

University of Twente

Master Thesis

A Qualitative Content Analysis: Nudging in the Paris Agreement

Author:

Beāte Hermansone (s2207028)

Supervisors:

Dr. Ringo Ossewaarde

PhD Ola El-Taliawi

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ABSTRACT

BACKGROUND: Six years have gone by since the Paris Agreement entered into force, but the established climate change targets are nowhere near being met and the world is experiencing climate threats more dangerous than ever. While the world waits for more aggressive command and control policies in combating the global rising temperatures, this research explores how nudging as a policy tool is used throughout Paris Agreement related documents.

AIM: The aim of this research was to investigate in what ways are the Parties under the Paris Agreement are nudged towards a behavior change of carbon emission reduction, what are the typical nudging strategies used by the choice architects and how is the choice environment designed.

METHOD: A qualitative content analysis was carried out on 140 Paris Agreement related documents, including, communications; notes from the secretariat and others. These documents were found on the United Nations document database and filtered to years from 2017 until 2022, the time the analysis was conducted. Following a strategy of qualitative content analysis, a coding scheme was developed and applied to the documents to grasp the frequency of these keywords and examine the underlying themes.

RESULTS: The results indicated that every selected keyword from the coding scheme was found at least once throughout the documents. The finding also revealed that a suspected presence of a nudging strategy cannot be judged solely based on the existence of the keywords, the citations from the text were used as a justification to confirm or deny a suspected nudge. It was found that the most typical nudging mechanisms in the Paris Agreement documents were the use of social norms and changes to default based on the frequency rates of the respective keywords and the citations to back up the presence of these nudges.

CONCLUSION: It can be stated that the results of this analysis suggest that the nudging strategy throughout these documents is done in a cyclic manner. To a higher or lesser degree, this cycle involves the use of social norms; provision of information; changes to default option and changes to the physical environment. It was found that all these nudging tools are interrelated in the context of the analyzed documents.

Keywords: *Paris Agreement, United Nations, climate change, nudging, choice architecture, behavior change, carbon emissions, policy documents*

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1. INTRODUCTION

Even though the connection between carbon dioxide and global warming has been known since the 19th century, when scientists explained the dynamics of the Earth's atmosphere, global warming did not become a social issue in the United States until the 1950s (Klein et al., 2017). The most accurate measurements, including isotopic signatures and atmospheric greenhouse gas (GHG) concentrations, indicate that humans have started to significantly change the chemical composition of the atmosphere. This has an impact on how much solar energy is captured by the atmosphere of the globe at the Earth's surface (Jouzel et al., 2007). In other words, climate change can be explained through the industrialization of society which has culminated an increase in greenhouse gas emissions. This increase causes global warming, which has an impact on other climate system elements and causes some climatic occurrences that are fundamentally different from the usual sequence of climatic events, having a considerable impact on many sectors and locations throughout the world (Dehghani et al., 2021). The more the temperature rises, the greater the climate risks, since the negative consequences increase. (IPCC, 2014). International awareness of climate change was raised in the 1970s during the first United Nations (UN) Conference on the Human Environment in Stockholm (1972), and more than 15 years later, when the Intergovernmental Panel on Climate Change (IPCC) was established in 1988, climate science became a core input to political decision-making.

1.1. The Paris Agreement

Since 1995, governments have met on an annual basis at the Conference of the Parties (COP) to coordinate efforts to combat global warming. Governments agreed to the Kyoto Protocol, which set emission reduction targets, during the third COP in 1997. This protocol was inefficient in achieving global climate change goals because the overall purpose of the regime, the stability of GHG in the atmosphere, was still unreachable even with perfect compliance with the established commitments. Therefore, 196 parties to the Convention overwhelmingly agreed to the Paris Agreement in 2015 at COP 21, which sets ambitious long-term goals and seeks to be a fresh and truly global response to the challenge of climate change – applicable to all parties and comprehensive in scope (Klein et al., 2017). The Paris Agreement establishes long-term goals for all nations to (i) substantially reduce global greenhouse gas emissions in order to limit global temperature rise this century to 2 degrees Celsius, while also continuing to pursue efforts to limit it to 1.5 degrees; (ii) review nations' commitments every five years; and (iii) provide financing to developing countries to address climate change, solidify resilience, and improve their ability to adapt to climate change (United Nations, n.d.). Six years after the Paris Agreement went into effect, it is clear that the party promises are not bold enough to meet these climate change goals, particularly given the speed of global warming. An IPCC report has concluded that, despite commitments to keep warming to 2°C, the Earth is on the verge of experiencing a catastrophic 3°C rise in temperatures by the end of the century (IPCC, 2021). Claims have been made that an important part of the problem is the nationally determined contributions of the parties which are not ambitious enough, resulting in a lack of effectiveness of this internationally binding agreement (Raiser et al., 2020).

1.2. Nudging in policy making

While there is a demand for governments to impose strong policies and regulations to make the necessary emission cuts, a crucial step in combating the set climate targets is nudging the

world to a change (Leahy, 2019). The aim of this thesis is forming a bridge between the behavior change of the carbon emitter parties of the Paris Agreement and the reduction of carbon emissions. To do so the concept of nudging is applied. As defined by Thaler and Sunstein (2009), any feature of the choice architecture that changes people's behavior in a predictable way without prohibiting any options or significantly altering their economic incentives is referred to as a nudge (Sunstein & Thaler, 2009). In addition, to be considered a mere nudge, the intervention must be simple and inexpensive to avoid. In short, the carbon emitter parties are motivated to make certain decisions without harming their freedom of choice. Governments typically opt for command-and-control policy, in which they entirely deny free choice and markets while giving citizens only limited flexibility in accomplishing environmental goals. Preventing the construction of new power plants, setting a national air quality standard, imposing taxes and fines, or implementing a cap-and-trade system in which polluters are traded permission to pollute under certain amounts are all examples. While these harsh measures may work in theory, they need millions of businesses to adjust their behavior over the next few years, which frequently fails to reach environmental protection goals (Sunstein & Thaler, 2009). That is why it is believed that nudging works as an effective and inexpensive policy instrument altering the behavior of the target group. The current research on nudging in the environmental context is to a large extent concerned with individual consumer food choices. There is a trend in the current state of the art for investigating ways to nudge people into buying more fruits and healthier beverages, consuming less meat and choosing plant-based meat substitutes (Coucke et al., 2022; Perino & Schwirplies, 2022; Yi et al., 2022). To expand the scope of the state of the art, this thesis moves beyond individual consumers as the units subject to nudges.

1.3. Research problem

While there is plenty of literature available of nudging mechanism for pro-environmental behavior used for individual behavior change, for instance, dealing with littering issues or wasteful electricity use, the literature of green nudging used to target bigger entities, such as, countries is scarce (Maaløe Jespersen, 2014; Pichert & Katsikopoulos, 2008). While individual action is crucial in tackling the environmental crisis, in the short term it is not effective enough to meet the Paris Agreement goals. Considering that the industrial processes contribute to as much as 65% of the global greenhouse gas emissions, it is important to understand whether beyond developing policies and imposing bans, subtle political tactics, such as nudging, are used to tackle the climate crisis in the long run (IPCC, 2014). The scientific gap of this thesis lies in the absence of studies researching the use and application of nudging strategies in a broader context, targeting political entities yielding the appropriate degree of power to make an impact. This study aims to fill the research gap through content-analyzing the Paris Agreement on the meaning and significance of nudging mechanisms and to described how they have been constructed. This will be achieved by analyzing both how it is written and how it is framed in the Paris Agreement document. The scientific relevance of this study lies in, first, understanding in what ways are nudging as a tool used to steer the carbon emitters in the direction of reaching the Paris Agreement goals through specific use of language. Second, this thesis seeks to contextualize the potential of nudging mechanisms to alter the behavior of the carbon emitters. The societal relevance lies in the potential for the research to be used by policy makers to understand the possibilities for the use of nudges in different tiers of the government to guide the public to reaching the ambitious climate change targets. A content analysis of Paris Agreement is conducted to answer the research question *“In what ways are the parties of the Paris Agreement nudged towards behavior change for the reduction of carbon emissions?”*.

There are three main sub questions established that will contribute to answering the research question:

1. What are the typical nudging mechanisms in the Paris Agreement documents?
2. What indicates a behavior change of the stakeholders within Paris Agreement for the reduction of carbon emissions?
3. How is the choice architecture designed in the Paris Agreement documents?

Motivated by the gap in the literature that does not touch upon the source of the carbon emissions being impacted and subject to the pro-environmental nudging strategies, the research question was determined to address this uncertainty. To fill the research gap of how the emitters, which are the parties under the Paris Agreement are nudged towards altering their behavior but also through understanding what the nudging mechanisms are, how is their presence indicated and confirmed, as well as how the choice architecture is designed facilitating their existence and the fulfillment of their function. This is where the displayed sub-questions come into play not only revealing the sequence of the research and analysis leading to the answer to the main research question, but also laying the theoretical foundation. The point of interest of the research question is gaining the necessary knowledge to constructively assess the current utilization of nudges in the global climate change regulation context. This knowledge could further be used to improve and make the nudging practice more effective.

This thesis is organized in three main sections. First, the theoretical background is provided to provide further insight into the examined nudging mechanisms in general and green-nudging practices. Next, an in-depth description of the research method, qualitative content analysis is given along with the presentation of the coding scheme used to conduct the analysis. In the last section the results are displayed, and the key findings are explicitly stated with follow-up discussion interpreting the results and conclusion answering the research question is given. Furthermore, the practical implications and limitations of this research are highlighted.

1.4. Research Approach

Interpretive social science research approach aimed at comprehending the significance that the people being researched ascribe to their views, ideas, attitudes, activities, and social interactions with other people and institutions was selected for the purpose of this study (Gephart, 2004). In the context of this master thesis, the researcher interprets the text disclosed in the official documents issued by the United Nations in relation to the Paris Agreement. Qualitative content analysis was selected as the research tool providing guidelines for carefully systematizing the interpretation and analysis process. The researcher can observe social behavior without changing it by using content analysis. Instead of detailing a message set in depth, the approach enables a researcher to get to findings that may be applied to several different circumstances (Neuendorf, 2001). By applying content analysis, the researcher is able to monitor social behavior without altering it. The method enables a researcher to arrive at conclusions that may be applicable to a variety of situations rather than going into great detail about a message set (Babbie, 2004). To reduce the researcher bias and ensure that the analysis is systematic and comprehensive, a codification process, involving putting essential categories into coded data, is applied. A sample further is chosen and examined once the data has been transformed into main categories. Tables, charts and graphs are used by researchers to display their findings in content analysis investigations. The discussion of these findings provides the interpretation of the researcher, showing certain underlying trends and patterns.

2. THEORETICAL FRAMEWORK

The theoretical framework section of this Master thesis aims to not only lay the theoretical groundwork in accordance with R.H. Thaler and C.R. Sunstein's (2008) Nudge Strategy but also provide insight of the state of the art by revealing the background and related work of this thesis to answer the research question. First, to investigate the usage of nudging in Paris Agreement documents, a thorough understanding of the underlying subset of certain qualities and attributes is required. These include, choice architecture, liberal paternalism and the distinction between humans and economics. Since the book of Thaler and Sunstein resulted in an over a decade long ongoing behavioural social science debate and led to transformations in various governments to employ choice architects, an additional overview of the most significant scholars and their work is provided. Furthermore, the variety of nudging mechanisms for behaviour change is described in both relation to the climate change and other public policy domains, such as healthcare.

2.1. The origins of nudge theory

Nudging is based on years of studies in the areas of behavioral sciences particularly behavioral economics, which blends cognitive psychology, behavioral theory, and economics (Kosters and van der Heijden, 2015). The discipline of behavioral economics is characterized by the use of psychological insights into human behavior for the explanation of economic decision-making (Lourenço et al., 2016). Traditional economics, in contrast to behavioral economics, assumes that humans are rational and always pursue their own self-interests in order to maximize welfare (Bhargava and Loewenstein, 2015; Reiss, 2013). Nudging is based on the idea that when people make decisions, they are influenced by cognitive limits. Herbert Simon first proposed this argument, which he dubbed "bounded rationality" (Simon, 1957). Bounded rationality implies that human rationality in decision-making is restricted by the information available to us, cognitive obstacles, and time restrictions, rather than being flawless as stated by the classical economic model (Simon, 1982). This is further explained reflecting on the idea that humans are subject to using two systems of thinking.

2.1.1. *Two systems of thinking*

Since nudging is founded upon behavioral economics with micro - economic decision theory as a starting point, it is important to understand the two systems of human thought process, which helps choice architects develop the appropriate situations under which people make choices (Samson, 2017). All economic decisions were originally thought to be decided on a rational basis based on diverse economic values, according to economic theory. Behavioral economics, on the other hand, suggests that humans will not always behave rationally and that they could make weak economic decisions on a regular basis. The biases and heuristics program of Nobel Laureates Daniel Kahneman and Amos Tversky, which is based on dual-process theories of cognition and information processing, has a profound influence on behavioral economics (Kahneman & Tversky, 1979).

In his book *Thinking, Fast and Slow*, 2011, Kahneman proposes a dual-process theory, distinguishing between the automatic- fast and the non-automatic or reflective- slow systems of thinking. To simplify, the author describes them as System 1 and System 2. System 1 is quick and intuitive, requiring very little effort. To put it another way, it works invisibly, relying on rules of thumb and mental shortcuts. Emotions, prejudices, and previous experiences all have a strong influence on this system. When the brain gets to comprehend more sophisticated

data that requires focus and attention, system 2 is more reasonable and acts accordingly through detailed multi-criteria evaluations. Speaking your native language is a basic example of System 1, but speaking a foreign language is an example of System 2 (Kahneman, 2011).

These kinds of thinking are referred to by Thaler and Sunstein as automatic and reflective thinking, respectively. Because it is quick and instinctive, automatic thinking is rarely connected with thinking. Reflective thinking, on the other hand, is a slower and more intentional method of information processing. The following table 1 lists the most important characteristics:

Automatic thinking	Reflective thinking
Uncontrolled	Controlled
Effortless	Effortful
Associative	Deductive
Fast	Slow
Unconscious	Self-aware
Skilled	Rule following

Table 1: Automatic Thinking and Reflective Thinking (Thaler and Sunstein 2008)

The automatic system has a tendency to urge the reflective system and inform reflective thought, implying that they interact. Despite the fact that the reflecting system relies on automated signals to begin running, the opposite is not true (Hansen 2013). Human behavior can be modified, and we may learn how to change our ways of thinking, reacting, and acting. The current tools for developing the reflective system are reliant on the availability of data and our ability to evaluate it and make sensible decisions (Thaler and Sunstein, 2008). As a result, nudging could serve as a method for reducing behavioral biases and contribute to improved decisions. To clarify and gain a better understanding of this behavior altering tactic, the authors have constructed a comprehensive definition.

2.1.2. The definition of nudging

Nudge: Improving Decisions about Health, Wealth, and Happiness, by University of Chicago economist Richard H. Thaler and Harvard Law School Professor Cass R. Sunstein, was the first book to use the phrase in relation to behavioral change in 2008. The ultimate purpose of nudge theory, according to its creators, is to improve people's lives by assisting them in making better judgments that go beyond their limitations. Their book discusses how it might be used in a variety of disciplines, including social welfare, education, healthcare, labor efficiency, and environmental preservation. According to the definition, a nudge does not allow for the prohibition of choices or a significant change in economic incentives. As a result, it honors people's freedom and choice. The authors define nudging in the following way:

'...any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not.' – (Thaler & Sunstein, 2008, p. 16)

The definition implies that a nudge is not a mandatory instrument such as a legislation, prohibition, or financial measure (Thaler & Sunstein, 2008). In order to develop meaningful nudges, the relationship to the environment around people as well as their behavior patterns should be first comprehended. Several human qualities that influence human behavior are highlighted by Thaler and Sunstein (2008). People dislike losing and are hesitant to change; as a result, fear and laziness might prevent them from changing their behavior, even when it is in their best interests. To put it another way, the theory aims for institutions in the private sector and the government to make purposeful efforts to influence people's choices in ways that will better their lives. As a result, the ideology is portrayed as a libertarian version of paternalism (Thaler & Sunstein, 2008).

2.1.3. Libertarian paternalism

Libertarian paternalism is an underlying mechanism that helps develop a deeper understanding of what the idea behind nudging is. Libertarian paternalism was first introduced by Thaler and Sunstein in an essay five years before the publication of their book, in 2003 in the *American Economic Review*. According to the writers, there are never any truly original possibilities; they are always molded by others in the beginning. An approach that maintains freedom of choice while authorizing both private and public organizations to influence people in areas that will increase their welfare, according to the final definition. In other words, the libertarian part of the definition stems from the desire to design policies that either maintain or increase freedom of choice, on the other hand, the paternalistic part of the definition implies that it is acceptable to influence people's behavior in order to increase the quality of their lives, or, to make the choosers better off. Because people make poor decisions due to a lack of complete attention and other cognitive limitations, it is permissible for choice architects and legislators to create new and improved ways to influence people's behavior in order to assist them make better and healthier choices for themselves. The way these choices are presented, the venue and the setting, also known as choice architecture plays an important role in the nudging tactic (Thaler & Sunstein, 2003).

2.1.4. Choice architecture

A choice architect, according to Thaler and Sunstein (2008) in Nudge Theory, is someone who sets the circumstances in which individuals make decisions. Traditional architectural forms are used as a metaphor by the authors to demonstrate that there is nothing that would resemble as "neutral design." They demonstrate how, both with and without design, a certain presentation of food options during lunch affects what people consume. Therefore, a choice architect is someone who possesses the required knowledge to have an indirect influence on other people's decisions. Given the inevitability of Choice Architecture, the authors argue that the cardinal rule of nudging is to provide nudges that are the most positioned to gain and significantly less likely to damage. To create a Choice Architecture that can aid people in improving their ability to plan and pick optimally, choice architects must first comprehend how humans behave and make decisions. The capacity of the Nudgers to make solid judgments about what might be beneficial for the Nudgees also affects the likelihood for helpful nudging. Nudgers will be able to make the right guesses once they have access to considerably more knowledge (Thaler and Sunstein 2008). This theory faced the same wave of skepticism and debates from scholars in the field as most new ideas do, criticizing its vagueness, liberty, and even morality. On the upside, the concept was endorsed by a different set of academics, which naturally generated a discussion known as the "nudge debate."

2.2. The nudge debate

“Nudge - Improving Decisions About Health, Wealth, and Happiness” by Thaler and Sunstein (2008) popularized the domain of behavioral economics. While some admired the new policy instrument, implemented it in their decision-making strategies, and even dedicated a whole “Nudge Unit” to establish strong roots of nudging mechanisms in the years following the publication of the book, others were indifferent about the concept (Bristol, 2021). This resulted in a heated debate between the various scholars who contributed to the research domain by conducting studies through their viewpoints. The discussion was covered by various sources, including the media (The Economist, 2017). The critics acknowledged the flaws and limitations of using nudging as a tool for policymaking, which were contradicted by a lack of strictness, a significant degree of ambiguity, and even a misapplication of the paternalism principle. Thaler and Sunstein created a second book addressing these topics after being influenced by the wave of criticism and disapproval made by other researchers. This book was well-received by both advocates and detractors.

2.2.1. Criticism of nudging as a policy tool

Schlag, 2010, states that the comparison of politics to a cafeteria used by Thaler and Sunstein has left contradictory thoughts. The author acknowledges the idea of nudging to be smart but shallow, lacking the redemption and critique such as the theory on governmentality by Foucault. Schlag proceeds to criticize the necessity of the liberty aspect by suggesting that personal freedom of choice is not the prime purpose of moving people in the right direction, the goal of, for instance, reduction of emissions in the atmosphere should remain, irrespective of its effect on individual freedom of choice. In other words, the government should always prioritize solving a public problem even if that involves using strict policy measures such as laws (Schlag, 2010).

Selinger and Whyte (2011) point out the high degree of ambiguity of the nudging theory, saying that although nudges are expected to be proposed by anyone starting from policy professionals to teachers, there is not a clear method, technique, or formula for creating and implementing successful nudges provided by Thaler and Sunstein. Instead, they merely state that in order to conceive of a plausible nudge, one must first understand whatever biases people are prone to in a specific setting, as well as how that bias would influence decision-making. Altogether they believe that nudge theory has the capacity to be a helpful tool in policy making once it can address the expressed concerns and establish a reliable method used by choice architects (Selinger & Whyte, 2011).

Hausman and Welch (2010) argued that in many circumstances, libertarian paternalistic nudges are more like cases of reasoned persuasion than paternalism. Their libertarian credentials are questioned when they are paternalistic and "shape" choices, even if they do not cut off alternatives or make them much more expensive. Those nudges that Thaler and Sunstein examine that are truly paternalistic seem to the authors to be unobjectionable in most situations, and not just because they don't modify the decision set. Using non-rational elements to affect human decision-making in a systematic way, whether by the government or other agents, endangers liberty in its broadest sense, despite the fact that some nudges are acceptable. Nevertheless, the threat can be limited by public awareness, competition, and human capacities (Hausman & Welch, 2010).

Goodwin (2012) is in favor of abandoning the nudging approach as such. He argues that nudge is fundamentally disturbing because the concept of liberty on which it is based prevents it from being empowering in any meaningful sense and makes it intrinsically unfair. On the other hand, regarding the paternalistic feature of nudge, he states that while it is difficult to establish that it is a kind of coercion, the fact that it aims to exploit flaws in human judgment suggests a form of extreme manipulation. Furthermore, the author suggests that nudge is ineffective at changing deeply rooted behaviors and, as a result, will struggle to achieve the magnitude of behavioral change required to address society's biggest maladies (Goodwin, 2012).

Following up on those critics that oppose all forms of paternalism, Sunstein published “Why nudge: The politics of libertarian paternalism” in 2014 to defend his position of the necessity of the paternalism aspect in nudge theory. The author demonstrates that "choice architecture"—government-imposed systems that influence human choices—is unavoidable, and hence that paternalism cannot be avoided. He argues that there are compelling moral reasons to ensure that choice architecture is beneficial rather than detrimental, and that it improves and extends people's lives. Mixing legal theory and behavioral economics, Sunstein creates a new argument about government's permissible reach, with implications for obesity, smoking, distracted driving, health care, food safety, and other high-profile public issues (Sunstein, 2014).

2.2.2. Support for the idea of nudging

The second book of this topic by Sunstein brought the nudging mechanism back into light and once again raised some questions by multiple authors. One camp of scholars believed that in many circumstances, nudges work in tandem with other instruments, making it easier for people to take advantage of already-existing beneficial programs and subsidies. Policymakers, according to the authors, should nudge more (Benartzi et al., 2017). Mont et al., (2014) highlights that rather than being viewed as a panacea, nudge's greatest promise may be in assisting in the better design of other projects, as well as enhancing the effectiveness and efficiency of policy tools and the speed with which they are implemented. Since the behaviors are based on instinctive, intuitive, and non-deliberative thinking, nudge is a cost-effective strategy that complements other policy tools and targets behaviors that are not fully addressed by other policy instruments. In addition, the authors describe green nudges as being particularly intriguing tools that can be used in conjunction with other instruments to modify behavior (Mont et al., 2014).

Gigerenzer (2015) has concluded that nudging people should be done alongside education to prevent a counterproductive outcome of abusing the use of nudging by political parties for selfish purposes, that would result in the wrong choices. The author provides an example of the tobacco industry nudging people in the opposite the direction, namely, encouraging people to consume more of their products. While libertarian paternalists believe that there is no alternative to their philosophy, people will be infantilized if they are nudged without being educated (Gigerenzer, 2015).

Bekkers et al., (2015) claimed that nudging can be viewed as the addition of a new set of mechanisms to the current instruments of governments, such as legislation. Nudging has the virtue of attempting to account for the behavioral components of policy challenges, resulting in actual and measurable nudge impacts. While they have the potential to be a successful governance strategy, nudging is still reliant on the employment of other, more traditional policy instruments like regulation (Bekkers et al., 2015). Conversely, some nudge scholars and practitioners investigated the use of economic reward and regard them as a monetary type of

nudges (Bell et al. 2016; Paloyo et al., 2015). While the second book was successful in obtaining more supporters, there was a growing belief that the notion was no longer fully represented by using the original definition. Researchers thought that the definition should be modified in conjunction with the concept's elucidation.

2.2.3. *Improvement of the definition*

Another group of researchers criticized the original definition for being too broad and vague, as well as lacking clarity on how and where to operationalize nudges (Monet et al., 2014; Vlaev et al., 2016). As a result, Kusters and Van der Heijden (2015) expanded it from their viewpoint by distinguishing two different types of nudging. First, it can be a governance intervention aimed at assisting individuals in making decisions that are in their best interests (e.g., saving more for retirement, selecting the best insurance plan) - referred to as 'type 1 nudges'. Second, it can be a governance intervention – referred to as 'type 2 nudges' – that aims to direct people's behavior toward a desirable group purpose (e.g., lowering crime, encouraging ecologically friendly activities). Despite having overlaps between the two types of nudges (e.g. individual gains like quitting smoking may cut future government outlays on interventions like healthcare costs), the two approaches are attempting to accomplish very different objectives (Kusters & Van der Heijden, 2015). Pelle Guldborg Hansen (2016) provided a notable contribution by developing an alternate definition to give the term a more precise definition.

“A nudge is a function of (condition I) any attempt at influencing people’s judgment, choice or behavior in a predictable way (condition a) that is motivated because of cognitive boundaries, biases, routines, and habits in individual and social decision-making posing barriers for people to perform rationally in their own self-declared interests, and which (condition b) works by making use of those boundaries, biases, routines, and habits as integral parts of such attempts.” (Hansen, 2016).

The amended definition further clarifies that nudges do not have to be utilized in the service of libertarian paternalism, but they do provide a vital tactic to any libertarian paternalist when deployed in accordance with individuals' expressed preferences. (Hansen, 2016). During a more recent study, Biccheri & Dimant (2019) have contributed to the research of behavioral economics by defining a concept of norm-nudging, which is a nudge whose mechanism of action is based on evoking social expectations with the goal of initiating desired behavior, assuming that individual preferences for completing the targeted activity are conditional on social expectations. In other words, norm-nudging can reveal what the majority of people in a similar scenario do, or what they approve or disapprove of. The authors give an example of reckless driving and examine how an individual's behavior of bad driving can be influenced by knowing the expectations of the society disapproving reckless driving (normative expectation) (Biccheri & Dimant, 2019).

Contemporary there is no debate about the necessity of nudging. It is widely used by the governments across the globe and has a great impact in the policy-making processes experienced today. More than a decade after the publication of the book, Cass Sunstein, the founding father of nudge theory has used the theory to examine whether people in different countries trust and approve of the nudges created by policymakers. Ultimately the study resulted in a simple lesson for the regulators that earning trust is the greatest method to gain it. In other words, it is critical to design mechanisms that ensure that behaviorally informed policies are enacted transparently, with adequate opportunity for public input, and with openness to citizens' objections and concerns, in addition to making them successful and cost-

effective (Sunstein et al., 2019). As most tradition policy tools, nudging can be applied to a wide range of policy areas, so long as there is room for the behavior change is not urgent and mandatory. The relationship between the theory as such and the research issue of this thesis can be advanced after a detailed explanation of the theory's historical context, the debates and discussions surrounding it, as well as the better conclusion. To do so nudging in the environmental context is introduced and described in the following section.

2.3. Green nudging for behavior change

Following the example of the Nudge unit by the British Behavioral Insight team in the United Kingdom, nudging has become as a standard technique for governments across the globe, The Netherlands, Germany, France, Denmark, and Finland are among those who have significantly improved their behavioral politics capabilities (Lourenço et al., 2016). While nudging techniques are used as tools in different policy domains, such as healthcare, economic and regional policy, education, the Paris Agreement is embedded in the climate policy context placing it at the center of this thesis (Neergaard et al., 2020; Vilhelmsson et al., 2021; White, 2017). The climate policy area demands for an introduction of a subcategory of the nudge theory, called *green nudging*. According to Schubert, 2017, green nudges are aimed towards encouraging environmentally friendly behavior. In many nations, green nudges are becoming a more prominent aspect of the discussion over environmental policy (Schubert, 2017). As reported in the literature this pro-environmental behavior change is predominantly executed using either one or a combination of the four nudging tools, (a) provision of information; (b) changes to the physical environment; (c) changes to the default option; (d) use of social norms (Lehner et al., 2016). It is important to note that while these nudging instruments are applied to the environmental context in this thesis, they are no way exclusive to the climate change area. The high degree of autonomy for the choice architects implies that they can be utilized and applied to a variety of contexts, starting from a different policy domain to a variety of approaches in economics and so on.

2.3.1. Provision of information

The provision of information is the most predominant type of nudge, it is based on the idea that not just quantity or accessibility of data offered to people, but also how that information is displayed, matters (Nielsen et al., 2017). There are three main ways how the provision of information can be used as an effective nudging tool. First, simplification refers to making information plainer and presenting it in a way that is tailored to the individual's information processing capacities and decision-making processes. It is particularly useful in the context of complex products or services, such as financial or investment decisions. A great example of simplifying the display of the information is provided by Lynham et al., 2016, the authors prove that real-time information displayed on in-house monitors reduces average household electricity use by up to 11%, depending on the time of day (Lynham et al., 2016). Next, the way a problem is framed is also crucial. Framing is the deliberate framing of information in such a manner that it activates specific values and attitudes in people (Lehner et al., 2016). An experiment was done to see if examiners could be trained to apply social-psychological principles to improve the home energy audit program. These auditors were taught to make their suggestions to homes more personal by phrasing them in terms of the loss but instead of gain. The effectiveness of the trained auditors was compared to the success of a control group of experienced consultants who did not undergo the specialized training. The findings show that the way a remark is phrased has the potential to influence the perceiver's behavior. (Gonzalez et al., 1988) Feedback is another approach to simplify and frame information. Feedback on

how one is progressing toward one's retirement savings objectives, for example, might assist people in staying on track with their plans (Thaler and Sunstein, 2008). The Roskilde University highlights the importance of feedback. Encountering an energy expense problem and lacking the financial resources to fix it, both a professor and his student set up a pilot experiment to encourage pupils to turn off the lights when they leave the room. The trial included a descriptive norm: "More than 85% of the University students remember to turn off the lights." "Do you think so?" A sticker symbolizing a thumb turning off a light switch was placed next to it. Buildings using this intervention exhibited a 26.4 percent reduction in the number of lights turned on when compared to the control groups (Maaløe Jespersen, 2014). At the time when individuals are constantly subject to receiving and retrieving information, and it is perceived as one of the most valuable assets, designing the choice architecture is a rather subtle nudging strategy. It does not require radical alterations to the setting and venue, as for example, changing the physical environment involve.

2.3.2. Changes to the physical environment

The physical environment has long been recognized as having a substantial impact on people's decisions, which serves as an explanation for why the placement of the products in a grocery store is not random but rather a carefully calculated move from the behavioral economists. An example is the placement of the most sold products at the eye level, bread located at the other end of the store, making people browse and shop on their way there, small high demand products located next to the cash register to name a few (Lehner et al., 2016). In other words, changing the physical environment around an individual can prompt them into making the desired pro-environmental choice. A noteworthy example of nudging through adjusting the environment was done by a group of Danish university students in 2011. They conducted a study to encourage people to dump trash into bins rather than on the street. Wrapped caramels were handed out to passers-by and the number of empty wrappers on the roadway, in garbage cans, on side streets, and in bicycle baskets was then counted. Later, they placed green footprints leading up to the bins (see figure 7), distributed caramels, and performed the counting activity. As a result, there was a staggering 46 percent reduction in the number of wrappers that ended up on the streets (Maaløe Jespersen, 2012). At 2012, another relevant trial was carried out in Norwegian hotels. The size of the plate was reduced from 24 to 21 cm. When compared to the control group, reducing plate size reduced food waste by 19.5 percent. According to the findings, reducing the plate size by 1 cm can result in a 2.5 kilogram reduction in food waste, or a 7.4 percent reduction in food waste (Kallbekken et al., 2012). While it is unlikely that the individuals will not notice the changes to the physical environment, this tactic can only work under the assumption that the reasoning behind altering the setting is not known by them. The construction of a choice architecture for this nudging tool is more complex, involves a higher degree of planning and while it has a higher success rate in behavior change than the provision of information, it is also associated with a higher risk. Noticing the differences in the environment, individuals might ask questions regarding these changes potentially avoiding the nudge effect. On the other hand, when the changes are made to the default option, people are much less likely to question it.

2.3.3. Changes to the default option

Rooted in the human heuristics discussed in the previous parts of this theoretical section, people tend to stay with the selected status quo or default (Thaler and Sunstein, 2008). Default options can be explained as the situation when an individual does not act in any way. Due to the fact that most individuals are passive and do not change their default settings, altering the option

that represents the default to a more ecologically friendly one can be a strong nudging tool (Nielsen et al., 2017). Pichert & Katsikopoulos (2008) prove this by conducting an experiment in which the electricity default option for 2,500 residents of Schönau, Germany was changed from "grey default" to "green default." Nearly every customer remained with the green default eight years after the power market in Schönau opened (Pichert & Katsikopoulos, 2008). Another study looked at whether participants would prefer a low-cost, inefficient incandescent light bulb or a high-cost, efficient compact fluorescent light bulb (CFL). The researchers discovered that default searches can result in disparities in constructed preferences, and that modifying queries can also attenuate default effects. When working on larger projects, having contractors propose a greener option as the default may result in significant cost savings (Dinner et al., 2011). Brown found that pre-programmed thermostats with lower-than-normal temperature settings and lower temperatures during the night can improve a building's energy efficiency (Brown, 2012). Böhm et al., 2020, note that the use of default nudges can have a significant impact such as increasing long-term individual climate change contributions by almost 50%. While all of these previously discussed nudging tools depend solely on the alterations made by choice architects themselves, the use of social norms demands the involvement from the individuals themselves. Data and information from the individuals is crucial to create a transparent environment and present the opportunity for the nudges to reflect on each other's actions.

2.3.4. Use of social norms

People are social beings that utilize social cues to choose how to act, implying that social norms have an impact on human conduct (Lehner et al., 2015). Comparing an individual's behavior that of another, particularly someone in that individual's social network, can result in them aspiring to be as their peer and hence altering their behavior, which serves as a powerful nudging tool (Croson & Treich, 2014). Social influence can aid pro environmental decisions (Byerly et al., 2018). An example is the research by Ayres et al., 2012. Approximately 159,000 families got monthly peer evaluation reports comparing their household electricity and natural gas consumption to their own historical usage as well as the usage of similar-sized households nearby. Households with higher pre-treatment use made more cuts, it proved out. Whereas, households that used less pre-treatment consumed more energy (Ayres et al., 2012). In a similar experiment Dolan and Metcalfe (2013) looked at how descriptive norms affected gas usage with and without knowledge on energy-saving behavior. The study used 569 households that were divided into three groups at random. The first received a standard energy statement, the second received additional information regarding the average consumption of like sized homes in the neighborhood, and the third received further information illustrating how to change energy use. According to the researchers, social norms reduce consumption by about 6% (Dolan & Metcalfe, 2013). On the other hand, Robinson and Botzen, 2021, suggest that the effectiveness of a descriptive norm message, informing homeowners that the majority of their neighbors have purchased flood insurance, is dependent on people's trust in insurance agents and prior beliefs, and that it increases insurance demand among those who have high trust in agents but low confidence in public flood defenses (Robinson & Botzen, 2021). This implies that while following the peer activity and considering social norms is an important pillar of green nudging, it could be hindered by ethical issues such as lack of trust.

2.3.5. The interlinkage of the concepts

This thesis's theory chapter includes several interconnected elements, all of which call for more explication. Hence, figure 1 helps visualizing and systematically representing how the concepts

discussed in the theory section are interlinked. Individuals are known to use two systems of thinking, the automatic and the reflective. Due to the cognitive limitations of human brain, including bounded rationality, it is not possible to always use the reflective, also known as careful and considerate system of thinking. Nor is it possible to control which system of thinking is applied at a given situation. This implies that we are naturally subject to nudging: a theory that maintains freedom of choice while authorizing influence on people through designing the environment in such a way that impacts the individual choices for behavior change. There are many different nudging mechanisms and strategies that are applied in a variety of policy domains, however, focusing on the climate change sector that this thesis is rooted in, four green nudging tools are identified and described. The green nudging tools are: provision of information; changes to the physical environment, changes to the default option, and the use of social norms. As described in the previous sub-sections, it is possible to apply these four nudging strategies across various policy areas. However, the nature of this thesis intertwines them in the environmental context.

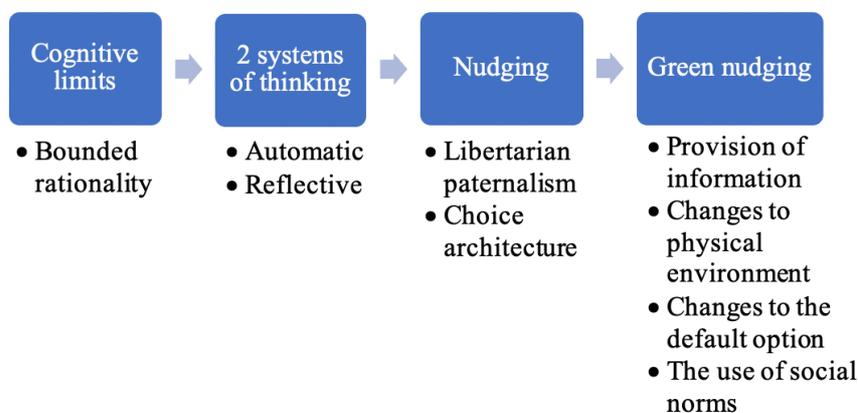


Figure 1. The link between the nudging concepts

2.4. Concluding remarks

This chapter has provided an in-depth description of the development of the nudge theory starting with the origins of nudging rooted in the “Nudge: Improving Decisions About Health, Wealth, and Happiness” book by Thaler and Sunstein in 2008 and the core underlying concepts, including, libertarian paternalism, choice architecture and the two systems of human thought process sketched out by Kahneman and Tversky in 2011. The new policy instrument sparked a heated debate at the time dividing the scholars into two groups, one that had immediately recognized the benefits of the mechanism, such as low cost, and implemented it in the governing processes, and the other group of scholars that criticized the high degree of ambiguity and lack of redemption (Lourenço et al., 2016; Selinger & Whyte, 2011; Schlag, 2010). The debate was put to bed around six years later in 2014, when Sunstein published a follow up book “Why Nudge? The Politics of Libertarian Paternalism” to solidify their arguments against the lack of liberty aspect in the nudge theory. Nowadays, the necessity and benefits from using nudging as a policy tool on its own or together with other policy instruments is widely recognized across the globe, which is the main reason for why the founding fathers are still actively engaging in research about the use of nudges (Sunstein et al., 2019). Furthermore, the chapter focuses on applying the most successful nudging strategies as reported in the literature to the environmental policy context by not only outlining the characteristics of green nudging but also presenting a variety of examples of experiments

initiating pro-environment behavior change. These examples include the application of the four following tools of green nudging, provision of information; changes to the physical environment; changes to default option and the use of social norms (Lehner et al., 2016). What this chapter seeks to emphasize is the reasoning behind the success of nudges. As explained by the principles of bounded rationality, individuals are impacted by heuristics and a variety of cognitive blocks which makes us subject to nudges. In other words, the choice architects are using this knowledge through designing the environment in such a way that makes individuals prone to altering the behavior based on our cognitive limits.

3. METHODS

This third chapter aims to clarify and to justify the methods used for answering the research question of this thesis. The emphasis is put on explaining the steps of this qualitative content analysis in a manner that allows a neutral third party or another researcher to retrace the steps. The section also focuses on describing the level of detail that is required for an unobtrusive research method as well as the reduction of biases. It is outlined in the following way. First, an explanation of the overall research design is given and its linkage to the nudging for climate change, precisely, carbon emission reduction is provided. Subsequently, the cases examined in this study is described and the choice to focus on the nudging for pro-environmental behavior in the Paris Agreement related documents is discussed. The chapter continues by explaining the selection of policy documents and summarizing the respective data collection. Finally, it illustrates how the selected data is analyzed with the help of the theory-driven coding scheme. The chapter concludes by summing up the research activities undertaken.

3.1. Research design

The analysis of this thesis is conducted with the use of a qualitative content analysis research design. Fraenkel and Wallen (2006) define content analysis as a method used by academics to implicitly examine human behaviors through examination of their communications. This research aims at revealing the ways in which nudging for carbon emission reduction among the involved parties is reflected in the content of Paris Agreement related policy documents. For that purpose, a qualitative content analysis is conducted. This study is informed by that idea since it investigates how to derive conclusions from messages by consistently and impartially identifying particular traits (Holsti, 1969). Setting the study problem (1), retrieving the contents (2), and analyzing the data using various processes such as sampling and inference (3) are the three steps of content analysis (Alves & Lee, 2022). The first step has been described in the introduction chapter of this thesis, thereof, this chapter deals with providing insight in the second step of the content analysis.

There are multiple reasons for selecting a qualitative approach for this study. First, as discussed in the theory section above, nudging as a policy instrument exists due to the cognitive biases of the human brain, which makes the concept too complex and abstract for successful operationalization in one or more measurable variables. Next, the explorative nature of the research question, seeking to find answers of the ways in which the involved actors are nudged towards a behavior change is more suitable for a qualitative study. Furthermore, the aim to understand and investigate the application of the concept of nudging as a policy tool in specific documents suggests that the enumeration and conversion into statistics as objectives of quantitative research are not suitable.

3.2. Case description

Various threatening effects of global warming, such as, infectious diseases, heat stress and rising sea levels, have resulted in climate change rising to the top of the global political agenda (Hughes, 2000). The Paris Agreement is the only legally binding international treaty on climate change, combining the countries that are the main reason for the climate change as seen today with those who are most affected by the consequence, which is what makes it a particularly interesting case for this research (United Nations, n.d.). It offers a unique opportunity to analyze and investigate the ways in which the 192 parties that have signed the agreement,

including the world's largest carbon emitters (e.g. China, the United States, India) are nudged to alter their behavior and combat climate change, which is why the Paris Agreement related documents were selected for this research (Liebel, 2021).

By that, it allows to expand the scope of a national research and gain insight into how nudging techniques are used as policy instruments on a global network of stakeholders.

The Paris Agreement document itself contains information regarding the expected climate change goals, the obligations from the parties under it as well as the financial obligations. The legal nature of the agreement did not match the interpretive nature of the research question and approach that this thesis is rooted in. However, the way it is constructed, allowed to analyze the United Nations documents that are subject to the Paris Agreement. It is based a 5-year cycle, involving the countries to develop and share their nationally determined contributions in a transparent matter via meetings. In addition, to monitor the progress, both short and long-term strategies reaching the targets are discussed in annual climate change conference's (COP). These factors meant that the documents under this agreement, such as, nationally determined contributions, long-term goals, common time frames, annual climate change conference reports among others were selected as the content for this qualitative content analysis. These texts include in-depth descriptions of actions taken by both the parties and the process coordinators, e.g. the United Nations secretariat. In sum, the chosen documents allowed the researcher to investigate them for the respective green-nudging mechanisms.

A single phrase, paragraph, or image as well as data from social media, books, journals, and websites might all be included in a qualitative content analysis (Drisko & Maschi, 2016). The stakeholders produce the content under the goals of the Paris Agreement by producing articles, press releases, reports, comments, and other documents. In that sense, the content comprises of texts exclusively retrievable online. The selected case was chosen according to their accessibility to the public on the United Nations official document system website. The aim was to gain as comprehensive data as possible to represent a variety of perspectives, which is why the method of case selection is purposeful sampling. The documents were excluded based on their title. Only the documents that were accessible in the selected time frame of the 5.5 years and that included "Paris Agreement" in their title were involved in the analysis.

3.3. Data collection

The collection of qualitative written textual data constitutes one part of the content analysis. It is proceeded by first collecting relevant official data concerning the climate change requirements for the parties of the Paris Agreement, these were all provided by the United Nations Official Document System. These documents are used by the parties that have signed the unilateral agreement of climate change; therefore, they yield valuable information to examine the exact ways in which the global response is constructed to for the use of nudging as a policy tool to alter the behavior of carbon emitters as a way of climate change combating tool. Analyzing these documents will contribute to an in depth understanding of rhetoric regarding the pro-environmental choice architecture techniques.

The key criterion for a document's selection is to mention the Paris Agreement in the keywords and to represent a variety of member states and stakeholders. Creating a greater diversity in the data by including a wide range of member states is useful, since the theoretical assumption that the parties are nudged towards a carbon emission reduction underlies. If this is the true in terms

of content, it is reasonable to suppose that stakeholder and member state narratives will appear in a variety of outlets.

The official UNFCCC documents included in this analysis resulted from a careful process of selection. The following selection criteria was applied: the publication dates of the documents were chosen from the dates of 01/01/2017 - 05/05/2022. The reasoning behind this selection was to choose documents that have been published within the last five years to get as comprehensive approach as possible without exceeding the analysis limitations of a master thesis.

The final data collection consists of 140 documents, that have a total scope of 1547 pages. All documents have been published between 01/01/2017 and 05/05/2022.

The types of documents, among others, mostly involve:

- Ad Hoc working group reports,
- Conference reports,
- Workshop reports,
- Draft conclusions,
- Guidance on rules, modalities and procedures,
- Progress reports,
- Discussion reports,
- Modalities,
- Synthesis reports.

Depending on the type of the document, with certain exceptions, they are constructed by actors such as:

- Ad Hoc working group on the Paris Agreement,
- Conference of the Parties,
- The United Nations secretariat,
- Subsidiary Board for implementation,
- Subsidiary Board for scientific and technological advice.

The reports contain information about the discussions and data presented within the sessions held by the respective actors, in various disclosed locations. The time frame of these sessions that are reported can range anywhere from 3-11 days.

Figure 1 presents the distribution of the pages throughout the years of the published documents. The sample contained a total number of 1547 pages of which 460 (30%) are from the year 2017, 379 (25%) from 2018, 216 (14%) from 2019, 69 (5%) from 2020, 400 (26%) from 2021, and 23 (2%) from 2022. It's plausible to believe that the number for 2022 is low since the study was done four months after the start of the year, which may not have given the UN database enough time to publish the essential documents. The low number of pages for the year 2020 is believed to be associated with the outbreak of the COVID-19 pandemic which affected the conferences of the parties hindering the progress on the climate change agreement.

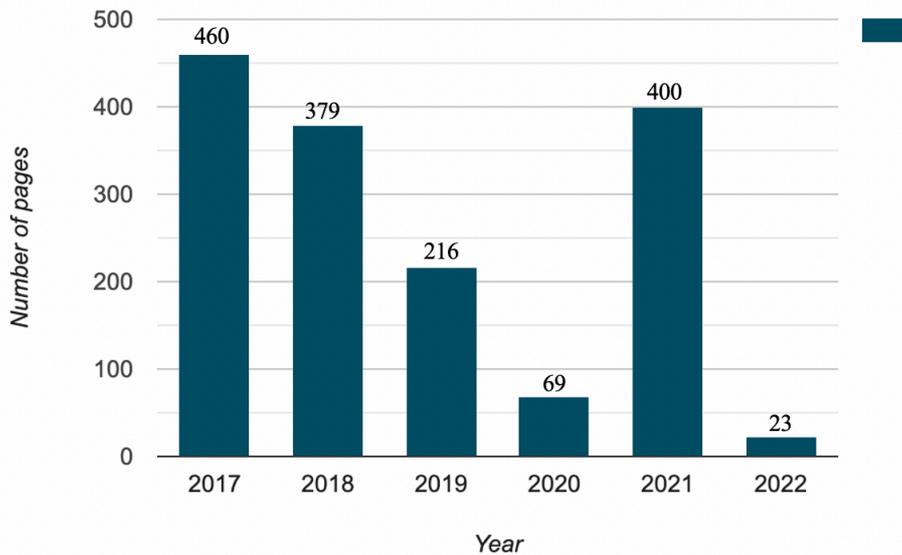


Figure 2. Distribution of the pages of the analyzed documents across years

3.4. Data analysis

Content analysis will be used as the research technique to work with the gathered data and answer the research question of this thesis. Although content analysis has been around for about 90 years, it only became widely used as a social science research tool in the 1950s after Berelson wrote a book on it. Political scientists and historians eventually adopted the study method (Prasad, 2008). Content analysis, often known as the scientific study of communication, is a non-intrusive or non-reactive form of social research. In other words, it is the examination of the meanings, circumstances, and purposes of the communication content (Prasad, 2008). However, a careful examination of the definitions used by other researchers demonstrates that a strong emphasis is placed on the systematic and objective method of measuring variables (Berelson, 1952; Holsti, 1968; Kerlinger, 1986). Therefore, content analysis is the process of employing predetermined criteria to draw accurate, repeatable, and unbiased judgments about the message. A broad variety of items, such as letters, diaries, newspaper articles, short tales, radio and television messages, papers, texts, or any symbols, might include these messages (Prasad, 2008). The content analysis is considered as an appropriate research technique for this thesis due to multiple reasons. Most importantly, because it involves the main concept of the research question behavior change for carbon emission reduction or, in other words, green nudging. The political nature of the concept combined with nudging being a modern policy tool that can only work if the application of it is not known, suggests not only the necessity to analyze the text of policy documents but also to interpret the messages and investigate whether nudging can be detected. In addition, the method allows for a thorough review and analysis of the evaluation studies.

To perform the qualitative content analysis for this thesis, the data is first collected from the United Nations official documents. To ensure a better oversight, these documents were sorted

in an ascending manner based on the publication year. Next to that, considering the theoretical framework of nudging by Thaler and Sunstein, as well as the application of nudging tools to the environmental context a part of the coding scheme was developed. The other part of this coding scheme stemmed from a deductive approach after thoroughly reading a part of the documents. This scheme consists of the main categories that are based on the theoretical framework of green nudging; sub-categories that correlate to the nudging tools, as well as the matching keywords that are expected to be found throughout the analysis. The software program Atlas.ti is applied to find the keywords and their respective citations throughout the documents. Later, these citations are analyzed and filtered out based on their relevance to the research question. After the filtering, the frequency of the remaining identified keywords and the citations they are found in is reported and the researcher interpretation in the context of green nudging is made.

3.5. Coding scheme

The systematic nature of this research method suggests that the data analysis is carried out in a sequential manner. First, the content for analysis is selected, as indicated before, Paris Agreement policy documents are selected as the sources for the content analysis. The second step concerns describing the level at which the documents will be analyzed. It is done through a coding scheme. The operations by which data are broken down, conceived, and reassembled in new ways are referred to as coding, which is an essential procedure for working with text and its interpretation. There are three types of coding commonly distinguished in the literature, involving, axial coding, selective coding and open coding. The method of open coding will be used for the purposes of this thesis. It thus indicates that, first, the data is separated into several units of meaning. These units are then coded by a set of categories which are further broken down into specific keywords that are searched throughout the documents. The following coding scheme was developed for this paper.

Considering the environmental policy domain this thesis is embedded in, a decision to use the green nudging theory to investigate the nudging strategies made to the parties that have signed the Paris Agreement was made. Meaning that the underlying concepts of green nudging are chosen as the set of categories for this content analysis. Using the choice architecture intervention technique taxonomy by Münscher, et al., 2016, and combining it with the concepts of green nudging, the operationalization process starts with breaking down the concept of choice architecture into two groups, decision information and decision structure.

CATEGORY	SUB-CATEGORY	KEYWORDS
Use of social norms	Reflective	Many Parties
		Some Parties
		Almost all Parties
		Several Parties
		Most Parties
		A few Parties
		A number of Parties
		More Parties
		Other Parties
	Share of Parties	
	Analytical	Figure

		Table
		Statistics
		Indicators
		Sectors
	Descriptive	Sharing experience
		Sharing examples
Lessons learned		
Changes to default	Actors	Bodies
		Stakeholders
		Organizations
		Networks
		Institutions
		Governments
		Universities
		Youth
	Regulations	Laws
		Legislation
		Policy
		Rules
		Procedure
		Programs
	Technology	Transport
		Vehicles
		Smart
		Renewable
Energy		
Fuel		
Power		
Changes to physical environment	Land	Agriculture
		Forests
		Soil
		Farming
	Water	Marine
		Hydropower
		Water
	Built environment	Houses
		Buildings
		Schools
		Round-table
		Urban
Charging stations		
Provision of information	Stakeholder interaction	Workshop
		Meeting
		Symposium

		Conference
		Webinar
		Summit
		Deliberations
	Data presented	Emission levels
		Comparison
		Historical levels
		Report
	Internet	Website
		Social media
		Facebook
		Portal
		Online
Virtual platform		

Table 2. Coding scheme

The coding scheme is divided into 4 categories that each correspond to a pro-environmental nudging tool as reported in the theory section of the thesis. These categories are use of social norms, changes to default, changes to physical environment and provision of information. These categories were too broad to assign keywords to, hence, the sub-categories were selected, each category has a corresponding set of 3 sub-categories.

Use of social norms

The use of the social norms category was divided into three subcategories based on the anticipated reaction that the approach the information is provided in calls for, whether it makes the Parties reflect on other Party behavior, requires them to analyze data, or necessitates them to describe a situation and make this information publicly available. Based on a deductive approach, 10 keywords all indicating the share of the Parties were selected for the reflective sub-category. Followed by 5 keywords in the analytical sub-category that were selected to expand the findings from the reflective category into data that is visually presented in forms of figures, tables, and statistics. Further the descriptive sub-category consists of sets of three keywords that were selected to find how frequently the Parties are invited to share the knowledge and learn from each other.

Changes to default

The changes to default category was divided into three sub-categories based on what the default changes could be report in the documents, either the changes are made to the involved stakeholders or actors, or new regulations are introduced that must be followed by the Parties, or there are changes to the default technology that is used. The actor sub-category consisted of 8 keywords that were sought throughout the documents, most of these words were selected as synonyms to the word “actors” considering that the politically appropriate language in the documents might require the use of more specific keywords than just actors, such as, governments, youth, organizations, and others. The regulations sub-category involved a set of 6 selected keywords that were selected to identify as broad range of different types of

regulations as possible, including, laws, policies, but also rules, procedures, and programs that the Parties might need to establish or adopt their nationally determined contributions to. Last, the technology sub-category consisted of 7 keywords that were selected again based on a deductive approach with the notion that transportation and switching to electric vehicles is the key sector for bringing in technological innovations and changing the default within the Parties.

Changes to physical environment

The third analyzed category, changes to physical environment, again consisted of three sub-categories that were selected based on the part of the physical environment that could be altered, whether these are changes made to the land, the water, or the built environment. The land sub-category involved 4 keywords that were selected to represent changes made to the land, these included, farming, agriculture, forests, and soil. Next, the water sub-category consisted of as little as three respective keywords that were selected to find specific alterations made to the environment that is related to water, such as, marine or hydropower. Furthermore, the built environment category involved 6 keywords that were mostly related to buildings such as houses and schools. Based on the deductive coding approach, after reading the documents, a round-table was added to the keywords followed by the expectation that it might be a relevant addition to the nudging tool of changing the physical environment.

Provision of information

The last category of this coding scheme involved the remaining three sub-categories with their respective keywords. These sub-categories were selected based on the medium where the information is provided to the Parties, it could be via different settings of stakeholder interaction; the internet or simply the expert data that is provided in the documents themselves. The first sub-category, stakeholder interaction, consisted of 8 different keywords that all referred to the setting in which the actors interact, to wide range of keywords were selected to find as much information about these venues as possible. When it comes to the data presented, the 4 selected keywords referred to the specific data and information that is likely to be disclosed in the documents, for instance, the current emission levels, the promised emission levels, and their comparison with those decades or even hundred years ago. The internet sub-category included 6 keywords that were referring to synonyms of the internet or the mediums where the information was expected to be provided online, such as, social media or Facebook.

This coding scheme was afterwards used and applied to the selected 140 documents via the ATLAS.ti software that is a qualitative research tool assisting in conducting a systematic in-depth study, adding another pillar to its basis of validity and dependability.

3.6. Concluding remarks

Altogether, the research activities undertaken in order to find an answer to the research question consisted of the development of two concepts, derived from the theoretical approach of choice architecture. Afterwards various concrete features of both concepts derived from the literature on green-nudging, two for concept one and two for concept two. They are used as the categories, which each correspond to specific selected keywords that have been formed in order to be able to analyze the Paris Agreement policy documents. With the help of this coding scheme, it was possible to find out the ways in which the parties of Paris Agreement are nudged towards a behavior change of carbon emission reduction based on the four main techniques used by the choice architects. As has become clear, the focus of this paper lies in the analysis

of the policy documents. The presentation beforehand of the policy documents that are under the Paris Agreement, such as, the Nationally determined contributions under Paris Agreement will be necessary to gain insight into the main policies, which might suggest a green nudging for behavior change. Since the policies in this environmental context are very detailed and extensive, they cannot be listed and explained completely. Only specific policy documents, which are of most importance for the analysis of the different categories, are taken into consideration.

The key methodological insights provided in this chapter are summed up. A qualitative content analysis is chosen as research design guiding the analysis of the ways in which the choice architecture is constructed for a pro-environmental behavior change. The process starts by collecting the data, namely, the Paris Agreement related documents from the United Nations document website based on a carefully determined selection criterion. Further, the units of meaning for the coding scheme is chosen, in this case, the presence of nudging for carbon emission reductions. Next, the coding scheme is developed based on four groups of taxonomy of choice architecture techniques, which are then split in four sets of categories that each have a fixed number of sub-categories and keywords expected to be found throughout the documents. Following these methodological steps, it is possible to generate an answer to the main research question of this thesis and to arrive at the research aim.

4. ANALYSIS

This section of the master thesis will provide the results of the qualitative content analysis through highlighting the frequency rates of the selected and identified keywords. These findings will then be discussed and their meaning in the context of nudging for pro-environmental behavior change will be provided. The citations from the analyzed documents will serve as justifications for the speculations and interpretations provided. The chapter is divided into six sections starting with the summary of the findings, then moving to four sections dealing with the results and discussion of each nudging tool that was sought and investigated throughout the analysis. The chapter is closed with a conclusion that not only summarizes the key findings and discussion statements but also provides clear answers to the sub-questions of this thesis.

4.1. Overview of the findings

The outcomes of the content analysis of the qualitative data obtained are presented in Chapter 4 of this research study. This chapter offers the findings of a qualitative study of transcripts from 140 United Nations papers relating to the Paris Agreement from 2017 to 2022.

The presentation of the findings is guided by the theoretical framework and the research issue of this investigation. The study' theoretical underpinning is based on Lehner et al's (2016) research on green nudging and pro-environmental behavior change, which builds on the foundation of Thaler & Sunstein's (2003) book on the nudge theory, as detailed in Chapter 2. The entire investigation focuses on the inclusion of nudging methods in several sorts of documents, including progress reports, conferences, nationally defined contributions, and the parties' commitment pledges under the Paris Agreement, among others.

All data from each document were coded for the three categories of changes to default, the three categories of changes to physical environment, the three more categories of the use of social norms, and the last three categories of the provision of information. Tables displaying frequency rates of the keywords found are presented and interpretations for them are provided along with quotations from the analyzed documents further justifying these findings.

Category	Frequency	Percent (%)
<i>Changes to default</i>		
Actors	273	18.2
Regulations	183	12.3
Technology	52	3.5
<i>Changes to physical environment</i>		
Land	27	1.8
Water	20	1.3
Built environment	57	3.8
<i>Use of social norms</i>		
Descriptive	57	3.8
Reflective	489	32.2
Analytical	70	4.7
<i>Provision of information</i>		

Stakeholder interaction	159	10.7
Data presented	65	4.5
Internet	52	3.5
Total	1504	100

Table 3. Frequency of all keywords

Table 3 displays that the use of social norms was the most prominent nudging mechanism for pro-environmental behavior change throughout the analyzed documents, identified 40,7% from the total number of codes found. Followed by changes to default, identified 34% of the time. Provision of information scored 18,7%, while changes to physical environment was as low as 6,9% of the total number of codes.

The parts that follow will look at the results by categories and sub-categories, expose the frequency of keywords in the documents, and offer an in-depth analysis of the findings using quotations from the studied texts, highlighting the inconsistencies and paradoxes. The results and important points of consideration will be summarized in a conclusion at the end of the chapter

4.2. Use of social norms

As reported in the theory chapter of this thesis, social standards have an influence on human behavior (Lehner et al., 2015). Comparing one person's conduct to that of another, particularly someone in that person's social network, can lead to that person striving to be like their peer and therefore changing their behavior, which can be an effective nudging strategy (Croson & Treich, 2014). Social pressure can help people make pro-environmental judgments (Byerly et al., 2018). Replacing people with the Parties under the Paris Agreement as the units of analysis of this study, the aim was to examine the presence of social norms in the Paris Agreement related documents. As discussed in the previous section, the use of social norms was the most prevalent green-nudging mechanism identified throughout the documents. Based on the coding scheme in chapter 3, the use of social norms as a category was divided in to three respective subcategories: reflective, analytical and descriptive.

4.2.1. Reflective

The subcategory reflective involved 10 keywords which were used as the search inquiry throughout the documents, including, many; some; almost all; several; most; a few; a number of; more; other and share of Parties.

Table 4 reveals that out of all subcategories, reflective, was the most prominent one identified in the documents, 32,2% of all codes were assigned to the reflective sub-category. “Some Parties” was the prevailing keyword scoring 19.5% within the respective category of the use of social norms, and 8.1% score among all keywords in all categories. Followed by “most parties” scoring 6.3% out of all keywords and “many parties” scoring 5%.

Code	Frequency	Percentage % of the use of social norms	Percentage % of all codes
Many Parties	75	12.2	5
Some Parties	120	19.5	8.1
Almost all Parties	30	4.9	2
Several Parties	15	2.4	1
Most Parties	94	15.3	6.3
A few Parties	43	7	2.3
A number of Parties	20	3.2	1.3
More Parties	52	8.4	3.5
Other Parties	15	2.4	1
Share of Parties	25	4.0	1.7
Total	489	79.3	32.2

Table 4. “Reflective” keywords and their frequency across the analyzed documents

Based on the data in table 4, it can be assumed that the reflective use of social norms is the predominant green-nudging mechanism in the United Nations Paris Agreement documents in the years from 2017-2022. In other words, the revelation of Party positions within a given issue naturally requires the remaining parties to reflect on their own positions, compare the two and as a result and potentially reciprocate the behavior of others. Throughout the documents it is apparent in a similar manner as in the following citation:

“Many Parties set out quantitative targets for increasing renewable energy, expressed, for example, in terms of installed capacity, electricity generation or final energy consumption.” (Synthesis report by the secretariat, 2021, p. 4).

With this nudging mechanism, the intention is that the remaining Parties who are not among the "many parties" stated would read the declaration and consider their own goals. Motivated by a desire to outperform or at least equal other countries, the remaining parties may succumb to the nudge and change their behavior by reciprocating and establishing their own higher renewable energy objectives.

“A few Parties identified measures targeting emissions from chemical industry (e.g. ammonia, adipic acid) and a few communicated measures specific to metal industry (e.g. iron and steel, aluminum).” (Synthesis report by the secretariat, 2021, p. 8).

On the other hand, from the second quotation, it can be interpreted that another example of the reflective nudging technique is the notion that having this information readily available in the papers the parties examine will urge them to think on the promises made by these "few parties" and make similar commitments.

In sum, since all the selected keywords represent a specific share of the Parties that can be used as a reflection for other Parties reading the documents, all of them would indicate a presence of a potential nudging strategy.

4.2.2. Analytical

The subcategory analytical consisted of 5 keywords which were used as the search inquiry throughout the documents, including, figure; table; statistics; indicators and sectors.

Table 5 displays that with 11.4% the subcategory analytical, ranked the second in terms of the percentage of codes identified in the documents in regard to the use of social norms category. “Table” was the prevailing keyword scoring 3,4% within the respective category of the use of social norms, and 1,4% score among all keywords in all categories. Closely followed by 3.1% for the code “Figure”. “Statistics” was the code identified the least number of times, 1% out of the codes in this category.

Code	Frequency	Percentage % of the use of social norms	Percentage %
Figure	19	3.1	1.3
Table	21	3.4	1.4
Statistics	6	1	0.4
Indicators	13	2.1	0.9
Sectors	11	1.8	0.7
Total	70	11.4	4.7

Table 5. “Analytical” keywords and their frequency across the analyzed documents

The data presented in Table 5 shows that tables are the most widely used analytical nudging tool, followed by figures. Similarly, to the reflective sub-category the data in these tables and figures is again distributed by the share of Parties percentage wise, however, the tables and figures make it more transparent. In other words, the data of, for instance, the financial contributions by each country are summarized in a table or figure which makes it convenient for the Parties to consider other Parties contributions and strive to reach their level. The keywords “sectors” and “indicators” were selected with the objective to find those remaining analytical, visual representations of the data that did not include the words “figure” or “table” in it.

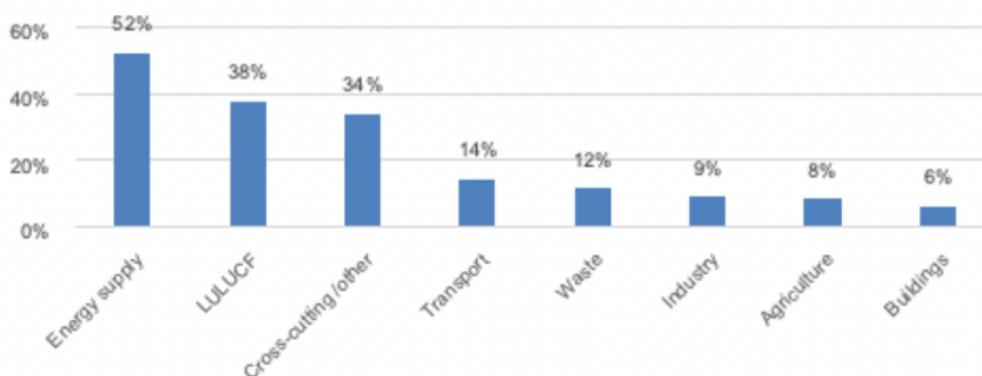


Figure 3: Share of Parties providing quantitative mitigation targets specific to priority areas or sub-areas in nationally determined contributions (Synthesis report by the secretariat, 2021, p. 3)

The desired effect of this analytical nudging tool is for the Parties to review this figure, identify the mitigation target sector that they are not a part of, and then modify their behavior by aiming to become a share of the parties in that sector, either motivated by the desire to do what the majority has done and improve their energy supply sectors, or, on the other hand, saddened by the low percentage of the agriculture sector, they might wade in. The example was provided using the “figure” keyword, however, all the other selected keywords in this sub-category would have led to similar results, indicating the presence of a social norm nudge via a visual representation of Party positions and contributions.

4.2.3. Descriptive

The subcategory analytical consisted of 3 keywords which were used as the search inquiry throughout the documents, including, sharing experience, sharing examples, lessons learned.

Table 6 displays that with 6.5% the subcategory descriptive, ranked third in terms of the percentage of codes identified in the documents in regard to the use of social norms category. “Lessons learned” were the prevailing keywords scoring 3.1% within the respective category of the use of social norms, and 1.3% score among all keywords in all categories. Closely followed by 2.9% for the codes “sharing experience”. “Sharing examples” was the code identified the least number of times, 0.5% out of the codes in this category.

Code	Frequency	Percentage % of the use of social norms	Percentage % of all codes
Sharing experience	18	2.9	1.2
Sharing examples	3	0.5	0.2
Lessons learned	19	3.1	1.3
Total	40	6.5	2.7

Table 6. “Descriptive” keywords and their frequency across the analyzed documents

The most often utilized descriptive nudging technique is exposing the lessons learnt, followed by sharing experience and giving examples, according to table 6. Parties to the Paris Agreement are invited to uncover and describe the lessons learnt in various scenarios, as well as share their experience dealing with various situations and examples they have experienced. In practice, this is done so that the parties may think about and reflect on the experiences of other parties, acquire insight into what they're doing, and possibly make comparisons. Unlike the other two sub-categories, reflective and analytical, which both entailed data presentations in the document, this nudging method yields a degree of autonomy by encouraging the Parties to share their expertise.

“The main objective of the Dialogue is to provide a regular forum for Parties and other stakeholders to share experience, best practices, lessons learned and ideas regarding the implementation of ACE.” (Note by the secretariat, 2019, p. 12)

The individual's inherent predisposition to social conformity and the need to fit in with others acts as a helpful heuristic in this circumstance, indicating the presence of a strong social norm nudging mechanism. A specific place, in the form of a discussion, is set aside for the Parties to

gain insight into the experiences of other Parties, reflect on the reasons for their own experiences, and perhaps attempt to outperform those Parties. Similarly, to the other sub-categories under the use of social norms, the results revealed that looking at the other selected keywords, for example, sharing examples leads to quotations that equally indicate the presence of the green-nudging mechanism.

4.2.4. Concluding remarks

This section revealed how the use of social norms as a green-nudging tool could be identified throughout the analyzed documents based on the reflective, analytical, and descriptive sub-categories that were selected in the coding scheme. The idea of social norm nudges is that they are designed based on the human heuristics to fit in with others, hence an emphasis is put on the way the information is delivered. When it comes to the reflective approach, the findings showed that the information in the documents was displayed through indicating the share of the Parties that had taken a certain action. For example, it was disclosed that many parties set out targets for increasing renewable energy or a few parties identified measures for targeting emissions from the chemical industry.

The key interpretation of these results is that the way these facts are unveiled are intended to begin a reflection among the Parties. The share of them that are not listed as many parties could read the proclamation and think about their own objectives, adjusting their conduct by reciprocating and setting their own higher renewable energy objectives to exceed or at least match other nations.

On the other hand, the analytical sub-category of the coding scheme was selected to investigate how visual representation of the data of commitments and positions of other Parties via tables and figures was used and whether it could be identified as a nudging tool. Although there were statistics and charts throughout the agreement, they were not as common as the reflecting reporting on the commitments of a certain share of the Parties, it was discovered. This visual representation of the data on Party actions and climate mitigation targets in particular sectors may be used as a nudging tool to help Parties recognize when they are not meeting their targets in these sectors and to encourage them to change their behavior in order to join the Parties that are used as examples in the figures in the following documents. Another manner that these data visualizations are influencing behavior is by allowing the Parties to recognize the areas where improvement is essential, which prompts them to reflect and perhaps make contributions to the fight against climate change in those areas.

Furthermore, the descriptive sub-category was chosen to identify how the Parties are encouraged to share their experience, examples, and lessons learned with each other throughout different settings, such as, meetings, conferences, workshops, and others. The key finding in this part of the analysis is the encouragement of comparison, which one of the main ideas why the social norm nudging exists and functions. Here, contrary to the other two sub-categories where the comparison is likely occurring automatically, the findings highlight that the Parties are expected to compare their experiences and lessons with one another in a form of a discussion, reflect on these and perhaps with the knowledge gained attempt to outperform these. While the public disclosure and availability of the progress and actions taken by parties was expected considering the United Nations transparency approach, it is paradoxical how the frequency for sharing practices via discussions was relatively insignificant. On one hand this could mean that the parties are expected to thoroughly read and investigate the issued

documents to reflect themselves, but on the other hand, it could imply that this information is meant to be used by other involved stakeholders more than the parties themselves.

4.3. Changes to default

This section will highlight the results of changes to the default as a green nudging tool. Referring to chapter 2, the theory chapter, it is widely accepted that people prefer to stick with the selected status quo or default, which is based on the human heuristics covered in the preceding sections of this theoretical section (Thaler and Sunstein, 2008). Default choices can be defined as a circumstance in which a person does not take any action. Because most people are passive and do not change their default settings, changing the default choice to a more environmentally friendly alternative may be a powerful nudging strategy (Nielsen et al., 2017). Looking in the context of the UN documents regarding Paris Agreement and the Parties under this agreement, the results reveal the most frequently identifies codes regarding this nudging strategy, the years when the documents were published as well as the frequency of the respective keywords in the coding scheme. These findings are then discussed and interpreted according to the research question. As presented in the coding scheme, the category of changes to default was divided in three subcategories: actors; regulations and technology. Meaning that the focus in this chapter will be on the behavior altering strategies regarding changes to the default actors, types of regulations and implementation of new technology.

4.3.1. Actors

The subcategory “actors” involved 8 keywords which were used as the search inquiry throughout the documents, including, bodies; stakeholders; organizations; networks; institutions; governments; universities and youth.

Table 7 reveals that out of all subcategories, “actors”, was the most prominent one identified in the documents, 18,2% of all codes were assigned to the actors sub-category. “Stakeholders” was the prevailing keyword scoring 34,9% within the respective category changes to default, and 11.9% score among all keywords in all categories. Followed by “bodies” and “organizations” both scoring 1.8% out of all keywords. What is interesting to note is this significant gap between the most prominent keyword “stakeholders” and the other ones. A plausible explanation could be that “stakeholders” is a universal concept already involving all of the other utilized keywords. However, they were selected to get a more comprehensive approach on the involved actors.

Code	Frequency	Percentage % of changes to default	Percentage %
Bodies	27	5.3	1.8
Stakeholders	177	34.9	11.9
Organizations	27	5.3	1.8
Networks	8	1.6	0.5
Institutions	14	2.8	0.9
Governments	11	2.2	0.7
Universities	3	0.6	0.2
Youth	6	1.2	0.4
Total	273	53.9	18.2

Table 7. “Actors” keywords and their frequency across the analyzed documents

The findings in table 7 strongly suggest that alternations to the stakeholders are by far the most identified changes to default within the respective UN documents. In other words, when it comes to changing the default option of the relevant actors as a pro-environmental behavior nudging mechanism, alterations to the default stakeholders have been found the most compared to alternations to bodies, organizations, institutions, and others. As found in the documents, the process usually constitutes the involvement of new stakeholders, that are invited to cooperate with the parties.

“The secretariat will continue to facilitate SCF (Standing Committee on Finance) engagement with a wide variety of climate finance stakeholders, including global city networks, United Nations organizations and IGOs, in organizing the 2019 SCF Forum, on climate finance and sustainable cities.” (Note by the secretariat, 2019, p. 8-9)

The phrase "facilitate" might suggest that there is a change from the default posture, in which such stakeholders are not involved. As a result, it is possible that, with the admission of these new stakeholders to the climate forum, the Parties may see a shift in the default actors with whom they collaborate with. The inclusion of these new actors/stakeholders might be used as a nudging technique, with the Parties having to learn from their expertise perspectives, framing the climate problem properly, and possibly influencing them to adopt a similar thought process. Looking at the other identified keywords within this sub-category and the respective citations, the results are strongly linked to similar findings, all of the mentioned actors within the document, including, the government and youth are framed as new additions to the process and hence could be perceived as changes to the default set of actors.

4.3.2. Regulations

The subcategory “regulations” involved 6 keywords which were used as the search inquiry throughout the documents, including, laws; legislation; policy; rules; procedure and programs.

Table 8 displays that “policy” was the prevailing keyword scoring 17,1% within the respective sub-category “regulations”, and 6% score among all keywords in all categories. Followed by “laws” scoring 3.3% out of all keywords. Further, the “programs” keyword with 4.3% score in the sub-category and 1.5% score looking at all keywords in all categories. Legislation is the least common keyword in this sub-category with only 0.8% frequency rate.

Code	Frequency	Percentage % of changes to default	Percentage %
Laws	49	9.6	3.3
Legislation	4	0.8	0.3
Policy	90	17.1	6
Rules	9	1.8	0.6
Procedure	9	1.8	0.6
Programs	22	4.3	1.5
Total	183	35.4	12.3

Table 8. “Regulations” keywords and their frequency across the analyzed documents

The findings in table 8 indicate that there are changes to default present in the documents not only in terms of including new actors into the picture but also enacting new laws and implementing innovative policies to combat the climate change. While laws and rules are too forceful and straightforward by nature to be considered nudging strategies, apart from some specific policies, the argument here is that this green-nudging tool is used in combination with the previously discussed tool of the use of social norms. The idea is that the Parties are encouraged to develop certain regulations to, for instance, reduce the amount of carbon emissions produced by factories. The majority of the Parties before this encouragement reported in the documents do not have such policy, hence there is a movement from the status quo, or, in other words, changes to default. Undoubtedly, some Parties will have the financial resources along the strategy and appropriate actors to soon implement the respective policy. In turn, that could make the remaining parties reflect on this move and according to the use of social norms nudging tool, aspire to get to their level and replicate the behavior. This idea is further supported by the following citation:

“Cooperation between the secretariat and the European Environment Agency on transparency matters focuses on methodological work to support the reporting and review of climate change policies and the assessment of progress towards targets.” (Note by the secretariat, 2019, p. 23)

This quote proves that the transparency approach of the UN secretariat to make the data of the progress of other Parties, the assessments and reviews publicly available naturally puts the Parties in the position to reflect and compare on the progress of each other. That way moving from the default to an implemented policy is combined with this transparent assessment from experts and can serve as an encouraging nudging tool.

“Calls upon Parties to accelerate the development, deployment and dissemination of technologies, and the adoption of policies, to transition towards low-emission energy systems, including by rapidly scaling up the deployment of clean power generation and energy efficiency measures, including accelerating efforts towards the phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition” (Conference of the Parties, 2022, p. 4)

This quote is a prime example of how the Parties are encouraged to progress from the present state where these policies do not exist, also known as the default, to a situation where they are established to tackle the climate change. While there is currently no progress of the utilization of the low-emission energy systems, developing and implementing a policy is a way to move towards it, initiating pro-environmental behavior change of the Parties. In addition, such a call to develop the policies with the respective objectives can be perceived to invoke a sense of urgency of the Parties, realizing that the gradual progress of moving towards cleaner energy systems has accelerated. Considering the remaining set of keywords selected for this sub-category and the quotations that they were founded in; the results indicate that the presence of these keywords, such as, procedure or rules lead to similar findings, indicating that the change from the default position does occur.

4.3.3. Technology

The subcategory “technology” involved 7 keywords which were used as the search inquiry throughout the documents, including, transport; vehicles; smart; renewable; energy; fuel and power.

Table 9 displays that the technology sub-category has a relatively low overall frequency percentage comparing to the results of the previously presented sub-categories, taking as little as 3,5%. “Transport” was the prevailing keyword scoring 2,4% within the respective sub-category “transport”, and 0.8% score among all keywords in all categories. Closely followed by “vehicles” and “fuel” both scoring 2.2% within the respective sub-category.

Code	Frequency	Percentage % of changes to default	Percentage %
Transport	12	2.4	0.8
Vehicles	11	2.2	0.7
Smart	1	0.2	0.07
Renewable	4	0.8	0.3
Energy	4	0.8	0.3
Fuel	11	2.2	0.7
Power	9	1.8	0.6
Total	52	10.4	3.5

Table 9. “Technology” keywords and their frequency across the analyzed documents

The results in table 9 strongly imply that transportation is one of the key areas of focus among the Parties for environmental energy. As identified in the documents in the context of technology and innovative solutions, the change of default was most frequently linked with reducing the emissions produced by transportation, including, both switching to electric vehicles for personal use as well upgrading the fossil fuel powered public transportation to electric. Prohibiting the purchase of fossil fuel vehicles by 2030-2050 by a large proportion of the Parties can be perceived as changes to default technology. Although electric vehicles have been around for a while now, the global percentage of them is relatively low, around 10% of the global market share (Iea, 2022). There are currently no bans of purchasing a petrol-powered automobile. However, with this proposed regulation, the default cars known today are about to switch to electric vehicles. The following citation serves as evidence for this point.

“Phasing out of sales of fossil-fuel passenger vehicles by 2035–2050. A few Parties communicated corresponding measures, including banning new registration of diesel and gasoline vehicles after 2030” (Revised synthesis report by the secretariat, 20221, p. 8)

Referring to the theory chapter of this thesis, the default option occurs when no action is taken, which in many Parties under the Paris Agreement is now. While there are no bans of specific vehicle types that is the default. However, such a prohibition imposed by a share of Parties is the action that is taken to move from this default and move to a more environment friendly behavior of the Parties. Phasing the fossil fueled vehicles out would also imply that employers would be either encouraged or required to provide electric vehicles to their employees. On the

other hand, it can be speculated that this phasing out process would involve switching from the petrol-powered public transportation to electric buses, trains and other transportation modes.

“Renewable energy generation was by far the most frequently indicated mitigation option in this area (see figure 3), with most Parties mentioning cross-cutting renewable energy generation, some solar power generation and some hydropower generation. Measures relevant to these options include (1) cross-cutting renewable energy generation: conducting a study for developing a road map on integrating renewable energy sources into the energy mix, with the aim of achieving a 25 per cent renewable energy share by 2030; and adopting an act for promoting use of renewable energy sources; (2) solar power generation: installing solar mini-grids in off-grid rural areas by 2030; and deploying innovative modes of solar photovoltaics, such as floating and building-integrated photovoltaic systems, through research, development and demonstration...” (Synthesis report by the secretariat, 2021, p. 4).

This quotation from the document highlights another technological change to default. The installation of solar panels in the rural areas which means that instead of using, for instance, biogas as the main source of electrical power or areas without any source of electricity would be powered now by a renewable solution, solar panels. In these rural areas that could clearly be perceived as a change to the default method. Since all the selected keywords for this sub-category were interrelated with the transportation sector, it can be argued that they would lead to similar quotations and interpretation of the results as well as the presence of changing the default option as a nudging tool.

4.3.4. Concluding remarks

This section of the thesis highlighted how changing the default option or moving away from the status quo, in terms of, the involved actors, the regulations and technology has the potential to be used as an effective nudging strategy. While people have the tendency to stick to the default option and proceed their daily tasks without taking any action, changing the default setting for them through altering the choice architecture to try and initiate a behavior change has the potential to work as a successful nudging tool. The main objective before starting this part of the analysis was to find how and if the change in the involved actors, alterations in regulations and technological developments would contribute to promoting a pro-environmental behavior change.

When it comes to the actor’s sub-category, the findings suggested that stakeholders are the most frequently used concept for the involved actors in the process, contrary to bodies or organizations scoring relatively lower in terms of the keyword frequency rate. The quotations from the documents proved that there is, in fact, a change from the default stakeholders occurring at different meetings, within various discussions and subsectors of the commitments under the Paris Agreement. Since these stakeholders are expected to have a certain degree of expertise in climate change, the results imply that this inclusion of the new actors in the process could result in the Parties gaining new knowledge, insights, shed a light on different perspectives throughout their viewpoints and framing of the problem, that it has the potential to be considered as a nudging strategy.

Moreover, considering the regulations sub-category it was found that changes in the existing policies are the most prominent alternations in regulations as opposed to the expected rules and procedures whose keywords were both found only 9 times throughout the analysis. As previously clarified, the establishment of a new set of rules, legislation or policies are in most

cases too forceful, lacking a degree of ambiguity to work as a nudging tool. Nevertheless, the speculation about these new regulations emerging and serving as nudging strategies derived from, first, the transparency approached used by the UN that makes the data of the progress of the Parties publicly available. Hence this changes to default nudging tool becomes interrelated with the previously described use of social norms. The idea is that seeing what climate change facilitating policies are developed and implemented by other Parties, might encourage them to move on from their status quo where such policies do not exist yet.

On the other hand, the encouragement from the UN bodies to develop policies dealing with, for instance, emission reduction is again a move from the default position towards a behavior change. Although it remains unclear to which degree the nudging mechanism is attributed to this issue, there is a speculation that even the necessity of such policy could contribute to causing a sense of urgency among the Party delegates and change to the default. Additionally, the results of the technology sub-category revealed that transportation is the focus area for preserving environmental energy.

The most interesting finding was that a significant share of the Parties is aiming to phase out fossil fuel vehicles by the year 2030, while again a prohibition of diesel-powered vehicles would be too harsh of a measure to work as a nudging tool, by phasing them out, the choice architecture could be designed to work as nudge. For instance, replacing the default fossil fuel vehicles at workplaces with electric ones, or ensuring that the public transportation is fully electric. In addition, the leading expectation was to find that the changes to default of technology in various sectors would prevail, especially in the industrial sector that is known to contribute to the largest share of CO₂ emissions. However, it turned out not to be the case, as changing the default technology was the least frequently found sub-category. Another important finding in terms of the technology revealed the installation of solar panels in rural areas, this can be perceived as a shift from the default biogas source or even no form or electricity in these areas.

4.4. Changes to physical environment

This section will highlight the results of changes to the physical environment as a green nudging tool. Referring to the theory chapter, changes in the physical environment around an individual can urge them to make the intended pro-environmental option, which has long been acknowledged as having a significant influence on people's decisions (Lehner et al., 2016). The most detected codes addressing this nudging approach, the years when the papers were released, and the frequency of the associated keywords in the coding system are revealed when looking at the UN documents involving the Paris Agreement and the Parties under this agreement. Following that, the findings are examined and evaluated in light of the study topic.

The category of changes to physical environment was separated into three subcategories, as shown in the coding scheme: land, water, and built environment. This means that the focus of this chapter will be on behavior-altering methods in relation to changes in the physical environment, including land, water, and the built environment.

4.4.1. Land

The subcategory “land” involved 4 keywords which were used as the search inquiry throughout the documents, including, agriculture; forests; soil and farming.

Table 10 displays that “agriculture” was the prevailing keyword scoring 12,5% within the respective sub-category “land”, and 0.9% score among all keywords in all categories. Closely followed by “forests” scoring 0.8% out of all keywords. Further, the “soil” and “farming” keywords were both found only once in all documents, making them the least frequent keywords within this sub-category.

Code	Frequency	Percentage % of physical environment	Percentage %
Agriculture	13	12.5	0.9
Forests	12	11.5	0.8
Soil	1	1	0.07
Farming	1	1	0.07
Total	27	26	1.8

Table 10. “Land” keywords and their frequency across the analyzed documents

The findings in table 10 show that while the nudging mechanism of changing the physical environment of land is present to a degree, compared to other categories, it is one of the lowest pro-environmental nudging keywords identified in this analysis. Contrary to the examples of changing the physical environment provided in the theory chapter, the Parties of the Paris Agreement did not hold a meeting in the middle of a farm. Despite “agriculture” and “forests” being the most frequently found keywords within the respective sub-category, the citations reveal that in the context of land there were no changes to the physical environment nudging mechanisms identified. The Parties are urged to tackle deforestation issues based on expert guidance and recommendations, as the following quote proves:

“The SR1.5 identifies mitigation options considered relevant to aligning with 1.5 °C pathways, including: (...) d) Expanding Forest cover by 2030 (...)” (Revised synthesis report by the secretariat, 20221, p. 8)

While this quote indicates the presence of one of the selected keywords, it cannot be perceived as an alteration of the physical environment that the Parties normally find themselves in. When choosing this set of keywords, the expectation was to find, for instance, the delegates of the Parties planting trees as a nudging strategy to raise awareness of deforestation and help tackling the issues. On the other hand, the change could have been a deliberately selected venue in a host country that struggles with greenhouse gases created from the farming sector. However, no such alternations to the physical environment were identified. Meaning that it cannot be stated that the green-nudging tool of altering the physical environment in the context of land is plausible based on the results of the analysis. Equally none of the other selected and identified keywords, including, soil and farming were found in citations that would suggest a presence of the nudging strategy: changes physical environment.

4.4.2. Water

The subcategory “water” involved 3 keywords which were used as the search inquiry throughout the documents, including, marine; hydropower; water.

Table 11 displays that “water” was the prevailing keyword scoring 10.6% within the respective sub-category “water”, and 0.7% score among all keywords in all categories. Closely followed by “marine” scoring 7.7% out of keywords in this sub-category. Further, the “hydropower” keyword was found only once in all documents, making it one of the least frequent keywords.

Code	Frequency	Percentage % of physical environment	Percentage %
Marine	8	7.7	0.5
Hydropower	1	1	0.07
Water	11	10.6	0.7
Total	20	19.3	1.3

Table 11. “Water” keywords and their frequency across the analyzed documents

Similar to the findings of the "land" sub-category, the data in table 11 reveal that, while based on the presence of the codes, the nudging method of modifying the physical environment of water could be present to some extent, it is one of the least common keywords in the study, with a total of 20.

Moving on in the research and carefully reviewing the citations, it became evident that the presence of any nudging mechanisms inside this sub-category could not be supported. A number of Parties have specified changes they are engaged on in the fisheries area based on their nationally defined commitments under the Paris Agreement, as seen in the following quotes:

“(...) Expanding marine protected areas and restoring habitats and mangroves (...)” (Synthesis report by the secretariat, 2021, p. 4).

Other found citations are even more specific, mentioning the time frame of these measures: *“(...) Establishing 10 marine protected areas by 2030 (...)”* (Synthesis report by the secretariat, 2021, p. 6)

While these and similar citations show the appearance of the keywords "marine," this cannot be interpreted as a change in the physical environment in the nudging context, where the Parties' surroundings have changed from their usual setting to different circumstances, initiating to reconsider their environmental behavior. The other two remaining keywords within this sub-category, namely, water and hydropower were also not embedded in citations that would suggest a presence of any nudging strategies.

4.4.3. Built Environment

The subcategory “built environment” consisted of 6 keywords which were used as the search inquiry throughout the documents, including, houses; buildings; schools; round-table; urban; charging stations.

Table 12 displays that “round-table” was the prevailing keyword scoring 28.8% within the respective sub-category “built-environment”, and 2% score among all keywords in all categories. Followed by “buildings” scoring 14.4% out of keywords in this sub-category.

Further, the three keywords’ “houses”, “charging stations” and “buildings” were found only once in all documents, making them least frequent codes.

Code	Frequency	Percentage % of physical environment	Percentage %
Houses	1	1	0.07
Buildings	15	14.4	1
Schools	2	1.9	0.1
Round-table	30	28.8	2
Urban	7	6.7	0.5
Charging stations	2	1.9	0.1
Total	57	54.7	3.8

Table 12. “Built Environment” keywords and their frequency across the analyzed documents

The results in table 12 strongly imply that there was strong a pattern for the Parties changing the physical environment in the context of a round-table discussion. Contrary to the author’s expectations of the prime focus in this sub-category being on houses, and schools, it was overturned when thoroughly analyzing the documents. In other words, the keyword “round-table” was selected based on a deductive approach rather than the other inductive ones that were selected prior to reading the documents. Motivated by the belief that the seating arrangement is important, the Parties recommended changing the standard plenary meeting format to a round-table discussion for a more fruitful debate as proven in this quotation:

“(…) e) A round-table setting would facilitate in-person interactions better than a plenary setting; (…).” (Report by the Co-Chairs of the Ad Hoc Working Group on the Paris Agreement, 2017, p. 32).

The following two citations strongly imply that this request was taken on board and a round-table discussion setting was in fact arranged.

“Upon request of Parties at the informal consultation on 11 November 2017, this is the Co-facilitators’ attempt to informally capture views expressed by Parties, including in their submissions and at the round table. It has been prepared under the Co-facilitators’ own responsibility and thus has no formal status.” (Ad Hoc Working Group on the Paris Agreement, 2017, p. 2)

“This document contains a summary of the round-table discussion on the process (…)” (Summary report by the secretariat, 2017, p. 1).

Contrary to the other two sub-categories of the changes to physical environment, land and water, this built environment sub-category indicates the presence of nudging. It is more indirect than in the examples given, however, the physical environment has been changed from the usual plenary setting that as expressed by the Parties themselves does not facilitate a solid discussion setting to a round-table discussion where the delegates can face each other and ask direct questions. Although the round-table keyword was identified a number of times and the citations it was rooted in strongly implied that a nudging strategy could have been used, the other 5 remaining keywords did not lead to findings that would imply a behavior altering mechanism.

4.4.4. Concluding remarks

This part showed the ways changing the physical environment could be used as nudging tool for the pro-environmental behavior change of Parties under the Paris Agreement as found in the analyzed documents. People are very impacted and subject to the physical circumstances around them, that is the reason behind, for example, placing children's toys at their eye level at the stores, making it easier for them to look at them and grab them. Hence, in the line of the nudging theory, changes in the physical environment can persuade a person to choose the planned pro-environmental course of action (Lehner et al., 2016). Followed by the expectation that the documents might reveal specific activities or alterations done to the physical environment, the 3 sub-categories land; water and built environment were selected.

Looking at the land category, although a degree of the selected keywords was identified throughout the documents, especially, agriculture and forests scoring around 12% of the frequency rate within the respective land sub-category, the quotations from the documents revealed that there is not enough evidence to support a potential presence of a green-nudging tool. While the Parties have identified, for instance, afforestation in their nationally determined contributions, which is where the keywords are identified from, it cannot be perceived as a nudging mechanism since the physical environment is not altered in a way that would change their position.

Similarly, with the following water sub-category, a relatively insignificant presence of the keywords: water and marine were detected. However, the citations again revealed that the existence of a nudging strategy cannot be supported. The Parties are promising to expand the marine protected areas, as well as restoring the habitats and mangroves, but, again, it cannot be interpreted as a change to the physical environment for the Parties that would encourage them to make better choices.

Contrary to the findings of these other two sub-categories, the built-environment one revealed unexpected and surprising results. The key expectation before the analysis was to find a connection between the nudging strategies, choice architecture and physical environment such as, houses, buildings, schools, and others. Nonetheless, through a deductive approach of thoroughly reading the selected documents, it became evident that round-table should be included in the set of keywords. The citations revealed that there was a proposal made by the Parties themselves to change the physical environment from the standard plenary meeting format to arranging a discussion in a round-table setting, that naturally makes the delegates face each other and, hence, facilitate a more substantial discussion. These results suggested a strong presence of changing the physical environment as a nudging tool, making the Parties that did not propose this discussion setting subject to the nudge.

4.5. Provision of information

The theory chapter reveals that the most common sort of nudge is information provision, which is predicated on the premise that how information is presented to individuals matters as much as its availability or quantity (Nielsen et al., 2017). In other words, the information environment may be structured in subtly varied ways that can readily and even unintentionally affect people's decisions and actions in desired directions by using information nudges. Contrary to the threefold categorization of these nudging mechanisms reported in literature, namely, simplification, framing and feedback dealing with the "how?" question, this analysis

investigates the framing of the information within the document, as well as highlights the different types of mediums where the information is provided, dealing with the “where?” question.

Based on the coding scheme in chapter 3, provision of information as a category was divided into three respective subcategories: stakeholder interaction; data presented and internet. With the help of selected keywords, a light will be shed on where the information to the Parties under the Paris Agreement is provided in the context of stakeholder interaction, the internet as well as the data presented and framed within the analyzed documents.

4.5.1. Stakeholder interaction

The subcategory “stakeholder interaction” consisted of 7 keywords which were used as the search inquiry throughout the documents, including, workshop; meeting; symposium; conference; webinar; summit and deliberations.

Table 13 displays that “meeting” was the most commonly identified keyword scoring 17% within the respective sub-category “stakeholder interaction”, and 3.2% score among all keywords in all categories. Closely followed by “workshop” scoring 2.9% out of all keywords. Further, the “symposium” and “summit” keywords were both found only 5 times in all documents, making them the least frequent keywords within this sub-category with 1.8% frequency rate.

Code	Frequency	Percentage % of stakeholder interaction	Percentage %
Workshop	43	15.6	2.9
Meeting	47	17	3.2
Symposium	5	1.8	0.3
Conference	29	10.5	2
Webinar	19	6.9	1.3
Summit	5	1.8	0.3
Deliberations	11	4	0.7
Total	159	57.6	10.7

Table 13. “Stakeholder interaction” keywords and their frequency across the analyzed documents

The results depicted in table 13 show that most stakeholder interaction occurs in the forms of meetings, workshops, and conferences. These are the most used venues or settings for providing the information regarding climate change. The following quote from one of the analyzed documents serves as a confirmation of this finding:

“Action for Climate Empowerment guidelines

46. UNESCO, in partnership with the secretariat, prepared a report to facilitate the work of ACE national focal points in implementing the Doha work programme on Article 6 of the Convention. In October 2018, two events were held for disseminating the guidelines:

a) *A regional workshop on ACE for Europe and the Mediterranean region, organized by the secretariat with the financial support of, and in cooperation with, the Government of Italy;*” (Note by the secretariat, 2019, p. 12)

While this citation hereby confirms that there have been workshops organized for the implementation of the Doha program, climate change empowerment and action towards the Paris Agreement goals, this finding does not provide significant evidence to state that a nudging mechanism is present. While it is implied that information about climate change is shared within such workshop to a specific degree, compared to previous studies of this nudging tool, there is not enough information to support the idea that it is presented in a way to achieve pro-environmental behavior change within any of these stakeholder interaction settings. Considering that the other selected and found keywords were chosen to expand the range of the findings and they could be perceived as synonyms to the word stakeholders, the citations involving a different keyword would lead to very similar findings as the displayed example of the workshop keyword.

4.5.2. Data presented

The subcategory “data presented” consisted of 4 keywords which were used as the search inquiry throughout the documents, including, emission levels; comparison; historical levels and report.

Table 14 displays that “emission levels” exceeded the other keywords by far, scoring 17% within the respective sub-category “data presented”, and 3.2% score among all keywords in all categories. The other two keywords “comparison” and “historical levels” were found only 7 times each in all documents, while “report” was found only 4 times, making it the least frequent keyword within this sub-category with 1.4% frequency rate.

Code	Frequency	Percentage % of stakeholder interaction	Percentage %
Emission levels	47	17	3.2
Comparison	7	2.5	0.5
Historical levels	7	2.5	0.5
Report	4	1.4	0.3
Total	65	23.4	4.5

Table 14. “Data presented” keywords and their frequency across the analyzed documents

Contrary to the previously described results of the “stakeholder interaction” subcategory, the results in table 14 disclose that the emission levels are related not only to the most commonly used data presentation method in the document, but also suggests a degree of green-nudging mechanism as described in the theory chapter. Regarding the setting of this information provision, it is visualized in the analyzed documents itself unlike in a meeting, workshop or a similar setting that is not publicly available. The emission levels keywords identified relate to the presentation of the data of what these levels are currently are and what they are expected to be in the future as justified in the following citation

“Intergovernmental Panel on Climate Change. 2018. *Global Warming of 1.5 °C: An IPCC Special Report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Available at <http://ipcc.ch/report/sr15/>.” (Proposal by the President, 2018, p. 5).

This quotation reveals the presence of the sought keywords and how the data and information are presented within the document that is expected to be read and reflected upon by the Parties of the Paris Agreement. Referring to the theory chapter, the researchers of the nudging strategy have described framing a problem in a particular way as an effective pro-environmental nudging tool. The findings can be interpreted that the use of other powerful words in this display of information, such as, “threat” and “poverty” could be perceived as strategy to cause a sense of urgency and push towards a behavior change among the Parties. Other keywords, for instance, historical levels were found in citations that similarly raised awareness of how the carbon emission issue has accelerated over the years comparing the current emission rates to those decades ago, implying that they lead to similar findings of those that were sketched in the example.

4.5.3. Internet

The subcategory “internet” consisted of 6 keywords which were used as the search inquiry throughout the documents, including, website; social media; Facebook; portal; online and virtual platform.

Table 15 shows that both “website” and “virtual platform” were the most frequently found keywords, scoring 7.2% and 6.5% within the respective sub-category “internet”. There is a bigger gap between the frequency of the remaining keywords, such as “social media” contrary to the expectations has only been found 1.4% of the time, “online” has been identified as little as 1.1% of the times, and Facebook only once making it one of the least frequent keywords.

Code	Frequency	Percentage % of stakeholder interaction	Percentage %
Website	20	7.2	1.3
Social media	4	1.4	0.3
Facebook	1	0.4	0.07
Portal	6	2.2	0.4
Online	3	1.1	0.2
Virtual platform	18	6.5	1.2
Total	52	18.8	3.5

Table 15. “Internet” keywords and their frequency across the analyzed documents

The findings in this table 15 disclose that websites, closely followed by virtual platforms are the most widely utilized information provision mediums in the context on internet. This idea is further supported by the following citation:

“An official notification is issued on the UNFCCC website informing admitted IGOs about the possibility of attending SCF meetings, and personalized invitation letters are sent to

representatives of United Nations agencies and IGOs for each one.” (Note by the secretariat, 2019, p. 8)

Citations similar to this depict that the official websites are, in fact, used to provide some shape and form of information, however, similarly to the results portrayed in the stakeholder interaction category, there is not enough data available to support the presence of a potential nudging strategy via these mediums. On the other hand, what is interesting to note, is that in some citations including the use of internet, more specifically, social media keywords can be seen as interrelated to the previously discussed framing condition.

“(…) e) Using traditional and non-traditional communication channels and diverse communication methods, including radio, mass media, social media, and museums, and sharing and exhibiting information that makes climate change relevant and interesting to ensure the broadest possible reach;” (Note by the secretariat, 2020, p. 9).

While this citation same as the previous one does not contain enough information about the exact information provided in these listed mediums to confirm the existence of green-nudging tools, it can be argued that the information is provided along such framing lines that would induce behavior alterations. In other words, it is stated that sharing information in these contexts makes the issue of climate change “relevant and interesting”. One interpretation of these words is that it potentially attracts the Party attention enough to consider using these mediums, making it subject to a framing nudge. Alternatively, it could simply mean that these are the words that no underlying meaning was assigned to these words. Here again, the selected keywords as the internet mediums were selected as synonyms to gain as comprehensive findings as possible, hence looking at, for instance, the virtual platform keyword, the results would lead to similar interpretations as the exemplified social media keyword.

4.5.4. Concluding remarks

The provision of information section of the thesis highlighted the approaches of displaying the information, along with the ways it was made available to the Parties under the Paris Agreement and revealed whether these methods could be considered and interpreted as nudging strategies. As demonstrated in the theory chapter, information supply, which is based on the idea that the way information is delivered to people matters as much as its availability or quantity, is the most prevalent type of nudge (Nielsen et al., 2017). In other words, by applying information nudges, the choice architecture may be designed in subtle, variable ways that can easily, and even accidentally, influence people's judgments and behaviors.

The leading expectation was to find the variety of ways information can be presented via different circumstances of stakeholder interaction; the data described and presented in the analyzed documents along with the interpretations of the experts and the information provided via the use of the internet. Considering stakeholder interaction, the results indicate that workshops and meetings can be named the most popular settings for stakeholder interaction for providing information regarding the climate change. The citations throughout the documents confirmed that workshops for different program implementation and other actions towards the climate change have been arranged and organized. While it can be speculated that a degree of information was shared throughout them about various aspects of climate change, there were no reports found within the documents about the specific discussions throughout these workshops, meaning that there is not enough evidence to approve the presence of a nudging mechanism.

The data presented sub-category with the respective keywords was selected to investigate how the data and statistics about the climate change are presented in the documents. Emission levels was the most frequently identified set of keywords in this sub-category, compared to historical levels; comparison and report which were found relatively rarely. The citations from the documents strongly implied that the expert data, for example, by the Intergovernmental Panel on Climate Change was presented and framed in a way that could be perceived as a nudging tool, the words used, for example, “threat” had a significantly negative connotation regarding the consequences of raising global temperatures.

Furthermore, when it comes to the internet sub-category, it was found that websites and virtual platforms were the most prominently found keywords in the documents. The quotations revealed that internet platforms, including, websites and social media are used to provide information to the Parties, however, similarly as in the stakeholder interaction sub-category, the documents alone do not indicate a presence of information nudging tools. On the other hand, there were citations that mentioned the use of social media platforms as a tool to keep the public interested and the climate change a relevant topic ensuring the broadest possible reach and raising awareness. In which case it could be interpreted as a nudging strategy, relating back to the way the information is framed.

4.6. Summary of findings

This section will not only serve as a summary of the key findings in the analysis chapter of this thesis but also provide clear answers to the sub-questions that were disclosed in the introduction chapter. These sub-questions are:

1. What are the typical nudging mechanisms in the Paris Agreement documents?
2. What indicates a behavior change of the stakeholders within Paris Agreement for the reduction of carbon emissions?
3. How is the choice architecture designed in the Paris Agreement documents?

To answer the first sub-question, despite all the expected nudging tools being present to a lower or higher degree in the documents, including, the use of social norms, changes to default, changes to physical environment and provision of information, it can be argued that the most typical nudging mechanisms in the Paris Agreement documents were the use of social norms and changes to default based on the frequency rates of the respective keywords and the citations to back up the presence of these nudges.

Answering the second sub-question, based on the findings in this analysis, it can be concluded that the behavior change of the stakeholders is indicated mainly through improvements in their nationally determined contributions. These can take the shape and form of, for instance, programs, policies to reach targets within specific sectors, use renewable energy and deal with deforestation. These contributions are developed by each Party under the Paris Agreement with the aim to cut emissions and renewed every five years. The UN publishes a summary of these contributions, comparing the Party positions to those previously issued 5 years ago indicate whether a behavior change has occurred, that is, whether there are more policies and programs, whether the emission levels are lower, what actions have and will be taken to raise awareness and others.

Regarding the third sub-question, it was found that the choice architecture in these documents is mostly designed by widely utilizing the transparency approach. Sharing the information,

making it readily available for the public and the Parties to reflect on, makes it easy for the Parties to reflect on each other's positions and contributions, compare those and according to the use of social norms theory, strive to reach the level as the other Parties. The choice architecture is also designed through encouraging the introduction of new stakeholders and actors, facilitating the cooperation through different settings, and calling upon the Parties to develop and report the policies established to meet the climate change targets. Furthermore, when it comes to the physical environment the choice architects rearranged the standard plenary discussion setting to bringing in a round table where the delegates can talk facing each other. Furthermore, the choice architecture is also designed by through presenting the expert data of the current emission levels, the expected numbers in case no action is taken and comparisons with the historic levels.

5. CONCLUSION

5.1. Answer to research question

The findings of this qualitative analysis revealed not only what are the most frequently identified nudging strategies in the documents related to the Paris Agreement, but also the variety of ways the choice architecture is designed using the different methods, including, altering the physical environment, the default option, as well as considering the way the information is provided and presented in a reflective manner. Based on the interpretation of the results we have learned that a variety of nudging mechanisms can be found in the United Nations documents relating to the Paris Agreement. In other words, it means that climate change issues are not only tackled through strict policy incentives, but also up to a point nudging is used.

Compared to prior research that was discussed and summarized in the theory chapter of this thesis, this analysis revealed new insights about the use of these identified nudging tools and the way they were applied. Looking at the objectives of the previous research, there was a specific aim and a plan how the individuals were expected to react using the social norms, provision of information or other nudging tools that would be subject to the heuristics of the human mind. On the other hand, the units of analysis of this research were the Parties under the Paris Agreement, implying that, the representatives, and delegates of these 192 countries plus the European Union are acting following specific political rules and procedures, making them less subject to fall into the human heuristic traps. Despite that, the findings of the analysis revealed and strongly suggested a presence of some specific green-nudging tools that have been used for behavior alterations and moving towards the carbon emission reduction. As discussed in the introduction chapter of this thesis, the scientific gap was found in the lack of studies investigating the usage and implementation of nudging tactics in a larger context, focusing on political bodies generating the necessary level of authority to make an influence. The research of the Parties Under the Paris Agreement as the units of analysis for this study as well as the results of their subjectivity towards different nudging strategies have filled the determined scientific gap. Contrary to what was previously known and found in research, it can be stated that the results of this thesis imply that nudging as a policy tool can exceed the scope of individual human beings to political entities, in this case, parties.

To answer the research question “*In what ways are the parties of the Paris Agreement nudged towards behavior change for the reduction of carbon emissions?*” it first needs to be understood what the process of carbon emission reduction is and how does it occur. It is false to assume that the idea of bringing these emission levels down starts with a specific number of the current emission levels within a sector or even a whole country and ends with this number being significantly reduced after specific measures, i.e., policies, have been implemented. Up to a degree, it could be the case, but the problem is much more complex to measure it as a linear process. The findings clearly indicated that the emission reduction process involves, discussions, involvement of new stakeholders, presentation of statistics and comparison of what action the Parties are taking to tackle climate change and reach the targets set in the Paris Agreement. In addition, then the process to lower the emissions can be expressed via actions such as, using renewable energy sources (e.g. solar panels, hydropower, electric vehicles), setting industry specific targets (e.g. banning the use of specific chemicals) or introducing and adapting lower emission systems. These along with other activities that have been disclosed in the conferences, meetings, workshops as well as nationally determined contributions are all examples of the complexities that the reduction of carbon emissions involve.

It can be stated that the results of this analysis suggest that the nudging strategy throughout these documents is done in a cyclic manner (see figure 4). The data is first presented throughout the documents, and it can be either the expert data of the emission levels, a comparison with the historic levels or even the expected numbers from the Parties based on their nationally determined contributions, indicating the presence of a potential provision of information nudge. When this data is presented, it becomes apparent that more action is necessary, and the UN bodies are demanding more contributions along with proposing and encouraging involving new stakeholders in the process, which suggests changing the default as the nudging strategy. These stakeholders are mostly involved by organizing a stakeholder interaction through a seminar, a meeting or round-table discussion, which is correlated to changing the physical environment as a nudging mechanism. The discussions lead to a decision of what the action to tackling the climate change and reaching the net zero levels should be, it can take the form of a program, a legislation, or a policy, again, implying the presence of changing the default for behavior change. When these policies are developed and reported in the nationally determined contributions, they are summarized and made publicly available in the documents in the lines of the UN transparency approach. This correlates to the use of social norms nudge and makes the cycle full by going back to the start of it.

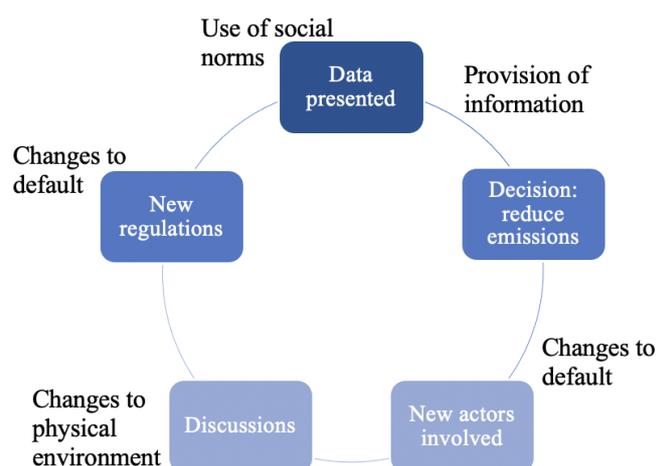


Figure 4. Nudging cycle in the analyzed documents

When it comes to the academic debate discussed in chapter 2 of the thesis, there is an agreement with the viewpoint of Selinger and Whyte (2011) arguing that the nudging theory involves a high degree of ambiguity and a high level of competence of human biases to successfully create them. To research and identify nudges in the selected documents, it was important to grasp the idea behind the human heuristics and the traps that we are subject to. However, to add to the statement it is important to note the ambiguity is the key idea, nudging can only function if the nudges are not aware of it. A similar analogy can be applied using the concept of spies, they can carry out missions and operations successfully under the condition that the fact they are spies is not known. There is a complete disagreement with the opinion of Goodwin (2012) stating that the concept is rooted in manipulation and as a result it should be banned. Throughout the analysis nudging was perceived as helpful instruction that is there to be used by the units of analysis however there is no guarantee that they will make use of it, at the same time they are free to refrain. To add to the debate, while Bekkers et al., (2015) argued that nudging is reliant on more traditional policy instruments such as regulation, the results of this

thesis suggest otherwise. Considering the findings of the round-table discussion it can be stated that a stakeholder positioned higher in a hierarchical arrangement and yielding more power is not necessary to design the choice architecture. There are cases where it can be done by equally positioned actors without using a forceful policy instrument such as regulation.

5.2. Contributions to the scientific field

When it comes to the improvement of the nudging strategies, it can be argued that looking at the context of the Paris Agreement, they could be focused more on changing the physical circumstances. So far, the information is mostly presented in the document along with statistics, graphs, and charts representing a variety of information. However, if the UN secretariat body or other choice architects focused on working more towards a specific aim, for instance, dealing with deforestation, there would be an opportunity to change the physical setting accordingly. The Conference of the Parties could either be held in a country that struggles with the consequences of deforestation, or, alternatively, the scenery could be visualized in the area wherever the conference is held. Similarly, the delegates of the Parties could be invited to, for instance, plant trees that could be broadcasted online on social media platforms to reach the target population and initiate behavior change. Considering that industries are one of the main sectors for carbon emissions, there is an opportunity for the experts to visually represent the long term and short-term consequences of the industry GHG levels affecting the climate change during workshops. Many more similar examples could be provided in terms of how to improve these nudging strategies and use them to tackle the climate crisis.

As rooted in the content analysis methodology, the understanding and retrieval of the analyzed texts stems to a large degree from the interpretation of the researcher. Analyzing a concept that could be present in a specific text due to an unconscious use of the respective keywords, there cannot be a 100% certainty that the nudging strategies are used deliberately with the aim to alter the Party behavior. Hence, the future research could be conducted by following up with interviews with the choice architects, for instance, the United Nations secretariat. The research could also be improved by expanding the scope of the analyzed articles dating back to 2015, when the Paris Agreement was established and comparing the presence and disparities of the nudging strategies throughout the years.

There are three main limitations that arose while conducting the study. First, due to the research design of the content analysis, the researcher is the tool, thus there is a chance that bias will show up in the coding instrument findings and a chance that others may surface during the data validation phase. To avoid this, a clear coding scheme with specific keywords that were sought in the texts was established. However, a certain degree of bias remains using this research method. To further avoid it a journaling approach could have been developed throughout the data gathering and data analysis processes in an effort to reduce bias. The journaling allows the researcher to record personal feelings and ideas.

Another limitation was that although the documents were read thoroughly and a deductive approach to develop the coding scheme was used, the data analysis process did not include a pilot study to determine if the coding form and process for analyzing the data was appropriate and adequate for answering the research questions.

Additionally, the publicly available content of the Paris Agreement was limited to the official proceedings and summaries that have been written after conferences, meetings workshops and

others. This did not allow looking into the actual debating process when the Parties might be subject to even more nudging strategies.

5.3. Practical implications

The findings of this thesis can contribute to a deeper and more comprehensive understanding of pro-environmental nudging strategies in policy documents and more specifically, the Paris Agreement documents issued by the United Nations. By a qualitative content analysis, this research was able to deliver insight into how frequently identified different nudging strategies are throughout the 5 analyzed years, as well as, what the exact methods for putting forward the variety of the nudging strategies are. All these findings were justified with a careful selection and interpretation of the respective quotations from the documents where these keywords were identified.

The practical implications for the results are mainly relevant for the decision-makers and policymakers that are responsible for designing the choice architecture. On the notion that tiny adjustments to the choice environment can lead to significant alterations in how individuals behave, in combination with the fact that nudges allow individuals to choose their own behavior rather than dictating it, this strategy can serve as a powerful policy instrument to be used to ensure that different policy goals are met. As discovered throughout the analysis, one of its appeals is that it works both ways, to those seeking change and those being encouraged to change. The findings also revealed that the changes can be as little as, for example, readjusting the discussion setting for the Party delegates that could result in a more fruitful and substantial discussion. In addition, as revealed in the citations of the documents, the UN has favored the transparency approach that can not only serve as an important element of the choice architecture design making the individual's or Parties subject to the use of social norms nudging strategies, but also help the public understanding the decision-making process and the policies that have come out of it. The important takeaway is that to use any kind of nudging strategy, it has to be made clear that the policymakers have the right to design the architecture and present these choices in a particular way, ensuring that the aim remains a behavior change that is better for the people subject to these nudges. Otherwise, it can be speculated that there is a danger that the power to create them can become abused once these strategies are used selfishly for the politician's personal benefits.

All in all the results and the interpretation of these findings in the thesis provide insight and knowledge about how the choice architecture is currently designed in official policy documents published by the United Nations and what are the prevailing nudging strategies identified in them. This information could be used and reflected upon when creating similar policy documents at a narrower scope.

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APPENDIX

UNITS OF ANALYSIS: UN- DOCUMENTS

1. **Ad Hoc Working Group on the Paris Agreement**, Report of the Ad Hoc Working Group on the Paris Agreement on the second part of its first session, held in Marrakech from 7 to 14 November 2016. 31/01/2017. FCCC/APA/2016/4
2. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the first part of its first session, held in Marrakech from 15 to 18 November 2016. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. 31/01/2017. FCCC/PA/CMA/2016/3/Add.1
3. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the first part of its first session, held in Marrakech from 15 to 18 November 2016. Part one: Proceedings. 31/01/2017. FCCC/PA/CMA/2016/3
4. **Technical paper by the secretariat**, Modalities for the accounting of financial resources provided and mobilized through public interventions in accordance with Article 9, paragraph 7, of the Paris Agreement. 28/04/2017. FCCC/TP/2017/1
5. **Ad Hoc Working Group on the Paris Agreement**, Third part of the first session Bonn, 8–18 May 2017. Submissions on agenda item 4 of the Ad Hoc Working Group on the Paris Agreement. Synthesis report by the secretariat. 28/07/2017. FCCC/APA/2017/INF.3
6. **Ad Hoc Working Group on the Paris Agreement**, Third part of the first session Bonn, 8–18 May 2017. Workshop on the development of modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. Report by the Co-Chairs of the Ad Hoc Working Group on the Paris Agreement. 04/05/2017. FCCC/APA/2017/INF.2
7. **Ad Hoc Working Group on the Paris Agreement**, Third part of the first session Bonn, 8–18 May 2017. Workshop on the development of modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. Report by the Co-Chairs of the Ad Hoc Working Group on the Paris Agreement. Addendum. List of participants. 04/05/2017. FCCC/APA/2017/INF.2/Add.1
8. **Ad Hoc Working Group on the Paris Agreement**, Third part of the first session Bonn, 8–18 May 2017. Draft report of the Ad Hoc Working Group on the Paris Agreement on the third part of its first session. Rapporteur: Ms. Anna Serzysko. 16/05/2017. FCCC/APA/2017/L.1
9. **Subsidiary Body for Implementation**, Forty-sixth session Bonn, 8–18 May 2017. Development of modalities and procedures for the operation and use of a public registry referred to in Article 4, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 16/05/2017. FCCC/SBI/2017/L.6
10. **Subsidiary Body for Implementation**, Forty-sixth session Bonn, 8–18 May 2017. Development and transfer of technologies: scope and modalities for the periodic assessment of the Technology Mechanism in relation to supporting the implementation of the Paris Agreement. Draft conclusions proposed by the Chair. 16/05/2017. FCCC/SBI/2017/L.4

11. **Subsidiary Body for Implementation**, Forty-sixth session Bonn, 8–18 May 2017. Development of modalities and procedures for the operation and use of a public registry referred to in Article 7, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 16/05/2017. FCCC/SBI/2017/L.8
12. **Subsidiary Body for Scientific and Technological Advice**, Forty-sixth session Bonn, 8–18 May 2017. Technology framework under Article 10, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 17/05/2017. FCCC/SBSTA/2017/L.10
13. **Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation**, Forty-sixth session Bonn, 8–18 May 2017. Modalities, work programme and functions under the Paris Agreement of the forum on the impact of the implementation of response measures. Draft conclusions proposed by the Chairs. 17/05/2017. FCCC/SB/2017/L.3
14. **Subsidiary Body for Scientific and Technological Advice**, Forty-sixth session Bonn, 8–18 May 2017. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Draft conclusions proposed by the Chair. 18/05/2017. FCCC/SBSTA/2017/L.15
15. **Subsidiary Body for Scientific and Technological Advice**, Forty-sixth session Bonn, 8–18 May 2017. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 18/05/2017. FCCC/SBSTA/2017/L.16
16. **Subsidiary Body for Scientific and Technological Advice**, Forty-sixth session Bonn, 8–18 May 2017. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Draft conclusions proposed by the Chair. 18/05/2017. FCCC/SBSTA/2017/L.17
17. **Ad Hoc Working Group on the Paris Agreement**, Report of the Ad Hoc Working Group on the Paris Agreement on the third part of its first session, held in Bonn from 8 to 18 May 2017. 30/06/2017. FCCC/APA/2017/2
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20. **Subsidiary Body for Implementation**, Forty-seventh session Bonn, 6–15 November 2017. Ways of enhancing the implementation of education, training, public awareness, public participation and public access to information so as to enhance actions under the Paris Agreement. Draft conclusions proposed by the Chair. 11/11/2017. FCCC/SBI/2017/L.22
21. **Subsidiary Body for Implementation**, Forty-seventh session Bonn, 6–15 November 2017. Development of modalities and procedures for the operation and use of a public registry referred to in Article 4, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 13/11/2017. FCCC/SBI/2017/L.30
22. **Subsidiary Body for Scientific and Technological Advice**, Forty-seventh session Bonn, 6–15 November 2017. Technology framework under Article 10, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 13/11/2017. FCCC/SBSTA/2017/L.22

23. **Subsidiary Body for Scientific and Technological Advice**, Forty-seventh session Bonn, 6–15 November 2017. Development of modalities and procedures for the operation and use of a public registry referred to in Article 7, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 14/11/2017. FCCC/SBI/2017/L.33
24. **Ad Hoc Working Group on the Paris Agreement**, Fourth part of the first session Bonn, 7–15 November 2017. Draft report of the Ad Hoc Working Group on the Paris Agreement on the fourth part of its first session. Rapporteur: Ms. Anna Serzysko. 14/11/2017.FCCC/APA/2017/L.3
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26. **Subsidiary Body for Scientific and Technological Advice**, Forty-seventh session Bonn, 6–15 November 2017. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 14/11/2017. FCCC/SBSTA/2017/L.27
27. **Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation**, Forty-seventh session Bonn, 6–15 November 2017. Modalities, work programme and functions under the Paris Agreement of the forum on the impact of the implementation of response measures. Draft conclusions proposed by the Chairs. 14/11/2017. FCCC/SB/2017/L.8
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31. **Conference of the Parties**, Twenty-third session Bonn, 6–17 November 2017. Process to identify the information to be provided by Parties in accordance with Article 9, paragraph 5, of the Paris Agreement. Proposal by the President. Draft decision -/CP.23. 18/11/2017. FCCC/CP/2017/L.12
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33. **Ad Hoc Working Group on the Paris Agreement**. Report of the Ad Hoc Working Group on the Paris Agreement on the fourth part of its first session, held in Bonn from 7 to 18 November 2017. 31/01/2018. FCCC/APA/2017/4
34. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the second part of its first session, held in Bonn from 6 to 18 November 2017. Part one: Proceedings. 08/02/2018. FCCC/PA/CMA/2017/2

35. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Cooperative activities with United Nations entities and other intergovernmental organizations that contribute to the work under the Convention, the Kyoto Protocol and the Paris Agreement. Note by the secretariat. 26/04/2018. FCCC/SBSTA/2018/INF.2
36. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Scope of and modalities for the periodic assessment of the Technology Mechanism in relation to supporting the implementation of the Paris Agreement. Draft conclusions proposed by the Chair. 07/05/2018. FCCC/SBI/2018/L.2
37. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Ways of enhancing the implementation of education, training, public awareness, public participation and public access to information so as to enhance actions under the Paris Agreement. Draft conclusions proposed by the Chair. 07/05/2018. FCCC/SBI/2018/L.3
38. **Ad Hoc Working Group on the Paris Agreement**, Fifth part of the first session Bonn, 30 April to 10 May 2018. Draft report of the Ad Hoc Working Group on the Paris Agreement on the fifth part of its first session. Rapporteur: Ms. Anna Serzysko. 07/05/2018. FCCC/APA/2018/L.1
39. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Ways of enhancing the implementation of education, training, public awareness, public participation and public access to information so as to enhance actions under the Paris Agreement. Draft conclusions proposed by the Chair. Addendum. Recommendation of the Subsidiary Body for Implementation. 07/05/2018. FCCC/SBI/2018/L.3/Add.1
40. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Ways of enhancing the implementation of education, training, public awareness, public participation and public access to information so as to enhance actions under the Paris Agreement. Draft conclusions proposed by the Chair. Addendum. Recommendation of the Subsidiary Body for Implementation. 07/05/2018. FCCC/SBI/2018/L.3/Add.2
41. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Development of modalities and procedures for the operation and use of a public registry referred to in Article 7, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 08/05/2018. FCCC/SBI/2018/L.8
42. **Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Modalities, work programme and functions under the Paris Agreement of the forum on the impact of the implementation of response measures. Draft conclusions proposed by the Chairs. 08/05/2018. FCCC/SB/2018/L.3
43. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Development of modalities and procedures for the operation and use of a public registry referred to in Article 4, paragraph 12, of the Paris Agreement. Draft conclusions proposed by the Chair. 08/05/2018. FCCC/SBI/2018/L.7
44. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Development and transfer of technologies: technology framework under Article 10, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 08/05/2018. FCCC/SBSTA/2018/L.7
45. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. Draft conclusions proposed by the Chair. 08/05/2018. FCCC/SBI/2018/L.4

46. **Subsidiary Body for Implementation**, Forty-eighth session Bonn, 30 April to 10 May 2018. Matters related to climate finance: identification of the information to be provided by Parties in accordance with Article 9, paragraph 5, of the Paris Agreement. Draft conclusions proposed by the Chair. 08/05/2018. FCCC/SBI/2018/L.13
47. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Modalities for the accounting of financial resources provided and mobilized through public interventions in accordance with Article 9, paragraph 7, of the Paris Agreement. Draft conclusions proposed by the Chair. 09/05/2018. FCCC/SBSTA/2018/L.9
48. **Ad Hoc Working Group on the Paris Agreement**, Fifth part of the first session Bonn, 30 April –10 May 2018. Draft conclusions proposed by the Co-Chairs. Addendum. Informal notes prepared under their own responsibility by the co- facilitators of agenda items 3–8 of the Ad Hoc Working Group on the Paris Agreement. 10/05/2018. FCCC/APA/2018/L.2/Add.1
49. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Draft conclusions proposed by the Chair. 10/05/2018. FCCC/SBSTA/2018/L.14
50. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Draft conclusions proposed by the Chair. 10/05/2018. FCCC/SBSTA/2018/L.12
51. **Subsidiary Body for Scientific and Technological Advice**, Forty-eighth session Bonn, 30 April to 10 May 2018. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 10/05/2018. FCCC/SBSTA/2018/L.13
52. **Ad Hoc Working Group on the Paris Agreement**. Report of the Ad Hoc Working Group on the Paris Agreement on the fifth part of its first session, held in Bonn from 30 April to 10 May 2018. 03/07/2018. FCCC/APA/2018/2
53. **Ad Hoc Working Group on the Paris Agreement**, Sixth part of the first session Bangkok, 4–9 September 2018. Draft report of the Ad Hoc Working Group on the Paris Agreement on the sixth part of its first session. Rapporteur: Ms. Anna Serzysko. 07/09/2018. FCCC/APA/2018/L.3
54. **Subsidiary Body for Scientific and Technological Advice**, Second part of the forty-eighth session Bangkok, 4–9 September 2018. Paris Agreement work programme. Draft conclusions proposed by the Chair. 09/09/2018. FCCC/SBSTA/2018/L.16
55. **Ad Hoc Working Group on the Paris Agreement**, Sixth part of the first session Bangkok, 4–9 September 2018. Paris Agreement work programme. Draft conclusions proposed by the Co-Chairs. 09/09/2018. FCCC/APA/2018/L.4
56. **Subsidiary Body for Implementation**, Second part of the forty-eighth session Bangkok, 4–9 September 2018. Paris Agreement work programme. Draft conclusions proposed by the Chair. 09/09/2018. FCCC/SBI/2018/L.19
57. **Ad Hoc Working Group on the Paris Agreement**. Report of the Ad Hoc Working Group on the Paris Agreement on the sixth part of its first session, held in Bangkok from 4 to 9 September 2018. 10/10/2018. FCCC/APA/2018/4
58. **Ad Hoc Working Group on the Paris Agreement**, Seventh part of the first session Katowice, 2–8 December 2018. Draft report of the Ad Hoc Working Group on the Paris Agreement on the seventh part of its first session. Rapporteur: Ms. Anna Serzysko. 03/12/2018. FCCC/APA/2018/L.5

59. **Subsidiary Body for Implementation**, Forty-ninth session Katowice, 2–8 December 2018. Paris Agreement work programme. Draft conclusions proposed by the Chair. 08/12/2018. FCCC/SBI/2018/L.28
60. **Subsidiary Body for Scientific and Technological Advice**, Forty-ninth session Katowice, 2–8 December 2018. Paris Agreement work programme Draft conclusions proposed by the Chair. 08/12/2018. FCCC/SBSTA/2018/L.20
61. **Ad Hoc Working Group on the Paris Agreement**, Seventh part of the first session Katowice, 2–8 December 2018. Paris Agreement work programme. Draft conclusions proposed by the Co-Chairs. 08/12/2018. FCCC/APA/2018/L.6
62. **Subsidiary Body for Implementation**, Forty-ninth session Katowice, 2–8 December 2018. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. Draft conclusions proposed by the Chair. Recommendation of the Subsidiary Body for Implementation. 08/12/2018. FCCC/SBI/2018/L.27
63. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third part of the first session Katowice, 2–14 December 2018. Draft report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session. Rapporteur: Mr. Georg Boersting. 11/12/2018. FCCC/PA/CMA/2018/L.1
64. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/108. FCCC/CP/2018/L.7
65. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.5
66. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.3
67. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.9
68. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.8
69. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.11

70. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.17
71. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third part of the first session Katowice, 2–14 December 2018. Matters relating to the implementation of the Paris Agreement. Proposal by the President. Draft decision -/CMA.1. 14/12/2018. FCCC/PA/CMA/2018/L.3
72. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.22
73. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.21
74. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.15
75. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.14
76. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.28
77. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third part of the first session Katowice, 2–14 December 2018. Matters relating to the implementation of the Paris Agreement. Proposal by the President Draft decision -/CMA.1. 14/12/2018. FCCC/PA/CMA/2018/L.4
78. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.16
79. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Proposal by the President. Draft decision -/CP.24. 14/12/2018. FCCC/CP/2018/L.27
80. **Conference of the Parties**, Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.

- Proposal by the President. Recommendation of the Conference of the Parties. 14/12/2018. United Nations. FCCC/CP/2018/L.23
81. **Ad Hoc Working Group on the Paris Agreement.** Report of the Ad Hoc Working Group on the Paris Agreement on the seventh part of its first session, held in Katowice from 2 to 8 December 2018. 08/03/2019. FCCC/APA/2018/6
 82. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.** Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018. 19/03/2019. FCCC/PA/CMA/2018/3
 83. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.** Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. 19/03/2019. FCCC/PA/CMA/2018/3/Add.1
 84. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.** Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. 19/03/2019. FCCC/PA/CMA/2018/3/Add.2
 85. **Conference of the Parties,** Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Revised proposal by the President Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.7/Rev.1
 86. **Conference of the Parties,** Twenty-fourth session Katowice, 2–14 December 2018. Preparations for the implementation of the Paris Agreement and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Revised proposal by the President Recommendation of the Conference of the Parties. 14/12/2018. FCCC/CP/2018/L.23/Rev.1
 87. **Subsidiary Body for Scientific and Technological Advice,** Fiftieth session Bonn, 17–27 June 2019. Cooperative activities with United Nations entities and other intergovernmental organizations that contribute to the work under the Convention, the Kyoto Protocol and the Paris Agreement. Note by the secretariat. 11/06/2019. FCCC/SBSTA/2019/INF.2
 88. **Subsidiary Body for Scientific and Technological Advice,** Fiftieth session Bonn, 17–27 June 2019. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. Draft conclusions proposed by the Chair. 25/06/2019. FCCC/SBI/2019/L.10
 89. **Subsidiary Body for Scientific and Technological Advice,** Fiftieth session Bonn, 17–27 June 2019. Methodological issues under the Paris Agreement. Draft conclusions proposed by the Chair. 27/06/2019. FCCC/SBSTA/2019/L.3
 90. **Subsidiary Body for Scientific and Technological Advice,** Fiftieth session Bonn, 17–27 June 2019. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 27/06/2019. FCCC/SBSTA/2019/L.10
 91. **Subsidiary Body for Scientific and Technological Advice,** Fiftieth session Bonn, 17–27 June 2019 Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the

- Paris Agreement. Draft conclusions proposed by the Chair. 27/06/2019.
FCCC/SBSTA/2019/L.9
92. **Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation**, Fiftieth session Bonn, 17–27 June 2019. Draft conclusions proposed by the Chairs. 27/06/2019. FCCC/SB/2019/L.4
 93. **Subsidiary Body for Scientific and Technological Advice**, Fiftieth session Bonn, 17–27 June 2019. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Draft conclusions proposed by the Chair. 27/06/2019. FCCC/SBSTA/2019/L.11
 94. **Subsidiary Body for Scientific and Technological Advice**, Fifty-first sessionn Madrid, 2–9 December 2019. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 09/12/2019. FCCC/SBSTA/2019/L.17
 95. **Subsidiary Body for Scientific and Technological Advice**, Fifty-first sessionn Madrid, 2–9 December 2019. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Draft conclusions proposed by the Chair. 09/12/2019. FCCC/SBSTA/2019/L.18
 96. **Subsidiary Body for Scientific and Technological Advice**, Fifty-first sessionn Madrid, 2–9 December 2019. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Draft conclusions proposed by the Chair. 09/12/2019. FCCC/SBSTA/2019/L.16
 97. **Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation**, Fifty-first session Madrid, 2–9 December 2019. Matters relating to the forum on the impact of the implementation of response measures serving the Convention, the Kyoto Protocol and the Paris Agreement. Draft conclusions proposed by the Chairs. FCCC/SB/2019/L.10
 98. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Second session Madrid, 2–13 December 2019. Draft report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its second session. Rapporteur: Muhammed Irfan Tariq. 10/12/2019. FCCC/PA/CMA/2019/L.1
 99. **Subsidiary Body for Scientific and Technological Advice**, Fifty-first session Madrid, 2–9 December 2019 Methodological issues under the Paris Agreement. Draft conclusions proposed by the Chair. 09/12/2018. FCCC/SBSTA/2019/L.19
 100. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Second session Madrid, 2–13 December 2019. Matters relating to Article 6 of the Paris Agreement. Proposal by the President. Draft decision -/CMA.2. 15/12/2019. FCCC/PA/CMA/2019/L.9
 101. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its second session, held in Madrid from 2 to 15 December 2019. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its second session. 16/03/2020. FCCC/PA/CMA/2019/6/Add.1
 102. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its second session, held in Madrid from 2 to 15 December 2019. Part one: Proceedings. 16/03/2020. FCCC/PA/CMA/2019/6
 103. **Subsidiary Body for Implementation**, Fifty-second session Bonn, 4–12 October 2020. Options and ways for future work to enhance the implementation of Article 6 of the

- Convention and Article 12 of the Paris Agreement, following the review of the Doha work programme. Note by the secretariat. 02/06/2020. FCCC/SBI/2020/INF.4
104. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. Annual report of the Paris Agreement Implementation and Compliance Committee to the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. 01/12/2020. FCCC/PA/CMA/2020/1
 105. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretaria. Addendum. Additional information on domestic mitigation measures. 26/02/2021. FCCC/PA/CMA/2021/2/Add.2
 106. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Addendum. Additional information on adaptation component of nationally determined contributions. 26/02/2021. FCCC/PA/CMA/2021/2/Add.1
 107. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat Addendum. Additional information on the contribution of nationally determined contributions towards achieving the objective of the Convention as set out in its Article 2, and towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement. 26/02/2021. FCCC/PA/CMA/2021/2/Add.3
 108. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. 26/02/2021. FCCC/PA/CMA/2021/2
 109. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 1–12 November 2021. First biennial communications in accordance with Article 9, paragraph 5, of the Paris Agreement. Compilation and synthesis by the secretariat. 01/06/2021. FCCC/PA/CMA/2021/3
 110. **Economic Commission for Europe**, Conference of European Statisticians Sixty-ninth plenary session Geneva, 23-25 June 2021. Reporting on climate data and information under the Paris Agreement: A potential opportunity for national statistical offices to get involved. Prepared by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. 02/06/2021. ECE/CES/2021/27
 111. **Economic Commission for Europe**, Committee on Sustainable Energy. Thirtieth session Geneva 22-24 September 2021. United Nations Economic Commission for Europe member States delivering the 2030 Agenda for Sustainable Development and the Paris Agreement - A Commitment Trifecta. Prepared by the secretariat. 08/07/2021. ECE/ENERGY/2021/17
 112. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Annual report of the Paris Agreement Implementation and Compliance Committee to the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement. Report by the secretariat*. 10/09/2021. FCCC/PA/CMA/2021/6
 113. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Biennial in-session workshop on information to be provided by Parties in accordance with Article 9,

- paragraph 5, of the Paris Agreement. Summary report by the secretariat*. 10/09/2021. FCCC/PA/CMA/2021/5
114. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat*. 17/09/2021. FCCC/PA/CMA/2021/8
 115. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Addendum. Additional information from adaptation components of nationally determined contributions. 21/09/2021. FCCC/PA/CMA/2021/8/Add.1
 116. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Addendum. Additional information on domestic mitigation measures. 21/09/2021. FCCC/PA/CMA/2021/8/Add.2
 117. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Addendum. Additional information on the contribution of nationally determined contributions towards achieving the objective of the Convention as set out in its Article 2, and towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement. 22/09/2021. FCCC/PA/CMA/2021/8/Add.3
 118. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Nationally determined contributions under the Paris Agreement. Revised synthesis report by the secretariat. 25/10/2021. FCCC/PA/CMA/2021/8/Rev.1
 119. **Conference of the Parties**, Twenty-sixth session Glasgow, 31 October to 12 November 2021 & **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Report of the Standing Committee on Finance. Addendum. Executive summary of the first report on the determination of the needs of developing country Parties related to implementing the Convention and the Paris Agreement. 26/10/2021. FCCC/CP/2021/10/Add.2–FCCC/PA/CMA/2021/7/Add.2
 120. **Subsidiary Body for Implementation**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. Draft conclusions proposed by the Chair. 03/11/2021. FCCC/SBI/2021/L.3
 121. **Subsidiary Body for Scientific and Technological Advice**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Sources of input for the global stocktake under the Paris Agreement. Draft conclusions proposed by the Chair. 06/11/2021. FCCC/SBSTA/2021/L.4
 122. **Subsidiary Body for Scientific and Technological Advice**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Methodological issues under the Paris Agreement. Draft conclusions proposed by the Chair. 06/11/2021. FCCC/SBSTA/2021/L.9
 123. **Subsidiary Body for Scientific and Technological Advice**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Draft conclusions proposed by the Chair. 06/11/2021. FCCC/SBSTA/2021/L.7

124. **Subsidiary Body for Scientific and Technological Advice**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Draft conclusions proposed by the Chair. 06/11/2021. FCCC/SBSTA/2021/L.8
125. **Subsidiary Body for Scientific and Technological Advice**, Fifty-second to fifty-fifth session Glasgow, 31 October to 6 November 2021. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Draft conclusions proposed by the Chair. 06/11/2021. FCCC/SBSTA/2021/L.6
126. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Report of the committee to facilitate implementation and promote compliance referred to in Article 15, paragraph 2, of the Paris Agreement for 2020 and 2021. Proposal by the President. Draft decision -/CMA.3. Rules of procedure of the committee to facilitate implementation and promote compliance referred to in Article 15, paragraph 2, of the Paris Agreement. 08/11/2021. FCCC/PA/CMA/2021/L.1
127. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Draft report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session. Rapporteur: Amjad Abdulla. 11/11/2021. FCCC/PA/CMA/2021/L.3
128. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Modalities and procedures for the operation and use of a public registry referred to in Article 7, paragraph 12, of the Paris Agreement. Proposal by the President Draft decision -/CMA.3. Modalities and procedures for the operation and use of a public registry referred to in Article 7, paragraph 12, of the Paris Agreement. 11/11/2021. FCCC/PA/CMA/2021/L.5
129. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Modalities and procedures for the operation and use of a public registry referred to in Article 4, paragraph 12, of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Modalities and procedures for the operation and use of a public registry referred to in Article 4, paragraph 12, of the Paris Agreement. 11/11/2021. FCCC/PA/CMA/2021/L.4
130. **Conference of the Parties**, Twenty-sixth session Glasgow, 31 October to 12 November 2021. Matters relating to finance. Proposal by the President Draft decision -/CP.26. Compilation and synthesis of, and summary report on the in-session workshop on, biennial communications of information related to Article 9, paragraph 5, of the Paris Agreement. 13/11/2021. FCCC/CP/2021/L.7
131. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Matters relating to finance, Proposal by the President Draft decision -/CMA.3. Compilation and synthesis of, and summary report on the in-session workshop on, biennial communications of information related to Article 9, paragraph 5, of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.9
132. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.12

133. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Methodological issues relating to the enhanced transparency framework for action and support referred to in Article 13 of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Guidance for operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.21
134. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Matters relating to Article 6 of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.20
135. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Matters relating to Article 6 of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.19
136. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**, Third session Glasgow, 31 October to 12 November 2021. Matters relating to Article 6 of the Paris Agreement. Proposal by the President. Draft decision -/CMA.3. Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. 13/11/2021. FCCC/PA/CMA/2021/L.1
137. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021. Part one: Proceedings. 08/03/2022. FCCC/PA/CMA/2021/10
138. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its third session. 08/03/2022. FCCC/PA/CMA/2021/10/Add.2
139. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its third session. 08/03/2022. FCCC/PA/CMA/2021/10/Add.3
140. **Conference of the Parties serving as the meeting of the Parties to the Paris Agreement**. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021. Addendum. Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its third session. 08/03/2022. FCCC/PA/CMA/2021/10/Add.1