'Up With Ecology': A Paradigm Shift in the Public Attention for Environmental Issues

Kostoulas, Danai

‘Up With Ecology’:

A Paradigm Shift in the Public Attention for Environmental Issues

Danaï Kostoulas
S1347764

MSc Management of the Public Sector - Public Affairs
Faculty of Governance and Global Affairs
Supervisor: Dr. G. E. Breeman

Leiden University
January 2022

Preface

You are currently reading my thesis: 'Up With Ecology': A Paradigm Shift in the Public Attention for Environmental Issues. It is written to complete the MSc Management of the Public Sector – Public Affairs at Leiden University. The desire for this research subject has originally come from my interest in the issue of environment. Now, in 2022, this issue is more important than ever. Human behavior is key to either saving the planet, or leaving it to die. By studying public attention in an environmental context, I hope to make (at least some) contributions to finding a solution to our environmental problems.

I started my academic journey in 2013, at the Technical University of Delft. After two years of studying Life Sciences and Nanobiology, I realized that I missed a social component to these fields of study. Ergo, I decided to enroll in BSc in Political Science at Leiden University. After finishing my BSc, I started this current MSc in February 2020. However, this period was also the start of something else: the COVID-19 pandemic. While I enjoyed the courses, writing a thesis suddenly turned out to be quite challenging. It is ironic that while studying the cyclical nature of public attention, I found my own attention to be rather cyclical. After a year of having to constantly retrieve motivation and concentration, I finally finished a product that I am very proud of.

For this, I would very much like to thank my supervisor Gerard Breeman. His patience, positive nature and interesting and valuable feedback have all contributed to remind me of my interest in the subject. He has helped me to find not only the strength to, but also the enjoyment in writing my thesis. I would also like to thank my partner Luca, for patiently putting up with my tantrums during this period.

I hope you enjoy reading this paper!

Danaï Kostoulas
Rotterdam, 7 January 2022

Abstract

The implementation of the 2019 Climate Law in The Netherlands has sparked the question of whether the pattern of public attention to environmental issues has changed. This study aims to review Downs' (1972) "issue-attention cycle", by considering the specific conditions for an issue to go through the cycle and applying them in a contemporary context. As public attention has an interdependent relationship with the media, I use a mixed-method approach of analyzing the relative number of newspaper articles regarding environmental issues, and its content. The articles are drawn from NRC Handelsblad, a leading Dutch newspaper, in the period of 1990 to 2020. The analysis suggests a paradigm shift, or tipping point, in the public attention for environmental issues in 2006. The tipping point is a result of public attention reaching a 'critical mass', which is a critical threshold after which minority groups can force a shift in social conventions - in this context is environmental awareness - upon the majority. Considering that the media is a competitive arena created to generate the most public attention, it creates an excellent venue to reach this critical mass. Introducing critical mass theory to the field of agenda-setting provides insight on the significance of venue-shopping and has renewed the vision on issue-attention.

Table of contents

1. Introduction

Attention to subjects like climate change and sustainability seem to currently have risen greatly in the Netherlands. From these themes being prominently featured in the 2021 elections as opposed to the 2017 elections (Schuttenhelm, 2021; Van Zoelen, 2021), to the country's most polluting multinationals' efforts to reach the 2030 climate goals (Koster, 2021). Not surprising, since the direct consequences of climate change have become increasingly noticeable in the last couple of years. For example, 2020 was Europe's hottest year since at least the 1950s, resulting in the permafrost thawing, releasing tons of greenhouse emissions, and massive forest fires in Australia and the United States (KNMI, n.d.; De Coninck, 2020). In this context, it is interesting to realize that already in 1972, Anthony Downs wrote '*Up and Down with Ecology – The Issue-Attention Cycle'*, a prominent yet controversial theory on the pattern of attention. He analyzed the movement of public attention to key domestic issues and found its pattern often to be cyclical. However, not all issues go through the issue attention cycle. Downs (1972) provided three conditions on the basis of which could be established what problems would go through the cycle. First, he argued that a problem should disproportionately affect society. When the majority of people is not constantly reminded of the problem, they tend to quickly lose interest. Second, the root of the problem lies in a social arrangement that benefits the majority of the public, which means that solving the problem would require fundamental changes in norms and behaviors. Last, the issue is not inherently exciting. As interest in a subject gradually declines, attention will always shift to a more 'fashionable' problem (pp. 41-42). Downs found these conditions to be particularly present in the issue of environment. However, these conditions were established in the early 1970s. One could argue that they are somewhat outdated, especially considering how environmental problems have become more and more visible.

To review the relevance of the issue-attention cycle, Breeman and Timmermans (2008) conducted research on the attention for environmental issues throughout different types of venue. Through a longitudinal (1990-2007) study they discovered that political and public attention for environmental issues in the Netherlands had indeed remained cyclical (Breeman & Timmermans, 2008, p. 53). They also found that the level of attention was dependent on the state of the economy and the direct competition of other issues (Breeman & Timmermans, 2008, p. 12). Factors, that are directly related to Downs' three conditions. In addition, Breeman and

Timmermans (2008) argue that the reasons for the decrease of attention mentioned by Downs appear even stronger in the Netherlands, due to the structure of the Dutch judicial system (p. 59). The reason for this is that the Dutch judicial system is rather rigid. A Law must have passed the political arena before it can be implemented. This is a process that takes about three years (Breeman & Timmermans, 2008, p. 47). It is likely that attention to an environmental issue will not last three years, considering its cyclical nature. Consequently, most environmental issues will not get translated into jurisdiction. Furthermore, if a law regarding the environment does get translated into legislation, it mostly just gets divided into already existing subcategories. For example, instead of creating new laws for 'modern' issues such as CO2- and greenhouse emissions, these problems are often taken apart and subdivided into existing law categories like soil- and coastal protection (Breeman & Timmermans, 2008, p. 48). This means that the creation of a 'new' environmental law is very rare. Bearing the combination of the cyclical pattern of issue-attention and the rigidity of Dutch jurisdiction in mind, Breeman and Timmermans (2008) predicted that these conditions that are not favorable to implement a Climate Law (p. 59). However, this prediction turned out to be false, since a Climate Law was in fact implemented in the Netherlands in 2019. The realization of the Climate Law indicates that since the judicial system has not changed, the pattern of attention for environmental issues might have. Therefore, the main question of this research is:

> To what extent has the pattern of public attention for the environment changed in The Netherlands?

To answer the main question, a twofold sub-question is posed; If the pattern has changed, when did it happen, and what could explain this shift?

This study aims to create a contemporary analysis of the issue-attention cycle. Many researchers have verified the cyclical nature of media attention and focused on finding its underlying mechanisms (Nisbet & Huge, 2006; Breeman & Timmermans, 2008; Breeman et al., 2009; Schäfer, Ivanova & Schmidt, 2014). Regarding these mechanisms, most researchers agree that they find their nature in focusing events, issue competition (Breeman & Timmermans, 2008; Schäfer, Ivanova & Schmidt, 2014), and strategic media lobbying activities (Nisbet & Huge, 2006; Breeman et al., 2009). However, none have considered the theory, and consequently its mechanisms, to be expired. By doing so, this study could provide a base for revising the current theory on issue attention and its underlying mechanisms. For instance, by using a cross-sectional

approach; Apart from reexamining the implications of focusing events, media agenda-setting strategies and issue competition on attention for the environment, this paper will introduce new concepts such as tipping points (Scheffer et al., 2009; Sharpe & Lenton, 2021) and critical mass theory (Centola, 2013; Centola et al., 2018; Holyst, Kacperski & Schweitzer, 2001). Moreover, the type of venue and longevity of the time frame (1990-2020) that were chosen will provide extra insight on how certain social structures change over time. Grasping how social structures change and what mechanisms play a role in those shifts will in turn contribute to policy makers' new understanding of agenda-setting and venue choice.

The structure of this paper consists of a theoretical framework that touches upon relevant theories such as the issue-attention cycle, the media policy venue, and tipping points in a critical mass dynamics. These theories then lead to three theoretical expectations. Subsequently, these expectations are tested through a mixed-method approach of quantitative and qualitative analysis of articles in NRC Handelsblad. This is followed by a critical discussion, ending with concluding remarks and suggestions for future research.

2. Theoretical Framework

2.1 Up and Down with Ecology: The Issue-Attention Cycle

In 1972, Anthony Downs described a systematic pattern, called the 'issue-attention cycle', in which an issue suddenly leaps into prominence before gradually fading from the center of attention again (Downs, 1972, p. 38). A schematic overview of the issue-attention cycle is presented in figure 1. The cycle is divided into five stages, which almost always occur in a set sequence. The first stage of the sequence is called (1) the 'pre-problem stage'. This occurs when an unfavorable social problem alarms some experts or interest groups, but has not yet captured public attention. The stage that follows is (2) 'alarmed discovery and euphoric enthusiasm'. This happens when one or more dramatic events create a public awareness. The public becomes both aware and alarmed about the calamities of certain problems, which results in an enthusiastic tendency to "do something". The implication is that every problem is solvable, if sufficient effort is devoted to it. However, many problems are not easy to solve or cannot be solved at all. This leads to the third stage: (3) 'realizing the cost of significant progress'. The public will slowly start

to realize that solving the problem will not only cost a great deal of money, but will also require large sacrifices by society. Most problems are rooted in arrangements that benefit others. For example, the increase in accessibility of car usage has contributed greatly to air pollution, but has also provided mobility for millions. The cost of sacrifice leads to the fourth stage, which is (4) 'gradual decline of public interest'. There are three reactions to the realization of the difficulty of the problem. The first is a sense of discouragement. Others feel threatened thinking about the problem, so they just avoid such thoughts. The rest (and most) of the public experience a combination of the two, evidently resulting in a decrease of attention. Moreover, by this time a new issue has entered the cycle that demands public attention. Finally, the cycle is concluded by the final stage: (5) 'the post problem stage'. The issue that previously dominated the public attention is replaced and moves into a prolonged 'limbo'. The limbo consists of issues receiving less attention until some event temporarily spikes interest again. The difference between the pre-problem and post-problem stage is that new institutions, policies and programs have been created for a problem during the time that it generated a lot of interest. This means that the issue still has some impact even after losing the majority of public interest (Downs, 1972, pp. 39-41).

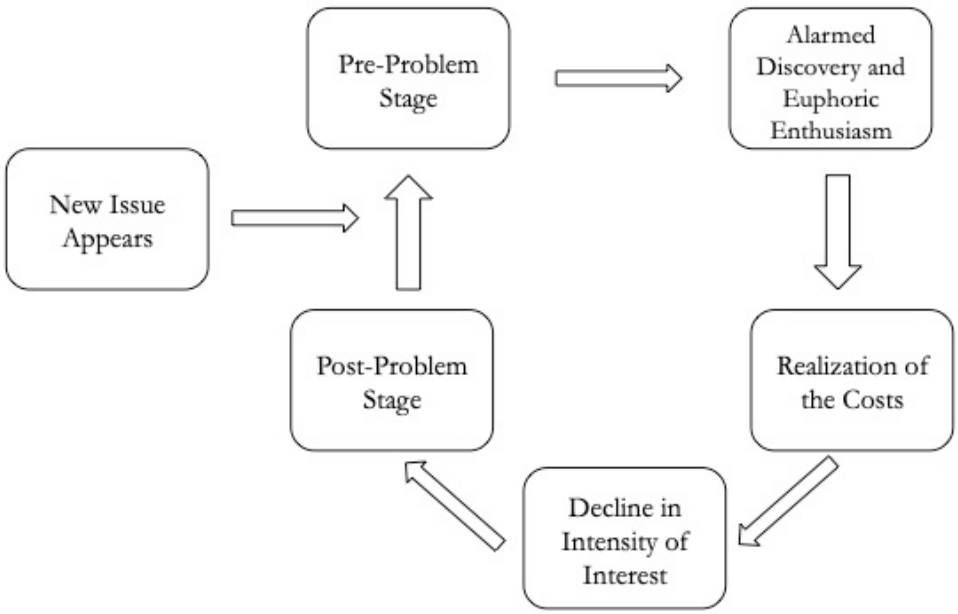

Figure 1: Downs' Issue-attention Cycle

2.2 The Issue of Environment

But not all problems go through this process. Downs formulates three specific criteria for issues that are eligible to go through the issue-attention cycle. The first criterium is that the problem disproportionately affects society, meaning that the majority of people are not suffering as much as some minority. As the majority does not suffer enough to be continually reminded of the problem, attention will gradually decline. For example, the construction or expansion of an airport may cause great discomfort in terms of noise, pollution and traffic to people living nearby. While people living elsewhere will understand the discomfort, they will not feel compelled to solve these problems because they are not directly suffering from them. The second criterium entails that the root of the problem lies in social arrangements that benefit the majority of the population. This corresponds with the previously mentioned example of how car usage increases the amount of toxic emissions, but also provides enhanced mobility. This would mean that 'solving' the problem not only requires constant attention and effort, but also fundamental changes in behaviour. The last criterium is that the issue in itself has no exciting qualities. A problem must be dramatic and exciting to maintain public interest, since the news is largely considered a form of entertainment. If the media would sustain focus on a single issue, it would soon bore most of the public. In reaction, the media will shift their focus to a "new" problem (Downs, 1972, pp. 41-42). Downs argued that the issue of environment appeared to be midway through the issue-attention cycle, but that the level of attention for this specific issue would decrease at a slower rate than other problems (Downs, 1972, p. 43). The reasoning behind this claim is that environmental problems, such as air or water pollution, are more visible than, for example, social problems. And the more it is visible, the more it can be dramatized (Downs, 1972, pp. 46-47). However, while Downs offers reasons for a slower decline, he emphasizes not to underestimate the public's capacity to become bored with the issue - "especially with something that that does not immediately threaten them, or promise huge benefits for a majority, or strongly appeal to their sense of injustice" (Downs, 1972, p. 49). Downs' statements indicate that the issue of environment, at least in the 1970s, met all three criteria. However, is this assumption still relevant, considering the increased visibility – and thus increased dramatization - of environmental issues?

More than thirty years after Up and Down with Ecology, Breeman and Timmermans (2008) found that attention for environmental issues still has a cyclical pattern (p. 53). Analysis of multiple sources, such as the Queen's Speech and newspaper articles, cleary imply a cyclical

pattern, as environmental issues and corresponding solutions are prominently present in some years, while fading into the background in the years that follow (Breeman & Timmermans, 2008, p. 53). In addition, they measured attention in a bigger context, and found that attention for the issue of environment is dependent on the state of the economy; In times of prosperity, attention for environmental issues rises, while attention plummets during economic setbacks (Breeman & Timmermans, 2008, p. 27). Nonetheless, there have been instances in which the economy deteriorated while attention for the environment remained high. These instances are interconnected with incidents that spike attention, also called focusing events (Breeman & Timmermans, 2008, p. 40). Focusing events, in an environmental context, are especially successful in accumulating attention when they are "high-profile". This means that they involve important people or objects and have some international elements. For example, when Al Gore attended the premiere of An Inconvenient Truth in 2006, attention for environmental issues peaked (Breeman & Timmermans, 2008, p. 55; Breeman et al., 2009, p. 30). However, after each focusing event-driven peak, the level of attention dropped again.

The drops in attention during economic setbacks and after a focusing event-driven peak are both directly related to Downs' conditions. The relationship between the issue of environment and the state of the economy reflects issue competition because there seems to only be attention for the environment when the economy flourishes. This means that the moment the economy falters, it is deemed 'more problematic' than issues regarding the environment. Therefore, attention for the environment drops during economic setbacks. Focusing events have a similar mechanism. As mentioned before, a problem must be exciting and dramatic to maintain public interest (Downs, 1972, p. 41). While focusing events provide a level of drama and excitement by often involving important people or having international elements, the public will still get bored after a while. In reaction, most of the public will look for other, more exciting, issues to focus on. Hence, focusing events are in direct competition with other issues.

2.3 The Public and The Media; An Interdependence

One factor that is responsible for the process of issue competition is the (mass) media. The media is an example of an institutional venue in which political actors, such as advocacy groups, can influence or push certain policy decisions (Pralle, 2003, p. 233). Within a venue like the media, there is only a limited number of problems that can be given attention at the same time.

Therefore, the levels of attention are determined by a social contest on the importance of different issues, which is called issue competition (Nisbet & Huge, 2006, p. 7). As the media is a profit-run system that competes among themselves, they ought to be as appealing as possible to the largest possible audience. Thus, by maintaining or losing interest, it is the public itself that decides what the media is focused on (Downs, 1972, pp. 42-43; Nisbet & Huge, 2006. p. 7). Simultaneously, public opinion is responsive to the messages provided by the media. This means that public concern for certain social problems is fueled by how much these issues published on by the media (Djerf-Pierre & Shehata, 2017, p. 734). This structure creates an interdependency between the public and the media. Consequently, it can be argued that the media can be an excellent venue for advocacy groups to influence a broader public (Pralle, 2003, p. 234; Bekkers, 2012. p. 138).

The mechanism of using different venues to reach the public is an example of 'venue shopping'. Venue shopping is a political strategy in which policymakers and advocacy groups seek out a setting in which they can best propose alternative policies (Pralle, 2003, p. 232). Policymakers and advocacy groups are often thwarted with frames and biases in the insitutional venue in which policy is made. To avoid such biases, they try to move the decision-making authority to an alternative venue. If successful, venue shopping can lead to policy change, the adoption of new rules and a different understanding of an issue (Pralle, 2003, p. 234). Pralle (2003) reiterates that one of the most important tactics in venue shopping involves image manipulation. The image of a particular issue is changed to attract members of a certain venue (p. 242). To illustrate this mechanism, Nisbet and Huge (2006) use an example of the Human Genome Project. The focusing event of this scientific project was a press conference with former American president Bill Clinton and former British Prime minister Tony Blair announcing how rival teams had ended a competition of mapping the human genome. The ability for journalists to fit the genome research into a larger narrative structure, by for example linking the issue to war and sports with its emphasis on scientists 'going to battle', led to outstanding media coverage (Nisbet & Huge, 2006, p. 33). This consequently led to a wide public enthusiasm for federal support for the project (Nisbet & Huge, 2006, p. 34). This example demonstrates that as journalists were able to dramatize a scientific event (by using frames such as 'race', 'battle' and 'winners versus losers'), they could ultimately influence policy, as federal support for the project increased.

The project ultimately lost attention as journalists were not able to fit the issue into a larger narrative structure after the competition was over (Nisbet & Huge, 2006, p. 34). However, the

case of the Human Genome Project does exemplify how moving an issue to the media venue increases public concern or enthusiasm. When successful, moving an issue to a media venue could lead to minority interests suddenly becoming dominant (Stone, 2002, p. 369). Consequently, this could ultimately lead to a tipping point in public interest.

2.4 Finding a Tipping Point

But what exactly is a tipping point? Many complex systems, such as economic, political and social systems, have a critical threshold at which the system shifts from one state to another (Scheffer et al., 2009, p. 53; Sharpe & Lenton, 2021, p. 422). These thresholds are called 'tipping points'. To bring a system to a tipping point, there must be a continuous influx of positive feedbacks that eventually reinforces change. The influx of feedbacks is usually started by a small disruption in the status quo (Sharpe & Lenton, 2021, p. 422). The disruption forces a cascade of events, after which the system struggles to turn back to equilibrium. If the system is not able to return to equilibrium, it will 'tip over' into a new state. In the context of social systems, such a disruption can be caused by social contagion. The reinforcement of social feedbacks can result in a tipping point after which population-wide norms and behaviors can be overturned by a minority viewpoint. For example, it was custom for women to wear their skirts 'modestly' at knee-length up until the 1960s. However, sparked by women's rights movements, some women started to wear a 'mini skirt'. Despite, or maybe because of, its controversial nature, the mini skirt became a fashion trend, and more and more women started wearing them. Nowadays, such a clothing item is considered 'normal', illustrating how it has become a majority viewpoint.

When a committed minority reaches a critical group size, also called the 'critical mass', it can force new social conventions upon the majority (Scheffer et al., 2009, p. 56; Sharpe & Lenton, 2021, p. 423; Centola, 2013, p. 238; Centola et al, 2018, p. 1; Holyst, Kacperski & Schweitzer, 2001, p. 271). But what causes a critical mass? An easy way to explain the underlying structure of the critical mass is by taking riots as an example. The cost of one person joining a riot declines when the number of people joining the riot grows, since the chance of getting caught by the authorities declines. In other words, the costs and benefits of one individual's choices depend on how many others make the same choice (Granovetter, 1978, p. 1422). It is also important to note that the power of the minority is not reinforced by authority or wealth, but rather its commitment to the cause (Centola et al., 2018, p. 1; Crossley & Ibrahim, 2012, p. 599).

Moreover, the critical mass is dependent on individual memory length and population size. When individual memory is shorter, the critical mass becomes smaller (Centola et al, 2018, p. 2; Scheffer et al, 2009, p. 53). This means that when the period in between the social feedbacks is shorter, the necessary size for a critical mass to reach a tipping point is smaller. Downs mentions that a more visible problem is easier to dramatize (Downs, 1972, p. 46). The more dramatic an issue is framed, the more attention it generates (Nisbet & Huge, 2006, p. 7; Breeman & Timmermans, 2008, p. 40). Reflecting on how advocacy groups can influence the public through the media, one can make a comparison between this process and the development of a critical mass; When a small committed minority uses the dramatizing effect of the media cleverly, it could lead to a tipping point that can change population-wide social conventions. When these factors are combined with the fact that environmental deterioration is becoming increasingly noticeable (KNMI, n.d.; De Coninck, 2020), it can be argued that the critical threshold to change social conventions on environment might have been reached. In other words, there has probably been a tipping point in attention to environmental issues.

2.5 Theoretical Expectations

To find the missing piece to the puzzle as of why a Climate Law was implemented in 2019, I posed the question: 'To what extent has the pattern of public attention for the environment changed in The Netherlands?', accompanied by the sub-questions of why and when this possible change has taken place. Considering the assumption of how dramatization of the issue in the media could have led to a tipping point in social conventions, three theoretical expectations can be posed. First, Breeman and Timmermans (2008) found the pattern of attention for environmental issues to be cyclical in the period between 1990 and 2007. Based on their findings, they predicted that the implementation of a Climate Law would not be likely. Since the Climate Law was implemented in 2019, it can be expected (1) that there has been a tipping point in the pattern of attention in the period between 2007 and 2019. This would indicate that the pattern is no longer cyclical. Second, the literature on tipping points reveals how a committed minority can replace a majority viewpoint. As Downs' criteria are mostly based on the unwillingness of a majority to solve a problem that the minority mostly suffers under, it can also be expected that (2) Downs' criteria are no longer true for the issue of environment. Third, as the social narrative on the environment has changed, the issue will have a new 'celebrity' status within the media.

This means that it has reached a level of importance after which it will be continuously reported on. Therefore it can also be expected that (3) environment will no longer be subjected to issue competition.

3. Data and Method

As mentioned before, the media and the public are interconnected when it comes to measuring attention. This is because the more media attention an issue gets, the more important it is deemed by the public (Schäfer et al., 2014, p. 153), and the more public attention an issue generates, the more it will be published about by the media (Downs, 1972, pp. 42-43; Nisbet & Huge, 2006. p. 7). Therefore, the measurement of media attention gives a significant reflection of the public attention for an issue.

The level of attention is measured through content analysis of newspaper articles by NRC Handelsblad (NRC). The choice for this newspaper is based on its availability of electronic articles from the 1990s on. While it can be argued that social media and the internet would also be great (contemporary) indicators of attention (Bekkers, 2012, p. 138; Coombs, 2002), it would be difficult to encapsulate attention in a Dutch context. The internet is accessible and used on a world-wide scale, often anonymously, making it impossible to know where exactly the attention is generated. Since this analysis is focussed specifically on the Dutch public, it is wiser to stay 'close to home' and use a national source. Additionally, the rise of social media and the increase of media outlets could mean that the agenda-setting influence of traditional news media has declined. However, Djerf-Pierre and Shehata (2017) found little evidence that traditional news media has become less influential in the context of agenda-setting and that citizens are as responsive to issues from the collective media agenda today as during the pre-social media era. Moreover, NRC can be considered a benchmark for collective media, because it is a "leading newspaper". To be categorized as such, a paper has to meet four criteria; it has to be (1) a national publication with (2) a high circulation, which is (3) published on a daily basis and has (4) high journalistic standards. When a paper accommodates these criteria, it will be seen as 'leading'. A consequence of being part of 'leading media', is that its coverage on issues will often influence other publications as well (Schäfer et al., 2014, p. 159).

The first part of the analysis covers the first expectation, which entails finding a change in pattern of attention. The quantity of articles about environmental issues is relative to the total number of articles written that year. Using the relative number of articles rules out the possibility that an increase in articles about the environment is caused by simply an increase in articles overall. The data consists of a quantitative content analysis of all NRC articles from 1990 to 2020 that mention the environment. The dataset contains the aggregate of 15 different environmental topics based on keyword coding for the issue of environment (appendix 1). These keywords are drawn from (a Dutch translation of) the universal codebook and are used together with Boolean operators to create specific search-strings. To test the second expectation, a qualitative in-depth analysis of the data retrieved in the previous measurement is used to discuss Downs' criteria. These criteria are: (1) the issue disproportionately affects society, (2) the root of the problem is found in social arrangements that benefit the majority of society, and (3) the problem is not exciting or dramatic. In this case, "in-depth analysis" refers to a process in which articles are thoroughly read. This process starts with the analysis of articles containing the keywords regarding "climate change" (found under 705.4 in appendix 1). This particular string was chosen because the topic of climate change covers the biggest percentage of the total of articles each year. The articles are filtered by >2000 words, to make the number of articles to analyze more manageable. The remaining articles are inspected on whether they provide the relevant context in which the keywords are used. Articles containing keywords within a context considered not appropriate (enough) are dismissed. A full list of the articles that are ultimately used can be found in appendix 3. As a final step, to test the third theoretical expectation, a second quantitative measurement is conducted with articles that mention (macro-) economy. The keyword coding for this issue is also found in the universal codebook, and the list of keywords regarding (macro)economy can be found in appendix 2. The same approach is used as during the measurement for the issue of environment, enabling the comparison of the patterns of attention for environment and economy within the same venue. The relationship between the two issues point out whether environment is still subjected to issue competition.

The quantative nature of the analysis that covers the first and third theoretical expectations contributes to the reliability of the research. Reliability is concerned with whether the results of a study are repeatable (Bryman, 2016, p. 41). By using a universal codebook and providing an overview of the search strings, reliability is warranted. The choices to measure the relative attention and using the same method for two different issues both promote the validity of the

study, which questions the integrity of the conclusions (Bryman, 2016, p. 41). However, some caution is required regarding the qualitative nature of the second hypothesis. Qualitative research is often dependent on the researcher's own interpretation of data. While qualitative analysis contributes greatly to the depth of a study, it can jeopardize both its reliability and validity. For example, the interpretation of a narrative structure in a newspaper article might differ among researchers, which could result in a different conclusion. However, using Downs' fixed criteria in the analysis of the articles should give suffice foundation for a credible and dependable research.

4. Results and Analysis

4.1 The Pattern of Attention

In response to the first expectation, which entails that there has been a tipping point in the pattern of attention to environmental issues in the period between 2007 and 2019, figure 2 shows the percentage of articles that mention the environment from 1990 to 2020. These percentages represent the level of attention for this issue. A clear shift in pattern is seen around the year 2007, in which coverage peaked at more than 4%. However, this peak is followed by a decline in attention up until 2014, after which it increases again to an even higher peak of almost 6% in 2019. Most apparent is the change in pattern, starting around 2006. This change could indicate that there has indeed been a tipping point. The literature on tipping points states that a system can be sent into a significantly different state after a small disturbance (Sharpe & Lenton, 2021, p. 422). Scheffer et al. (2009) describe the different arrays of early warning signals that precede tipping points. One of the most important indicators of a tipping point is 'critical slowing down' (Scheffer et al., 2009, p. 53). Critical slowing down refers to the tendency of a system to take longer to return to equilibrium after perturbations, typically instigated by a weakening of negative feedbacks and the reinforcement of positive feedbacks, until a 'point of no return' is reached. (Scheffer et al., 2009, p.53).

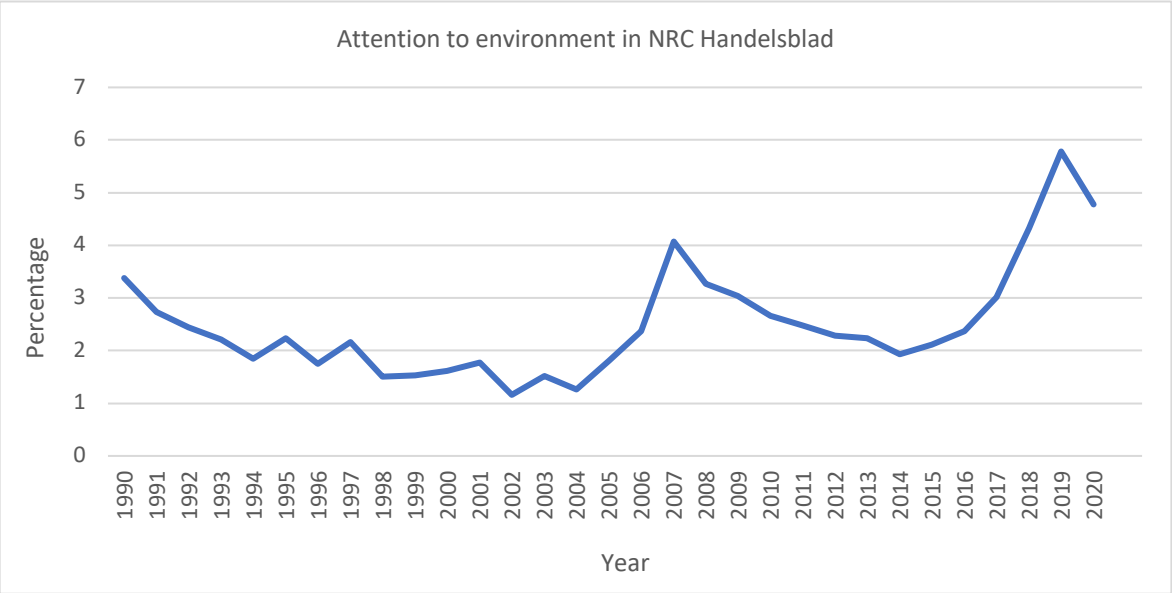

Figure 2: The relative attention to environmental issues in NRC Handelsblad, 1990-2020.

Figure 2 shows a steep rise in attention of 1,7% between 2006 and 2007. The significant increase in attention portrays a flux of positive feedbacks, which could indicate a state of critical slowing down. However, while the pattern changes from 2006 on, it remains cyclical. The 'new' cycle, starting in 2006, is stretched out over longer periods of time, containing higher peaks. Scheffer et al. (2009) describe how an increase in variance in the pattern of fluctuations could be a possible consequence of critical slowing down (p. 54), which seems to be reflected in the 'new' state of attention. This could indicate that the pattern between 2006 and 2020 is in a state of critical slowing down, and a tipping point is yet to come. It seems that the phenomenon of critical slowing down cannot immediately disclose whether a tipping point has been reached. Luckily, in addition to critical slowing down, there are also specific spatial patterns that indicate a critical transition. In some systems, a 'phase transition' may take place (Scheffer et al., 2009, p. 56). A phase transition marks a gradual force that 'pushes' the system into another phase. For example, this 'force' could entail the influence of one individual on another; In physics, an individual particle can affect another particle's spin. In social systems, the attitudes of individuals towards certain political issues can be affected by the opinions of their peers (Scheffer et al., 2009, p. 56; Centola, 2013; Centola et al., 2018; Holyst, Kacperski & Schweitzer, 2001, p. 271). To determine whether 2006 marks a phase transition, and therefore a tipping point, Downs' conditions were evaluated through an in-depth content analysis.

4.2 Countering the Criteria

To find out if a tipping point has taken place in 2006, articles written in 2005, 2006 and 2007 were evaluated on whether they meet Downs' (1972) conditions. The differences in narrative highlight if there has been a change in the issue of environment in regard of meeting Downs' (1972) requirements. To double check for a change in frame, articles written in 2014 were analyzed as well. Since 2014 marks the lowest point of the 'new' pattern, any similarities with the narrative in 2007 rule out that changes are only connected to peaks in attention. Downs (1972) theorizes that issues that go through the issue-attention cycle have three specific characteristics: (1) the majority of society are not suffering under the problem as much as some minority, (2) the sufferings caused by the problem arise from social arrangements that benefit the majority, and (3) the problem has no intrinsically exciting qualities.

Downs' first condition is based on the absence of an imminent threat. When people are not continuously reminded of the problem through their own suffering, they will easily forget about the issue (Downs, 1972, p. 42). However, in 2007, the International Panel on Climate Change (IPCC) conducted a report on the threats of climate change in 2007. The report emphasizes the connection between human activities and global warming, focusing on a lack of access to clean water, sufficient food, stable health conditions, ecosystem resources and security of settlements (United Nations, n.d.). Moreover, the IPCC won the Nobel Peace Prize in 2007, extending the reach of its content among individuals. The shift from climate change as something rather dismissible to being a direct threat is also reflected in the narrative of the articles written in NRC in 2006/7. Articles regarding environment written in 2005 were mostly centered on nuclear threats (Heijne, 2005; Chavannes, 2005; NRC Handelsblad, 2005) and confrontations with China and the United States (Knip, 2005; Heijne, 2005; Chavannes, 2005; Starink & De Waard, 2005). To illustrate this narrative, the article by Heijne (2005) is centered on an interview with British astronomer Martin Rees. In the interview, Rees says:

> In my book I discuss well known themes such as global warming, the dangerous way in which humanity is changing our biosphere, but I emphasize on technological developments that can lead to new hazards. Hazards that are as big as a nuclear threat. (Heijne, 2005)[1]

[1] The paraphrases from the articles in NRC Handelsblad are originally written in Dutch. I have personally translated them to English to correspond with the language in the rest of this thesis. This means that some awareness is required in regard to the reliability and validity of the research.

This example demonstrates how environmental issues are limited to merely a product of a greater threat, such as a lurking hegemon or a nuclear war. In 2006 there is a slight shift in discourse, in which the threat of climate change is somewhat more pressing, yet downplayed or reduced to a minimal problem. For example, the same article states how "the effects of climate change are more visible in our surroundings", but also that "visible consequences take place somewhere else or in the future" (Heijne, 2006). Another article states that Science Magazine and multiple scientists strike an "alarmist tone" regarding climate change, but that they are just jumping the bandwagon since the consequences haven't been observed yet (Knip, 2006). The reserved stance on the dangers of global warming changes completely in 2007. The articles written that year emphasize problems directly stemming from climate change, such as mass waves of extinction (Van Santen, 2007; Van Nieuwstadt, 2007), eroding homes and climate refugees (De Jong, 2007; De Gruyter, 2007). For example, one article emphasizes on how "it seems that environmental refugees will be one of the biggest crises of our time" and uses the narrative of an "environmental exodus" (De Gruyter, 2007). Another article describes how climate change will eventually wipe away a whole village: "The whole village will have to move in ten to fifteen years. Some villagers worry that they have even less than five years" (De Jong, 2007). Downs states that people are not interested in confronting issues except those that directly threaten them (Downs, 1972, p. 49). The alarming consequences of climate change stated in the IPCC report, in combination with 'real' examples of these consequences, have led to more awareness among the public. This in turn means that the sudden emergence of climate change being a 'real' threat could have led to a tipping point in attention.

A second condition for an issue to go through the issue-attention cycle is that solving the problem requires a great deal of effort and sacrifices by the public (Downs, 1972, p. 42). Since the problem is only bothering a minority of the population, fundamental changes in social institutions and behavior are threatening to the majority. When analyzing the content of the articles written in 2005, 2006 and 2007, it quickly becomes apparent that while time progresses, more articles call for a change in behavior. While in 2005 practically no articles call for change, most articles in 2007 regarding climate change are about fundamental changes in behavior (De Witt, 2007; NRC Handelsblad, 2007; Korthals, 2007; Staps, 2007; Leijendekker, 2007). For example, the 'Urgenda' article calls for immediate change: "We will immediately have to work on a new design of our country", "for which we will have to organize ourselves differently" (NRC Handelsblad, 2007). This narrative is also reflected in the article by Staps (2007), in which Robert

B. Reich, an American politician, sees only one solution to the climate problem: "tackle the system ourselves" (Staps, 2007). In addition, De Witt (2007) calls for an "inner climate change". She describes that "as long as the critical mass does not experience climate change as a pressing matter, there will not be enough support for change" (De Witt, 2007). However, while she states that the collective consciousness must catch up with temporary crises, she does add that "it is happening right now" (De Witt, 2007). This leads to the assumption that people are starting to think differently about climate change and its dangers. While Downs considers the need for fundamental changes in behavior a reason for the attention to drop, the reality surprisingly shows otherwise; the more emphasis on fundamental change, the more attention. Since Downs' second criterium seems to be no longer viable, it could be an indication that there has been a tipping point.

Moreover, it is notable that the articles in 2007 tend to focus a lot on technological advancements. In fact, the articles claim that technological advancements not only aid in saving the environment, but they also increase the value of living (Biersma, 2007; Heck, 2007; Van Nieuwstadt, 2007; De Witt, 2007; Leijendekker, 2007). In Leijendekker's interview with Paul Schnabel, Schnabel discusses: "New technology and increased wealth were necessary to get everything cleaned up. We experience this as a way of wellbeing: less stench, less toxins, eventually less industry, but we haven't gotten any poorer" (Leijendekker, 2007). The article suggests that technological advancements aid in solving the climate problem, while also increasing overall wealth. The same pattern is insinuated in the article by Biersma (2007). While the article has a slightly cynical undertone, it does reflect on how technological advancements are cost saving. For example, it mentions that "an appliance with an A-label does not just aid the environment, but it also aids your wallet" (Biersma, 2007). The emphasis on the perks of technological advancements is also found in literature regarding tipping points. Tipping point literature mentions how feedbacks can evolve over time in social systems. This is often related to technological advancements, as new technology can trigger the adoption of new norms and behaviors (Sharpe & Lenton, 2021, pp. 422-423). This phenomenon is called a 'critical mass'. A critical mass is the minimum number of individuals needed to change collective conventions. This means that when a committed minority reaches a certain size, their actions can trigger behavioral change for the whole population (Centola et al, 2018, p. 1). For example, the incentives for adopting a new technology, such as a smart phone, increase drastically when the number of other people adopting that same technology increases (Centola, 2013, p. 239). As such technological transitions are difficult to reverse, it eventually leads to a tipping point in

behavior. This theory is also covered by Downs, as he states that technological solutions for the issue will lengthen the public prominence (Downs, 1972, p. 48). The articles written in 2007, as opposed to the articles in 2005 and 2006, lay emphasis on innovations and technological progress. As technological advancements are often considered to trigger the adoption of new norms and behaviors, it can be implied that there has been a tipping point.

In regard to Downs' (1972) first two conditions, the articles in 2005, 2006 and 2007 reveal a change in narrative that is coherent with a possible tipping point. A second measurement in 2014 for both of these conditions reinforces the possibility of a tipping point, although some nuance is required. The articles in 2014 still insinuate that climate change is a real problem or threat and that people should change their behavior to solve it (Postma & Utrecht, 2014; Steketee, 2014; Luttikhuis & Doomernik, 2014). For example, in an article involving an interview with Rajendra Pachauri, former chairman of the IPCC, there is mentioning of "Man is responsible for global warming. Of that we are 95 percent certain." and "one of the possibilities to reduce greenhouse gases is changing our lifestyles" (Luttikhuis & Doomernik, 2014). Another article contains an interview with Ben van Beurden, CEO of Royal Dutch Shell, in which he discusses Shell's initiatives to invest in renewable sources and push back CO2 emissions (Postma & Utrecht, 2014), which reflects how even fossil fuel companies are taking responsibility for environmental issues. What is striking, however, is that both articles also introduce the phenomenon of a 'climate sceptic'. In the article in which Van Beurden is interviewed, he implies that he is "not a climate sceptic" (Postma & Utrecht, 2014). Pachauri, in the other interview, mentions climate sceptics as well: "Ever since the first reports, the IPCC was regularly targeted by so called 'climate sceptics', people who – sometimes by conviction, sometimes by ideological motives – doubt the entire science on climate." (Luttikhuis & Doomernik, 2014). A closer inspection on the phenomenon of a 'climate sceptic' reveals that its first mentioning was in 2007. This too, could indicate a tipping point in social conventions in 2006. However, what are the implications of the negative connotation or scepticism against environmental issues? There is a possibility that this negative frame is related to a shift in attention to a different crisis: the global financial crisis. The first mentioning of 'climate sceptic' is on 1 December 2007 – a date that also marks the official start of the financial crisis (Wall Street Journal, 2008).

This makes sense in relation to Downs' (1972) third criterium, which states that a problem ought to be intrinsically exciting, as it otherwise will bore the majority of the public. It means that an issue will collect attention, remain in the spotlight for a while, whereafter it will gradually fade

away as it is replaced by a "new" crisis with more exciting qualities (Downs, 1972, pp. 42-43). Viewing figure 2, it is immediately clear that the issue of environment is not immune against other crises; As the attention drops severely in 2008, it can be assumed that the attention has shifted to the financial crisis of 2008. As the issue of environment seems to be prone to competition from the issue of (macro)economy, it could be argued that there has not been a tipping point (yet).

4.3 Ecology Versus Economy

To find out to what extent the issue of environment is still susceptible to issue competition, the relationship between the issues of environment and economy is revisited. As mentioned before, Breeman and Timmermans (2008) analyzed the relationship between these issues and found that when the economy flourishes, attention for the environment rises, but when the economy struggles, attention for environment drops accordingly. A correlation as such thus indicates the presence of issue competition between the environment and the economy. If the relationship has changed from negative to positive, it can be assumed that the issue of environment is not subjected to issue competition (with at least the issue of economy) anymore. The revisited relationship between the issues of environment and (macro)economy are presented in figure 3.

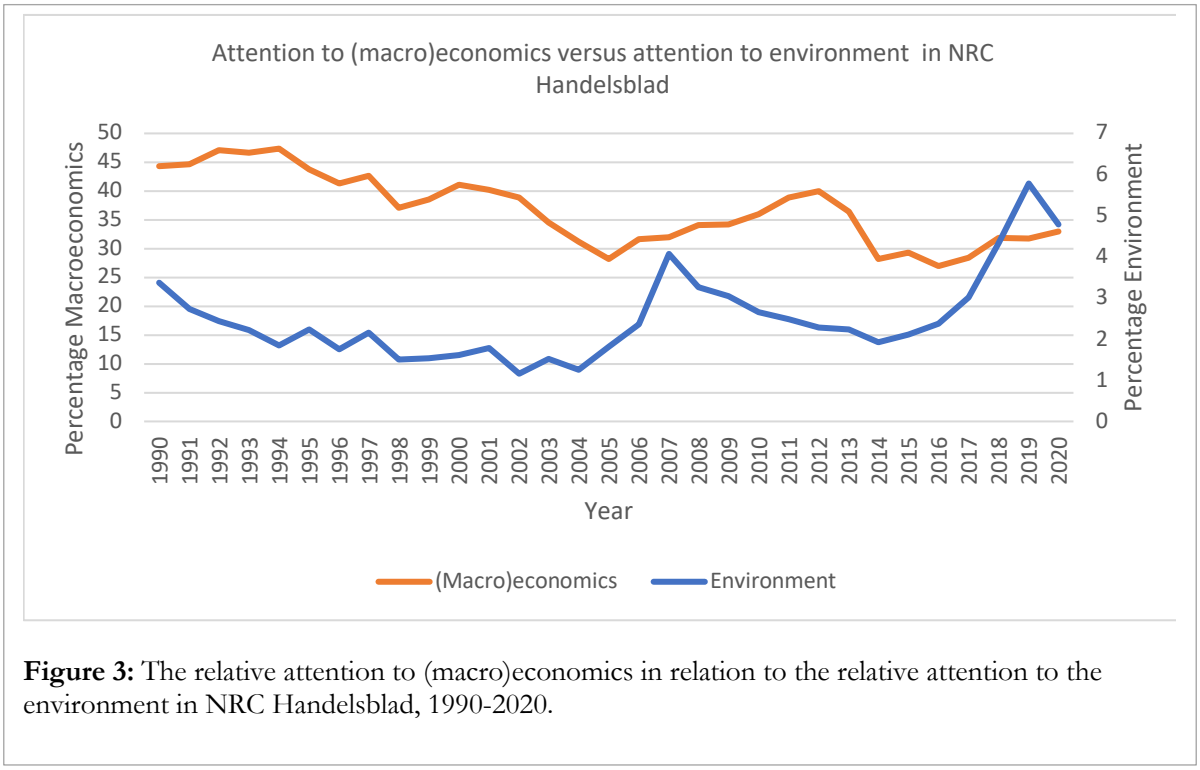

Figure 3: The relative attention to (macro)economics in relation to the relative attention to the environment in NRC Handelsblad, 1990-2020.

At first glance, the relationship between the economy and environment seems positive until 2005, whereafter it changes into a negative correlation. As the attention for environmental issues drops around 2008, attention for (macro)economy rises. It is only logical to assume that this is triggered by the Global Financial Crisis of 2008. This would indicate that the issue of environment is still subjected to issue competition, even after the alleged tipping point. What is even more striking, is that this graph shows the opposite of what Breeman and Timmermans (2008) found in their analysis. As they measured the relationship between the issue of environment and the economy in the period of 1990-2007, they found a negative correlation between the two (Breeman & Timmermans, 2008, p. 27). This current analysis insinuates that the relationship in this time frame is positive. To find the actual relationship between the issues, the Pearson's correlation coefficient is extracted. Figure 4 displays the difference in correlation between two 15-year time frames, with the first 'state' from 1990-2005 and the second from 2006-2020. It is revealed that while the first state indeed shows a significantly positive ($p<0,05$) relationship, state 2 has little to no relationship at all. While the shift in relationship does indicate a change in pattern around 2006, it is not influenced by the issue of (macro)economy. In his third criterium, Downs (1972) describes how issues are replaced by 'more fashionable issues moving into their "crisis" phases' (p. 43), which is the essence of issue competition. If this were true, it would mean that the financial crisis of 2008 was the "most fashionable" issue around that time, causing the drop in the attention for environment. However, figure 4 shows no correlation between the two. This indicates that the change in the attention for the environment was not caused by issue competition. This effectively rejects the third theoretical expectation, which entails: The issue of environment will no longer be subjected to issue competition.

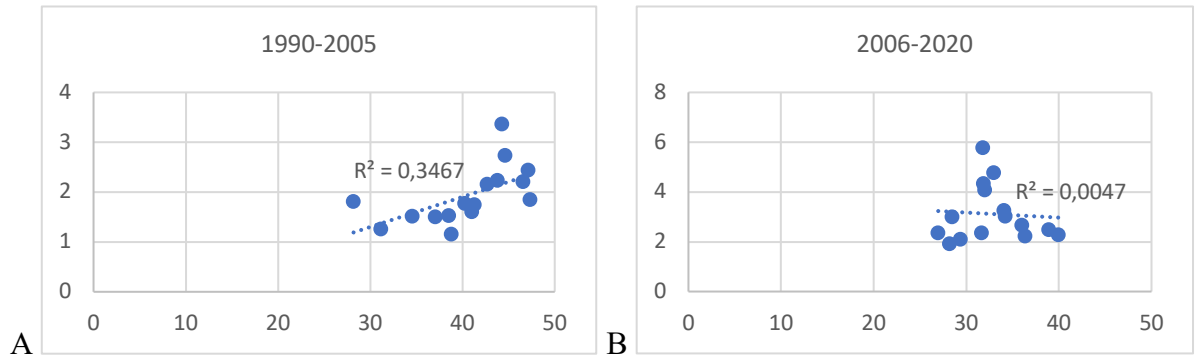

Figure 4: Correlation between the attention to the issues of (macro)economy and environment.
3A: Correlation between 1990-2005. With values: r=0,589; r^2=0,347; p=0,016. Pearson's coefficient indicates a moderately positive relationship with r=0,589, which is statistically significant for p<0,05.
3B: Correlation between 2006-2020. With values: r=-0,068; r^2=0,005; p=0,809. Pearson's coefficient indicates a weak to non-existent negative relationship with r=-0,068, which is not statistically significant for p<0,05.

4.4 The Mass Media

As the quest to finding a tipping point continues, it has become apparent that, in this case, the tipping point is not connected to issue competition. So, what has caused the paradigm shift instead? From 2006 on, the pattern of attention for the environment shows peaks in the years 2007 and 2019, and experiences the lowest point in the year 2014. When taking a closer look at these peaks, a pattern surfaces. As mentioned before, the spike in attention around 2006/7 was generated by the emergence of Al Gore's documentary *An Inconvenient Truth*, followed by the 2007 IPCC report on climate change, and their joint reception of the 2007 Nobel Peace Prize. In 2018/9, a similar combination of events took place. In August 2018, Greta Thunberg reached worldwide prominence by going on a climate strike against the Swedish government. In October 2018, the IPCC published a special report on the impact of 1,5°C in regard to global warming. It seems that attention is generated by a combination of focusing events involving a clear leadership role and reports from expert organizations. This is in line with the analysis by Breeman and Timmermans (2008) concerning focusing events, as they found that when an 'exciting' event has a clear leader, attention in the media rises (Breeman & Timmermans, 2008, p. 40).

The need for exciting qualities in an event and corresponding leadership is logical when taking the type of venue into account. As the (mass) media is a competitive arena, it aims to attract the

largest possible audience by emphasizing on 'hot' topics, which are specific focusing events or crises (Nisbet & Huge, 2006, p. 7; Downs, 1972, p. 42-43). The level of popularity of topics is determined by a social contest on the nature and importance of issues (Nisbet & Huge, 2006, p. 7). When the threshold of the minimum amount of people needed to overturn collective norms and behaviors is met, it is referred to as a critical mass. The power of the minority to reach critical mass is not determined by authority or economical importance, but by ethical incentives and commitment to the cause (Centola et al., 2018, p. 1; Crossley & Ibrahim, 2012, p. 599). As the media channels large audiences, it could be argued that a critical mass has been reached, after which the social system crosses a tipping point that triggers a cascade of behavior change (Centola et al., 2018, p. 1). The change in behavior is reflected in the different narratives concerning the issue of environment in 2005, 2006 and 2007. Contrary to the articles written in 2006 and 2007, the articles in 2005 rarely or don't emphasize on the dangers of climate change or call for action. As behavior change takes place after a tipping point, it could be argued that there has been a tipping point between 2005 and 2006, which agrees with the change in relationship found in figure 4. There is only one problem: if there has been a tipping point, why is the pattern still cyclical? After the peak in 2007, the attention drops severely until 2014. When it peaks again in 2019, a decline can be spotted in 2020. One could say that both declines are caused by the shift of attention towards the financial crisis of 2008, and the Covid-19 crisis in 2020. But as issue competition is ruled out, the drop is caused by something else.

In critical mass systems, incentives to participate increase with the number of others who participate. For example, the incentive to use a smartphone or specific messenger platforms grows as the use among peers increases. Incentives can be defined as either the benefit of participating, or the cost of not participating. However, systems that are made up of "bandwagon" behavior, such as critical mass systems, may also suffer from a free-rider problem (Centola, 2013, p. 239). A free-rider problem exists when an actor benefits from a collective good without paying for the cost or maintenance for that good. While additional participation would benefit the collective good, contribution declines as maintenance of the good becomes guaranteed. In the context of attention to environmental issues, the 'free riders' are a minority of individuals benefitting from environmentally conscious norms and behaviors of je majority, without necessarily sharing those values. For example, someone could decide not to participate in a neighborhood clean-up effort, while still being able to benefit from a clean living-space.

A system where incentives to participate are highest when the greatest number of people participate, is considered a strongly self-reinforcing system. When the system suffers from free riders, it is weakly self-reinforcing (Centola, 2013, p. 239). Interestingly, while a strong self-reinforcing system produces greater participation, it is less stable than a weak system (Centola, 2013, pp. 251-252). The reason for this is that in weakly self-reinforcing systems deviations from the equilibrium are restored much more quickly than in strongly self-reinforcing systems. As weaker systems have a 'spare' of free riders enjoying the benefits, the incentive to re-join is much greater when those benefits are endangered. For example, public broadcasting is provided through charitable donations. However, not everyone enjoying the service contributes in the same proportion as others. If something happens that prevents the usual donors from contributing, the quality and number of programs that are enjoyed by the majority is threatened. Therefore, the incentives to participate rise instead of drop (Centola, 2013, p. 251). Contrastingly, in a system of strong growth dynamics, deviations from the equilibrium lowers the incentives to participate, creating a snowball effect of reduced participation as the system's recovery time is slowed down (Centola, 2013, p. 250).

To explain how this works, Centola (2013) uses an example of a group of lenders in a system with high sanctions for defection. He considers an example of a micro-credit lending group. Microcredit or microloans are small loans that are issued by individuals instead of banks (Hayes, 2021). Let us assume that there are ten people in the lending group, in which aversion to risk among participants is distributed by Person 1 (P1) being the least risk averse, and Person 10 (P10) being most risk averse. High sanctions for defection provide assurances for each member of the group to confidently participate in the cooperative norm of exchanging loans for mutual benefit. If the most risk averse member, P10, withdraws from the cooperative norm, it will not cause anyone else to abandon the lending group. Instead, P10 will feel strong pressure to rejoin the group, after which the system will return to equilibrium. However, if P9 appears to leave the group, P10 will also doubt the strength of the organization and will withdraw as well. This is not necessarily a problem for the stability of the organization, as long as P9 corrects the misperception of leaving the group. If P9 returns, P10 has renewed incentives to also return to the cooperation, and the equilibrium is restored. However, timing is crucial. Once the error by P9 causes P10 to withdraw, it will also cause P8 to mistrust the organization, who will then also withdraw. If both P8 and P10 withdraw before P9 can correct the mistake, the reduced incentives will cause P9 to doubt the viability of the group and will no longer feel compelled to

participate. If all three actors (P8, P9 and P10) drop out, it will lead to a cascade of 'drop-outs' by the remaining group, leading to the "death" of the organization (Centola, 2013, pp. 250-251).

As the level of attention to the environment shows a growth of almost 2% in only a year, it could very much be the case that the growth spurt around 2006 indicates a strong yet unstable system of self-reinforcement. The steep decline in attention after 2007 reflects the instability of the system. Considering the above example of the lending circle, this could also explain the emergence of 'climate sceptics' in 2007. The steep growth in 2007 implies a strongly self-reinforcing system. Just like the defectors in the lending circle, the climate sceptics lack, or have lost, trust, resulting in a cascade-effect of defection. However, the subsequent rise in 2014 indicates that there has not been a collapse of collective behavior, but rather a new rise in incentives. However, will this rise in incentives lead toward a collapse, since it is quite steep as well? I expect not. Since a climate law was implemented in 2019, there is a greater chance of 'free riders'. A law offers a guarantee that a good, in this case the climate, will be protected to a certain extent. This will create more 'free riders', meaning that the system will change into a weakly self-reinforcing one. In other words, I believe the pattern of attention will stabilize after 2019 – but only time can tell.

4.5 Venue Shopping and Policy Change: The 2019 Climate Law

Reflecting on the change in pattern in 2006, with the corresponding shift in norms and behaviors by the public, it can be assumed that in that year there has been a tipping point. This consequently rejects the first theoretical expectation: there has been a tipping point in the period between 2007 and 2019. The reasoning behind this expectation was that Breeman and Timmermans (2008) measured the attention from 1990 to 2007 and found it to be cyclical. This indicates that there hasn't been a tipping point in attention in their findings. The difference in outcome probably lies in the type of venue that was analyzed. As Breeman and Timmermans (2008) found a pattern of attention by analyzing the Queen's Speech, they laid their focus mostly on a political venue. Within this political venue they found a negative relationship between the issue environment and the economy (which was measured in GDP). This analysis however, which is focused on the media venue, found a positive relationship between the issues of environment and economy in the same time frame. The discrepancy between these patterns provides insight in how different venues have a different influence on the level of attention.

Different venues also have a different influence on the policy process. For this reason, advocacy groups and policymakers might choose a certain venue for a certain goal, in a process called venue shopping. Advocacy groups may not only choose venues for short-term strategy, but also because they have new insights on the nature of the issue. Therefore, venue choice relies on what venue offers the greatest participation of new actors, the adoption of new rules and the understanding of an issue (Pralle, 2003, pp. 233-234). Considering that the media is a competitive arena, built to generate the biggest possible audience, the media venue has more potential to reach participating actors and create a new understanding of the issue of environment. It therefore has more chance of influencing policy on the issue of environment than the political venue. This could provide an explanation why, while Breeman and Timmermans (2008) predicted that a climate law would probably never happen, a climate law was implemented in 2019.

4.6 Downs' Deficits

As the tipping point was found in 2006, the first expectation was rejected. The absence of the significance of issue competition rejected the third hypothesis. So, what about the second theoretical expectation, which entails that Downs' three criteria are no longer true for the issue of environment? It has already become apparent that his first two criteria do adhere to that expectation. To briefly summarize: The first condition is that the majority of people in society do not suffer from the problem as much as the minority. When people are not continuously suffering, they will easily forget about an issue (Downs, 1972, p. 42). After the tipping point, the narrative on environmental issues in news articles changed from somewhat indifferent to global warming being a real and threatening issue. Moreover, the consequences of climate change have become more and more visible. The problem is one for the majority of which it is repetitively reminded. Therefore, Downs' first condition is rejected for the issue of environment. The second condition was also rejected, which entails that the sufferings that are caused by the issue are generated by social arrangements that benefit most of the population. This means that solving the problem requires significant sacrifices and changes in behavior (Downs, 1972, p. 42). However, the content of articles written around 2006 revealed that attention increases when the necessity for change in behavior is emphasized on. This pattern is the opposite of Downs' claim that attention will drop when the public realizes what fundamental changes they would have to endure. The third criterium states that the problem has no intrinsically exciting qualities. A

problem must dramatic and exciting to stay in public interest, as the news is competitive arena in which news is consumed (Downs, 1972, p. 42). As Downs mentions: "Each [crisis] will rise into public view, capture the stage for a while, and then gradually fade away as it is replaced by a more fashionable issue moving into their "crisis" phases" (Downs, 1972, p. 43), he implies that the condition is based on issue competition. However, the lack of correlation between environmental and economic issues after 2006 indicate that issue competition is not relevant. Moreover, when focusing on the level of attention after the tipping point, it becomes apparent that even the very lowest point in 2014 (1,9%) has the same amount of relative attention as the average of the whole period between 1990-2005 (of which the level is also 1,9%). This indicates that the issue of environment might have reached that widespread "celebrity" status, in which the media (and the public) will always pay a fair amount of attention to it. Taking all the above into account, the second expectation, Downs' three criteria are no longer true for the issue of environment, can be accepted.

5. Conclusion

Based on Downs' (1972) theory on the issue-attention cycle, Breeman and Timmermans (2008) analyzed the pattern of attention in the Dutch context and predicted that a climate law would not be likely to happen in the Netherlands. However, a few years later, that exact law was implemented. This research aimed to identify how it is possible that a Climate Law was implemented in the Netherlands in 2019. To solve that puzzle, I posed the research question: 'To what extent has the pattern of attention for the environment changed in the Netherlands?'. This was followed by the supporting sub-questions: 'If the pattern has changed, when did it happen, and what could explain this shift?'. Based on a combination of quantitative and qualitative analysis of newspaper articles in NRC Handelsblad, it can be concluded that there has been a shift in attention for the issue of environment in 2006. The reason for this shift is that a critical mass was reached; the critical group size after which majority norms and behaviors are overturned by a minority viewpoint. This consequently implies that the shift in attention was in fact a tipping point. In this context, the minority viewpoint was consciousness for the environment. While this indicates that being environmentally conscious is the dominant norm since 2006, the first mentioning of the phenomenon of 'climate sceptic' happened in 2007. The climate sceptics are a consequence of the instability of a strongly self-reinforcing system. This

also explains why the attention for the environment had dropped after its tipping point. While a strongly self-reinforcing system carries the risk of a collapse of the collective behavior, the implementation of the Climate Law in 2019 should have produced some stability. As a law creates an incentive for 'free riders', the system will likely have changed into a stable, weakly self-reinforcing system. Lastly, the final piece of the puzzle to why the climate law was implemented when Breeman and Timmermans (2008) predicted it wouldn't, finds it foundation in the type of venue. Breeman & Timmermans (2008) did not find a tipping point in attention, because by analyzing the Queen's Speech, their focus was on a political venue, instead of a media venue. And, as the media is a competitive arena created to generate the most public attention, it is only logical that within this venue a critical mass could be reached.

Although this study has made contributions to the theories on critical mass, tipping points, agenda-setting and venue shopping, a number of limitations are worth highlighting. Firstly, the qualitative component of detecting certain frames within the articles is not entirely free of bias; The narrative of an article is dependent on what the journalist decides to write. This can create a risk that the article is more reflective of the journalist's opinion, instead of that of the public. The use of, for example, a questionnaire could have provided a better reflection of public opinion. However, considering that NRC is a leading newspaper, the content of the articles does provide a substantive reflection of public opinion. Another point of consideration is that the concept of issue competition was measured only through the relationship between the issues of environment and (macro)economy. Measuring the relationship between environment and multiple other issues would have given a stronger foundation to really rule out issue competition. Currently, it isn't clear whether the drop in attention might have been caused by the rise of an issue other than (macro)economy. Nevertheless, while the relationship between environment and economy raises the question of the possible influence of other issues, it does illustrate the importance of venue shopping. Comparing this relationship within a media venue, as opposed to the political venue, has provided interesting insight on how different issues, such as environment and economy, are regarded within different venues.

This overall study has combined the theories of critical mass, tipping points, venue-shopping, and agenda-setting, to add considerable knowledge to the mechanism and implications of public attention over time. To further this effort, I would like to make some recommendations to future work on this topic. Considering that the theory on critical mass is mostly based on *how* critical mass is reached, but not so much *why*, I would like to suggest elaboration on this

mechanism. Revisiting the limitation of this paper of not using a questionnaire, doing just that could provide some foundation for the question of *why*. Answering this question would fill in an important knowledge gap in critical mass theory. In addition to that, I would also recommend expanding this study to a bigger arena. The scope of this analysis is limited to the public and media in The Netherlands. As the world is getting more and more globalized, it would be interesting to find the differences and similarities of public opinion in, for example, an EU setting. A similar study in a different setting could provide interesting insight in the mechanisms of public interest across different countries, or how reflective the Dutch public is of the EU public.

6. References

Bekkers, V. (2012). *Beleid in beweging. Achtergronden, benaderingen, fasen en aspecten van beleid in de publieke sector.* Den Haag: Boom Lemma.

Biersma, R. (2007, February 24). *Zelf het klimaat redden; Zonder inlveren van luxe.* Retrieved from: https://nrc.nl

Breeman, G. E., Dewulf, A., Pot, W., & Timmermans, A. (2009). Evolutie van het klimaatvraagstuk: agendadynamiek en framing van het klimaatprobleem in de media. *Bestuurskunde, 18*(4), 27-37.

Breeman, G., & Timmermans, A. (2008). Politiek van de aandacht voor milieubeleid; een onderzoek naar maatschappelijke dynamiek, politieke agendavorming en prioriteiten in het Nederlandse milieubeleid. *Wettelijke Onderzoekstaken Natuur & Milieu, WOt-rapport, 77*(68), 6-67.

Bryman, A. (2016). *Social Research Methods.* Oxford: Oxford University Press.

Centola, D. (2013). A Simple Model of Stability in Critical Mass Dynamics. *Journal of Statistical Physics, 151*, 238-253.

Centola, D., Becker, J., Brackbill, D., & Baronchelli, A. (2018). Experimental Evidence for Tipping Points in Social Convention. *Science, 360*, 1116-1119.

Chavannes, M. (2005, June 11). *Alles willen is een normaal doel; De Toevallige Revolutionair George W. Bush en Amerika's onbegrensde ambities.* Retrieved from: https://nrc.nl

Coombs, T. W. (2002). Assessing Online Issue Threats: Issue Contagions and Their Effect on Issue Prioritisation. *Journal of Public Affairs, 2*(4), 215-229.

Crossley, N., & Ibrahim, J. (2012). Critical Mass, Social Networks and Collective Action: Exploring Student Political Worlds. *Sociology, 46*(4), 596-612.

de Gruyter, C. (2007, June 23). *Milieuvluchtelingen bestaan wel/niet; Rapporten voorspellen alarmerende aantallen.* Retrieved from: https://nrc.nl

de Jong, A. (2007, February 3). *'Bij zuidwesterstorm slaap ik slecht'.* Retrieved from: https://nrc.nl

de Witt, A. (2007, July 7). *We moeten ons wereldbeeld kantelen: het is tijd voor een innerlijke klimaatverandering.* Retrieved from: https://nrc.nl

Djerf-Pierre, M., & Shehata, A. (2017). Still an Agenda Setter: Traditional News Media and Public Opinion During the Transition From Low to High Choice Media Environments. *Journal of Communication, 67*, 733-757.

Downs, A. (1972). Up and Down with Ecology: The Issue Attention Cycle. *Public Interest, 28*, 38-50.

Granovetter, M. (1978). Threshold Models of Collective Behavior. *American Journal of Sociology, 83*(6), 1420-1443.

Hayes, A. (2021, April 13). *What Is Microlending and How Does It Work?* Retrieved from: https://www.investopedia.com/articles/personal-finance/040715/what-microlending-and-how-does-it-work.asp

Heck, W. (2007, March 24). *Airbag Europa; Europese Unie bracht vrede en onvrede.* Retrieved from: https://nrc.nl

Heijne, B. (2005, March 5). *'Over duizenden jaren wonen wij niet meer op deze aarde'; Sir Martin Rees, Brits astronoom met zorgen over de toekomst.* Retrieved from: https://nrc.nl

Heijne, B. (2006, February 4). *'Kyoto is te laat en te weinig'; Mark Lynas, voorheen actievoerder, schreef High Tide, over het broeikaseffect.* Retrieved from: https://nrc.nl

Holyst, J. A., Kacperski, K., & Schweitzer, F. (2001). Social Impact Models of Opinion Dynamics. *Annual Reviews of Computational Physics, IX*, 253-273.

Knip, K. (2005, March 5). *Het internationale klimaatbeleid is een fiasco – de zeespiegel stijgt onherroepelijk.* Retrieved from: https://nrc.nl

Knip, K. (2006, April 1). *'t Ijs glijdt; Gletsjerbevingen en ijsverlies brengen geleerden in staat van alarm.* Retrieved from: https://nrc.nl

Koninklijk Nederlands Meteorologisch Instituut (KNMI). (n.d.). *Warmste Jaren.* Retrieved from: https://www.knmi.nl/kennis-en-datacentrum/uitleg/warmste-jaren

Korthals, M. (2007, December 15). *We moeten op een nieuwe manier leren omgaan met mens, dier en milieu. Zes fundamentele problemen van de huidige landbouw … en negen aanbevelingen.* Retrieved from: https://nrc.nl

Koster, R. (2021, March 3). *Grote vervuilers bieden hulp bij behalen klimaatdoelen, als kabinet flink bijspringt.* Retrieved from NOS: https://nos.nl/collectie/13871/artikel/2374207-grote-vervuilers-bieden-hulp-bij-behalen-klimaatdoelen-als-kabinet-flink-bijspringt

Leijendekker, M. (2007, December 29). *De stelling van Paul Schnabel: vroeger was het niet beter, leve de vooruitgang.* Retrieved from: https://nrc.nl

Luttikhuis, P., & Doomernik, M. (2014, January 11). *Het is niet mijn taak om actie te voeren; De wereld van Rajendra Pachauri.* Retrieved from: https://nrc.nl

Nisbet, M. C., & Huge, M. (2006). Attention Cycles and Frames in the Plant Biotechnology Debate. *Press/Politics, 11*(2), 3-40.

Postma, R., & Utrecht, R. (2014, September 6). *We wereld van – Ik doe er alles aan om buiten de politiek te blijven.* Retrieved from: https://nrc.nl

Pralle, S. B. (2003). Venue Shopping, Political Strategy, and Policy Change: The Internationalization of Canadian Forest Advocacy. *Journal of Public Policy, 23*(3), 233-260.

Schäfer, M. S., Ivanova, A., & Schmidt, A. (2014). What Drives Media Attention for Climate Change? Explaining Issue Attention in Australian, German and Indian Print Media from 1996 to 2010. *The International Communication Gazette, 76*(2), 152-176.

Scheffer, M., Bascompte, J., Brock, W. A., Brovkin, V., Carpenter, S. R., Dakos, V., . . . Sugihara, G. (2009). Early-warning Signals for Critical Transitions. *Nature, 461*, 53-59.

Schuttenhelm, R. (2021, February 19). *Meeste partijen zijn concreter over klimaat en behoorlijk eensgezind.* Retrieved from: https://www.nu.nl/klimaat/6117382/meeste-partijen-zijn-concreter-over-klimaat-en-behoorlijk-eensgezind.html

Sharpe, S., & Lenton, T. M. (2021). Upward-scaling Tipping Cascades to Meet Climate Goals: Plausible Grounds for Hope. *Climate Policy, 21*(4), 421-433.

Staps, F. (2007, December 15). *'Ik wil niet de enige sukkel zijn'; Robert B. Reich over ondernemingen die liegen en consumenten die als burgers verzaken; Robert Reich De Amerikaanse oud-minister van Arbeid over ondernemers, consumenten en burgers.* Retrieved from: https://nrc.nl

Starink, L., & de Waard, M. (2005, October 22). *Europa moet veranderen. En Nederland al helemaal.* Retrieved from: https://nrc.nl

Steketee, H. (2014, November 1). *Dus geen kolencentrales meer.* Retrieved from: https://nrc.nl

Stone, D. (2002). *Policy Paradox. The Art of Political Decision Making.* New York: W. W. Norton & Company.

The Wall Street Journal. (2008, December 1). *NBER Makes It Official: Recession Started in December 2007.* Retrieved from: https://www.wsj.com/articles/BL-REB-2390

United Nations (n.d.). *Nobel Peace Price 2007 - Intergovernmental Panel on Climate Change (IPCC) and Albert Arnold (Al) Gore Jr.* Retrieved from: https://www.un.org/en/about-us/nobel-peace-prize/ipcc-al-gore-2007

Urgenda – maak van Nederland een duurzame proeftuin. (2007, July 14). Retrieved from: https://nrc.nl

van Nieuwstadt, M. (2007, May 19). *Zee van spiegels; Eerste grote zonthermische centrale in 16 jaar is haast gereed.* Retrieved from: https://nrc.nl

van Santen, H. (2007, April 7). *De zure zee; Door uitstoot van CO2 wordt de oceaan suurder en lost kalk op.* Retrieved from: https://nrc.nl

van Zoelen, B. (2021, March 2). *Deze keer gaan de Tweede Kamerverkiezingen wél over het klimaat.* Retrieved from: https://www.parool.nl/nederland/deze-keer-gaan-de-tweede-kamerverkiezingen-wel-over-het-klimaat~b565314e/

Weg met ons; Wat de wereld kan leren van de ondergang van beschavingen (2005, January 21). Retrieved from: https://nrc.nl

Appendix 1: Coding scheme for environmental issues

Code	**Codebook code and keywords**
Drinkwater, grondwater	701
	Drinkwatervervuiling or
	(drinkwater and vervuiling) or
	Drinkwaterkwaliteit or
	(drinkwater and vervuiling) or
	grondwater
Afvalverwerking, riool, gemeentereiniging, baggerslib	703
	Afvalverwerking or
	(afval and verwerking) or
	Rioolaanleg or
	(riool and aanleg) or
	(riool and onderhoud) or
	Gemeentereiniging or
	Baggerslib
Chemisch- en nucleair afval, gevaarlijke stoffen, vuilnisbelten	704
	(chemisch and afval) or
	(nucleair and afval) or
	(gevaarlijke and stoffen) or
	(vervuilde and vuilnisbelt) or
	(vervuilde and vuilnisbelten)
Geluidhinder & lichtvervuiling	705.1
	Geluidhinder or
	Geluidshinder or
	Lichtvervuiling
Luchtverontreiniging & luchtvervuiling	705.2
	Luchtverontreiniging or
	(lucht and verontreiniging) or
	Luchtvervuiling or
	(lucht and vervuiling)
Zure regen	705.3
	Zure regen or
	(zure and regen)
Broeikas, CO2, ozon	705.4
	Broeikas or
	Broeikaseffect or
	CO2 or
	Co2 or

	Ozon or
	Klimaatverandering
Luchtverontreiniging & luchtvervuiling (verkeer en vervoer)	705.5
	(luchtverontreiniging and verkeer) or
	(luchtvervuiling and verkeer) or
	(luchtverontreiniging and vervoer) or
	(luchtvervuiling and vervoer)
Recycling	707
	Recycling
Indoor vervuiling, asbest	708
	Asbest or
	Loodvergiftiging or
	Leefklimaat or
	(sick and building)
Bescherming bedreigde dieren, planten & natuur	709
	Bescherming and (((bedreigde and (dieren or planten)) or otter or korenwolf or natuurgebied or vissen or ooievaars or bos) or
	Uitsterven and (bedreigde and (dieren or planten)) or
	Habitat
Bescherming & vervuiling zeewater	710
	Bescherming and (kustwater or zeewater or waddenzee or (kustgebied and zee)) or
	(zee and dumpen and (afval or olie)) or
	(vervuiling and (olieboring or olieboringen or olie and boring))
Bodembescherming & bodemvervuiling	711.1
	Bodembescherming or
	(bodem and berscherming) or
	Bodemvervuiling or
	(bodem and vervuiling)
Oppervlaktewater, waterwingebied & zoetwater	711.2
	Oppervlaktewater or
	(oppervlakte and water) or
	Waterwingebied or
	Zoetwater
Onderzoek naar lucht, water & klimaatverandering	798

	Onderzoek and (waterkwaliteit or watervervuiling or waterverontreiniging or luchtvervuiling or luchtverontreiniging or klimaatverandering)

Appendix 2: Coding scheme for (macro)economy issues

code	Codebook code and keywords
Inflatie en rentebeleid	101
	Inflatie or
	Anti-inflatie or
	(prijsindex and gezinsconsumptie) or
	(kosten and levensonderhoud) or
	Prijs or
	Prijzen or
	Loon or
	Lonen or
	Koopkracht
Werkloosheidscijfers	103
	Werkloos or
	Werkloze or
	Werkloosheid
Nationale begroting en staatsschuld	105
	Overheidsschuld or
	(overheid and schuld) or
	Staatsschuld or
	(staat and schuld) or
	Overheidstekort or
	(overheid and tekort) or
	Bezuinig* or
	Begroting* or
	Zalm-norm
Belastingen algemeen	107
	Belasting or
	Belastingen or
	Belastinghervorming or
	(belasting and hervorming) or
	Omzetbelasting or
	(omzet and belasting) or
	btw or
	BTW or
	(collectieve and lasten) or
	Vennootschapsbelasting or
	(vennootschap and belasting) or
	Inkomstenbelasting or
	(inkomsten and belasting) or
	Loonbelasting or
	(loon and belasting) or
	Vermogensbelasting or
	(vermogen and belasting) or

	Dividendbelasting or
	(dividend and belasting) or
	Overdrachtsbelasting or
	(overdracht and belasting) or
	Hypotheekrenteaftrek or
	Accijn* or
	Gemeentebelasting or
	(gemeente and belasting) or
	Waterschapsbelasting or
	(waterschap and belasting) or
	Hondenbelasting or
	(honden and belasting) or
	Wegenbelasting or
	(wegen and belasting) or
	Motorrijtuigenbelasting or
	(motorrijtuig and belasting) or
	Milieubelasting or
	(milieu and belasting)
Industriebeleid	108
	Industrie or
	Industriesector or
	Bedrijf or
	Bedrijfsleven or
	Vestigingsklimaat or
	((bedrijf or industrie) and (herstructurering or reorganisatie or sanering)) or
	Overheidssteun
Prijs- en loonmaatregelen	110
	Prijscontrole or
	(prijs and controle) or
	Prijsstabiliteit or
	(prijs and stabiliteit) or
	Inflatie or
	Prijsstijging or
	(prijs and stijging)

Appendix 3: List of NRC Handelsblad articles

Date (dd/mm/yyyy)	Author	Word Count	Title
21/01/2005	REDACTIE	2921	Weg met ons; Wat de wereld kan leren van de ondergang van beschavingen
05/03/2005	Karel Knip	2856	Het internationale klimaatbeleid is een fiasco – de zeespiegel stijgt onherroepelijk
05/03/2005	Bas Heijne	2849	'Over duizenden jaren wonen wij niet meer op deze aarde'; Sir Martin Rees, Brits astronoom met zorgen over de toekomst
11/06/2005	Marc Chavannes	4109	Alles willen is een normaal doel; De Toevallige Revolutionair George W. Bush en Amerika's onbegrensde ambities
22/10/2005	Laura Starink & Michele de Waard	3528	Europa moet veranderen. En Nederland helemaal
04/02/2006	Bas Heijne	2983	'Kyoto is te laat en te weinig'; Mark Lynas, voorheen actievoerder, schreef High Tide, over het broeikaseffect
01/04/2006	Karel Knip	3260	't Ijs glijdt; Gletsjerbevingen en ijsverlies brengen geleerden in staat van alarm
03/02/2007	Antoinette de Jong	2896	'Bij zuidwesterstorm slaap ik slecht'
24/02/2007	Rob Biersma	2314	Zelf het klimaat redden; Zonder inleveren van luxe
24/03/2007	Wilmer Heck	3170	Airbag Europa; Europese Unie bracht vrede en onvrede
07/04/2007	Hester van Santen	2054	De zure zee; Door uitstoot van CO2 wordt de oceaan zuurder en lost kalk op
19/05/2007	Michiel van Nieuwstadt	2239	Zee van spiegels; Eerste grote zonthermische centrale in 16 jaar is haast gereed
23/06/2007	Caroline de Gruyter	2749	Milieuvluchtelingen bestaan wel/niet; Rapporten voorspellen alarmerende aantallen
07/07/2007	Annick de Witt	3024	We moeten ons wereldbeeld kantelen: het is tijd voor een innerlijke klimaatverandering
14/07/2007	REDACTIE	2426	Urgenda – maak van Nederland een duurzame proeftuin
15/12/2007	Michiel Korthals	2562	We moeten op een nieuwe manier leren omgaan met mens, dier en milieu. Zes fundamentele problemen van de huidige landbouw … en negen aanbevelingen
15/12/2007	Freek Staps	2024	'Ik wil niet de enige sukkel zijn'; Robert B. Reich over ondernemingen die liegen en consumenten die als burgers verzaken; Robert Reich De Amerikaanse oud-minister van Arbeid over ondernemers, consumenten en burgers
29/12/2007	Marc	2098	De stelling van Paul Schnabel: vroeger was het

	Leijendekker		niet beter, leve de vooruitgang
11/01/2014	Paul Luttikhuis & Merlijn Doomernik	2418	Het is niet mijn taak om actie te voeren; De wereld van Rajendra Pachauri
06/09/2014	Renée Postma & Robin Utrecht	2801	De wereld van – Ik doe er alles aan om buiten de politiek te blijven
01/11/2014	Hans Steketee	2028	Dus geen kolencentrales meer