change their answer in order to be sure that they would not confirm the stereotypes others have about their group.

2.1.2 Natural resources choices

For the purpose of the study, because focusing on too many natural scarce resources would have been confusing and too complicated to analyse, only two resources have been chosen: water and oil. We have deliberately decided to only focus on these natural scarce resources mainly for three reasons. First, they are actually considered as a commodity as it is an economic good which is fungible as it can be traded between people (based on the Merriam-Webster's definition, 2008[(2)]). Then, both of these commodities were relevant in natural scarcity context because there has been and there are still predictions made about the depletion of these resources and also in artificial scarcity context because some policies have been implemented or are being discussed about them. For instance, some governments' policies are close to being implemented in order to manage the number of planes ticket and curb oil depletion (Franklin, 2018) or the government is considered to have a role in order to manage household water consumption (Sheldon, 2018). Finally, the stakes about oil and water are widespread which means that we somewhat get rid of some of the psychological distances such as geographical which has already been proved to lessen the effect of environmental concern. Indeed, as seen in the introduction the numerous predictions about oil depletion contributed to the spread of this issue. Moreover, the numerous droughts and recent water issues even in big cities such as Mexico or Barcelona increased the awareness about water issue: for instance, the number of researches on google has almost tripled during the past fifteen years on Google (see part 2.1 in the Appendix).

2.1.3 Sources choices

Another goal of the study is to assess the source's impact on any natural resources prediction believability or influence toward greener behaviours. To do so, we chose to focus on two extreme kinds of sources: pro-industry and pro-environment. We identified two pro-environment sources that were both notorious and relevant for the water scarcity and oil scarcity. Indeed, we chose WWF and Greenpeace which are well-known with about three

million of followers each on their own Facebook pages (see appendix, part 2.2.1 and 2.2.2).

On the other hand, it was quite easy to identify a pro-industry source for oil: we chose Total because our sample is mainly French which means that choosing a French brand such as Total is all the more relevant as it ensures a huge awareness among the participants. Moreover, Total's Facebook page account for 9 million followers (which is really close to Apple's one for instance, with 11 million followers) (see appendix, part 2.2.3). Moreover, analysing the Google search on Google Trend reveals that research about Total account for on average one third of Apple's research which is huge knowing that Apple's keynotes and releases makes it a huge research on Google. Yet, it was harder to identify a pro-industry source that would fit the water scarcity issue. We first thought about water distributor such as Evian, but they were not enough pro-industry oriented and their impact on the environment were not negative enough. We then chose to focus on Mondelez because it is a well-known brand (their Facebook page has more than 200.000 followers, see appendix, part 2.2.4.1) which distributes a lot of products that consumes water and especially food products (as agriculture accounts for a lot of the water consumption). Moreover, Google Trend reveals that Mondelez awareness has been increasing during the past eight years (see appendix, part 2.2.4.2) which justified the choice of this source. Nevertheless, we still specified in the questionnaire what was the source's role. For instance, Greenpeace was presented as « a leading environmental non-governmental organization (NGO) dedicated to environmental protection and active in more than 55 countries worldwide » whereas Mondelez was presented as « a leading US multinational producer of food products and second player on the world agri-food market ».

2.1.4 Psychological distance measurement: time

Based on McDonald, Chai, & Newell's 2015 study on psychological distance, they found out that 50 years was a large enough psychological distance to decrease the effectiveness of a scientific claim. We then chose to divide this number by two in an attempt to see if 25 years was still distant enough to provoke a psychological distance. There is also another reason for this choice, the predictions of the survey have to be consistent with previous

and real predictions about water depletion and oil depletion so that the credibility of the prediction would not suffer too much from an unusual prediction.

2.2 Question types

The questions are basically the same throughout the two first part: 9-point scale likert and projective question.

First, the 9-point likert scale was chosen because it was the most relevant scale for our study. Indeed, even though the seven-point scale is usually the most common scale, it was not enough precise for our data set. Moreover, a lengthier scale is also better for regression analysis of the response questions.

Then, we have chosen to use projective questions from the questions two to four of the first two parts of the survey: « how do you think the average person […]? ». Indeed, projective questions have been proven to lead people to be more honest about their response. Even though asking the participants not to assess what they would do, but what the average person would do, seems counterintuitive, it is proven to provide better answers. Indeed, when exposed to projective questions, people tend to respond based on what they would do without fearing of being judged, especially when they fear to match the stereotypes (Steele, 1964; Steele & Aronson, 1995). It basically means that projective questions are a technique to improve the quality of the response as they would be less biased. The goals and benefits of projective questions lie in the fact that participants do no directly understand what the researcher wants when asking the question. Therefore, the respondent is more likely to reveal inner and honest answers and behaviours in comparison to a case where the questions would be more straightforward (Steinman, 2009).

2.3 Environmental sensitivity assessment

The part 3 of the survey consists in studying people's environmental consciousness and sensitivity in order to assess the influence of this dependent variable on consumer behaviour during our tests. During the first study about ecological consumers, researchers found out that these consumers were becoming aware that they could have an impact on their

polluting and social action when consuming (Webster, 1975). In order to evaluate people's ecological consciousness, many tests have been developed such as the Ecologically Conscious Consumer Behaviour (ECCB) developed by Vandermerwe and Oliff (1990), which is a combination of four behavioural domains (households energy and water consumption, recycling behaviour, transportation and eco-friendly consumption) and is also a useful tool that consists of 30 questions assessed through likert responses. Yet, these tests, as effective as they are, were too long for our survey and it was likely that participants would drop out from the study once they would reach this part. We then chose to adapt a shorter test based on an improved version of the New Environmental Paradigm (NEP) scale (Whitmarsh and O'Neill, 2010) which is based on Dunlap and Van Liere's work (1978), and to mix it with the most relevant questions from the PEB and ECCB test so that our final test has only 14 questions. The first three questions evaluate the participant's consumption behaviour and the following eleven ones assess their eco-friendly behaviour (see appendix, part I). But after analysing the results we found out that the first two questions « Bought or built an energy-efficient home » and « Bought a low-emission vehicle » were not relevant enough for our sample because the majority of the sample was likely to be too young to own a house or a car. Which means that our tests are finally based on the 12 last questions. As we had overall more than 180 responses, we based our classification of green consciousness on the results we have: we then categorize our participants into four groups, from "little or no green consciousness group" (group 1 which scores from 0 to 2.36 and represents 47 participants), then "middle low green consciousness group" (group 2 which scores from 2.37 to 2.64 and represents 52 participants), then "middle high green consciousness group" (group 3 which scores from 2.65 to 2.91 and represents 36 participants) to finally "high green consciousness group" (group 4 which scores from 2.94 to 6 and represents 46 participants).

2.4 Psychographic variables

Finally, the last part of the survey is composed of five psychographic measures.

Gender is the first measure and participants could choose between « male », « female » and « non-binary ». Gender is important to assess because previous studies highlighted a correlation between gender and environmental behaviour. For instance, Eagly (1987) highlighted that women tend to engage more in green movements and behaviours than men because their social development encouraged them to pay more attention to other people's actions and consequences. Nevertheless, some studies found no correlation between gender and green behaviour (Arbuthnot, 1977) whereas other studies even pointed out the opposite correlation (MacDonald and Hara, 1994) but these discrepancies overall mean that it is necessary to assess the correlation between gender and green behaviour in the context or our study (see part 3.2 in the appendix).

Then, age is the second measure: the participants have to compute manually their own age in the survey. Age has been studied a lot in environmental and green marketing academic literature (Anderson and Cunningham, 1972) but it is mainly accepted that the younger people are, the greener conscious they are because they grew up in a society in which environmental concerns were more and more spread. Once again, some studies find the opposite or no correlation (Aaker and Bagozzi, 1982), but it is still necessary to assess the correlation between age and green behaviour for our survey (see part 3.3 in the appendix).

Then the level of education is assessed through the diploma acquired: the participants could choose from "no degree" to "Phd" or state another diploma if they needed to. This demographic variable has been proven to have a significant positive influence on environmental consciousness (Aaker and Bagozzi, 1982) as education is supposed to enhance greener behaviours. Once again, some studies have found no correlation or the opposite correlation between education and environmental concern (Kinnear, Taylor, & Ahmed, 1974) but it remains important to assess and analyse it. Overall, our participants had mainly a master degree (83,4%), the second group had a bachelor degree (13,8%) and only a marginal part had a PhD (1,7%) and only a high school degree (1,1%) (see appendix, part 3.4).

The next demographic variable is the residence of the participants: they first had to state their country of residence which proved that our

sample was European and then they had to state the size of their place of residence between five choice from « rural area » to « metropolis ». Most of the research on the correlation between the place of area and green behaviour stressed out a positive correlation between urban area and environmental concerns (Dunlap & Van Liere, 1978). In our study, most of the participants are living in urban area (from small town to metropolis, they represent 92,3% whereas participants living in rural areas represent only 7,7%, see part 3.1.2 in the appendix).

Finally, the last demographic variable is the income: the participants had to choose between three tranches of 25,000$ of revenue from 0 to 75,000$ and more than 75,000$. Usually, researches showed that income is supposed to be positively correlated with a higher green consciousness and this assumption is supported by the fact that higher income allow people to focus on environmental issues and act like buying more eco-friendly commodities even though they are more expensive (Kinnear, Taylor, & Ahmed, 1974). Nevertheless, the growing and spreading concern of environmental issue can offset this effect as Roberts and Bacon proved it (1997). In our study, many participants have low income (40,3% earned less than 25,000$ a year) or middle income (31,5% earned between 25,000 and 50,000$ a year) whereas only 15,5% earned more than 50,000$ a year (see part 3.5 in the appendix).

F. Data analysis and results

This research has two main purposes. First, we want to look at the believability of natural scarcity predictions and then we want to analyse consumer behaviours in response to those predictions and policies implementation announcement.

We will analyse and depict factors that can influence believability and hence confirm or refute hypothesis 1 (Natural scarcity predictions are no longer credible), 2.1 (Emotional reaction such as fear would limit the believability of the predictions), 3.1 (Time is a psychological distance that would decrease the believability of predictions) and 4.1 (A pro-industry source would increase the believability of the predictions) related to the believability of natural resources depletion prediction (believability is often

called Credibility when coding variables). When looking at behaviours, we will verify hypotheses 2.2 (Emotional reaction such as fear would limit the impact of the predictions on the consumer behaviour by leading to avoidance), 3.2 (Time is a psychological distance that would decrease the impact of predictions and policies on consumer behaviours), 4.2 (A pro-industry source would have more impact on consumer behaviour because it is unexpected), 5.1 (Natural scarcity context would lead to selfish behaviour) and 5.2 (Artificial scarcity context would lead to more rational behaviour). In order to have consistency in the way our variables were scaled we conducted some changes and reversed some notation when running regressions. Changes are detailed when regressions are described.

I. Predictions Believability, influence of emotions, time and source of the prediction

1.A. Water depletion predictions believability

Believability is assessed by a nine-point scale from "Very untrustworthy (1)" to "Very trustworthy (9)". Overall, when looking at all predictions altogether (meaning predictions both from WWF and Mondelez as well as prediction timing the scarcity to 2025 or 2050), we can see that people tend to be quite neutral towards them (see appendix, part 3, table 4.a.b.c; M= 5.85 and Std= 1.7222).

To assess our hypotheses 2.1 (Emotional reaction such as fear would limit the believability of the predictions), 3.1 (Time is a psychological distance that would decrease the believability of predictions) and 4.1 (A pro-industry source would increase the believability of the predictions) related to prediction believability (i.e., analysing the influence of emotion, time and source of the prediction on the believability of the predictions), a regression is run with Water credibility as the dependent variable and several independent variables described below.

1.A.1. Emotions as an independent variable

An analysis of the data gathered through the survey helps us to assess whether the hypothesis H2.1 stating that emotional reaction such as fear would limit the believability of the predictions or not. Participants were asked to state the emotions the average person would feel when facing the

water shortage prediction. Overall the emotion that was the most felt between “Angry”, “Scared”, “Sad”, “Surprised” or “no emotion at all”, is being scared as it accounts for more than half of the respondents’ feelings (54.1%) (see appendix, part 3, table 6.A.1).

When looking at each emotion independently, we can see that when people feel no emotion, they are as well quite neutral about the prediction. They tend to believe it the most when the prediction makes them angry (M=6.50 Std = .84984) or scares them (M= 6.2245, Std= 1.48206) (see appendix, part 3, Box Plot 6.A.2). When they do not feel anything, they lend less credibility to the prediction.

Comparison between conditions: If we look at the frequencies of each condition separately, we can see that “scared” was the emotion felt for the highest proportion of the people when conditions 3 and 4 were activated (when the water scarcity prediction came from Mondelez). We can see as well, in the credibility analysis, that those two conditions were the ones that were the least believed by people. As the overall percentage of no emotion about the water predictions reaction is very small and accounts for 9.9% (see appendix, part 3, table 6.A.1), we will compare each emotion independently. Which means that we are creating dummy variables for each emotion that we will use for the regression (feeling scared vs feeling nothing or other emotions), (feeling angry vs feeling other emotions and nothing). The 5 dummies used to test emotions in the regression will be the following ones; W_DummyNoEmotions, W_DummyAngry, W_DummyScared and W_DummySurprised.

1.A.2. Time understood as forecast of the water depletion prediction

In order to verify our hypothesis 3.1 stating that “time is a psychological distance which would decrease the believability of predictions”, we will use a new dummy variable called “PredictionYear” which is taking the value 1 when the forecast is for 2025 (condition 2 and 3) and the value 0 when the forecast is for 2050 (condition 3 and 4) .

When doing independent t-tests with prediction 1 vs prediction 2 as well as for prediction 3 and 4, we get non-significant tests of variances and t-test for both meaning that we do not have enough evidence to reject the null hypothesis (H0: Means are equals, H1: Means are different) saying that

means are equals (see appendix, part 3, table 6.B.1.b & 10.B.2.b, p-valuepred1pred2 = .560/2 = .280>0,05 and p-valuepred3pred4 = .454/2 = .227 >.05). As we cannot say that means are different, we cannot state that time has a significant impact on the prediction believability. In the regression further ran, PredictionYear will be the independent variable used.

1.A.3. Source influence on water depletion predictions

In order to assess the hypothesis 4.1 stating that a pro-industry source would increase the believability of the predictions, the dummy variable IndustryvsONG is created taking the value 1 when the prediction comes from an NGO and taking the value 0 when the prediction comes from an industry group. Predictions 1 and 2 are predictions coming from the NGO WWF and predictions 3 and 4 are coming from the big group Mondelez representing the industry category. When looking closer at the four conditions and at the credibility, we can see that conditions 1 & 2 are the ones that seem the most credible for people as they have higher means (Mw1 = 6.20, Stdw1 : 1.504 and Mw2 = 6.00, Stdw2 = 1.633). Both of them are from the NGO WWF. It seems that the credibility of the claims is higher when it comes from an NGO than it comes from a pro-industry group as Mondelez in this case.

1.A.4. NEP_category and water depletion predictions

As explained earlier, NEP scores were recoded into new scores in order to have 4 main categories and use the NEP_Category as an independent variable.

1.A.5. Regression

The regression aims at analysing the influence of emotions, of sources or of the time length on the predictions' credibility. As a reminder, CredWater is the dependent variable and PredictionYear, IndustryvsONG, Gender, , W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised and the NEP category variable are the independent variables here.

MODEL SUMMARY : Water depletion predictions believability			
R	R^2	Adjusted R^2	Std. error of the Estimate
0.446[a]	0.199	0.157	1.58113

[a]Predictors: Constant, Gender, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

ANOVA TABLE: Water depletion predictions believability					
	Sum of Squares	Df	Mean[2]	F	Sig.
Regression	106.172	9	11.797	4.719	0.000[b]
Residual	427.497	171	2.500		
Total	533.669	180			

[a]Dependent variable: Credwater
[b]Predictors: Constant, Gender, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

REGRESSION COEFFICIENTS : Water depletion predictions believability[a]					
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	6.771	0.707		9.577	0.000
W_DummyNoEmotions	-2.161	0.672	-0.377	-3.214	0.002
W_DummyAngry	-0.130	0.752	-0.017	-0.173	0.863
W_DummyScared	-0.310	0.583	-0.090	-0.531	0.596
W_DummySad	-0.866	0.652	-0.174	-1.328	0.186
W_DummySurprised	-1.927	0.663	-0.036	-0.503	0.615
NEP category Assigned to a cat depending on the NEP mean.	-0.055	0.110	-0.036	-0.503	0.615
ONGvsIndustry	0.590	0.240	0.172	2.457	0.015
PredictionYear	0.224	0.240	0.065	0.933	0.352
Gender	-0.314	0.245	-0.091	-1.278	0.203

[a]Dependent variable: Credwater

We have here $F(9,171) = 4.719$ and $p < .001$. Hence, we can safely reject the null hypothesis saying that all of the above listed variables have no effect on water depletion predictions' believability. We can look closer at which variable(s) are significant in influencing Water depletion prediction credibility. The regression has a R-square equal to .199 and an adjusted R-Square of .157 (see appendix, part 3, table 6.D) meaning that in the model 19.9% of the variation in "Water credibility" is explained by the 9 independent variables described.

Emotions :W_DummyNoEmotions is significant (p-value =.002<.05) and has an unstandardized beta of -2.161 meaning that feeling no emotion would decrease the believability by 2.161 compared to the case when any other emotions would be felt. The dummy variable surprise, W_DummySurprise, is also significant (p-value =.004 <.05) and has a Beta equal to -1.927 meaning that being surprised would have a negative impact on the believability of the water depletion prediction compared to when the

emotion being surprised is not felt (when no emotion or any other emotion is felt), but this impact is less significant than when no emotion is felt.
Source: The IndustryvsONG variable is also significant with a p-value of .015 < .05 and with a beta coefficient equal to .590 meaning that the **when the source is an NGO, it has a positive impact on the water depletion prediction's credibility**. This one would be increased by .590 when the statement is from an NGO opposed as when it is from an industry.

1.B Oil depletion predictions believability

Credibility is assessed by a nine-point scale from "Very untrustworthy (1)" to "Very trustworthy (9)". Overall, when looking at all predictions together (meaning predictions both from Greenpeace and Total as well as predictions for 2025 or 2050), we can see that they are, on average, more believed by people than the water scarcity ones (see appendix, part 3, tables 5.a,b,c; Mo= 6.3812 and Stdo= 1.7203). By looking closer at the four conditions and at the credibility, we can see that conditions 1 & 4 are the ones that seem the more credible for people as they have higher means (Mo1 = 6.51, Stdo1 : 1.675 and Mo4 = 6.44, Stdo4 = 1.803). Those conditions are from different sources and for different time forecast. The influence of the source and the timing forecast will be analysed more in details in further hypotheses.
Same as for water prediction, a regression is run in order to assess the influence of emotions, time and the source of the prediction on the believability of the predictions. Oil credibility will be the dependent variable and the independent variables are listed below.

1.B.1. Emotions as an independent variable

When looking at the oil case, most of the people felt scared but much less than when they were faced with the water scarcity prediction (35.4% for oil predictions vs 54.1% for water predictions). Moreover, the amount of people feeling nothing was higher than for the water predictions. As few comments of the survey highlighted, the reason is that it is "a well-known" factor, people have accepted it and believe in the fact that some other energies would be used as back-ups. Sad and scared people are the one believing the prediction the most. (see appendix, part 3, table 7.B Msad=7.1818 & Mscared = 6.9531). When looking at the emotions and

their frequencies, we can see that “no emotion” accounts for 19.9% of the overall emotions or no emotions (see appendix, part 3, table 7.B.1). When running the regression, a dummy variable distinguishing Emotions (1) vs No emotion (0) will be created.

1.B.2 Time understood as forecast of the oil depletion prediction

The independent variable used is “PredictionYear” which is taking the value 1 when the forecast is for 2025 (condition 2 and 3) and the value 0 when the forecast is for 2050 (condition 3 and 4).

1.B.3 Source influence on oil depletion predictions

The dummy variable IndustryvsONG is the same as the one used in the water prediction credibility regression prediction.

1.B.4 NEP_category and oil depletion predictions

As explained earlier, NEP scores were recoded into new scores in order to have 4 main categories and use the NEP_Category as an independent variable.

1.B.5. Regressions

As a reminder, CredOil is the dependent variable and PredictionYear, IndustryvsONG, Gender, O_EmotionsvsNothing, NEP category variable are the independent variables used.

MODEL SUMMARY : Oil depletion predictions believability			
R	R^2	Adjusted R^2	Std. error of the Estimate
0.169[a]	0.029	0.001	1.71953

[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

ANOVA TABLE: Oil depletion predictions believability					
	Sum of Squares	Df	Mean^2	F	Sig.
Regression	15.260	5	3.052	1.032	0.400
Residual	517.436	175	2.957		
Total	532.696	180			

[a]Dependent variable: Credoil
[b]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

REGRESSION COEFFICIENTS : Oil depletion predictions believability[a]					
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	6.131	0.543		11.282	0.000
Oil Emotions vs Nothing	0.709	0.325	0.165	2.184	0.030
NEP_Category	-0.036	0.114	-0.024	-0.318	0.751
IndustryvsONG	0.063	0.257	0.018	0.244	0.808
PredictionYear	-0.082	0.262	-0.024	-0.315	0.753
Gender	-0.153	0.264	-0.044	-0.580	0.563

[a]Dependent variable: Credoil

We have here F(5,175)= 1.032 and p= .400 > .05. Hence, we cannot reject the null hypothesis which means that none of the variables listed above have an effect on water predictions' credibility and we do not have enough evidence to say that the independent variables are not all equal to zero. **We cannot say that a specific variable has an impact on the believability of the oil depletion prediction.**

II. Behaviours change when facing customer policies and predictions

Analysing the literature helped us to depict some hypotheses that would explain changes in people behaviours depending on certain aspects of the predictions or policies.

First, we run regressions on water predictions and policies and their impact on consumer behaviour and then we do the same for oil predictions.

We are each time running factor analysis first so that the number of regressions needed to be run would be decrease as we are regrouping behaviours variables that tend to have the same trend in a common new factor.

2.A Water predictions and change of behaviour

The variable W_Overall_Behavpred6 has been reversed as a high score is more sustainable than a smaller one when it is the opposite for the other

variables. The new variable keeps the same name when being re-coded and verifies; New variable = 10- Old variable.

The correlation analysis is run on the 5 variables linked with Change of behaviours for Water predictions: W_Overall_Behavpred1 (the amount of water they drink), W_Overall_Behavpred2 (the number of baths showers they take), W_Overall_Behavpred3 (the number of times they flush their toilets) ,W_Overall_Behavpred4 (the amount of watering they do of their garden or house plants) , W_Overall_Behavpred5 (the number of times they wash their cars), and W_Overall_Behavpred6 (voting for the most pro environmental party).

The correlation matrix is a matrix that is different than the identity matrix, hence the factor regression can be run. (see appendix, part 3, table 8.A.1.a)

The KMO Measure of Sampling adequacy is equal to .720 (see appendix, part 3, table 12.A.1.a), meaning that variables can be explained by each other. The KMO measure of sampling adequacy is an acceptable value (>.50) but still below the adequacy level (.80).

According to Barlett's test of sphericity, we have an approximate Chi-square statistic of 339.325 with 15 degrees of freedom that is significant at a .05 level ($p < .05$). Hence, we can reject the null hypothesis and the factor analysis can be run.

Looking at the scree plot and eigen values (see appendix, part 3, table 8.A.1.b) we can state that we will have 2 factors in the factor analysis because two eigen values are greater than 1, and the value before the trend flattens in the scree plot is 2.

The component score correlation matrix (see appendix, part 3, table 8.A.1.c) helps creating the following 2 factors and are used as the new dependent variables for the regressions;

WaterPredFactor1 = .098*AmountWaterDrink + .299*NumberBathsTaken + .270*TimesFlushed + .313*GardenWatering + .308*CarWash + .056*VoteProEnvironmentalParty

WaterPredFactor2 = - .626*AmountWaterDrink - .185*NumberBathsTaken - .107*TimesFlushed + .140*GardenWatering + .226*CarWash + .565*VoteProEnvironmentalParty

2.A.1 WaterPredFactor1 regression results

In order to conduct the first regression on WaterPredFactor1, the independent variables taken are the following: CredWater (Believability of the water prediction), NEP_category, Gender, IndustryvsONG (dummy 1 for ONG, 0 for Industry), PredictionYear (1 for 2025, 0 for 2050),W_DummyNoEmotions, W_DummyAngry, W_DummyScared and W_DummySurprised. Factor 1's variations are mostly representative of the change of behaviours in common routine actions as taking a bath, flushing toilets, washing cars...

TABLE FACTOR 1: Water depletion predictions regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.358[a]	0.128	0.077	0.96069737

[a]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 1: Water depletion predictions regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	23.100	10	2.310	2.503	0.008[b]
Residual	156.900	170	0.923		
Total	180.000	180			

[a]Dependent variable: WaterPredFacto1

[b]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 1: Water depletion predictions regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	1.445	0.532		2.714	0.007
W_DummyNoEmotions	0.0211	0.421	0.063	0.502	0.616
W_DummyAngry	-0.496	0.457	-0.114	-1.085	0.279
W_DummyScared	-0.462	0.355	-0.231	-1.302	0.195
W_DummySad	-0.493	0.398	-0.170	-1.237	0.218
W_DummySurprised	-0.795	0.413	-0.260	-1.924	0.056
NEP category Assigned to a cat depending on the NEP mean.	-0.023	0.067	-0.026	-0.343	0.732
ONGvsIndustry	0.160	0.149	0.080	1.078	0.282
PredictionYear	-0.170	0.146	-0.085	-1.166	0.245
Gender	-0.244	0.150	-0.121	-1.629	0.105
Credwater	-0.105	0.046	-0.181	-2.258	0.025

[a]Dependent variable: WaterPredFacto1

We here have $F(10,170)= 2.503$ and $p = .008 < .05$. Hence, we can safely reject the null hypothesis that none of the above listed variables have an effect on water predictions factor 1 and we can look closer at which variable(s) are significant in influencing it. As the regression results shows, the model has a R-square of .358 and an adjusted R-square of .128.
We have Cred Water as the only variable. For the variable CredWater, its beta is equal to -.105 meaning that when the participant's credibility score

towards the prediction goes up by 1 point, then the score of WaterPredFactor1 goes down by .105. When looking at the WaterpredFactor1, we see that all predictors that it contains are positive. (WaterPredFactor1 = .098*AmountWaterDrink + .299*NumberBathsTaken + .270*TimesFlushed + .313*GardenWatering + .308*CarWash + .056*VoteProEnvironmentalParty). Hence the impact on each variable contained in the factor is the same as the impact on the main Factor. **Lowering the average score of WaterPredFactor1 is showing a more sustainable behaviour for participants especially when it comes to the number of baths taken, times flushing the toilets, frequency of garden watering. Hence the more the people believe in the prediction, the more sustainable behaviours they will adopt.**

2.A.2 WaterPredFactor2 regression results

Moving on to WaterPredFactor2, the same independent variables are used: Cred Water, NEP_Category, Gender, IndustryvsONG, PredictionYear, W_DummyNoEmotions, W_DummyAngry, W_DummyScared and W_DummySurprised.

The variations of factor 2 are mostly representative for the change of behaviours in the amount of water people drink as well as their stance when coming to vote for a political party.

TABLE FACTOR 2: Water depletion predictions regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.241[a]	0.058	0.003	0.99871277

[a]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 2: Water depletion predictions regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	10.437	10	1.044	1.046	0.407[b]
Residual	169.563	170	0.997		
Total	180.000	180			

[a]Dependent variable: WaterPredFacto2
[b]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 2: Water depletion predictions regression coefficients[a]					
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	-0.105	0.554		-0.189	0.850
W_DummyNoEmotions	0.715	0.437	0.215	1.636	0.104
W_DummyAngry	-0.090	0.475	-0.021	-0.190	0.849
W_DummyScared	0.396	0.369	0.198	1.073	0.285
W_DummySad	0.500	0.414	0.173	1.208	0.229
W_DummySurprised	0.387	0.429	0.127	0.901	0.369
NEP category Assigned to a cat depending on the NEP mean.	-0.063	0.069	-0.071	-0.905	0.367
ONGvsIndustry	-0.033	0.154	-0.016	-0.211	0.833
PredictionYear	0.212	0.152	0.106	1.397	0.164
Gender	-0.071	0.156	-0.035	-0.456	0.649
Credwater	-0.021	0.048	-0.037	-0.439	0.661

[a]Dependent variable: WaterPredFacto2

We here have F(10,170)= 1.046 and p = .407 > .05. Hence, we cannot reject the null hypothesis which states that the independent variables are not all equal to zero. Then, by looking at the coefficients, we can see that none are significant, which means that no of them significantly explain a change in WaterPredFactor2.

As the regression results shows, the model has a R-square of .058 and an adjusted R-square of .003. **Hence, if we look at the variables with the highest coefficients with WaterPred2 (water consumption habits changes and tendency to vote for an ecological party) we cannot say whether or not they are influenced by emotions, by the source of the predictions by the time forecast or by the credibility participants are giving to the water prediction.**

2.B Water Policies and change of behaviours

The variable W___Overall_Behavior_policy7 has been reversed.

The correlation analysis is run on the 5 variables linked with Change of behaviours when facing Water policies. The correlation matrix is a matrix that is different than the identity matrix, hence the factor regression can be run (see appendix, part 3, table 8.B.1.a).

The KMO Measure of Sampling adequacy is equal to .788 (see appendix, part 3, table 12.B.1.a), meaning that variables can be explained by each other. The KMO measure of sampling adequacy is an acceptable value almost equal to the adequacy level (.80).

According to Barlett's test of sphericity, we have an approximate Chi-square statistic of 437.148 with 21 degrees of freedom that is significant at a

.05 level ($p < .05$). Hence, we can reject the null hypothesis and the factor analysis can be run.

Looking at the scree plot and eigen values, we can state that 2 factors will result from the factor analysis (see appendix, part 3, table 8.B.1.b) (taking eigen values greater than 1, and the value before the trend flattens in the scree plot). As the Variable 1 has cross loads on both factors we are looking at the rotated matrix (see appendix, part 3, 8.B.1.b table 2).

The two following factors are created;

WaterPolicyFactor1 = .283*DrinkMoreWater + .248*LongerBathsTaken - .046*BuyBuildingWithoutWaterEfficiency+ .267*MoreGardenWatering + .243*CarWash + .261*UseMoreWater- .092*VoteProEnvironmentalParty

WaterPolicyFactor2 = - .380*DrinkMoreWater - .011*LongerBathsTaken + .624*BuyBuildingWithoutWaterEfficiency+ .007*MoreGardenWatering + .084*CarWash + .077*UseMoreWater - .598*VoteProEnvironmentalParty

2.B.1 Water Policy Factor 1 regression results

In order to conduct the first regression on WaterPolicyFactor1, the independent variables taken are the following: CredWater (Believability of the water prediction), NEP_category, Gender, IndustryvsONG (dummy 1 for ONG, 0 for Industry), Year (1 for 2025, 0 for 2050), W_DummyNoEmotions, W_DummyAngry, W_DummyScared, and W_DummySurprised.

We also see that factor 1's variations would represent mostly the following variables variations as they have the biggest coefficients DrinkMoreWater, LongerBathsTaken, MoreGardenWatering, CarWash and UseMoreWater.

TABLE FACTOR 1: Water policy regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.207[a]	0.043	-0.013	1.00668811

[a]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 1: Water policy regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	7.718	10	0.772	0.762	0.665[b]
Residual	172.282	170	1.013		
Total	180.000	180			

[a]Dependent variable: REGR factor score 1 for Water policies
[b]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 1: Water policy regression coefficients[a]					
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	-0.325	0.558		-0.582	0.561
W_DummyNoEmotions	-0.520	0.441	-0.156	-1.179	0.240
W_DummyAngry	-0.411	0.479	-0.094	-0.859	0.392
W_DummyScared	-0.259	0.372	-0.129	-0.696	0.487
W_DummySad	-0.353	0.417	-0.122	-0.846	0.399
W_DummySurprised	-0.047	0.433	-0.015	-0.109	0.914
NEP category Assigned to a cat depending on the NEP mean.	0.003	0.070	0.003	0.044	0.965
ONGvsIndustry	0.118	0.156	0.059	0.757	0.450
PredictionYear	0.015	0.153	0.007	0.097	0.923
Gender	0.051	0.157	0.025	0.323	0.747
Credwater	0.077	0.049	0.132	1.572	0.118

[a]Dependent variable: REGR factor score 1 for Water policies

We here have F(10,170)= .762 and p = .665 > .05. Hence, we cannot reject the null hypothesis that the independent variables are not all equal to zero. By looking at the coefficients, we can see that none are significant, meaning that none significantly explain a change in WaterPolicyFactor1.

2.B.2 Water Policy Faction 2 regression results

In order to conduct the regression on WaterPolicyFactor2, the independent variables taken are the following: CredWater (Believability of the water prediction), NEP_category, IndustryvsONG (dummy 1 for ONG, 0 for Industry), Year (1 for 2025, 0 for 2050),W_DummyNoEmotions, W_DummyAngry, W_DummyScared and W_DummySurprised.
We also see that factor 2's variations would represent mostly the following variables variations as they have the biggest coefficients: Drink more water and vote pro environmental party.

TABLE FACTOR 2: Water policy regression model			
R	R^2	Adjusted R^2	Std. error of the Estimate
0.265[a]	0.070	0.016	0.99209599

[a]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 2: Water policy regression ANOVA[a]					
	Sum of Squares	Df	Mean[2]	F	Sig.
Regression	12.677	10	1.268	1.288	0.241[b]
Residual	167.323	170	0.984		
Total	180.000	180			

[a]Dependent variable: REGR factor score 2 for Water policies
[b]Predictors: Constant, Credwater, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE FACTOR 2: Water policy regression coefficients[a]					
	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	-0.959	0.550		-1.743	0.083
W_DummyNoEmotions	0.312	0.434	0.094	0.719	0.473
W_DummyAngry	0.704	0.472	0.161	1.91	0.138
W_DummyScared	0.361	0.366	0.181	0.987	0.325
W_DummySad	0.177	0.411	0.061	0.430	0.668
W_DummySurprised	0.465	0.426	0.152	1.091	0.277
NEP category Assigned to a cat depending on the NEP mean.	0.102	0.069	0.116	1.485	0.139
ONGvsIndustry	-0.089	0.153	-0.045	-0.580	0.562
PredictionYear	0.239	0.151	0.120	1.588	0.114
Gender	0.295	0.155	0.147	1.905	0.058
Credwater	-0.023	0.048	-0.040	-0.482	0.630

[a]Dependent variable: REGR factor score 2 for Water policies

We have here F(10,170)= 1.288 and p =.241 > .05. Hence, we cannot reject the null hypothesis that none of the above listed variables have an effect on changing behaviours in response to water restriction policies and we do not have enough evidence to say that the independent variables are not all equal to zero. We also did not have any significant p-values for the independent variables.

When running the regression for WaterPolicyFactor2, we have a R-square equal to .070 and an adjusted R-square of .016

All in all, it seems that the credibility of the initial water depletion prediction, the source, the time forecast or the different emotions do not have any significant influence on the change of behaviours.

2.C Oil Predictions and change of behaviours

We have re coded variables O_Overall_Behavpred1, O_Overall_Behavpred2, O_Overall_Behavpred5 so that when all variables score high it means that the participants have a more sustainable behaviour. The correlation analysis is run on the 7 variables linked with Change of behaviours for oil predictions. The correlation matrix is a matrix that is different than the identity matrix, hence the factor regression can be run. (see appendix, part 3, table 9.A.1.a)

The KMO Measure of Sampling adequacy is equal to .615, meaning that variables can be explained by each other. The KMO measure of sampling adequacy is an acceptable value even if it is below the adequacy level (<.80). According to Barlett's test of sphericity, we have an approximate Chi-square statistic of 336.269 with 21 degrees of freedom that is significant

at a .05 level ($p < .05$) (see appendix, part 3, table 9.A.1.a). Hence, we can reject the null hypothesis and the factor analysis can be run.

Factor Reduction;

Looking at the scree plot and eigen values, we will have 2 factors in the factor analysis (taking eigen values greater than 1, and the value before the trend flattens in the scree plot) (see appendix, part 3, table 9.A.1.b).

We look at the component matrix and see that no variables are scoring high in both components, and we then extract the component score coefficient matrix (see appendix, part 3, 9.A.1.c, table 1)

We then get the two following factors for the changes of behaviours facing the oil scarcity predictions.

Component Score Coefficient Matrix

	Component 1	Component 2
Overall Behavior prediction 1	-0.130	0.426
Overall Behavior prediction 2	-0.204	0.404
Overall Behavior prediction 3	0.328	-0.013
Overall Behavior prediction 4	0.331	0.060
Overall Behavior prediction 5	-0.235	0.060
Overall Behavior prediction 6	0.199	0.385
Overall Behavior prediction 7	0.164	0.363

Extraction Method: Principal Component Analysis. Component Scores.

OilPredFactor1 = -.130*Driving - .204*Flying + .328*CarEnergyEfficiency + .331*TVsEnergyEfficiency - .235*SizeHomes + .199* LocalProducts + .164*VoteProEnvironmentalParty

OilPredFactor2 = .426*Driving + .404*Flying - .013*CarEnergyEfficiency + .060*TVsEnergyEfficiency + .060*SizeHomes + .385* LocalProducts + .363*VoteProEnvironmentalParty

2.C.1 Oil Prediction Factor 1 regression results

A regression is run for the first factor created (OilPredFactor1), and independent variables included in the model are the following ; CredOil (Believability of the Oil prediction), IndustryvsONG (dummy 1 for ONG, 0 for Industry), Gender (1 for male, 2 for female, 3 for non binary), PredictionYear (1 for 2025, 0 for 2050), O_EmotionvsNothing (In response to Water prediction; 0 if nothing, 1 if emotions) , NEPcategory (Level of sustainable behaviour when answering NEP questions). Gender and Level of education were not taken into account as adding them was diminishing a lot the fit of the model giving a really small R-square.

Factor 1 is mostly representative of the variations for the following variables: CarEnergyEfficiency, TVsEnergyEfficiency and SizeHomes (opposite variations).

TABLE FACTOR 1: Oil depletion predictions regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.291[a]	0.085	0.059	0.97015855

[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 1: Oil depletion predictions regression ANOVA[a]

	Sum of Squares	Df	Mean[2]	F	Sig.
Regression	15.289	5	3.058	3.249	0.008[b]
Residual	164.711	175	0.941		
Total	180.000	180			

[a]Dependent variable: OilrPredFacto1
[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 1: Oil depletion predictions regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	0.909	0.349		2.600	0.010
PredictionYear	-0.107	0.146	-0.053	-0.728	0.467
IndustryvsONG	-0.470	0.145	-0.236	-3.247	0.001
Credoil	-0.058	0.043	-0.099	-1.355	0.177
Oil emotions VS nothing	-0.294	0.185	-0.118	-1.584	0.115
NEP Category	-0.008	0.064	-0.009	-0.120	0.905

[a]Dependent variable: Credoil

The model to predict the OilPredFactor1 dependent variable gets a R-square of .085 and an adjusted R-square of .059. Furthermore, we have here $F(5,175) = 3.249$ and $p = .008 < .05$. Hence, we can safely reject the null hypothesis that none of the above listed variables have an effect on OilPredFactor1 and can look closer at which variable(s) are significant in influencing it.

The only variable in addition to the constant with a significant p-value is the variable IndustryvsONG as its p-value equals $.001 < .05$. The beta coefficient is equal to -.470, meaning that when the prediction comes from an NGO (taking the value 1), the overall value for the factor 1 decreases by .470 meaning that the influence on the variables CarEnergyEfficiency, TVsEnergyEfficiency is negative and that there is a positive influence on the variable SizeHomes. **When the prediction comes from an NGO, people tend to behave more sustainably for Energy efficiency of their cars and energy efficiency of their appliances but does not push them to buy smaller houses.**

2.C.2 Oil Prediction Factor 2 regression results

A regression is run for the first factor created (OilPredFactor2), and independent variables included in the model are the following: CredOil

(Believability of the Oil prediction), Gender (1 for male, 2 for female, 3 for non binary), IndustryvsONG (dummy 1 for ONG, 0 for Industry), PredictionYear (1 for 2025, 0 for 2050), O_EmotionvsNothing (In response to Water prediction; 0 if nothing, 1 if emotions) , NEPcategory (Level of sustainable behaviour when answering NEP questions)
Factor 2 is mostly representative of the variations for the following variables: Driving, Flying, LocalProducts, VoteProEnvironmentalParty.

TABLE FACTOR 2: Oil depletion predictions regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.342	0.117	0.087	0.95569071

[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 2: Oil depletion predictions regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	21..078	6	3.513	3.846	.001
Residual	158.922	174	0.913		
Total	180.000	180			

[a]Dependent variable: OilrPredFacto2
[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 2: Oil depletion predictions regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	-1.314	0.397		-3.311	0.001
Oil emotions VS nothing	0.401	0.183	0.160	2.190	0.030
NEP Category	0.064	0?064	0?072	1.006	0.316
IndustryvsONG	0.392	0.143	0.196	2.741	0.007
PredictionYear	-0.046	0.146	-0.023	-0.319	0.750
Gender	-0.046	0.147	-0.023	-0.314	0.754
CredOil	0.115	0.042	0.197	2.727	0.007

[a]Dependent variable: Credoil

We have $F(6,174) = 3.846$ and $p = .001 < .05$. Hence, we can safely reject the null hypothesis that none of the above listed variables have an effect on OilPredFactor2 and can look closer at which variable(s) are significant in influencing it. The model to predict the OilPredFactor2 dependent variable gets a R-square of .117 and an adjusted R-square of .087.
The Variable Oil Emotion vs Nothing is significant with a p-value smaller than .05 (p-value = .03). The beta coefficient is equal to 0.401 meaning that when the prediction takes a score higher than 1 point, the overall value for the factor 2 increases by .401. The variable IndustryvsONG is also significant and has a beta equal to .392. Meaning that when the prediction is from an NGO then the value of factor 2 increases by .392. CredOil's p-value equals $.07 < .05$. The beta coefficient is equal to 0.115 meaning that when the prediction takes a score higher than 1 point, the overall value for the factor 2 increases by .392.

OilPredFactor2 scores high for the variables Driving, Flying, LocalProducts and VoteProEnvironmentalParty. In the equation explaining OilPredFactor2, the coefficients linked to those variables are all positive except CarEnergyEfficiency. **Following the re coding, a higher score on those variables implies a more sustainable behaviour (Driving, Flying, LocalProducts). Hence participants tend to change their behaviours to a more sustainable for some aspects when their believability of the oil depletion prediction is higher, when the prediction comes from an NGO versus when it comes from an industry and as well as when they feel an emotion versus when they do not feel anything.**

2.D Oil Policies and change of behaviours

The variable O_Overall_Behavior_policy6 is getting reversed as it does not align with the other variables when it comes to the sustainability aspect of the behaviour.

The correlation analysis is run on the 6 variables linked with Change of behaviours when facing oil policies. The correlation matrix is a matrix that is different than the identity matrix, hence the factor regression can be run. (see appendix, part 3, table 9.B.1.a)

The KMO Measure of Sampling adequacy is equal to .821, meaning that variables can be explained by each other. The KMO measure of sampling adequacy is an acceptable value even if below the adequacy level (< .80). According to Barlett's test of sphericity, we have an approximate Chi-square statistic of 393.918 with 15 degrees of freedom that is significant at a .05 level ($p < .05$) (see appendix, part 3, table 13.B.1.a). Hence, we can reject the null hypothesis and the factor analysis can be run.

A) Factor Reduction

Looking at the scree plot and eigen values, we will have 2 factors in the factor analysis (taking eigen values greater than 1, and the value before the trend flattens in the scree plot) (see appendix, part 3, table 9.B.1.b).

We look at the component matrix and see that no variables are scoring high in both components, and we then extract the component score coefficient matrix (see appendix, part 3, 9.1.c, table 1). Then, we get the two following factors for the changes of behaviours facing the oil scarcity policies:

OilPolicyFactor1 = .244*BiggerCars + .223*FlyMore + .274*BuyBiggerTVs + .252*BuyBiggerHomes + .249*UseMoreEnergy + .064*VoteProEnvironmentalParty

OilPolicyFactor2 = **-**.278*BiggerCars + .019*FlyMore - .001*BuyBiggerTVs - .052*BuyBiggerHomes + .066*UseMoreEnergy + .950*VoteProEnvironmentalParty

2.D.1 OilPolicyFactor1 regression results

A regression is run for the first factor created (OilPolicyFactor1), and independent variables included in the model are the following: BiggerCars (if people tend to buy bigger cars), FlyMore (if people intend to fly more often), BuyBiggerTVs (if people intend to buy bigger Tvs or appliances), BuyBiggerHomes (if participants intend to buy bigger homes), UseMoreEnergy (if people intend in general to use more energy) and VoteProEnvironmentalParty (if people intend to vote for a political party that promises to enact the restrictions explained in the policies).
Factor 1 is mostly representative of the variations for the following variables: FlyMore, BuyBiggerTVs, BuyBiggerHomes and UseMoreEnergy.

TABLE FACTOR 1: Oil policy regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.157[a]	0.025	-0.009	1.00451731

[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 1: Oil policy regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	4.424	6	0.737	0.731	0.625[b]
Residual	175.576	174	1.009		
Total	180.000	180			

[a]Dependent variable: OilPolicyFactor1
[b]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 1: Oil policy regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	-0.471	0.417		-1.128	0.261
Oil Emotion vs Nothing	0.321	0.192	0.128	1.668	0.097
NEP_Category	-0.021	0.067	-0.024	-0.320	0.750
IndustryvsONG	0.014	0.150	0.007	0.094	0.925
PredictionYear	0.089	0.153	0.045	0.583	0.561
Gender	0.035	0.154	0.018	0.230	0.818
CredOil	0.026	0.044	0.044	0.584	0.560

[a]Dependent variable: OilPolicyFactor1

We have here F(6,174) = .731 and p = .625 > .05. Hence, we do not have enough evidence to reject the null hypothesis that the independent variables are not all equal to zero. The model created to predict the OilPredFactor1 dependent variable gets a R-square of .025 and a negative adjusted R-

square. **And when looking at the coefficients, we can see that none are significant, meaning that none of them significantly explain a change in OilPolicyFactor1.**

2.D.2 OilPolicyFactor2 regression results

A regression is run for the first factor created (OilPolicyFactor1), and independent variables included in the model are the following: BiggerCars (if people tend to buy bigger cars), FlyMore (if people intend to fly more often), BuyBiggerTVs (if people intend to buy bigger Tvs or appliances), BuyBiggerHomes (if participants intend to buy bigger homes), UseMoreEnergy (if people intend in general to use more energy) and VoteProEnvironmentalParty (if people intend to vote for a political party that promises to enact the restrictions explained in the policies).
Factor 1 is mostly representative of the variations for the following variables: FlyMore, BuyBiggerTVs, BuyBiggerHomes and UseMoreEnergy.

TABLE FACTOR 2: Oil policy regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.228[a]	0.052	0.019	0.99038956

[a]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 2: Oil policy regression ANOVA[a]

	Sum of Squares	Df	Mean[2]	F	Sig.
Regression	9.328	6	1.555	1.585	0.154
Residual	170.672	174	0.981		
Total	180.000	180			

[a]Dependent variable: OilPolicyFactor2
[b]Predictors: Constant, Oil Emotion vs Nothing, NEP_Category, IndustryvsONG, Prediction Year, Gender

TABLE FACTOR 2: Oil policy regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
Constant	0.582	0.411		-1.414	0.159
Oil Emotion vs Nothing	0.234	0.190	0.094	1.233	0.219
NEP_Category	-0.014	0.066	-0.016	-0.214	0.831
IndustryvsONG	0.316	0.148	-0.158	-2.134	0.034
PredictionYear	0.095	0.151	0.047	0.627	0.531
Gender	0.205	0.152	0.102	1.347	0.180
CredOil	0.039	0.044	0.066	0.885	0.378

[a]Dependent variable: OilPolicyFactor2

We have here $F(6,174) = 1.585$ and $p = .159 > .05$. **Hence, we do not have enough evidence to reject the null hypothesis that the independent variables are not all equal to zero.**

G. Discussion of the results

H1 : Natural scarcity predictions are no longer credible

This hypothesis is not verified because when it comes to water depletion scarcity predictions, people tend to be neutral toward them. However, oil depletion predictions believability is higher than water depletion predictions. Oil prediction believability might score higher because there is less psychological distance than water: everyone will suffer from oil depletion whereas water depletion will first harm specific zones. We can however notice that the more the natural resources predictions are believed, the more the participant will adopt a sustainable behaviour especially toward daily tasks that are highly water-consuming (flushing toilets, taking showers or baths, watering the garden). Basic actions like drinking water are hermetic to any of the emotion, source, time forecast variables as they are natural needs and vital to the participant. It makes sense that daily tasks are the ones people would actually be willing to change because it is the less effortful to change.

H2.1: Emotional reaction such as fear would limit the believability of the predictions

Emotional reactions show that the water depletion prediction's believability is higher than when no emotions is felt. People believe the least the water prediction when they no emotion at all and then right after when they feel "surprised". The surprise might mean that people either hear this new information for the first time and doubt it because they need to process it (Goidel, Shields, & Peffley, 1997) or it can also mean that this new information is change from previous belief and could trigger a truth effect (Sutherland & Sylvester, 2000) which decreases its believability. However, nothing can be said on the impact of emotion on the believability of oil depletion prediction.

H2.2: Emotional reaction such as fear would limit the impact of the predictions on the consumer behaviour by leading to avoidance

When looking at oil policies implementation, we notice that participants adopt more sustainable behaviours when they feel an emotion than when they do not, if the actions are linked with transportation modes (driving, flying) or with buying local products. This trend might be explained because it is easy to make a connection between these actions and

the consequences on oil consumption and people would change their behaviour only if they know it will actually have an impact on the environment.

H3.1: Time is a psychological distance that would decrease the believability of predictions & H3.2: Time is a psychological distance that would decrease the impact of predictions and policies on consumer behaviours

No conclusion can be made on the impact of time on the prediction believability nor change of behaviours.

H4.1: A pro-industry source would increase the believability of the predictions

When it comes to water depletion prediction, the believability would be higher if the source is an NGO then if it is an industry. This tendency might be explained because NGO scores higher in terms of credibility especially about environment claims and the wear-out effect we predicted do not occur toward water depletion prediction maybe because there is less information about it. The selfless communication might not happen maybe because people would rely on heuristic to process this kind of information and would only assess a pro-industry source as not credible on this kind of topic.

H4.2: A pro-industry source would have more impact on consumer behaviour because it is unexpected

When it comes to oil depletion predictions, people tend to get a more sustainable behaviour if the prediction comes from an NGO than if it comes from an industry. It would increase the sustainability in the behaviours linked with Driving, flying, buying local products. The same explanations as before might be applied here as NGO would scores higher in terms of trust than industry.

H5.1: Natural scarcity context would lead to selfish behaviour

When people are faced with oil depletion predictions, people tend to behave more selfishly when it comes to the size of the houses they buy. This

result is consistent with our previous conjectures stating that people would mainly accept to change their behaviour if this is not too effortful: reducing the size of their home is too much to ask for them and we do not think they would value the effort associated enough in comparison to the benefit for the environment.

H5.2: Artificial scarcity context would lead to more rational behaviour

Overall when it comes to policies and the behaviours ahead of the policies implementations, we cannot depict any variable between time, emotion or source which is statistically significant and could explain the influence of a variable on the behaviours.

In addition, the NEP scores did not provide significant enough variables explaining an influence of a prior green stance to a more sustainable behaviour. As a reminder, these scores were supposed to help us identify a correlation between previous environmental consciousness and behaviour and behaviour after being exposed to a prediction or an incoming policy. One explanation could be that the participants' behaviour was already sustainable: the predictions would not trigger a better environmental behaviour in this case.

Conclusion:

All in all, by looking at the believability we can see that water prediction believability can be influenced by emotions and the source whereas nothing can be said for oil predictions.

When it comes to predictions influencing behaviours, we can depict some patterns influencing more sustainable behaviours for oil depletion prediction but not for water depletion behaviour. Indeed, only the prediction believability positively influences greener behaviours for water prediction. Whereas, emotion, sources of the prediction are influencing greener behaviours for oil prediction.

Finally, we cannot say that policies implementations influence or not behaviours neither for oil nor for water.

H. Implications

The purpose of this study was to evaluate the consumer behaviour toward natural scarce resources in two situations: when they are exposed to a prediction and when they learn that a future government policy which will change their current way of consuming is due to be implemented. Even though not much can be concluded about the policy parts, there are still some interesting implications about the prediction part.

Discussions and theoretical implications:

As this study is one of the first about this topic, there are some relevant findings to highlight, even though many findings are not enough statistically significant (see previous part E.) and would require further research. Our findings are still helping to understand how consumers would behave in reaction to depletion predictions, hence finding the good approach to present predictions and better influence the consumer. First of all, there are some discrepancies between oil and water depletion predictions and people's believability of them. For instance, oil predictions are overall more believed than water predictions. Emotions have a positive impact on the water depletion prediction's believability, but no significant impact is noticed when it comes to oil. Same is found when it comes to the source of the prediction. It highlights that every natural resource prediction's believability depends on different factors: there is not just one magical formula for natural scarcity predictions that we can apply for every resource.

Practical implications:

Our results are also helpful for scientific communication. Indeed, as one of our aims was to investigate if people were still trusting scientists' predictions, the results helped to understand how to better improve the way to communicate such kind of predictions. The fact that people still pay attention to them, and especially toward oil predictions, means that predictions must remain an important part of the communication targeting people in order to be effective. It is all the more important to know that in order to increase water depletion prediction, increasing the emotion would increase the believability of the message. The psychographics measures, even though they were not enough significant in our results, could also help

to target the consumers who are the most receptive to this kind of message and maybe the solution would be to target them and turn them into ambassadors which would spread the message around them. Target segmentation analysis (Leiserowitz, Maibach, Roser-Renouf, Smith, & Dawson, 2013) and framing research on science and technology (Nisbet, 2009) could also be effective ways to reach the right targets. Nevertheless, it means that both the scientist community and media that convey their message must look for new ways to reach people.

Marketing implications:

In terms of consumer behaviour, it is important to notice that predictions are more impactful if the goal is to change daily behaviour such as showering or driving rather than changing the size of people's homes to consume less energy. Indeed, it can help the government, NGOs or even marketers to better target the kinds of behaviour associated to the prediction they want to influence toward better green behaviour.

There are also some relevant consequences for marketers and managers especially toward corporate environmentalism (Banerjee, Iyer, & Kashyap, 2003). This concept is a little bit tricky as it is going beyond just CSR without falling into the trap of greenwashing (Entine, 1995) which could lead to "greenbashing" and a huge backlash against a company's reputation. Previous studies already pointed out backlash toward green marketing and communication due to brand claims perceived as -partially- wrong or exaggerated (Carlson, Grove, & Kangun, 1993). Corporate environmentalism is combining both recognition and action toward environment. For instance, Danone(3) launched in mid-2017 a brand signature more green-oriented: « one planet, one health »and it is important for brands to understand and to measure to what extent they can convey environmental messages and natural resource scarcity knowing that their business model is based on this depletion. On the other hand it is interesting to measure the credibility of an NGO, whose goal is and has always been to protect and save the planet, in comparison to a company because knowing that NGOs perform better, it could also be relevant to create a partnership with NGOs to gain credibility before communicating on this kind of issues.

I. Limitations

Even though this study provides some interesting and relevant findings, it is important to note that some limitations should be taken into account in the evaluation of these findings.

First, the lack of literature research on this topic made it more complicated to provide strong hypotheses. Indeed, even though they is a lot of literature research on a commodity scarcity, there is none on the commodity as a natural scarce resource (which is why we choose this topic). As there are only a few researches on the impact of policies implementation forecast and their influence on consumer behaviour, it was harder for us to develop our hypotheses.

Then, even though the study has been conducted thoroughly, the research methodology and the data collection presented some weaknesses.

First, only two scarce resources have been studied: water and oil. We had to make this choice because otherwise the survey would have been way too long and complicated for the participants, but it also means that it limits the generalization of the findings on every natural scarce resource.

Then, another limitation of the research method is the psychological distance measure of time. Indeed, it remains a bit blurry to what extent the participants noticed and paid attention to the time indicated in the predictions. In order to keep the research as unbiased as we could, we chose not to put any emphasis on the date so that the participants' responses would not been influenced and biased in case they noticed this emphasis.

The use of projective questions was also tricky. Indeed, even though this tactic seems to be the most relevant and efficient for our research in order to get honest response, during the survey, some participants told us that they did not answer what they would have done but what they think the average person would do. We chose to keep the survey that way for two reasons: only a few participants made this comment in comparison to the size of the overall sample and because the whole point of using projective question was to avoid non-honest response due to fear of being judged. Yet, we will never know to what extent this technique has improved or biased our results.

Then, the sample characteristics also limits some of the findings of the study. For instance, the participants are mainly between 22.5 and 26.5 years old because it was shared through social media and emails. Which means that the findings are relevant for the millennials generation but are tricky to apply to the entire population. In the same way, the level of education is not wide enough to assess a strong correlation and conclusion between education and consumer behaviour in the context of scarce natural resources predictions and policies. Moreover, although many of the participants come from European countries, most participants are French. Finally, there is also a deviation from the population toward the percentage of men and women compared to France and Europe figures. Indeed, in both France and Europe, there are around 51% of women and 49% of men (according to a 2019 statistical study from INSEE[4] and a 2019 report from EUROSTAT[5]) against 56.4% men and 43.6% women in our study (see part 3.2 of the appendix). Despite the fact that the research has both enough female and male respondents to make their answer significant, the differences between gender representation is less representative from the real population which might also decrease the findings generalization.

To conclude, our research is focused on a conceptual situation of natural scarce resources predictions and policies by asking how respondents would react to them. Yet, the issue remains whether the respondents would react in the same way to the same situation in real life.

J. Further research

First of all, even though our research is still relevant and provide significant findings, the previous limitations and amount of insignificant results highlighted previously justify to extent this research to a broader population in order to get findings that are relevant at the European scale and that could be more representative of the population, with a more varied sample in terms of education and age.

We also think that further research might focus on a research closer to an experienced simulation to actually assess how people would behave in case of natural scarcity predictions and policies. Researchers might also rely on a combination of observation and interviews to monitor the consumers

behaviour when facing natural scarce resources predictions and policies in order to get more insights from the participants.

Then, there are some points that are worth digging deeper. Researches might study on the channel of information that convey the predictions especially online channel. For instance, it could be relevant to study the trustworthiness and impact on people's perceptions from online social networks such as social media, specialized blog, forum of discussion… It would be even more relevant to study the credibility and influence of these channels in a context of increasing fake news in which it is harder to differentiate fake news from real and reliable news.

Furthermore, it might also be interesting to compare the difference of consumers behaviour when they are exposed to these predictions and policies across countries with significant cultural differences. For instance, Easterners are more interdependent than Westerner (Linn, 2016). It could be interesting to assess to what extent the people's reaction would differ between these cultures.

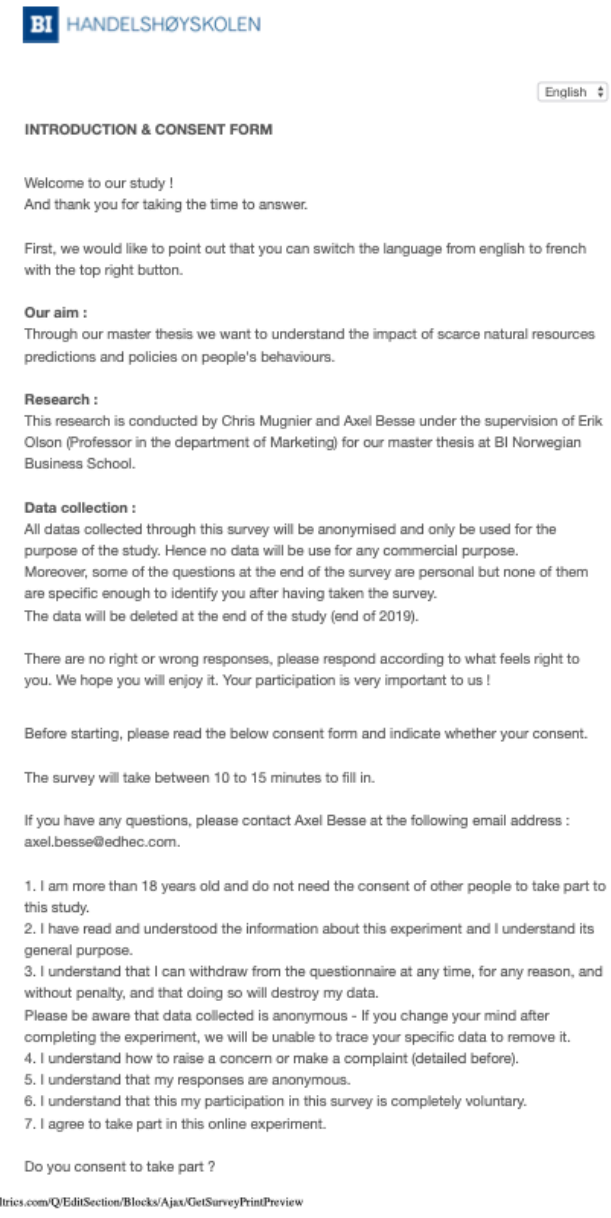
As one of the points of our research was to study the government policies effectiveness in order to reduce the consumption of natural scarce resource, it would also be relevant to study this deeply as our results were not enough significant: announcing an incoming policy that would change the way people get and consume natural scarce resource might backfire and lead to higher consumption in the time leading to the implementation of the policy which means that better sensitization is needed and lower communication about their consequences on real consumption should be communicated. For instance, tourism is becoming more and more dependent on planes because it is cheaper and cheaper, but this market is responsible for a lot of carbon gas emissions (Ceron et al. 2007). Which means that policies should be implemented in a first time to target air travel tourists and adapted to their behaviour. Then, the effectiveness of nudging, by relying on the default opt act for instance, should be evaluated. Based on Stoknes' work (2014) "a future climate nudge could be to automatically add and include the price of CO2 emission allowances when people would buy a plane ticket" for instance. "People could still make it optional to pay for the CO2 allowance, but [they] would have to opt out in order not to pay". Another topic could also be to study other policies such as sensitization

through young education and nudges. Indeed, time spent in nature has been proved to be positively correlated with nature bonds and environmental concerns (Raymond, Brown, & Robinson, 2011). Which basically means it would be interesting to evaluate the correlation between time spent in nature and people behaviour in case of exposition to natural scarce predictions and policies in order to assess whether government should implement programs that would make students to spend more time in nature.

Finally, there are also some marketing future research that could be conducted. First of all, it would be interesting to focus on the brand credibility through a conjoint analysis in order to classify the kind of brands that are the most credible when conveying natural scarce resources predictions. Another topic might be to study to what extent a brand could rely on a natural scarce resources prediction to promote a related eco-friendly product to increase the target green concern based on our findings without triggering a competitive mind. It has been proved that even though people express their concern and commitment to environmental issues, products with related benefits usually turned out as market fails (Devinney, Auger, & Eckhardt, 2010). For instance, hybrid car has been created and manufactured to tackle the oil depletion concerns.

Appendix

I. Survey



BI HANDELSHØYSKOLEN

English

INTRODUCTION & CONSENT FORM

Welcome to our study !
And thank you for taking the time to answer.

First, we would like to point out that you can switch the language from english to french with the top right button.

Our aim :
Through our master thesis we want to understand the impact of scarce natural resources predictions and policies on people's behaviours.

Research :
This research is conducted by Chris Mugnier and Axel Besse under the supervision of Erik Olson (Professor in the department of Marketing) for our master thesis at BI Norwegian Business School.

Data collection :
All datas collected through this survey will be anonymised and only be used for the purpose of the study. Hence no data will be use for any commercial purpose.
Moreover, some of the questions at the end of the survey are personal but none of them are specific enough to identify you after having taken the survey.
The data will be deleted at the end of the study (end of 2019).

There are no right or wrong responses, please respond according to what feels right to you. We hope you will enjoy it. Your participation is very important to us !

Before starting, please read the below consent form and indicate whether your consent.

The survey will take between 10 to 15 minutes to fill in.

If you have any questions, please contact Axel Besse at the following email address : axel.besse@edhec.com.

1. I am more than 18 years old and do not need the consent of other people to take part to this study.
2. I have read and understood the information about this experiment and I understand its general purpose.
3. I understand that I can withdraw from the questionnaire at any time, for any reason, and without penalty, and that doing so will destroy my data.
Please be aware that data collected is anonymous - If you change your mind after completing the experiment, we will be unable to trace your specific data to remove it.
4. I understand how to raise a concern or make a complaint (detailed before).
5. I understand that my responses are anonymous.
6. I understand that this my participation in this survey is completely voluntary.
7. I agree to take part in this online experiment.

Do you consent to take part ?

https://bino.ca1.qualtrics.com/Q/EditSection/Blocks/Ajax/GetSurveyPrintPreview 1/16

- Yes, I do consent.
- No, I do not consent

Water : condition 1 (WWF + 2025)

This section is focusing on water as a scarce resource.

Due to climate change and expanding human populations, **World Wildlife Federation (WWF)**, a leading environmental non-governmental organization (NGO) dedicated to environmental protection and sustainable development, **predicts that by 2025 half of the world's population will live in water-stressed areas**, meaning that lakes and aquifers will dry up and/or becoming too polluted, which will endanger water supplies for both human and animal consumption and agriculture.

On a scale from 1 to 9, do you think that the average person would find this water shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
O	O	O	O	O	O	O	O	O

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
O	O	O	O	O	O

On a scale from 1 to 9, how do you think the average person will respond to this water shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of water they drink.	O	O	O	O	O	O	O	O	O
The number of baths or showers they take.	O	O	O	O	O	O	O	O	O
The number of times they flush their toilet.	O	O	O	O	O	O	O	O	O
The amount of watering they do of their garden or house plants.	O	O	O	O	O	O	O	O	O
The number of times they wash their car.	O	O	O	O	O	O	O	O	O
Voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted water shortage, the **government** is seriously considering **policies** that would **restrict the amount of water that households and businesses use**, and require new buildings to be much more water efficient and expensive than today.

In the time leading up to these **possible restrictions and extra costs associated with water use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... drink more water.	○	○	○	○	○	○	○	○	○
... take longer/more frequent baths or showers.	○	○	○	○	○	○	○	○	○
... buy/build a building without the expensive water efficiency equipment.	○	○	○	○	○	○	○	○	○
... do more garden watering.	○	○	○	○	○	○	○	○	○
... wash their car.	○	○	○	○	○	○	○	○	○
... use generally more water.	○	○	○	○	○	○	○	○	○
... vote for political party that promises to enact such restrictions.	○	○	○	○	○	○	○	○	○

Oil : Condition 1 (Greenpeace + 2025)

This section is focusing on oil & gas as a scarce resources.

Due to growing human populations and industrial demand, **Greenpeace**, a leading environmental non-governmental organization (NGO) dedicated to environmental protection and active in more than 55 countries worldwide, **predicts that by 2025 there will be severe shortages of fossil fuels** (i.e. oil and natural gas), which will require **major reductions in energy use for non-essential purposes**.

On a scale from 1 to 9, do you think that the average person would find this fossil fuel shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
○	○	○	○	○	○	○	○	○

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
○	○	○	○	○	○

On a scale from 1 to 9, how you think that the average person would respond to this fossil fuel shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of driving they do.	O	O	O	O	O	O	O	O	O
The amount of flying they do.	O	O	O	O	O	O	O	O	O
The energy efficiency of the cars they purchase.	O	O	O	O	O	O	O	O	O
The energy efficiency of appliances and TVs.	O	O	O	O	O	O	O	O	O
The size of homes they live in.	O	O	O	O	O	O	O	O	O
The purchase of locally produced products.	O	O	O	O	O	O	O	O	O
The likelihood of voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted energy shortage, the **government** is seriously considering **policies that would restrict the number of flights people could take**, and require **new houses, cars, appliances**, etc. to be much **more energy efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with reducing energy use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... buy bigger/more powerful cars.	O	O	O	O	O	O	O	O	O
... fly as often as possible.	O	O	O	O	O	O	O	O	O
... buy bigger TVs/appliances.	O	O	O	O	O	O	O	O	O
... buy bigger/more comfortable homes.	O	O	O	O	O	O	O	O	O
.. use generally more energy before.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

Water : condition 2 (WWF + 2050)

This section is focusing on water as a scarce resource.

Part 1 :
Due to climate change and expanding human populations, **World Wildlife Federation (WWF)**, a leading environmental non-governmental organization (NGO) dedicated to environmental protection and sustainable development, **predicts that by 2050 half of the world's population will live in water-stressed areas**, meaning that lakes and aquifers will dry up and/or becoming too polluted, which will endanger water supplies for both human and animal consumption and agriculture.

On a scale from 1 to 9, do you think that the average person would find this water shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
O	O	O	O	O	O	O	O	O

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
O	O	O	O	O	O

On a scale from 1 to 9, how do you think that the average person will respond to this water shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of water they drink.	O	O	O	O	O	O	O	O	O
The number of baths or showers they take.	O	O	O	O	O	O	O	O	O
The number of times they flush their toilet.	O	O	O	O	O	O	O	O	O
The amount of watering they do of their garden or house plants.	O	O	O	O	O	O	O	O	O
The number of times they wash their car.	O	O	O	O	O	O	O	O	O
Voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted water shortage, the **government** is seriously considering **policies that would restrict the amount of water that households and businesses use**, and require **new buildings** to be much **more water efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with water use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... drink more water before the restrictions.	○	○	○	○	○	○	○	○	○
... take longer/more frequent baths or showers before the restrictions.	○	○	○	○	○	○	○	○	○
... buy/build a building without the expensive water efficiency equipment before restrictions.	○	○	○	○	○	○	○	○	○
... do more garden watering before the restrictions.	○	○	○	○	○	○	○	○	○
... wash their car before the restrictions.	○	○	○	○	○	○	○	○	○
... use generally more water before the restrictions.	○	○	○	○	○	○	○	○	○
... vote for political party that promises to enact such restrictions.	○	○	○	○	○	○	○	○	○

Oil : condition 2 (Green Peace + 2050)

This section is focusing on oil & gas as a scarce resources.

Part 2 : Due growing human populations and industrial demand, **Greenpeace**, a leading environmental non-governmental organization (NGO) dedicated to environmental protection and active in more than 55 countries worldwide, **predicts that by 2050 there will be severe shortages of fossil fuels** (i.e. oil and natural gas), which will **require major reductions in energy use for non-essential purposes**.

On a scale from 1 to 9, do you think that the average person would find this fossil fuel shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
○	○	○	○	○	○	○	○	○

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
○	○	○	○	○	

On a scale from 1 to 9, how do you think that the average person would respond to this fossil fuel shortage prediction in the following situations ?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of driving they do.	O	O	O	O	O	O	O	O	O
The amount of flying they do.	O	O	O	O	O	O	O	O	O
The energy efficiency of the cars they purchase.	O	O	O	O	O	O	O	O	O
The energy efficiency of appliances and TVs.	O	O	O	O	O	O	O	O	O
The size of homes they live in.	O	O	O	O	O	O	O	O	O
Purchase of locally produced products.	O	O	O	O	O	O	O	O	O
The likelihood of voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted energy shortage, the **government** is seriously considering **policies** that **would restrict the number of flights people could take**, and require **new houses, cars, appliances, etc.** to be much **more energy efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with reducing energy use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... buy bigger/more powerful cars.	O	O	O	O	O	O	O	O	O
... fly as often as possible.	O	O	O	O	O	O	O	O	O
... buy bigger TVs/appliances.	O	O	O	O	O	O	O	O	O
... buy bigger/more comfortable homes.	O	O	O	O	O	O	O	O	O
.. use generally more energy.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

Water : condition 3 (Mondelez + 2025)

This section is focusing on water as a scarce resource.

Part 1 :

Due to climate change and expanding human populations, a study conveyed by **Mondelez**®, a leading US multinational producer of food products and second player on the world agri-food market, **predicts that by 2025 half of the world's population will live in water-stressed areas**, meaning that lakes and aquifers will dry up and/or becoming too polluted, which will endanger water supplies for both human and animal consumption and agriculture.

On a scale from 1 to 9, do you think that the average person would find this water shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
○	○	○	○	○	○	○	○	○

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
○	○	○	○	○	○

On a scale from 1 to 9, how do you think that the average person will respond to this water shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of water they drink.	○	○	○	○	○	○	○	○	○
The number of baths or showers they take.	○	○	○	○	○	○	○	○	○
The number of times they flush their toilet.	○	○	○	○	○	○	○	○	○
The amount of watering they do of their garden or house plants.	○	○	○	○	○	○	○	○	○
The number of times they wash their car.	○	○	○	○	○	○	○	○	○
Voting for the most pro-environmental political party.	○	○	○	○	○	○	○	○	○

In response to this predicted water shortage, the **government** is seriously considering **policies** that **would restrict the amount of water that households and businesses use**, and require **new buildings** to be much **more water efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with water use**, how do you think the average person would respond to such policies?

They are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... drink more water.	O	O	O	O	O	O	O	O	O
... take longer/more frequent baths or showers.	O	O	O	O	O	O	O	O	O
... buy/build a building without the expensive water efficiency equipment.	O	O	O	O	O	O	O	O	O
... do more garden watering.	O	O	O	O	O	O	O	O	O
... wash their car.	O	O	O	O	O	O	O	O	O
... use generally more water.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

Oil : condition 3 (Total + 2025)

This section is focusing on oil & gas as a scarce resources.

Part 2 : Due growing human populations and industrial demand, **Total®**, a leading french multinational oil company and one of the six « supermajors » of the oil world market, **predicts that by 2025 there will be severe shortages of fossil fuels** (i.e. oil and natural gas), which will require **major reductions in energy use for non-essential purposes**.

On a scale from 1 to 9, do you think that the average person would find this fossil fuel shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
O	O	O	O	O	O	O	O	O

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
O	O	O	O	O	O

On a scale from 1 to 9, how do you think that the average person would respond to this fossil fuel shortage prediction in the following situations ?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of driving they do.	O	O	O	O	O	O	O	O	O
The amount of flying they do.	O	O	O	O	O	O	O	O	O
The energy efficiency of the cars they purchase.	O	O	O	O	O	O	O	O	O
The energy efficiency of appliances and TVs.	O	O	O	O	O	O	O	O	O
The size of homes they live in.	O	O	O	O	O	O	O	O	O
Purchase of locally produced products.	O	O	O	O	O	O	O	O	O
The likelihood of voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted energy shortage, the **government** is seriously considering **policies** that would **restrict the number of flights** people could take, and **require new houses, cars, appliances, etc.** to be much **more energy efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with reducing energy use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... buy bigger/more powerful cars.	O	O	O	O	O	O	O	O	O
... fly as often as possible.	O	O	O	O	O	O	O	O	O
... buy bigger TVs/appliances.	O	O	O	O	O	O	O	O	O
... buy bigger/more comfortable homes.	O	O	O	O	O	O	O	O	O
.. use generally more energy.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

Water : condition 4 (Mondelez + 2050)

This section is focusing on water as a scarce resource.

Part 1 :

Due to climate change and expanding human populations, a study conveyed by **Mondelez®**, a leading US multinational producer of food products and second player on the world agri-food market, **predicts that by 2050 half of the world's population will live in water-stressed areas**, meaning that lakes and aquifers will dry up and/or becoming too polluted, which will endanger water supplies for both human and animal consumption and agriculture.

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
O	O	O	O	O	O

On a scale from 1 to 9, do you think that the average person would find this water shortage prediction trustworthy?

Very untrustworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
O	O	O	O	O	O	O	O	O

On a scale from 1 to 9, how do you think that the average person will respond to this water shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of water they drink.	O	O	O	O	O	O	O	O	O
The number of baths or showers they take.	O	O	O	O	O	O	O	O	O
The number of times they flush their toilet.	O	O	O	O	O	O	O	O	O
The amount of watering they do of their garden or house plants.	O	O	O	O	O	O	O	O	O
The number of times they wash their car.	O	O	O	O	O	O	O	O	O
Voting for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted water shortage, the **government** is seriously considering **policies** that would **restrict the amount of water that households and businesses use**, and require **new buildings** to be much **more water efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with water use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... drink more water before the restrictions.	O	O	O	O	O	O	O	O	O
... take longer/more frequent baths or showers.	O	O	O	O	O	O	O	O	O
... buy/build a building without the expensive water efficiency equipment.	O	O	O	O	O	O	O	O	O
... do more garden watering.	O	O	O	O	O	O	O	O	O
... wash their car.	O	O	O	O	O	O	O	O	O
... use generally more water.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

Oil : condition 4 (Total + 2050)

This section is focusing on oil & gas as a scarce resources.

Part 2 : Due growing human populations and industrial demand, **Total®**, a leading french multinational oil company and one of the six « supermajors » of the oil world market, **predicts that by 2050 there will be severe shortages of fossil fuels** (i.e. oil and natural gas), which will require **major reductions in energy use for non-essential purposes**.

On a scale from 1 to 9, do you think that the average person would find this fossil fuel shortage prediction trustworthy?

Very untrusworthy (1)	2	3	4	Neutral (5)	6	7	8	Very trustworthy (9)
O	O	O	O	O	O	O	O	O

How do you think the average person would feel about this prediction ?

Nothing	Angry	Scared	Sad	Surprised	Other emotion (please explain)
O	O	O	O	O	O

On a scale from 1 to 9, how you think that the average person would respond to this fossil fuel shortage prediction in the following situations?

	Much less than today (1)	2	3	4	Same as today (5)	6	7	8	Much more than today (9)
The amount of driving they do.	O	O	O	O	O	O	O	O	O
The amount of flying they do.	O	O	O	O	O	O	O	O	O
The energy efficiency of the cars they purchase.	O	O	O	O	O	O	O	O	O
The energy efficiency of appliances and TVs.	O	O	O	O	O	O	O	O	O
The size of homes they live in.	O	O	O	O	O	O	O	O	O
Purchase of locally produced products.	O	O	O	O	O	O	O	O	O
More likely to vote for the most pro-environmental political party.	O	O	O	O	O	O	O	O	O

In response to this predicted energy shortage, the **government** is seriously considering **policies** that would **restrict the number of flights** people could take, and **require new houses, cars, appliances, etc.** to be much **more energy efficient** and **expensive** than today.

In the time leading up to these possible **restrictions and extra costs associated with reducing energy use**, how do you think the average person would respond to such policies?

Between now and the implementation of the restrictions, they are more likely to...

	Strongly agree (1)	2	3	4	Neutral (5)	6	7	8	Strongly disagree (9)
... buy bigger/more powerful cars.	O	O	O	O	O	O	O	O	O
... fly as often as possible.	O	O	O	O	O	O	O	O	O
... buy bigger TVs/appliances.	O	O	O	O	O	O	O	O	O
... buy bigger/more comfortable homes.	O	O	O	O	O	O	O	O	O
.. use generally more energy.	O	O	O	O	O	O	O	O	O
... vote for political party that promises to enact such restrictions.	O	O	O	O	O	O	O	O	O

NEP

This section aims at assessing your environnemental sensitivity and is divided in two short questions. The first question evaluates your consumption behavior and the second one evaluates your eco-friendly behavior.

On a scale from 0 to 3, please indicate the last time you took this action :

	never (0)	5 or more years ago (1)	1–3 years ago (2)	During the previous year (3)
Bought or built an energy-efficient home (energy system, thermal insulation...)	○	○	○	○
Bought a low-emission vehicle (e.g., hybrid, electric, biofuel, less than 1.4 L engine)	○	○	○	○
Bought a product to save water (e.g., water but, water 'hippo', low-flush toilet)	○	○	○	○

On a scale from 0 to 3, please indicate how often you take each action of the following action :

	Never (0)	Occasionally (1)	Often (2)	Always (3)
Turn off lights you're not using	○	○	○	○
Drive economically (e.g., braking or accelerating gently)	○	○	○	○
Walk, cycle, take public transport for short journeys (i.e., trips of less than 3 miles) or share a car journey with someone else	○	○	○	○
Cut down on the amount you fly	○	○	○	○
Buy eco-friendly products	○	○	○	○
Eat food which is organic, locally-grown or in season	○	○	○	○
Buy products with less packaging	○	○	○	○
Recycle and/or compost your kitchen waste	○	○	○	○
Reuse or repair items instead of throwing them away	○	○	○	○
Save water by taking shorter shower and/or turn off the tap while you brush your teeth	○	○	○	○

	Never (0)	Occasionally (1)	Often (2)	Always (3)
Take part in a protest about an environmental issue	○	○	○	○

Psychographic variables

It's almost over ! We just need some information about you (nothing too personal don't worry) and you will be done :)

Please, state your gender

- ○ Male
- ○ Female
- ○ Non - binary

Please, state your age :

Please, state your level of education :

- ○ No degree
- ○ High school degree
- ○ Bachelor degree
- ○ Master degree
- ○ Phd
- ○ Other (please explain)

Please, state your country of residence :

What best describes the place you live currently ?

- ○ Metropolis (more than 200,000 people)
- ○ Large city (between 50,000 & 200,000 people)
- ○ Smaller city (between 20,000 & 50,000 people)
- ○ Small town (between 5,000 & 20,000 people)
- ○ Rural area (less than 5,000)

Please state your annual income. If you are currently student and/or your family provide for your need, choose an average annual income per capita.

- ○ Less than $25,000
- ○ Between $25,000 and $50,000
- ○ Between $50,000 and $75,000
- ○ More than $75,000
- ○ I do not know

II. Materials for the survey study

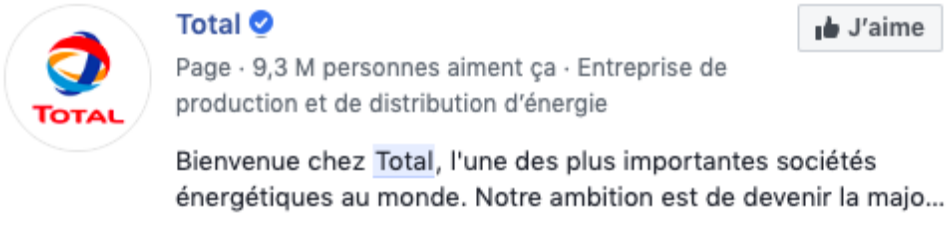
2.1 Water scarcity trend: increasing researches on Google

2.2 Sources choice

2.2.1 WWF awareness (on Facebook)

2.2.2 Greenpeace awareness (on Facebook)

2.2.3 Total awareness (on Facebook)



2.2.4 Mondelez awareness

2.2.4.1 Mondelez awareness (on Facebook)

2.2.4.2 Mondelez awareness: increasing researches on Google

III. Tables

3.1 Residence distribution

3.1.1. Place of residence distribution

TABLE 3.1.1 Place of residence frequencies		
	Frequency	(Valid) Percent
France	123	68
Norway	15	8.3
Italy	12	6.6
Netherlands	10	5.5
Germany	6	3.3
Austria	4	2.2
UK	3	1.7
Belgium	2	1.1
Switzerland	2	1.1
Sweden	2	1.1
Spain	2	1.1
Total	181	100

3.1.2 Size of the residence place distribution

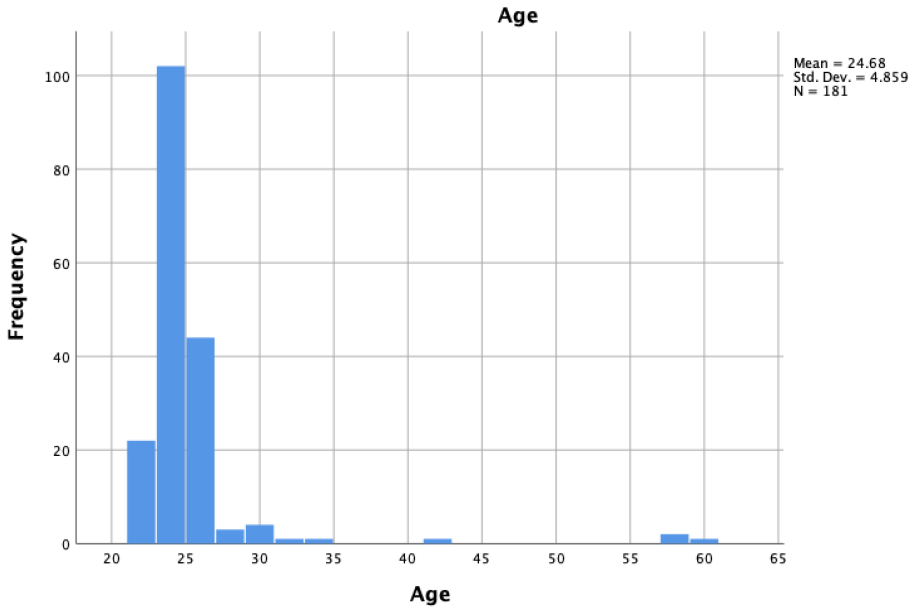
TABLE 3.1.2 Size of the residence place frequencies		
	Frequency	(Valid) Percent
Metropolis (more than 200,000 people)	126	69.6
Large city (between 50,000 & 200,000 people)	27	14.9
Smaller city (between 20,000 & 50,000 people)	8	4.4
Small town (between 5,000 & 20,000 people)	10	5.5
Rural area (less than 5,000 people)	14	7.7
Total	181	100

3.2. Gender distribution

TABLE 3.2 Gender frequencies		
	Frequency	(Valid) Percent
Male	102	56.4
Female	79	43.6
Total	181	100

3.3. Age distribution

TABLE 3.3 Age frequencies		
	Frequency	(Valid) Percent
22	22	12.2
23	55	30.4
24	47	26
25	34	18.8
26	10	5.5
27	3	1.7
29	1	.6
30	3	1.7
31	1	.6
33	1	.6
41	1	.6
58	2	1.1
59	1	.6
Total	181	100

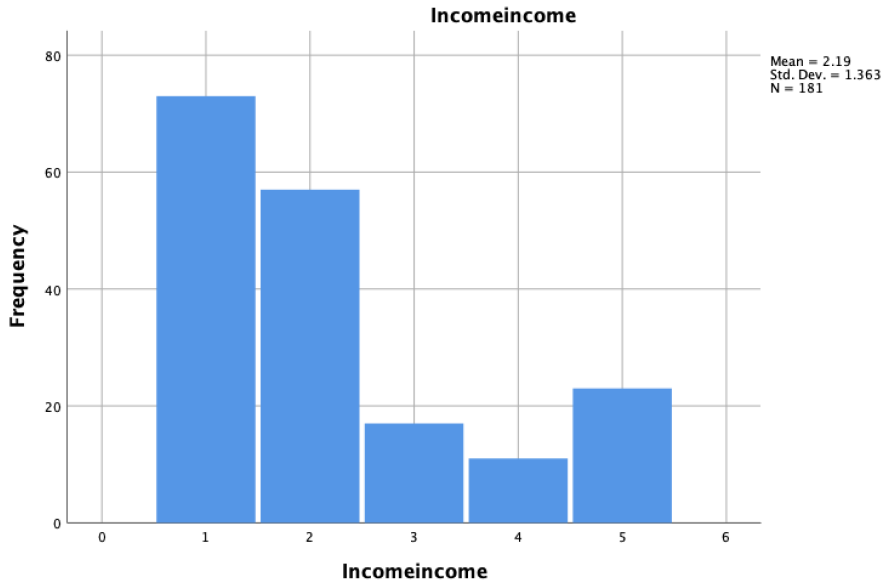


3.4 Level of education distribution

TABLE 3.4 Level of education frequencies		
	Frequency	(Valid) Percent
Phd	3	1.7
Master degree	151	83.4
Bachelor degree	25	13.8
High school degree	2	1.1
Total	181	100

3.5 Income distribution

TABLE 3.5 Income frequencies		
	Frequency	(Valid) Percent
Less than $25,000	73	40.3
Between $25,000 & $50,000	57	31.5
Between $50,000 & $75,000	17	9.4
More than $75,000	11	6.1
"I do not know"	23	12.7
Total	181	100



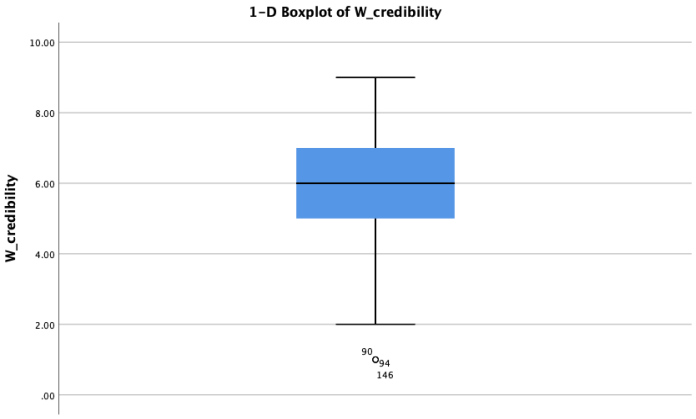
IV. Data Analysis

4.Water credibility

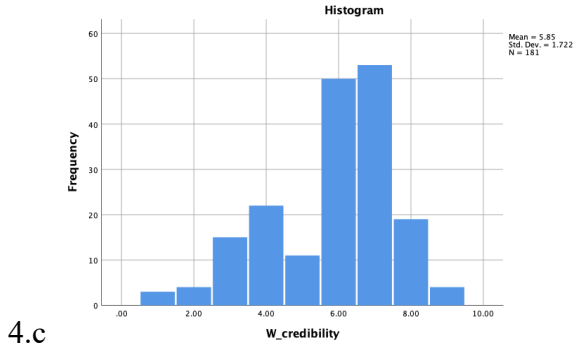
4.a

TABLE 4.a Water depletion prediction credibility frequencies		
	Frequency	(Valid) Percent
1 (Very untrustworthy)	3	1.7
2	4	2.2
3	15	8.3
4	22	12.2
5 (Neutral)	11	6.1
6	50	27.6
7	53	29.3
8	19	10.5
9 (Very trustworthy)	4	2.2
Total	181	100

4.b



4.c



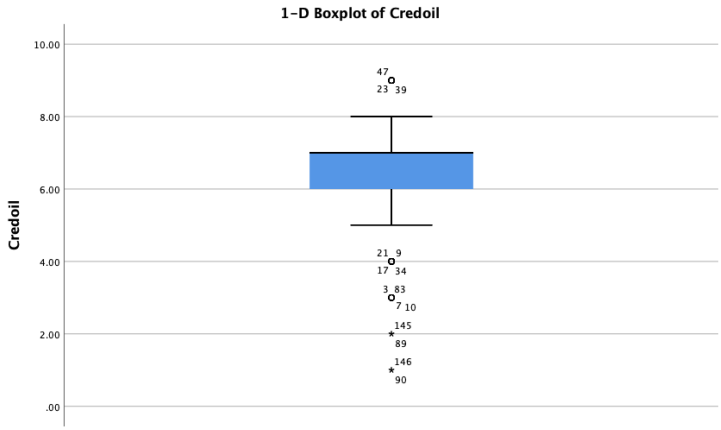
5. Oil depletion prediction credibility

5.a

TABLE 5.a: Oil depletion prediction credibility frequencies

	Frequency	(Valid) Percent
1 (Very untrustworthy)	2	1.1
2	2	1.1
3	10	5.5
4	17	9.4
5 (Neutral)	11	6.1
6	35	19.3
7	61	33.7
8	28	15.5
9 (Very trustworthy)	15	8.3
Total	181	100

5.b



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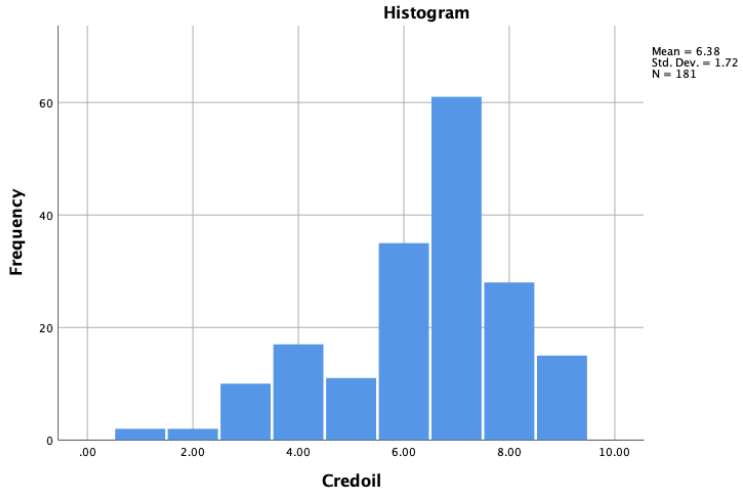


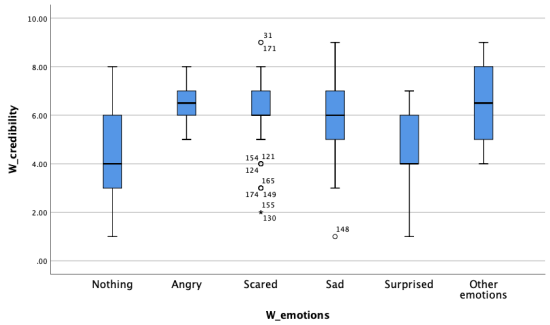
6. Water predictions

6.A.1.Water emotions frequencies

TABLE 6.A.1 Water emotions frequencies

	Frequency	(Valid) Percent
Nothing	18	9.9
Angry	10	5.5
Scared	98	54.1
Sad	25	13.8
Surprised	22	12.2
Other emotions	8	4.4
Total	181	100

6.A.2. Boxplot Water emotions and credibility



6.B.1.a Time Water predictions means (Prediction 1&2)

TABLE 6.B.1.a : Time x Water predictions means (predictions 1 & 2)				
	N	Mean	Std. Deviation	Std. Error Mean
Water credibility (prediction 1)	41	6.1951	1.50365	0.23483
Water credibility (prediction 2)	49	6.0000	1.63299	0.23328

6.B.1.b Time Water predictions means - t-tests (Prediction 1&2)

TABLE 6.B.1.b: Time x Water predictions means – t-tests (predictions 1 & 2)									
	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence interval of the difference	
								Lower	Upper
Water credibility: Equal variances assumed	0.001	0.970	0.585	88	0.560	0.19512	0.33347	-0.46758	0.85782
Water credibility: Equal variances not assumed			0.589	87.164	0.557	0.19512	0.33101	-0.46278	0.85302

6.B.2.a Time Water predictions means (Prediction 3&4)

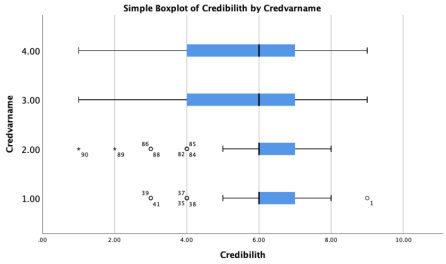
TABLE 6.B.2.a: Time x Water predictions means (prediction 3 & 4)				
	N	Mean	Std. Deviation	Std. Error Mean
Water credibility (prediction 3)	48	5.6875	1.84686	0.26657
Water credibility (prediction 4)	43	5.5116	1.84355	0.28114

6.B.2.b Time Water predictions means - t-tests (Prediction 3&4)

TABLE 6.B.2.b : Time x Water predictions means – t-tests (predictions 3 & 4)									
	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence interval of the difference	
								Lower	Upper
Water credibility: Equal variances assumed	0.153	0.697	0.454	89	0.651	0.17587	0.38747	-0.59401	0.94576
Water credibility: Equal variances not assumed			0.454	87.945	0.651	0.17587	0.38743	-0.59406	0.94581

6.C.1: Descriptive statistics

TABLE 6.C.1: Source influence on Water prediction credibility					
	N	Minimum	Maximum	Mean	Std. Deviation
W_1__Credibility_1	41	3	9	6.20	1.504
W_2__Credibility_1	49	1	8	6.00	1.633
W_3__Credibility_	48	1	9	5.69	1.847
W_4__Credibility_1	43	1	9	5.51	1.844
Valid N (listwise)	0				



6.D. Regression Water Credibility

TABLE 6.D.1 : Water depletion predictions credibility regression model

R	R^2	Adjusted R^2	Std. error of the Estimate
0.437[a]	0.191	0. 154	1.58405

[a]Predictors: Constant, Gender, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE 6.D.2 : Water depletion predictions credibility regression ANOVA[a]

	Sum of Squares	Df	Mean^2	F	Sig.
Regression	102.086	8	12.761	5.086	0.000[b]
Residual	431.582	172	2.509		
Total	533.669	180			

[a]Dependent variable: Credwater
[b]Predictors: Constant, Gender, W_DummySad, PredictionYear, ONGvsIndustry, W_DummyNoEmotions, W_DummyAngry, W_DummyScared, W_DummySurprised, NEP category Assigned to a cat depending on the NEP mean.

TABLE 6.D.3 : Water depletion predictions credibility regression coefficients[a]

	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig
(Constant)	6.383	0.640		9.978	0.000
W_DummyNoEmotions	-2.166	0.674	-0.377	-3.215	0.002
W_DummyAngry	-0.072	0.752	-0.010	-0.096	0.924
W_DummyScared	-0.351	0.583	-0.102	-0.602	0.548
W_DummySad	-0.885	0.653	-0.178	-1.355	0.177
W_DummySurprised	-1.944	0.665	-0.370	-2.925	0.004
Prediction Year	0.263	0.238	0.077	1.106	0.270
IndustryvsONG	0.567	0.240	0.165	2.362	0.019
NEP_Category Assigned to a cat depending on the NEP mean	-0.074	0.109	-0.049	-0.680	0.498

[a]Dependent variable: Credwater

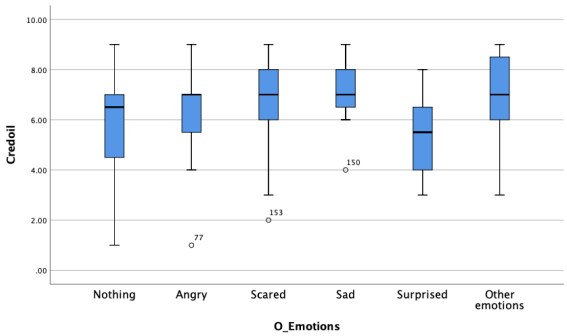
7. Oil predictions

7.B.1. Oil emotions frequencies

7.B.1.a

O_Emotions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nothing	36	19.9	19.9	19.9
	Angry	27	14.9	14.9	34.8
	Scared	64	35.4	35.4	70.2
	Sad	11	6.1	6.1	76.2
	Surprised	28	15.5	15.5	91.7
	Other emotions	15	8.3	8.3	100.0
	Total	181	100.0	100.0	



7.B.1.b

8. Models for Water predictions or policies effect on behaviours

8.A. Water predictions Regressions

8.A.1.a Water predictions. Factor Analysis - Correlation Matrix, KMO and Barlett's Test

Correlation Matrix

		W_Overall_Behavpred1	W_Overall_Behavpred2	W_Overall_Behavpred3	W_Overall_Behavpred4	W_Overall_Behavpred5	W_Overall_Behavpred6
Correlation	W_Overall_Behavpred1	1.000	.308	.197	.056	.039	.123
	W_Overall_Behavpred2	.308	1.000	.544	.556	.523	-.028
	W_Overall_Behavpred3	.197	.544	1.000	.460	.435	-.068
	W_Overall_Behavpred4	.056	.556	.460	1.000	.771	-.075
	W_Overall_Behavpred5	.039	.523	.435	.771	1.000	-.190
	W_Overall_Behavpred6	.123	-.028	-.068	-.075	-.190	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.720
Bartlett's Test of Sphericity	Approx. Chi-Square	339.325
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
W_Overall_Behavpred1	1.000	.643
W_Overall_Behavpred2	1.000	.711
W_Overall_Behavpred3	1.000	.555
W_Overall_Behavpred4	1.000	.753
W_Overall_Behavpred5	1.000	.777
W_Overall_Behavpred6 (W_Overall_Behavpred6)	1.000	.490

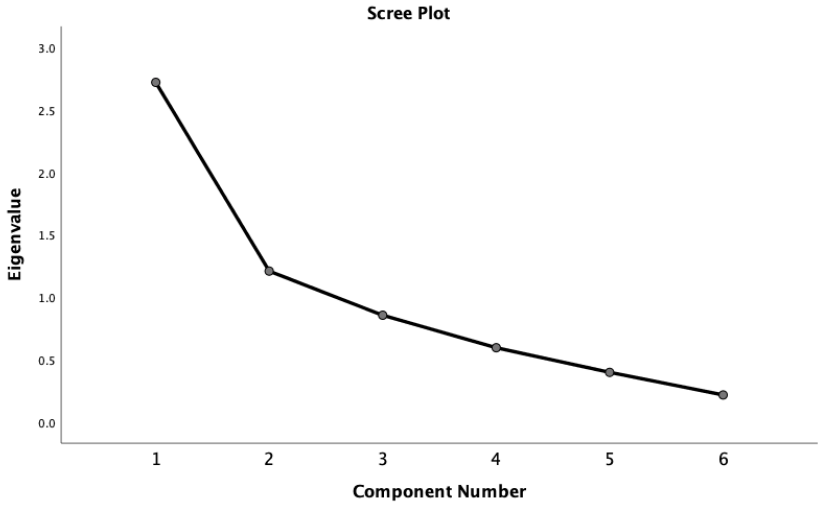
Extraction Method: Principal Component Analysis.

8.A.1.b Water predictions. Factor Analysis - Total Variance explained and Scree plot

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.718	45.308	45.308	2.718	45.308	45.308
2	1.209	20.153	65.462	1.209	20.153	65.462
3	.856	14.273	79.735			
4	.597	9.945	89.680			
5	.400	6.666	96.346			
6	.219	3.654	100.000			

Extraction Method: Principal Component Analysis.



8.A.1.c Water predictions. Factor Analysis - Component Matrix

Component Matrix[a]

	Component 1	Component 2
W_Overall_Behavpred1	.266	-.756
W_Overall_Behavpred2	.813	-.224
W_Overall_Behavpred3	.734	-.129
W_Overall_Behavpred4	.851	.170
W_Overall_Behavpred5	.838	.273
W_Overall_Behavpred6 (W_Overall_Behavpred6)	.153	.683

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Component Score Coefficient Matrix

	Component 1	Component 2
W_Overall_Behavpred1	.098	-.626
W_Overall_Behavpred2	.299	-.185
W_Overall_Behavpred3	.270	-.107
W_Overall_Behavpred4	.313	.140
W_Overall_Behavpred5	.308	.226
W_Overall_Behavpred6 (W_Overall_Behavpred6)	.056	.565

Extraction Method: Principal Component Analysis.

8.A.1.d Water predictions. Regression

Factor regression 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.309[a]	.095	.069	.96469108	.095	3.684	5	175	.003

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, Assigned to a cat depending on the NEP mean , IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.140	5	3.428	3.684	.003[b]
	Residual	162.860	175	.931		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 1 for Water predictions

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, Assigned to a cat depending on the NEP mean , IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.191	.346		3.441	.001
	Credwater	-.075	.044	-.130	-1.713	.088
	Assigned to a cat depending on the NEP mean	-.015	.064	-.017	-.236	.814
	IndustryvsONG	.106	.145	.053	.731	.466
	Prediction Year	-.171	.144	-.086	-1.187	.237
	W_Emotionsvsnothing	-.758	.250	-.227	-3.025	.003

a. Dependent Variable: REGR factor score 1 for Water predictions

Factor regression 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.185[a]	.034	.007	.99672797	.034	1.237	5	175	.294

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.143	5	1.229	1.237	.294[b]
	Residual	173.857	175	.993		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 2 for Water policies

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.237	.358		-.662	.509
	Credwater	-.035	.045	-.060	-.764	.446
	NEP_category Assigned to a cat depending on the NEP mean	.125	.066	.141	1.892	.060
	IndustryvsONG	-.071	.150	-.036	-.476	.635
	Prediction Year	.203	.149	.102	1.365	.174
	W_Emotionsvsnothing	.079	.259	.024	.304	.761

a. Dependent Variable: REGR factor score 2 for Water policies

8.B. Water policies Regressions

8.B.1.a Water policies. Factor Analysis - Correlation Matrix, KMO and Barlett's Test

Correlation Matrix

		W___Overall_Behavior_policy1	W___Overall_Behavior_policy2	W___Overall_Behavior_policy3	W___Overall_Behavior_policy4	W___Overall_Behavior_policy5	W___Overall_Behavior_policy6	W___Overall_Behavior_policy7
Correlation	W___Overall_Behavior_policy1	1.000	.446	-.009	.334	.314	.456	.034
	W___Overall_Behavior_policy2	.446	1.000	.284	.505	.452	.599	.052
	W___Overall_Behavior_policy3	-.009	.284	1.000	.155	.225	.275	.091
	W___Overall_Behavior_policy4	.334	.505	.155	1.000	.753	.661	.103
	W___Overall_Behavior_policy5	.314	.452	.225	.753	1.000	.644	.117
	W___Overall_Behavior_policy6	.456	.599	.275	.661	.644	1.000	.167
	W___Overall_Behavior_policy7	.034	.052	.091	.103	.117	.167	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.788
Bartlett's Test of Sphericity	Approx. Chi-Square	437.148
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
W___Overall_Behavior_policy1	1.000	.550
W___Overall_Behavior_policy2	1.000	.586
W___Overall_Behavior_policy3	1.000	.551
W___Overall_Behavior_policy4	1.000	.702
W___Overall_Behavior_policy5	1.000	.677
W___Overall_Behavior_policy6	1.000	.762
W___Overall_Behavior_policy7	1.000	.443

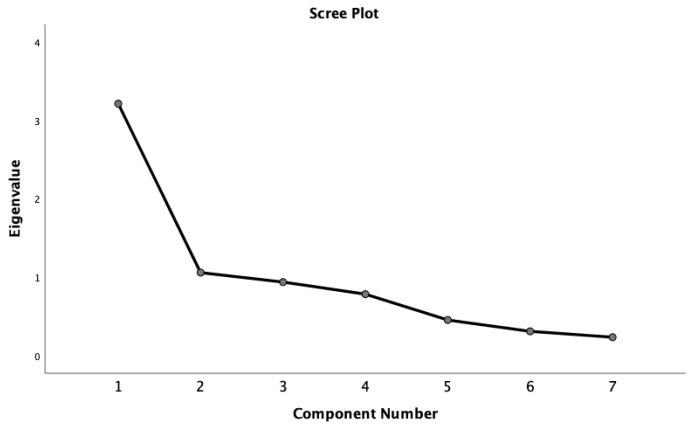
Extraction Method: Principal Component Analysis.

8.B.1.b Water policies. Factor Analysis - Total Variance explained and Scree plot

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.212	45.883	45.883	3.212	45.883	45.883
2	1.059	15.135	61.018	1.059	15.135	61.018
3	.939	13.419	74.437			
4	.785	11.217	85.654			
5	.456	6.514	92.167			
6	.311	4.448	96.616			
7	.237	3.384	100.000			

Extraction Method: Principal Component Analysis.



Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	3.212	45.883	45.883	3.212	45.883	45.883
2	1.059	15.135	61.018	1.059	15.135	61.018
3	.939	13.419	74.437			
4	.785	11.217	85.654			
5	.456	6.514	92.167			
6	.311	4.448	96.616			
7	.237	3.384	100.000			

Extraction Method: Principal Component Analysis.

8.B.1.c Water policies. Factor Analysis - Component Matrix

Component Score Coefficient Matrix

	Component 1	2
W___Overall_Behavior_policy1	.283	-.380
W___Overall_Behavior_policy2	.248	-.011
W___Overall_Behavior_policy3	-.046	.624
W___Overall_Behavior_policy4	.267	.007
W___Overall_Behavior_policy5	.243	.084
W___Overall_Behavior_policy6	.261	.077
W___Overall_Behavior_policy7	-.092	.598

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

8.B.1.d Water policies.Factor Analysis - Regression

WaterPolicyFactor1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.179[a]	.032	.004	.99783955	.032	1.156	5	175	.333

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.755	5	1.151	1.156	.333[b]
	Residual	174.245	175	.996		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 1 for Water policies

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.708	.358		-1.978	.050
	Credwater	.065	.046	.112	1.429	.155
	NEP_category Assigned to a cat depending on the NEP mean	-.002	.066	-.003	-.035	.972
	IndustryvsONG	.117	.150	.058	.776	.439
	Prediction Year	.013	.149	.007	.090	.928
	W_Emotionsvsnothing	.298	.259	.090	1.152	.251

a. Dependent Variable: REGR factor score 1 for Water policies

WaterPolicyFactor2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.185[a]	.034	.007	.99672797	.034	1.237	5	175	.294

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.143	5	1.229	1.237	.294[b]
	Residual	173.857	175	.993		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 2 for Water policies

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.237	.358		-.662	.509
	Credwater	-.035	.045	-.060	-.764	.446
	NEP_category Assigned to a cat depending on the NEP mean	.125	.066	.141	1.892	.060
	IndustryvsONG	-.071	.150	-.036	-.476	.635
	Prediction Year	.203	.149	.102	1.365	.174
	W_Emotionsvsnothing	.079	.259	.024	.304	.761

a. Dependent Variable: REGR factor score 2 for Water policies

9. Models for Oil predictions or policies effect on behaviours

9.A.oil predictions Regressions

9.A.1.a Oil predictions. Factor Analysis - Correlation Matrix, KMO and Barlett's Test

Correlation Matrix

		O_Overall_Behavpred1	O_Overall_Behavpred2	O_Overall_Behavpred3	O_Overall_Behavpred4	O_Overall_Behavpred5	O_Overall_Behavpred6	O_Overall_Behavpred7
Correlation	O_Overall_Behavpred1	1.000	.514	-.202	-.040	.130	.062	.026
	O_Overall_Behavpred2	.514	1.000	-.310	-.300	.218	.046	.001
	O_Overall_Behavpred3	-.202	-.310	1.000	.725	-.345	.282	.199
	O_Overall_Behavpred4	-.040	-.300	.725	1.000	-.416	.295	.259
	O_Overall_Behavpred5	.130	.218	-.345	-.416	1.000	-.207	-.022
	O_Overall_Behavpred6	.062	.046	.282	.295	-.207	1.000	.490
	O_Overall_Behavpred7	.026	.001	.199	.259	-.022	.490	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.615
Bartlett's Test of Sphericity	Approx. Chi-Square	336.269
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
O_Overall_Behavpred1	1.000	.563
O_Overall_Behavpred2	1.000	.672
O_Overall_Behavpred3	1.000	.684
O_Overall_Behavpred4	1.000	.703
O_Overall_Behavpred5	1.000	.359
O_Overall_Behavpred6	1.000	.622
O_Overall_Behavpred7	1.000	.501

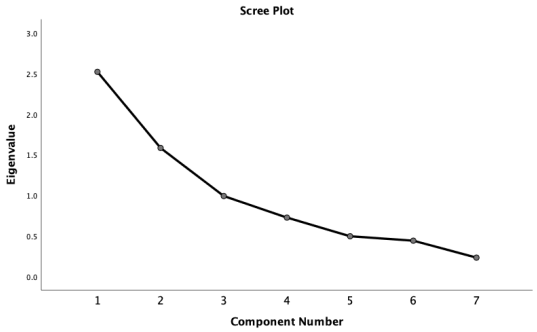
Extraction Method: Principal Component Analysis.

9.A.1.b Oil predictions. Factor Analysis - Total Variance explained and Scree plot

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.521	36.009	36.009	2.521	36.009	36.009	2.117	30.245	30.245
2	1.584	22.625	58.634	1.584	22.625	58.634	1.987	28.389	58.634
3	.992	14.177	72.811						
4	.727	10.390	83.202						
5	.497	7.107	90.308						
6	.444	6.336	96.645						
7	.235	3.355	100.000						

Extraction Method: Principal Component Analysis.



9.A.1.c Oil predictions. Factor Analysis - Component Matrix and Rotated component Matrix

Component Matrix[a]

	Component	
	1	2
O_Overall_Behavpred1	-.328	.675
O_Overall_Behavpred2	-.513	.640
O_Overall_Behavpred3	.827	-.020
O_Overall_Behavpred4	.833	.095
O_Overall_Behavpred5	-.591	.095
O_Overall_Behavpred6	.501	.609
O_Overall_Behavpred7	.414	.574

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Component Matrix[a]

	Component 1	Component 2
O_Overall_Behavpred1	-.328	.675
O_Overall_Behavpred2	-.513	.640
O_Overall_Behavpred3	.827	-.020
O_Overall_Behavpred4	.833	.095
O_Overall_Behavpred5	-.591	.095
O_Overall_Behavpred6	.501	.609
O_Overall_Behavpred7	.414	.574

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Component Score Coefficient Matrix

	Component 1	Component 2
O_Overall_Behavpred1	-.130	.426
O_Overall_Behavpred2	-.204	.404
O_Overall_Behavpred3	.328	-.013
O_Overall_Behavpred4	.331	.060
O_Overall_Behavpred5	-.235	.060
O_Overall_Behavpred6	.199	.385
O_Overall_Behavpred7	.164	.363

Extraction Method: Principal Component Analysis.
Component Scores.

9.A.1.d Oil predictions. Regression

Factor regression 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.291[a]	.085	.059	.97015855

a. Predictors: (Constant), NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credoil, Prediction Year, Oil emotions vs nothing

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.289	5	3.058	3.249	.008[b]
	Residual	164.711	175	.941		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 1 for analysis 6

b. Predictors: (Constant), NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credoil, Prediction Year, Oil emotions vs nothing

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.909	.349		2.600	.010
	Prediction Year	-.107	.146	-.053	-.728	.467
	IndustryvsONG	-.470	.145	-.236	-3.247	.001
	Credoil	-.058	.043	-.099	-1.355	.177
	Oil emotions vs nothing	-.294	.185	-.118	-1.584	.115
	NEP_category Assigned to a cat depending on the NEP mean	-.008	.064	-.009	-.120	.905

a. Dependent Variable: REGR factor score 1 for analysis 6

Factor regression 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.249[a]	.062	.035	.98219097

a. Predictors: (Constant), NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credoil, Prediction Year, Oil emotions vs nothing

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.178	5	2.236	2.317	.045[b]
	Residual	168.822	175	.965		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 2 for analysis 6

b. Predictors: (Constant), NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credoil, Prediction Year, Oil emotions vs nothing

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-1.034	.354		-2.923	.004
	Prediction Year	-.146	.148	-.073	-.988	.325
	IndustryvsONG	.106	.146	.053	.725	.469
	Credoil	.102	.043	.176	2.373	.019
	Oil emotions vs nothing	.272	.188	.109	1.448	.149
	NEP_category Assigned to a cat depending on the NEP mean	.074	.065	.084	1.150	.252

a. Dependent Variable: REGR factor score 2 for analysis 6

9.B. Oil policies Regressions

9.B.1.a Oil policies. Factor Analysis - Correlation Matrix, KMO and Barlett's Test

Correlation Matrix

		O___Overall_Behavior_policy1	O___Overall_Behavior_policy2	O___Overall_Behavior_policy3	O___Overall_Behavior_policy4	O___Overall_Behavior_policy5	O___Overall_Behavior_policy6
Correlation	O___Overall_Behavior_policy1	1.000	.434	.658	.534	.501	-.017
	O___Overall_Behavior_policy2	.434	1.000	.469	.531	.446	.126
	O___Overall_Behavior_policy3	.658	.469	1.000	.620	.674	.171
	O___Overall_Behavior_policy4	.534	.531	.620	1.000	.505	.111
	O___Overall_Behavior_policy5	.501	.446	.674	.505	1.000	.167
	O___Overall_Behavior_policy6	-.017	.126	.171	.111	.167	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.821
Bartlett's Test of Sphericity	Approx. Chi-Square	393.918
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
O___Overall_Behavior_policy1	1.000	.686
O___Overall_Behavior_policy2	1.000	.504
O___Overall_Behavior_policy3	1.000	.763
O___Overall_Behavior_policy4	1.000	.648
O___Overall_Behavior_policy5	1.000	.633
O___Overall_Behavior_policy6	1.000	.968

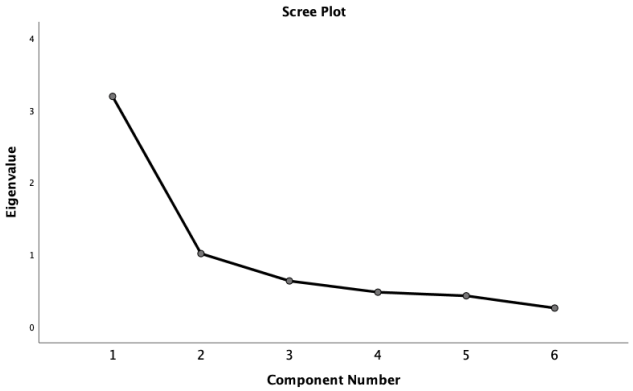
Extraction Method: Principal Component Analysis.

9.B.1.b Oil policies. Factor Analysis - Total Variance explained and Scree plot

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.189	53.150	53.150	3.189	53.150	53.150	3.150	52.505	52.505
2	1.013	16.876	70.026	1.013	16.876	70.026	1.051	17.521	70.026
3	.634	10.568	80.594						
4	.478	7.968	88.562						
5	.428	7.130	95.692						
6	.258	4.308	100.000						

Extraction Method: Principal Component Analysis.



9.B.1.c Oil policies. Factor Analysis - Component Matrix

Component Matrix[a]

	Component 1	Component 2
O___Overall_Behavior_policy1	.779	-.282
O___Overall_Behavior_policy2	.710	.019
O___Overall_Behavior_policy3	.874	-.001
O___Overall_Behavior_policy4	.803	-.053
O___Overall_Behavior_policy5	.793	.067
O___Overall_Behavior_policy6	.205	.962

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Component Score Coefficient Matrix

	Component 1	Component 2
O___Overall_Behavior_policy1	.244	-.278
O___Overall_Behavior_policy2	.223	.019
O___Overall_Behavior_policy3	.274	-.001
O___Overall_Behavior_policy4	.252	-.052
O___Overall_Behavior_policy5	.249	.066
O___Overall_Behavior_policy6	.064	.950

Extraction Method: Principal Component Analysis.
Component Scores.

9.B.1.d Oil policies.Factor Analysis - Regression

OilPolicyFactor1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.309[a]	.095	.069	.96469108	.095	3.684	5	175	.003

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, Assigned to a cat depending on the NEP mean , IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.140	5	3.428	3.684	.003[b]
	Residual	162.860	175	.931		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 1 for Water predictions

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, Assigned to a cat depending on the NEP mean , IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.191	.346		3.441	.001
	Credwater	-.075	.044	-.130	-1.713	.088
	Assigned to a cat depending on the NEP mean	-.015	.064	-.017	-.236	.814
	IndustryvsONG	.106	.145	.053	.731	.466
	Prediction Year	-.171	.144	-.086	-1.187	.237
	W_Emotionsvsnothing	-.758	.250	-.227	-3.025	.003

a. Dependent Variable: REGR factor score 1 for Water predictions

OilPolicyFactor2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.195[a]	.038	.011	.99470256	.038	1.384	5	175	.232

a. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.849	5	1.370	1.384	.232[b]
	Residual	173.151	175	.989		
	Total	180.000	180			

a. Dependent Variable: REGR factor score 2 for for Water predictions

b. Predictors: (Constant), W_Emotionsvsnothing, Prediction Year, NEP_category Assigned to a cat depending on the NEP mean, IndustryvsONG, Credwater

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.565	.357		1.583	.115
	Credwater	-.029	.045	-.049	-.631	.529
	NEP_category Assigned to a cat depending on the NEP mean	-.079	.066	-.090	-1.208	.229
	IndustryvsONG	-.013	.150	-.006	-.084	.934
	Prediction Year	.245	.149	.123	1.650	.101
	W_Emotionsvsnothing	-.353	.258	-.106	-1.366	.174

a. Dependent Variable: REGR factor score 2 for for Water predictions

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